

PC-based Automation



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PC-based Automation

SIMATIC Industrial PC

Industrial PC

Overview

Industrial PC

Our reliable and innovative industrial PCs are the optimal PC hardware platform for PC-based Automation from Siemens.

Rack PC

Rack PCs are flexible, fault-tolerant industrial PC systems for powerful yet compact applications using 19" technology.

Box PC

SIMATIC Box PCs provide mechanical engineers, plant engineers and control cabinet makers with particularly rugged industrial PC systems for use in powerful yet compact applications.

Panel PC

SIMATIC Panel PCs are suitable thanks to their high industrial compatibility for use in control cabinets, consoles and control panels, as well as directly on the machine. Typical areas of application can be found in both factory and process automation.

Industrial monitors and Thin Clients

Flexible operator input concepts can be implemented via Flat Panel monitors or Thin Clients. These are industry-standard LCD monitors with high-contrast displays that can be located up to 30 m away from the PC, or low-cost, rugged Thin Clients that offer HMI functionality over the network in larger plants spread over wide areas.

Benefits

Ruggedness and industrial compatibility for 24-hour continuous use in an industrial environment

- Compact, space-saving enclosure (Box PC and Panel PC)
- Suitable for installing in space-saving control cabinets, only 500 mm deep (Rack PC)
- All-metal enclosure with a high degree of electromagnetic compatibility for use in industrial areas and in domestic, business and commercial environments and for a degree of protection up to IP65/NEMA 4
- The mounting position of the devices can be varied by means of wall, portrait or control cabinet mounting (Box PC), rail mounting (SIMATIC IPC427C or IPC227D only) and horizontal or vertical mounting position in the 19" cabinet or with appropriate kit as an industrial tower PC (Rack PC).
- High resistance to shock/vibration thanks to special hard disk mountings, locked connectors, and card retainers
- Maintenance-free, due to design without hard disk and fans using SIMATIC CompactFlash Cards or solid-state drive (SIMATIC IPC427C and HMI IPC477C and SIMATIC IPC227D and SIMATIC HMI IPC277D)
- Service-friendly, modular device design for replacement of defective components
- Integrated industrial power supplies (according to NAMUR) for the safe power supply protected against system disturbances
- Attractive product design with dirt-repelling fronts and coated surfaces
- Dust protection thanks to a pressurized cooling concept, front-mounted fans and dust filters (Rack PC)

Reduction in standstill times thanks to high system availability

- Assured 24-hour operation as a result of high-quality parts and components (high MTBF, speed-controlled fans)
- Efficient self-diagnostics for avoidance of potential failures (front status LEDs, SIMATIC IPC DiagMonitor diagnostics software for condition monitoring, local and remote)
- Minimum downtimes thanks to mirror disk systems and preventive data backup with SIMATIC IPC Image Creator and SIMATIC IPC BIOS Manager
- Restore CD/DVD for restoration of the delivery state
- Installed and activated Microsoft operating systems for time savings during installation

Benefits (continued)

High degree of investment security for long-term automation concepts

- Availability of 3 to 5 years (at least 1.5 years for Rack PC IPC547D)
- 5-year repair and spare parts service (3 years for Rack PC IPC547D) after expiration of the active marketing period
- Long-term concepts are implementable and reduce future engineering costs
- System-tested SIMATIC software (WinCC, WinAC, etc.) and connection options for distributed I/Os via an optional PROFIBUS or PROFINET interface on board link the industrial PCs with Totally Integrated Automation
- Certificates for worldwide marketing (cULus), the CE mark for use in industrial areas and in domestic, business and commercial environments
- Compatibility in hardware and software thanks to, for example, unchanged mechanical dimensions or the use of existing user software on all devices of the same generation
- Worldwide service and support (e. g. 24-hour SIMATIC Hotline)

Application

SIMATIC IPCs are the ideal platform for PC-based Automation and are used both in the production and process industry, as well as in industry-oriented sectors such as traffic engineering, building management, warehouse systems.

Typical applications include:

- Instrumentation and control tasks (e. g. with SIMATIC WinAC, also failsafe)
- Operator control and monitoring (e. g. with SIMATIC WinCC flexible, or WinCC)
- Data acquisition
- Image processing
- Communication, gateways

More information

Notes on the scope of delivery

Microsoft operating systems are pre-installed in an OEM version.

The scope of supply also includes:

- Recovery CD for simple reinstallation of the operating system (not for Windows Embedded)
- Restore DVD (hard disk image) for fast and very easy restoration of the PC delivery status
- SIMATIC IPC documentation and driver CD
- Getting Started PC instructions in English/German/French/Spanish/Italian/Chinese
- Electronic manual on CD-ROM in English/German

Further information can be found on the Internet at:

www.siemens.com/simatic-ipc

Information material for ordering and for downloading is available on the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

Rack PC

Rack PC

Overview



Rack PCs are flexible, fault-tolerant industrial PC systems for powerful yet compact applications using 19" technology.

Three device classes are available for various requirements:

SIMATIC IPC547 – maximum performance at an attractive price

SIMATIC IPC647 – maximum compactness combined with maximum industrial functionality

SIMATIC IPC847 – maximum expandability and industrial functionality

Shared industrial functionality

- Maximum system performance for complex automation tasks and computationally intensive PC tasks in the industrial environment through use of Intel Core processors
- Designed for 24-hour continuous operation
- Monitoring and diagnostic functions (e. g. temperature, fan, watchdog)
- RAID1 configuration (mirrored drives), optionally in "hot swap" frames
- Compact dimensions for installation in control cabinets, only 500 mm deep
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Lockable front panel or front door
- Service-friendly equipment design due to prepared telescopic rail mounting
- Universal implementation as an industrial workstation or server
- Operating system preinstalled and activated for fast startup
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- High flexibility and expandability of components
- PCI and PCI-Express expansion slots
- Independent industrial product design

Overview (continued)

SIMATIC IPC547D and SIMATIC IPC547C – maximum performance at an attractive price

- Maximum processor performance in maximum configuration without loss of power (throttling) at ambient temperatures of up to 40 °C
- Optional RAID5 configuration (striping with parity) in "hot swap" frames
- Redundant AC power supply, optional
- Low noise output thanks to controlled fans
- Status and alarm LEDs at the front for signaling critical system states
- Availability for at least 1.5 years
- Guaranteed spare parts availability for at least 3 years

NEW with SIMATIC IPC547D:

- Intel Core i processors 2nd generation
- Hard disks with capacities up to 1 TB for large volumes of data
- Solid-State Drive (SSD), SLC optional

SIMATIC IPC647C and SIMATIC Rack PC 647B – maximum compactness combined with maximum industrial functionality

- Maximum compactness due to 3 free PCI/PCI Express slots for installing long expansion cards and integrated interfaces for communication, e.g. integrated PROFIBUS/MPI or PROFINET interface
- High thermal stability up to 50 °C even at maximum processor performance
- High vibration/shock resistance thanks to special hard disk holders
- Service-friendly device design due, for example, to the replacement of filters/fans from the front without the need for tools, or opening of the enclosure with just one screw.
- Front LED concept for efficient self-diagnostics, e.g. monitoring of the hard disks in RAID1 configurators, fans or the status display for Ethernet, PROFINET and PROFIBUS.
- Integrated PROFIBUS DP/MPI or PROFINET interface (optional)
- High continuity of the components/design
- Motherboard developed and manufactured by Siemens
- Availability for 3 to 5 years
- Guaranteed spare parts availability for at least 5 years

NEW with SIMATIC IPC647C:

- Intel Core i processors
- Hard disks with capacities up to 500 GB for large data volumes
- ECC memory, optional
- Solid-State Drive (SSD), SLC optional
- Redundant AC power supply, optional (available soon)
- Enhanced server functionality (available soon): Hardware RAID PCIe x8 controller, SAS hard disks in hot-swap frame with capacities up to 1 TB for large volumes of data

SIMATIC IPC847C – maximum expandability and industrial functionality

- Maximum expandability due to 11 free PCI/PCI Express slots for installing long expansion cards and integrated interfaces for communication, e. g. integrated PROFIBUS/MPI or PROFINET interface
- High thermal stability up to 50 °C even at maximum processor performance
- High vibration/shock resistance thanks to special hard disk holders
- Intel Core i processors
- Optional RAID5 configuration (striping with parity) in "hot swap" frames
- Enhanced server functionality (available soon): Hardware RAID PCIe x8 controller, SAS hard disks in hot-swap frame with capacities up to 1 TB for large data volumes
- Redundant AC power supply, optional
- Hard disks with capacities up to 500 GB for large data volumes
- ECC memory, optional
- Solid-State Drive (SSD), SLC-optional
- Service-friendly device design due to, for example, the replacement of filters/fans from the front without the need for tools, or opening of the enclosure with just one screw.
- Front LED concept for efficient self-diagnostics, e. g. monitoring of the hard disks in RAID1 configurators, fans or the status display for Ethernet, PROFINET and PROFIBUS.
- Integrated PROFIBUS DP/MPI or PROFINET interface (optional)
- High continuity of the components/design
- Motherboard developed and manufactured by Siemens
- 3 to 5 years availability
- Guaranteed spare parts availability for at least 5 years

PC-based Automation

Rack PC

Rack PC

Overview (continued)

| | SIMATIC IPC547D | SIMATIC IPC647C | SIMATIC IPC847C |
|--|---|--|--|
| Design | | | |
| 19" rack | 4 HU | 2 HU | 4 HU |
| Prepared for telescopic rails | • | • | • |
| Horizontal/vertical installation | • / • | • / - | • / • |
| 19" mounting bracket can be removed from outside | • | • | • |
| Tower Kit (optional) | • | - | • |
| General features | | | |
| Processor | <ul style="list-style-type: none"> Intel Core i7-2600 (4C/8T, 3.40 GHz) Intel Core i5-2400 (4C/4T, 3.10 GHz) Intel Pentium Dual Core G850 (2C/2T, 2.90 GHz) | <ul style="list-style-type: none"> Intel Core i7-610E (2C/4T, 2.53 GHz) Intel Core i5-520E (2C/4T, 2.4 GHz) Intel Core i3-330E (2C/4T, 2.13 GHz) | <ul style="list-style-type: none"> Intel Core i7-610E (2C/4T, 2.53 GHz) Intel Core i5-520E (2C/4T, 2.4 GHz) Intel Core i3-330E (2C/4T, 2.13 GHz) |
| Main memory | • 1 GB, expandable up to 32 GB | 1 GB, expandable up to 8 GB, optional ECC | 1 GB, expandable up to 8 GB, optional ECC |
| Slots for expansions (all long) | <ul style="list-style-type: none"> 4 x PCI 1 x PCI-Express x16 1 x PCI-Express x16 (4 lanes) 1 x PCI-Express x8 (1 lane) | <ul style="list-style-type: none"> 2 x PCI 1 x PCI-Express x16 or <ul style="list-style-type: none"> 1 x PCI 1 x PCI-Express x8 (4-lane) 1 x PCI-Express x16 | <ul style="list-style-type: none"> 7 x PCI 1 x PCI-Express x16 3 x PCI-Express x4 or <ul style="list-style-type: none"> 7 x PCI 1 x PCI-Express x16 |
| Onboard graphics | <ul style="list-style-type: none"> 1 x DisplayPort 1 x DVI-I 1 x VGA (via adapter cable, optional) | <ul style="list-style-type: none"> 1 x DVI-I 1 x VGA (via adapter cable, optional) | <ul style="list-style-type: none"> 1 x DVI-I 1 x VGA (via adapter cable, optional) |
| Graphic card (optional) | • PCI-Express x16 (2 x VGA or 2 x DVI-D) | • PCI-Express x16 (2 x VGA or 2 x DVI-D) | • PCI-Express x 16 (2 x VGA or 2 x DVI-D) |
| Operating system | | | |
| Without | • | • | • |
| Preinstalled and activated, supplied on restore CD | <ul style="list-style-type: none"> Windows XP Professional multi language (32-bit) Windows 7 Ultimate multi language (32/64-bit) Windows Server 2008 incl. 5 Client multi language (32-bit) Windows Server 2008 R2 incl. 5 Client multi language (64-bit) | <ul style="list-style-type: none"> Windows XP Professional multi language (32-bit) Windows 7 Ultimate multi language (32/64-bit ³⁾) Windows Server 2008 incl. 5 Client multi language Windows Server 2008 R2 incl. 5 Client multi language (64-bit ³⁾) | <ul style="list-style-type: none"> Windows XP Professional multi language (32-bit) Windows 7 Ultimate multi language (32/64-bit ³⁾) Windows Server 2008 incl. 5 Client multi language Windows Server 2008 R2 incl. 5 Client multi language (64-bit ³⁾) |
| Order separately | - | RMOS3 V3.50 | RMOS3 V3.50 |
| Project-specific on request | <ul style="list-style-type: none"> Linux ¹⁾ Other | <ul style="list-style-type: none"> Linux ¹⁾ Other | <ul style="list-style-type: none"> Linux ¹⁾ Other |
| Interfaces | | | |
| PROFIBUS/MPI | - | 12 Mbit/s (CP 5611-compatible), optional | 12 Mbit/s (CP 5611-compatible), optional |
| PROFINET | - | 3 x RJ45 (CP 1616-compatible), optional | 3 x RJ45 (CP 1616-compatible), optional |
| Ethernet | 2 x 10/100/1000 Mbit/s | 2 x 10/100/1000 Mbit/s | 2 x 10/100/1000 Mbit/s |
| USB 2.0 (high current) | 11 x, 2 of which at front, 1 x internal | 7 x, 2 of which at front, 1 x internal | 7 x, 2 of which at front, 1 x internal |
| VGA | • optional | • optional | • optional |
| DVI | • | • | • |
| DisplayPort | • | - | - |

Overview (continued)

| | SIMATIC IPC547D | SIMATIC IPC647C | SIMATIC IPC847C |
|--|--|--|--|
| Drives | | | |
| SATA hard disks | | | |
| • Internal installation | • | - | • |
| • Installation at the front in the swap frame | • | • | • |
| • Internal installation in drive holder (shock and vibration-damped) | - | • | • |
| RAID1/5 configuration | • / • | • / - | • / • |
| Solid-State Drive (SSD), SLC | • | • | • |
| Hard disks SAS | | | |
| Installation at the front in the swap frame | - | • | • |
| RAID1/5 configuration with HW RAID controller PCI x 8 | - / - | • / - | • / • |
| Optical drives | | | |
| DVD-ROM | • | - | • |
| DVD±R/RW | • | • | • |
| AC power supply | • | • | • |
| Redundant (optional) | • | • ³⁾ | • |
| Ambient conditions ²⁾ | | | |
| Vibration/shock load during operation | 0.2 g / 1 g | 0.5 g / 5 g | 0.5 g / 5 g |
| Ambient temperature during operation | With maximum configuration: 5 ... 40 °C | With maximum configuration: 5 ... 50 °C | With maximum configuration: 5 ... 50 °C |

• Available

- Not available

¹⁾ Suitable for specific Linux versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for Linux", see www.siemens.com/simatic-pc/suited-for-linux (Linux is a trademark of Linus Torvald)

²⁾ Restrictions when using DVD±R/RW and hard disks in swap frame.

³⁾ Available soon

| | SIMATIC IPC547C | SIMATIC Rack PC 647B |
|--|--|--|
| Design | | |
| 19" rack | 4 HU | 2 HU |
| Prepared for telescopic rails | • | • |
| Horizontal/vertical installation | • / • | • / - |
| 19" mounting bracket can be removed from outside | • | • |
| Tower Kit (optional) | • | - |
| General features | | |
| Processor | <ul style="list-style-type: none"> • Intel Core2 Quad Q9400 (4C/4T, 2.66 GHz) • Intel Core2 Duo E8400 (2C/2T, 3.00 GHz) • Intel Pentium Dual Core E5300 (2C/2T, 2.60 GHz) | <ul style="list-style-type: none"> • Intel Core2 Duo T7400 (2C/2T, 2.16 GHz) • Intel Core2 Duo T5500 (2C/2T, 1.66 GHz) • Intel Celeron M 440 (1C/1T, 1.86 GHz) |
| Main memory | • 1 GB, expandable up to 16 GB | 512 MB, expandable to 4 GB |
| Slots for expansions (all long) | <ul style="list-style-type: none"> • 4 x PCI • 1 x PCI-Express x16 • 1 x PCI-Express x8 (1 Lane) • 1 x PCI-Express x1 | <ul style="list-style-type: none"> • 2 x PCI • 1 x PCI-Express x16 (PEG) or <ul style="list-style-type: none"> • 1 x PCI • 1 x PCI-Express x4 • 1 x PCI-Express x16 (PEG) |
| Onboard graphics | <ul style="list-style-type: none"> • 1 x VGA • 1 x DVI-D (via adapter card, optional) | <ul style="list-style-type: none"> • 1 x VGA • 1 x DVI-D (via adapter card, optional) |
| Graphic card (optional) | • PCI-Express x16 (2 x VGA or 2 x DVI-D) | PCI-Express x16 (2 x VGA or 2 x DVI) |

PC-based Automation

Rack PC

Rack PC

Overview (continued)

| | SIMATIC IPC547C | SIMATIC Rack PC 647B |
|--|---|--|
| Operating system | | |
| Without | • | • |
| Preinstalled/supplied on Restore CD | <ul style="list-style-type: none"> • Windows XP Professional multi language • Windows Vista Ultimate multi language • Windows 7 Ultimate multi language • Windows Server 2003 R2 incl. 5 Client multi language • Windows Server 2008 incl. 5 Client multi language | <ul style="list-style-type: none"> • Windows XP Professional multi language • Windows Vista Ultimate multi language • Windows Server 2003 incl. 5 Client multi language |
| Order separately | - | RMOS3 V3.50 |
| Project-specific on request | <ul style="list-style-type: none"> • Linux ¹⁾ • Other | <ul style="list-style-type: none"> • Linux ¹⁾ • Other |
| Interfaces | | |
| PROFIBUS/MPI | - | 12 Mbit/s (CP 5611-compatible), optional |
| PROFINET | - | 3 x RJ45 (CP 1616-compatible), optional |
| Ethernet | 2 x 10/100/1000 Mbit/s | 2 x 10/100/1000 Mbit/s |
| USB 2.0 (high current) | 9 x, 2 of which at front, 1 x internal) | 6 x, 2 of which at front |
| VGA / audio | 1 x / yes | 1 x / yes |
| DVI | • optional | • optional |
| Drives | | |
| SATA hard disks | | |
| • Internal installation | • | - |
| • Installation at the front in the swap frame | • | • |
| • Internal installation in drive holder (shock and vibration-damped) | - | • |
| RAID1/5 configuration | • / • | • / - |
| SSD (Solid-State Drive) | - | - |
| Optical drives | | |
| DVD-ROM | • | - |
| DVD±R/RW | • | • |
| Floppy | • | - |
| AC power supply | • | • |
| Redundant (optional) | • | - |
| Ambient conditions ²⁾ | | |
| Vibration/shock load during operation | 0.2 g / 1 g | 0.5 g / 5 g |
| Ambient temperature during operation | With maximum configuration: 5 ... 40 °C | With maximum configuration: 5 ... 50 °C |

• Available

- Not available

¹⁾ Suitable for specific Linux versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for Linux", see www.siemens.com/simatic-pc/suited-for-linux (Linux is a trademark of Linus Torvald)

²⁾ Restrictions when using DVD±R/RW and hard disks in swap frame.

Benefits

Rugged design

The overall design aims to achieve maximum safety for electromagnetic, vibration and shock loads. A well-designed pressurized ventilation concept ensures that even the maximum configuration can support high operating temperatures – and dust protection is included.

Service-friendly device design

Particular attention was paid to making servicing extremely simple. PC components (e.g. slots, memory modules) are readily accessible. Fan filters and fans can be replaced without tools even when unit is built-in.

Performance

Thanks to the use of the latest generation of Intel Pentium Dual Core to Core i 2nd processors, SIMATIC Rack PCs are flexibly scalable for your application.

System availability

SIMATIC racks can be ordered in custom configurations and are supplied ready for use. The design's high system availability can be further extended by means of additional data backup options (e.g. RAID1 or RAID5 system, redundant power supply, SIMATIC IPC Image & Partition Creator) and efficient self-diagnostics software (SIMATIC IPC DiagMonitor).

Integrated interfaces

Two onboard Gbit Ethernet interfaces are available for communication in the office world or at the control level. Integrated USB interfaces on the rear and front panels make connecting I/O devices from the PC world (e.g. external hard disks for mobile data backup, keyboard and/or mouse for operation) child's play. For advanced graphics applications, a spare PCI Express slot and a high-performance graphic card for the connection of two monitors are available.

Expandability

With up to 11 free PC slots, the SIMATIC Rack PC offers maximum leeway for expansions for installation in space-saving cabinets with a depth of just 500 mm.

Continuity

The SIMATIC Rack PC models can be ordered for a period of at least 1.5 years; spare parts remain obtainable for at least 3 years after active marketing is concluded. Long-term functionality of the hardware and software is also ensured. Long-term availability of PC components from the Intel embedded line ensures high investment protection.

More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Information material can be ordered or downloaded from the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

Rack PC

SIMATIC IPC547D

Overview



The SIMATIC IPC547D is a rugged industrial PC in 19" rack design (4 HU).

It offers:

- maximum performance
- attractive price
- Intel Core i technology

Benefits

Maximum system performance for complex automation and visualization tasks

- State-of-the-art PC technology (e. g. Intel Core i processors 2nd generation with Turbo Boost 2.0, hyper-threading and virtualization technology)
- Memory and graphics controller integrated into processor for extraordinary memory and graphic performance
- Maximum performance (e.g. Intel Q67 chipset, DDR3 1333 memory with support of dual channel technology)
- High data transfer rates (e.g. with serial ATA Solid-State Drive (SLC) with 50 GB, serial ATA hard disks up to 1 TB, Dual Gigabit Ethernet, PCI-Express 2.0 technology)

Reduction in downtimes through high system availability

- Secure 24-hour operation (high MTBF, variable-speed fan)
- Efficient self-diagnostics (front status LEDs for fan and temperature, SIMATIC IPC DiagMonitor)
- High degree of data security due to RAID1 (mirror disks system) or RAID5 (striping with parity)
- "Hot swap" removable frame in RAID configuration (replacement of hard disk during operation)
- Fast identification and replacement of the hard disk in the event of a fault thanks to RAID alarm LEDs
- Solid-State Drive (SSD) in Single Level Cell (SLC) architecture
- Redundant power supply with "hot swap" functionality (replacement of power supply module during operation)

High flexibility and user friendliness during commissioning, operation and service

- Preinstalled and activated operating system
- iAMT (Intel Active Management Technology) functionality for remote access to the IPC (remote maintenance)
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- Low noise output thanks to controlled fans
- Universal implementation as an industrial workstation or server
- RAID1/RAID5 onboard (a PCI slot is not occupied by the RAID Controller)
- Flexible applications in many different positions with telescopic rails or as tower industrial PC
- High degree of flexibility and expandability thanks to integrated interfaces and 7 slots (PCI and PCI-Express)

Benefits (continued)

High industrial compatibility and compactness for 24-hour use in an industrial environment

- Maximum processor performance (in maximum configuration) without loss of power (throttling) at ambient temperatures of up to 40 °C
- Distinct product design with fully-coated, dirt-resistant surfaces
- Metal enclosure with a high degree of electromagnetic compatibility for use in industrial areas and in domestic, business and commercial environments
- Suitable for installing in space-saving control cabinets only 500 mm deep
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Special hard disk holders and card retainers for protection against vibration and shock

Cost reductions through high investment security

- Availability of at least 1.5 years, guaranteed availability of spare parts for 3 years
- System-tested with SIMATIC components
- Certification for worldwide marketing (cULus)
- Support for legacy interfaces (PS/2, COM, LPT)
- Installation compatible for many device generations
- Worldwide service and support

Application

The SIMATIC IPC547D offers system integrators, cabinet designers, plant constructors and mechanical equipment manufacturers a 19" rack PC platform for high-performance applications and IT applications at the control and cell levels. It can be used for:

- process and visualization applications
- industrial high-end image processing
- quality assurance/monitoring tasks
- measuring and control tasks
- data acquisition/management

The SIMATIC PC547D has the CE mark for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can therefore also be used in building services automation or in facilities open to the public.

The SIMATIC Rack IPCs can be ordered in connection with WinCC flexible or WinCC as SIMATIC HMI packages at favorable prices.

Design

Basic design

- All-metal 19" enclosure for flush mounting (4 HU) for high electromagnetic compatibility and mechanical ruggedness; lacquered on the outside
- Prepared for mounting on telescopic rails
- Horizontal and vertical installation is possible. It can be used as an industrial tower PC with the appropriate kit
- Lockable front flap for authorized access to front swap media, operator controls (Reset, Power), USB interfaces, front fan and dust filter
- Card retainer for PC modules for safe transport (vibration and shock)
- Replacement of PC components (e.g. PC cards or HDD) with a single tool
- Replacement of the dust filter without tool
- Dust protection by means of overpressure ventilation using bearing seated front fan through filter
- 6 slots for installing drives
 - Front: 1 x 3.5"; 3 x 5.25" or 1 x 3.5"; 1 x 5.25"; 3 x HDD swap frames (low profile)
 - Internal: 2 x 3.5"
- Graphics onboard, Intel HD 2000 integrated in the processor, up to 2560 x 1600 pixels, 60 Hz, 32-bit colors
- Interfaces:
 - 2 x Intel LAN 10/100/1000 Mbit/s (RJ45, teaming-capable)
 - 11 x USB 2.0: 8 x rear, 2 x front, 1 x internal e.g. for software dongle with optional interlocking
 - 1 x DisplayPort, 1 x DVI-I, 1 x COM1, 2 x PS/2
 - Audio: Line In/Out, Mic
- 7 spare slots for expansions (all long):
 - 4 x PCI
 - 1 x PCI-Express x16
 - 1 x PCI-Express x16 (4 lanes)
 - 1 x PCI-Express x8 (1 lane)
- Power supply:
 - AC (100 ... 240 V, 50 ... 60 Hz)

PC-based Automation

Rack PC

SIMATIC IPC547D

Design (continued)

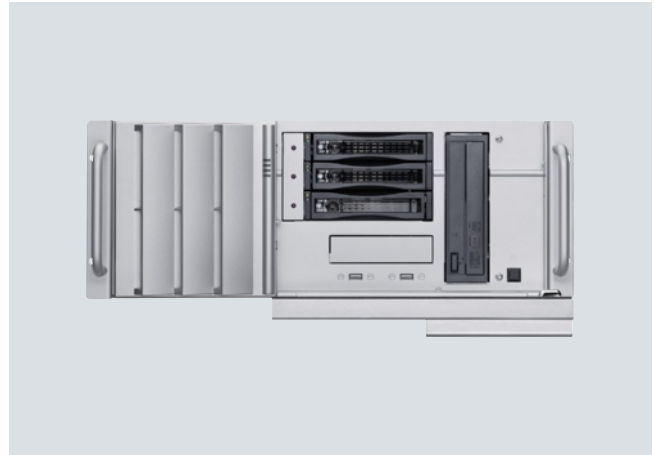
Design versions

- Processors:
 - Intel Core i7- 2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT 7.0)
 - Intel Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT 7.0)
 - Intel Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT)
- Main memory expansion of 1 GB up to 32 GB, DDR3 1333 SDRAM (configured as dual channel for the highest performance from 2 GB upwards)
 - Available memory configurations: 1 GB, 2 GB, 4 GB, 8 GB²⁾, 16 GB²⁾
- Graphic expansion:
 - PCI-Express graphic card x16 (Dual Head: 2 x VGA or 2 x DVI-D), 512 MB, up to 2048 x 1536 pixels, 85 Hz, 32-bit colors
 - Adapter cable (DVI-I to VGA) for the onboard graphic interface (1 x VGA) for connecting an analog monitor
- Drives:
 - Serial ATA 3.5" hard disks with NCQ technology
 - Solid-State Drive (SSD) Serial ATA 2.5" with SLC technology
 - Internal installation:
 - 1 x 500 GB
 - 1 x 1 TB
 - RAID1, 1 TB (2 x 1 TB, mirror disks), RAID controller onboard
 - 1 x 50 GB SSD (SLC)
 - Installed on front in low-profile swap frame (hot swapping in RAID configuration):
 - 1 x 500 GB
 - 2 x 500 GB
 - RAID1, 1 TB (2 x 1 TB, mirror disks), RAID controller onboard
 - RAID 5, 2 TB (3 x 1 TB, striping with parity), RAID controller onboard
 - 1 x 50 GB SSD (SLC)
 - RAID1, 1 TB (2 x 1 TB, mirror disks), RAID controller onboard
 - 1 x 50 GB SSD (SLC) (operating system, if configured, installed on SSD)
 - Optical drives: DVD-ROM or DVD±R/RW
- Interfaces:
 - 1 x COM2 and 1 x LPT on rear
- Power supply:
 - 100 ... 240 V AC, 50 ... 60 Hz redundant
- Country-specific power cable
- Preinstalled and activated operating systems
 - Windows XP Professional multi language (32-bit)
 - Windows 7 Ultimate multi language (32/64-bit)
 - Windows Server 2008 Standard Edition³⁾ incl. 5 Clients multi language (32-bit)
 - Windows Server 2008 R2 Standard Edition³⁾ incl. 5 Clients multi language (64-bit)

¹⁾ Further information can be found under "Expansion components".

²⁾ Can only be used on 64-bit operating systems

³⁾ Available soon



Front view of SIMATIC Rack IPC547D, with front door open



Rear view of SIMATIC IPC547D

A Tower Kit can be ordered as an accessory for converting the computer into an industrial tower PC.

See "Ordering data for accessories"



Function

Multi Core processor technology

Thanks to the use of two or four processor cores, the Multi Core processors are ideally suited to multi-thread application programs and multitasking. Several demanding applications – such as visualization applications with demanding graphics or programs executing extensive calculations – can be executed at the same time to enhance the response time of the system.

Thanks to energy-optimized Multi Core technology and outstanding energy-saving properties, the Core processors permit the execution of highly complex applications even at increased temperatures up to 40 °C without loss of performance.

The SIMATIC IPC547D is preconfigured for Multi Core technology with Intel Core processors and Microsoft operating systems, and offers higher performance and better multitasking in the industrial environment.

Multi-display technology

The multi-display architecture with its modern functions for desktop and application management supports working with several screens and therefore considerably enhances productivity. The SIMATIC IPC547D with an optional dual-head graphic card (PCI Express x16) is optimized for industrial multi-display environments. The following screen modes are supported: Native DualView, Span or Big Desktop, Clone.

Connection options: 2 x VGA or 2 x DVI-D

In addition, in the SIMATIC IPC547D you can use the two already existing onboard graphic interfaces in combination with the optional dual-head graphic card is used so that operation with up to four monitors is possible.

Monitoring functions

Integrated monitoring functions: Temperature inside enclosure, fan speed (CPU, power supply and front fan), program execution (watchdog), battery.

Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor):

- Operating hours counter
- Hard disk status, also for RAID configurations
- System mode
- Automatic logging of all alarms by means of a log file
- Capability for central monitoring of networked SIMATIC IPC

IAMT functionality (Intel Active Management Technology)

This feature allows remote access to the IPC (for service work) even if the operating system is shut down for diagnostics and troubleshooting:

- Controlled startup/shutdown of the IPC
- Access to BIOS settings and possible BIOS update
- Measures by means of remote access in the event of a fault, e.g. reboot
- Software updates from integrated ISO image

RAID controller onboard

RAID1 (mirroring) for automatic data mirroring on two SATA hard disks, or RAID5 (striping with parity) for optimized utilization of capacity with high degree of fault tolerance on three SATA hard disks.

Integration

Integrated interfaces:

- **Ethernet**
The integrated Ethernet interfaces (10/100/1000 Mbit/s; teaming-capable) can be used for IT communication and for exchanging data with PLCs such as SIMATIC S7 (using the "SOFTNET S7" software package).
- **Other interfaces**
As for connecting other I/O devices, 5 free slots are available for PC modules and 2 free PCI Express x16 slots for optional graphic expansions as well as 11 USB 2.0 and serial/parallel interfaces.

PC-based Automation

Rack PC

SIMATIC IPC547D

Technical specifications

| SIMATIC IPC547D | |
|---------------------------------------|---|
| General features | |
| Design | 19" rack, 4 HU, externally painted |
| Processor | <ul style="list-style-type: none"> Intel Core i7-2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) Intel Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) Intel Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT) |
| Chipset | <ul style="list-style-type: none"> Intel Q67 |
| Main memory | <ul style="list-style-type: none"> From 1 GB DDR3 1333 SDRAM Dual channel support 4 DIMM base Expandable up to 32 GB ¹⁾ |
| Spare slots for expansions (all long) | <ul style="list-style-type: none"> 4 x PCI 1 x PCI-Express x16 1 x PCI-Express x16 (4 lanes) 1 x PCI-Express x8 (1 lane) |
| Graphics | <ul style="list-style-type: none"> Onboard Intel HD 2000 graphics controller integrated in processor; Shared Video Memory up to 1.7 GB; up to 2560 x 1600 pixels at 60 Hz image refresh rate and 32-bit colors PCI Express graphic card (Dual Head: 2 x VGA or 2 x DVI-D) in the PCIe x16 slot; 512 MB; up to 2048 x 1536 pixels at 85 Hz image refresh rate and 32 bit colors (optional) |
| Operating system | <ul style="list-style-type: none"> Without Preinstalled and activated (supplied on restore DVD) Windows XP Professional MUI (32-bit) Windows 7 Ultimate MUI ⁴⁾ (32/64-bit) Windows Server 2008 incl. 5 Client MUI (32-bit) Windows Server 2008 R2 ⁴⁾ incl. 5 Client MUI (64-bit) <p>MUI: Multilanguage User Interface, 5 languages, English, French, German, Italian, Spanish; project-specific on request</p> <ul style="list-style-type: none"> Linux ³⁾ Other |
| Power supply | <ul style="list-style-type: none"> 100 ... 240 V AC, 50 ... 60 Hz, with bridging of short-term power failures: max. 20 ms at 0.85% rated voltage Redundant 100 ... 240 V AC, 50 ... 60 Hz |

| SIMATIC IPC547D | |
|--|---|
| Drives | |
| Hard disk, SATA 3.5" with NCQ technology | Installation in internal drive support |
| Solid State Drive, SATA 2.5" with SLC technology | <ul style="list-style-type: none"> 500 GB 1 TB RAID1 ²⁾ 1 TB (2 x 1 TB, mirror disks) 50 GB Solid State Drive <p>Mounted in front drive support in swap frame (low profile)</p> <ul style="list-style-type: none"> 500 GB 2 x 500 GB RAID1 ²⁾ 1 TB (2 x 1 TB, mirror disks), "Hot-Swap" RAID5 ²⁾ 2 TB (3 x 1 TB, striping with parity), "Hot-Swap" 50 GB Solid State Drive RAID1 ²⁾ 1 TB (2 x 1 TB, mirror disks), "Hot-Swap" + 50 GB Solid-State Drive (operating system installed on SSD if configured accordingly) |
| DVD-ROM, 5.25", SATA | <ul style="list-style-type: none"> 16 x (DVD media) 32 x (CD media) |
| DVD±R/RW, 5.25", SATA | <ul style="list-style-type: none"> 16 x 24 x 8 x (DVD media) 48 x 48 x 32 x (CD media) |
| Slots for drives | <p>Front:</p> <ul style="list-style-type: none"> 3 x 5.25" 1 x 3.5" <p>Internal:</p> <ul style="list-style-type: none"> 2 x 3.5" |
| Interfaces | |
| Ethernet | 2 x Intel 10/100/1000 Mbit/s (RJ45, teaming-capable) |
| USB 2.0 | <ul style="list-style-type: none"> 2 x front (high current) 8 x rear (high current) 1 x internal (high current), e. g. for USB dongle with optional interlocking |
| Serial | 9-pole COM1 (V.24); COM2 (V.24) (optional) |
| Parallel | LPT (optional) |
| VGA | Optional via adapter |
| DVI-I | 1 x |
| DisplayPort | 1 x |
| Keyboard | PS/2 |
| Mouse | PS/2 |
| Audio | 1 x Line In; 1 x Line Out; 1 x Micro |

Technical specifications (continued)

| SIMATIC IPC547D | |
|--------------------------------------|--|
| Monitoring functions | |
| Basic functionality | Message locally via DiagBase software |
| Temperature | Violation of permissible operating temperature range |
| Fan | Speed monitoring <ul style="list-style-type: none"> 1 x front fan 1 x CPU fan 1 x power supply fan |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software |
| Monitoring functions via the network | SIMATIC IPC DiagMonitor Version V4.3.x.x or higher (optional) Remote monitoring capability for: <ul style="list-style-type: none"> Watchdog Temperature Fan speed Battery monitoring Hard disk monitoring (SMART) System/Ethernet monitoring Communication: <ul style="list-style-type: none"> Ethernet interface (SNMP protocol) OPC for integration in SIMATIC software Client server architecture Structure of log files |
| Front LEDs | <ul style="list-style-type: none"> POWER (PC switched on) HARDDISK (access to hard disk) TEMP (temperature monitoring) FAN (fan monitoring) Additional RAID alarm LEDs behind the front flap |
| Ambient conditions | |
| Degree of protection | IP30 front, IP20 rear according to EN 60529 |
| Dust protection | With the front door closed according to IEC 60529 filter class G2 EN 779, 99% of particles > 0.5 mm are filtered |
| Protection class | Protection class I according to IEC 61140 |
| Vibration load during operation | IEC 60068-2-6, 10 cycles <ul style="list-style-type: none"> 20 ... 58 Hz: 0.015 mm 58 ... 200 Hz: 2 m/s² (approx. 0.2 g) Note: Restrictions in use of optical drives and HDD in swap frames |
| Shock load during operation | IEC 60068-2-27 <ul style="list-style-type: none"> Half-sine: 9.8 m/s², 20 ms (approx. 1 g), 100 shocks per axis Note: Restrictions in use of optical drives and HDD in swap frames |

| SIMATIC IPC547D | |
|--|--|
| Electromagnetic compatibility (EMC) | |
| Emitted interference | EN 61000-6-3; EN 61000-6-4; CISPR 22 / EN 55022 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3 |
| Immunity to conducted interference on the supply lines | <ul style="list-style-type: none"> ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, symm. surge) ± 2 kV (IEC 61000-4-5, asymm. surge) |
| Immunity to interference on signal lines | <ul style="list-style-type: none"> ± 2 kV (IEC 61000-4-4, burst, length > 30 m) ± 1 kV (IEC 61000-4-4, burst, length < 30 m) ± 2 kV (IEC 61000-4-5, surge, length > 30 m) |
| Immunity to static discharge | <ul style="list-style-type: none"> ± 4 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) |
| Immunity to high radio frequency interference | <ul style="list-style-type: none"> 1 V/m 80% AM; 2 ... 2.7 GHz (IEC 61000-4-3) 10 V/m 80% AM; 80 MHz ... 1 GHz and 1.4 GHz ... 2 GHz (IEC 61000-4-3); 10 V, 10 kHz ... 80 MHz (IEC 61000-4-6) |
| Immunity to magnetic fields | 100 A/m, 50/60 Hz (IEC 61000-4-8) |
| Ambient temperature during operation | 5 ... 40 °C Note: Limitations for operation of DVD±R/RW |
| Humidity during operation | 5 ... 80% at 25 °C (no condensation) |
| Approvals | |
| Safety regulations | IEC 60950-1; UL60950; CSA |
| Approvals | cULus 60950 |
| CE mark | For use in industrial areas as well as domestic, business and commercial environments: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-3:2007 Noise immunity: EN 61000-6-2:2005 |
| Dimensions and weights | |
| Mounting dimensions (W x H x D) in mm | 434 x 177 x 446 |
| Weight, approx. | 19 kg |

¹⁾ Memory information:

In order to use a memory expansion with more than 4 GB, a 64-bit operating system is required. In the case of configurations with 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems). In configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

²⁾ SATA RAID controller onboard in Intel Q67 chipset

³⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

⁴⁾ Available soon

Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the respective supplied SIMATIC IPC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

PC-based Automation

Rack PC

SIMATIC IPC547D

Ordering data

Order No.

Configuration ³⁾

SIMATIC IPC547D

D

6AG4 104 - 2

Interfaces:
 2 x GbIt LAN (RJ45),
 1 x DisplayPort,
 1 x SCI-I, 8 x USB at the rear,
 2 x USB at the front, 1 x USB
 internal, 1 x serial (COM1),
 2 x PS/2, audio, 7 slots (all long):
 4 x PCI, 1 x PCIe x16,
 1 x PCIe x16 (4 lanes),
 1 x PCIe x8 (1 lane);
 slots: 6 (3 x 5.25",
 1 x 3.5" externally accessible;
 2 x 3.5" internally accessible);
 temperature and fan monitoring,
 watchdog, card retainer

Processors

- Pentium Dual Core G850 (2C/2T,
2.90 GHz, 3 MB Last Level
Cache, EM64T, VT)
- Core i5-2400 (4C/4T, 3.10 GHz,
6 MB Last Level Cache, Turbo
Boost 2.0, EM64T, VT-x/-d, iAMT)
- Core i7-2600 (4C/8T, 3.40 GHz,
8 MB Last Level Cache, Turbo
Boost 2.0, EM64T, VT-x/-d, iAMT)

Drives:

- 500 GB HDD SATA; internal
- 1 TB HDD SATA; internal
- RAID1, 1 TB (2 x 1 TB HDD
SATA, mirror disks); internal ¹⁾
- Solid-State Drive SATA 50 GB
(SLC); internal
- 500 GB HDD SATA in swap
frame; front
- 2 x 500 GB HDD SATA in swap
frame; front
- RAID1, 1 TB (2 x 1 TB HDD
SATA, mirror disks) in swap
frame; for hot swapping; at the
front
- RAID5, 2 TB (3 x 1 TB HDD
SATA, striping with parity) in
swap frame; for hot swapping;
at the front
- Solid-State Drive SATA 50 GB
(SLC) in swap frame; at the front
- RAID1, 1 TB (2 x 1 TB HDD
SATA, mirror disks) in swap
frame; hot swapping; at the front
+ Solid-State Drive SATA 50 GB
(SLC) in swap frame; at the front
(operating system if available on
SSD)

Memory expansion:

- 1 GB DDR3 SDRAM (1 x 1 GB),
single channel
- 2 GB DDR3 SDRAM (2 x 1 GB),
dual channel
- 4 GB DDR3 SDRAM (2 x 2 GB),
dual channel
- 8 GB DDR3 SDRAM ²⁾
(2 x 4 GB), dual channel
- 16 GB DDR3 SDRAM ²⁾
(4 x 4 GB), dual channel

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D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ Not in combination with redundant power supply²⁾ Can only be used on 64-bit operating systems³⁾ For an up-to-date overview, see the SIMATIC PC online configurator
at: www.siemens.com/ipc-configurator⁴⁾ Available soon

Order No.

Configuration ³⁾

SIMATIC IPC547D

(continued)

D

6AG4 104 - 2

Swap media:

- DVD-ROM
- DVD±RW Drive

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Expansions (hardware)

- Without expansions (HW);
onboard graphics
- No expansions (HW); onboard
graphics; DVI-I VGA-compliant
adapter cable for onboard
graphics
- Serial (COM2) & parallel (LPT);
onboard graphics
- Serial (COM2) and parallel
(LPT); onboard graphics; DVI-I
VGA-compliant adapter cable
for onboard graphics
- Serial (COM2) & parallel (LPT) +
PCIe x16 graphic card (Dual
Head: 2 x VGA or 2 x DVI-D),
512 MB

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Operating systems

(preinstalled and activated)

- Windows XP Professional, MUI
(Eng, Ger, Fr, It, Sp), 32 bit, SP3
- Windows 7 Ultimate, MUI
(Eng, Ger, Fr, It, Sp), 32 bit,
SP1 supplied
- Windows 7 Ultimate, MUI
(Eng, Ger, Fr, It, Sp), 64 bit,
SP1 supplied
- Windows Server 2008 Standard
Edition incl. 5 clients, MUI ⁴⁾
(Eng, Ger, Fr, It, Sp), 32 bit, SP1,
SP2 supplied
- Windows Server 2008 R2 ⁴⁾
Standard Edition incl. 5 Clients,
MUI (Eng, Fr, Ger, It, Sp), 64-bit,
SP1 supplied
- Without operating system

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Expansions (software)

- SIMATIC IPC DiagMonitor V4.3
Software enclosed
- SIMATIC IPC Image & Partition
Creator V3.2 software included
- SIMATIC IPC DiagMonitor V4.3
+ Image & Partition Creator V3.2
software included
- Without expansions (software)

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B

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X

Power supply, with country- specific cable:

- 100/240V AC industrial power
supply; power cable for Europe
- 100/240 V AC industrial power
supply; USA power cable
- 100/240V AC industrial power
supply; power cable for China
- 2 x 100/240 V AC redundant
industrial power supply; without
power cable

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6

| Ordering data | Order No. | | Order No. |
|--|----------------------------|--|--|
| <i>Preferred versions (ex-stock)</i> | | <i>Accessories</i> | |
| SIMATIC IPC547D Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT); 500 GB HDD SATA internal; 1 GB DDR3 SDRAM (1 x 1 GB), single channel; DVD-ROM; interfaces: 2 x Gbit LAN (RJ45), 1 x serial, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe; without operating system | 6AG4 104-2AA01-0XX0 | Memory expansion • 1 GB DDR3 1333 SDRAM, DIMM (1 x 1 GB) • 2 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 1 GB) • 4 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 2 GB) • 8 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 4 GB) | 6ES7 648-2AJ40-0LA0 6ES7 648-2AJ50-0LB0 6ES7 648-2AJ60-0LB0 6ES7 648-2AJ70-0LB0 |
| Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT); RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame, for hot swapping, at the front; 4 GB DDR3 SDRAM (2 x 2 GB) dual channel; DVD±RW; interfaces: 2 x Gbit LAN (RJ45), 2 x serial, 1 x parallel, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, Audio; 100/240V industrial power supply, power cable for Europe; without operating system | 6AG4 104-2CP22-2XX0 | Tower Kit for converting the computer into an industrial tower PC | 6ES7 648-1AA00-0XC0 |
| Core i7-2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT); RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame, for hot swapping, at the front; 8 GB DDR3 SDRAM (2 x 4 GB), dual channel; DVD±RW; interfaces: 2 x Gbit LAN (RJ45), 2 x serial, 1 x parallel, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe, Windows 7 Ultimate MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 supplied | 6AG4 104-2DP32-2FX0 | Retainer for pin assignment of the internal USB port | 6ES7 648-1AA00-0XK0 |
| | | Power cable, straight, 3 m long • Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden • United Kingdom • Switzerland • USA • Italy • China | 6ES7 900-0AA00-0XA0 6ES7 900-0BA00-0XA0 6ES7 900-0CA00-0XA0 6ES7 900-0DA00-0XA0 6ES7 900-0EA00-0XA0 6ES7 900-0FA00-0XA0 |
| | | Rack unit for low-profile HDD swap frame for 3.5" hard disk, SATA (without hard disk) | 6ES7 648-0EG00-1BA0 |
| | | <i>Expansion components</i> | |
| | | SIMATIC PC keyboard German/international • USB port • incl. 4-way USB hub | 6ES7 648-0CB00-0YA0 6ES7 648-0CD00-0YA0 |
| | | SIMATIC PC USB mouse (optical, 3-button) for programming device and PC with adapter | 6ES7 790-0AA01-0XA0 |
| | | SIMATIC IPC USB FlashDrive 8 GB, USB 2.0, metal enclosure, bootable | 6ES7 648-0DC50-0AA0 |
| | | SIMATIC IPC Service USB FlashDrive 8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD | 6AV7 672-8JD01-0AA0 |
| | | Communication products | see expansion components |
| | | RMOS real-time operating system | see expansion components |

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

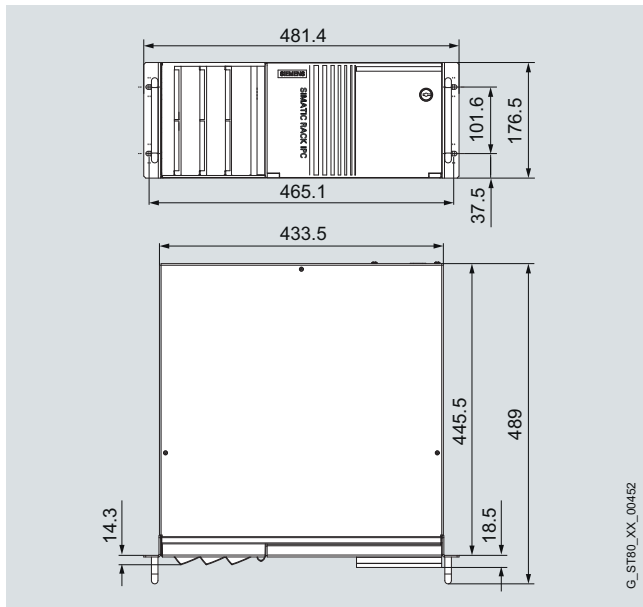
PC-based Automation

Rack PC

SIMATIC IPC547D

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Technical data of the telescopic rails

| | |
|--|-----------|
| Carrying capacity per pair, min. | 30 kg |
| Extension length when fully extended, min. | 470 mm |
| Rail thickness, max. | 9.7 mm |
| Fixing screws | M5 x 6 mm |

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

- Co. Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet
- Co. Schroff: Type 20110-072

Overview



The SIMATIC IPC547C is a rugged industrial PC in 19" rack design (4 HU).

It offers:

- maximum performance
- attractive price
- Intel Core2 Quad technology

Benefits

Maximum system performance for complex automation and visualization tasks

- State-of-the-art PC technology (e. g. Intel Core2 Quad / Duo and Extended Memory 64 (EM64T) processor technology)
- High-level performance (e. g. Intel Q45G Express Chipset, DDR2 800 memory supporting dual-channel technology)
- High data transfer rates (e. g. with Serial ATA hard disks up to 500 GB, Gigabit Ethernet, PCI-Express technology)

Minimized downtimes thanks to high system availability

- Secure 24-hour operation (high MTBF, variable-speed fan)
- Efficient self-diagnosis (front status LED for fan and temperature, SIMATIC PC DiagMonitor)
- High degree of data security due to RAID1 (mirror disks system) or RAID5 (striping with parity)
- Fast identification and replacement of the hard disk in the event of a fault
- "Hot swap" removable frame in RAID configuration (replacement of hard disk during operation)
- Redundant power supply

High flexibility and user friendliness during commissioning, operation and service

- Preinstalled and activated operating system
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- Low noise output thanks to controlled fan
- Universal implementation as an industrial workstation or server
- RAID1/RAID5 onboard (a PCI slot is not occupied by the RAID controller)
- Flexible applications in many different positions with telescopic rails or as tower industrial PC
- High degree of flexibility and expandability thanks to integrated interfaces and 7 slots (PCI and PCI Express)

Industrial compatibility and compactness for 24-hour use in an industrial environment

- Maximum processor performance (in maximum configuration) without loss of power (throttling) at ambient temperatures of up to 40 °C
- Specific product design with a new front panel design and flat, coated, dirt-repellent surfaces
- Metal enclosure with a high degree of electromagnetic compatibility for use in industrial areas and in domestic, business and commercial environments
- Suitable for installation in space-saving control cabinets only 500 mm deep
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Special hard disk holders and card retainers for protection against vibration and shock

Cost reductions through high investment security

- Minimum availability 1.5 years, guaranteed availability of spare parts for 3 years
- System-tested with SIMATIC components
- Certification for worldwide marketing (cULus)
- Support for legacy interfaces (PS/2, COM, LPT)
- Installation compatible for many device generations
- Worldwide service and support

PC-based Automation

Rack PC

SIMATIC IPC547C

Application

The SIMATIC IPC 547C offers system integrators, cabinet designers, plant constructors and mechanical equipment manufacturers a 19" rack PC platform for high-performance applications and IT applications at the control and cell levels. It can be used for:

- process and visualization applications
- industrial image processing - high-end image processing
- quality assurance/monitoring tasks
- measuring, open-loop and closed-loop control tasks
- data acquisition/management

The SIMATIC IPC547C has the CE mark for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can also be used in building services automation or in facilities open to the public.

Design

Basic design

- All-metal 19" enclosure for flush mounting (4 HU) for high electromagnetic compatibility and mechanical ruggedness; lacquered on the outside
- Prepared for mounting on telescopic rails
- Horizontal and vertical installation is possible. It can be used as an industrial tower PC with the appropriate kit
- Lockable front flap for authorized access to front swap media, operator controls (Reset, Power), USB interfaces, front fan and dust filter
- Card retainer for PC modules for safe transport (vibration and shock)
- Replacement of PC components (e. g. PC cards or HDD) with a single tool
- Replacement of dust filter without tools
- Dust protection by means of overpressure ventilation using bearing seated front fan through filter
- 6 slots for installing drives
 - Front: 1 x 3.5"; 3 x 5.25" or 1 x 3.5"; 1 x 5.25"; 3 x HDD swap frames (low profile)
 - Internal: 2 x 3.5"
- Graphics onboard on the PCI-Express bus, Intel GMA4500 integrated in chip set, up to 2048 x 1536 pixels, 75 Hz, 16-bit colors
- Interfaces:
 - 2 x LAN 10/100/1000 Mbit/s (RJ45, teaming-capable)
 - 9 x USB 2.0: 6 x rear, 2 x front, 1 x internal for software dongle, for example
 - 2 x PS/2, 1 x COM1, 1 x VGA
 - Audio: Line In/Out, Mic
- 7 spare slots for expansions (all long):
 - 4 x PCI
 - 1 x PCI-Express x16
 - 1 x PCI-Express x8 (1 lane)
 - 1 x PCI-Express x1

Design versions

- Processor:
 - Intel Core2 Quad Q9400, 2.66 GHz, 1333 MHz FSB, 6 MB L2 cache with Extended Memory 64 (EM64) and virtualization technology (VT)
 - Intel Core2 Duo E8400, 3.0 GHz, 1333 MHz FSB, 6 MB L2 cache with Extended Memory 64 (EM64) and virtualization (VT) technology
 - Intel Pentium Dual Core E5300, 2.6 GHz, 800 MHz FSB, 2 MB L2 cache with Extended Memory 64 (EM64) technology
- Main memory expansion of 1 GB up to 16 GB, DDR2 800 SDRAM (configured as dual channel for the highest performance from 2 GB upwards)
 - Available memory configurations: 1 GB, 2 GB, 4 GB, 8 GB ²⁾
- Graphic expansion:
 - PCI-Express graphic card x16, (Dual Head: 2 x VGA or 2 x DVI-D) 256 MB, to 2048 x 1536 pixels, 75 Hz, 32-bit colors
 - ADD card via PCI Express x16 slot, (1 x DVI-D) for connecting a digital monitor
- Drives:
 - Serial ATA 3.5" hard disks with NCQ technology
 - Internal installation:
 - 1 x 250 GB
 - 1 x 500 GB
 - RAID1, 500 GB (2 x 500 GB, mirror disks), RAID controller onboard
 - Installed on front in low-profile swap frame (hot swapping in RAID configuration)
 - 1 x 500 GB
 - 2 x 500 GB
 - RAID1, 500 GB (2 x 500 GB, mirror disks), RAID controller onboard
 - RAID5, 1 TB (3 x 500 GB, striping with parity), RAID controller onboard
 - Optical drives: DVD-ROM or DVD±R/RW
 - Diskette drive: 1.44 MB, 3.5"
- Interfaces:
 - 1 x COM2 and 1 x LPT on rear
- Country-specific power cable
- Power supply:
 - 100 ... 240 V AC, 50 ... 60 Hz; redundant power supply
- Preinstalled and activated operating systems
 - Windows XP Professional multi language
 - Windows Vista Ultimate multi language
 - Windows 7 Ultimate multi language
 - Windows Server 2003 R2 Standard Edition incl. 5 Client multi language
 - Windows Server 2008 Standard Edition incl. 5 Client multi language

¹⁾ Further information can be found under "Expansion components".

²⁾ Can only be used on 64-bit operating systems

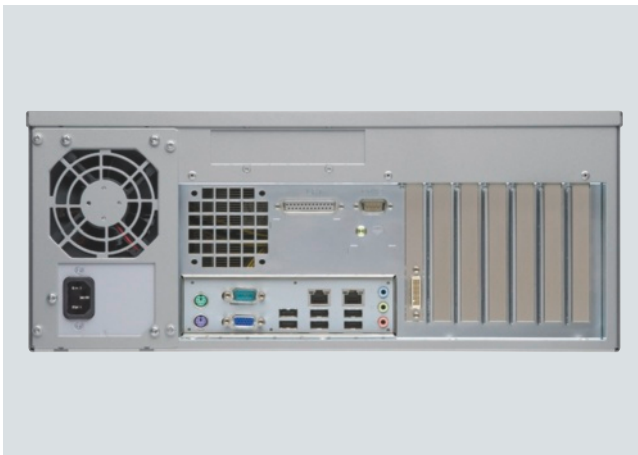
Design (continued)



Front view of SIMATIC Rack IPC547C, with open front door

A Tower Kit can be ordered as an accessory for converting the computer into an industrial tower PC.

See "Ordering data for accessories"



SIMATIC IPC547C

Function

Multi Core processor technology

Thanks to the use of two or four processor cores, the Multi Core processors are ideally suited to multi-thread application programs and multitasking. Several demanding applications - such as visualization applications with demanding graphics or programs executing extensive calculations - can be executed at the same time to enhance the response time of the system.

Thanks to energy-optimized Multi Core technology and outstanding energy-saving properties, the Intel Core2 Quad or Duo processors operate without any loss of performance even at increased temperatures up to 40 °C in demanding applications.

The SIMATIC IPC547C is preconfigured for Multi Core technology with Intel Core2 Quad and Duo processors and Microsoft operating systems, and offers higher performance and better multitasking in the industrial environment.

Multi-display technology

The multi-display architecture with its modern functions for desktop and application management supports working with several screens and therefore considerably enhances productivity. The SIMATIC IPC547C with an optional dual-head graphic card (PCI Express x16) is optimized for industrial multi-display environments.

The following screen modes are supported: Native DualView, Span or Big Desktop, Clone.

Connection options: 2 x VGA or 2 x DVI-D

Monitoring functions

Integrated monitoring functions: temperature inside enclosure, fan speed (CPU, power supply and front fan), program execution (watchdog)

Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor):

- Runtime meter
- Hard disk status, also for RAID configuration
- System status
- Automatic logging of all alarms by means of a log file
- Capability for central monitoring of networked SIMATIC PCs

RAID controller onboard

RAID1 (mirroring) for automatic data mirroring on two SATA hard disks, or RAID5 (striping with parity) for optimized utilization of capacity with high degree of fault tolerance on three SATA hard disks.

Integration

Integrated interfaces.

Ethernet

The integrated Ethernet interfaces (10/100/1000 Mbit/s; teaming-capable) can be used for IT communication and for exchanging data with PLCs such as SIMATIC S7 (using the "SOFTNET S7" software packages).

Other interfaces

As for connecting other I/O devices, 6 free slots are available for PC modules and 1 free PCI Express x16 slot for optional graphic expansions as well as 9 USB 2.0 and serial/parallel interfaces.

PC-based Automation

Rack PC

SIMATIC IPC547C

Technical specifications

| SIMATIC IPC547C | |
|---------------------------------------|---|
| General features | |
| Design | 19" rack, 4 HU, externally painted |
| Processor | <ul style="list-style-type: none"> Intel Core2 Quad Q9400 (2.66 GHz, 1333 MHz FSB, 6 MB L2 cache, Extended Memory 64 (EM64T) and virtualization (VT-x) technology) Intel Core2 Duo E8400 (3.0 GHz, 1333 MHz FSB, 6 MB L2 cache, Extended Memory 64 (EM64T) and virtualization (VT-x) technology) Intel Pentium Dual Core E5300 (2.6 GHz, 800 MHz FSB, 2 MB L2 cache, Extended Memory 64 (EM64T)) |
| Chipset | Intel Q45 |
| Main memory | <ul style="list-style-type: none"> From 1 GB DDR2 800 SDRAM Dual channel support 4 DIMM base Expandable up to 16 GB ¹⁾ |
| Spare slots for expansions (all long) | <ul style="list-style-type: none"> 4 x PCI 1 x PCI-Express x16 1 x PCI-Express x8 (1 Lane) 1 x PCI-Express x1 |
| Graphics | <ul style="list-style-type: none"> Onboard Intel GMA4500 graphics controller integrated into chipset; Dynamic Video Memory; up to 2048 x 1536 pixels for 75 Hz display refresh rate and 16-bit colors PCI Express graphic card (Dual Head: 2 x VGA or 2 x DVI-D) in the PCIe x16 slot; 256 MB; up to 2048 x 1536 pixels at 75 Hz display refresh rate and 32 bit colors (optional) |
| Operating system | <ul style="list-style-type: none"> None Preinstalled and activated / supplied on restore DVD Windows XP Professional MUI Windows Vista Ultimate MUI Windows 7 Ultimate MUI Windows Server 2003 R2 incl. 5 Client MUI Windows Server 2008 incl. 5 Client MUI <p>MUI: Multilanguage User Interface, 5 languages, English, French, German, Italian, Spanish; project-specific on request</p> <ul style="list-style-type: none"> Linux ³⁾ Other |
| Power supply | <ul style="list-style-type: none"> 100 ... 240 V AC, 50 ... 60 Hz, with bridging of short-term power failures: Max. 16 ms at 0.85% rated voltage Redundant 100 ... 240 V AC, 50 ... 60 Hz |

| SIMATIC IPC547C | |
|--|---|
| Drives | |
| Hard disk, 3.5" Serial ATA with NCQ technology | <p>Installation in internal drive support</p> <ul style="list-style-type: none"> 250 GB 500 GB 500 GB RAID1²⁾, 2 x 500 GB (mirror disks) <p>Mounted in front drive support in swap frame (low profile)</p> <ul style="list-style-type: none"> 500 GB 2 x 500 GB 500 GB RAID1²⁾, 2 x 500 GB (mirror disks), "hot swap" 1 TB RAID5²⁾, 3 x 500 GB (striping with parity), "hot swap" |
| DVD-ROM, 5.25", SATA | <ul style="list-style-type: none"> 16 x (DVD media) 48 x (CD media) |
| DVD±R/RW, 5.25", SATA | <ul style="list-style-type: none"> 16 x 16 x 8 x (DVD media) 48 x 48 x 32 x (CD media) |
| Floppy disk | 1.44 MB |
| Slots for drives | <p>Front:</p> <ul style="list-style-type: none"> 3 x 5.25" 1 x 3.5" <p>Internal:</p> <ul style="list-style-type: none"> 2 x 3.5" |
| Interfaces | |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ45, team-capability) |
| USB 2.0 | <ul style="list-style-type: none"> 2 x front (high current) 6 x rear (high current) 1 x internal (high current) e. g. for USB dongle |
| Serial | 9-pole COM1 (V.24); COM2 (V.24) (optional) |
| Parallel | LPT1 (optional) |
| VGA | 1 x |
| Keyboard | PS/2 |
| Mouse | PS/2 |
| Audio | 1 x Line In; 1 x Line Out; 1 x Micro |
| Monitoring functions | |
| Basic functionality | Message locally via DiagBase software |
| Temperature | Violation of permissible operating temperature range |
| Fan | <p>Speed monitoring</p> <ul style="list-style-type: none"> 1 x front fan 1 x CPU fan 1 x power supply fan |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software |

Technical specifications (continued)

| | SIMATIC IPC547C |
|--------------------------------------|---|
| Monitoring functions via the network | SIMATIC IPC DiagMonitor Version V4.2.0.13 or higher (optional) Remote monitoring capability for: <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • System/Ethernet monitoring (Heart Beat) Communication: <ul style="list-style-type: none"> • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Client server architecture • Layout of log files |
| Front LEDs | <ul style="list-style-type: none"> • POWER (PC switched on) • HARDDISK (access to hard disk) • TEMP (temperature monitoring) • FAN (fan monitoring) |
| Ambient conditions | |
| Degree of protection | IP30 front, IP20 rear according to EN 60529 |
| Dust protection | With front door closed: Filter class G2 EN 779, 99% of particles > 0.5 mm are filtered out according to EN 60529 |
| Protection class | Protection class I according to IEC 61140 |
| Vibration load during operation | IEC 60068-2-6, 10 cycles <ul style="list-style-type: none"> • 20 ... 58 Hz: 0.015 mm • 58 ... 200 Hz: 2 m/s² (approx. 0.2 g) Note: Restrictions in use of optical drives and HDD in swap frames |
| Shock load during operation | IEC 60068-2-27 <ul style="list-style-type: none"> • Half-sine: 9.8 m/s², 20 ms (approx. 1 g), 100 shocks per axis Note: Restrictions in use of optical drives and HDD in swap frames |

| | SIMATIC IPC547C |
|--|--|
| Electromagnetic compatibility (EMC) | |
| Emitted interference | EN 61000-6-3; EN 61000-6-4; CISPR22:2004 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3 |
| Immunity to conducted interference on the supply lines | <ul style="list-style-type: none"> • ± 2 kV (IEC 61000-4-4, burst) • ± 1 kV (IEC 61000-4-5, symm. surge) • ± 2 kV (IEC 61000-4-5, asymm. surge) |
| Immunity to interference on signal lines | <ul style="list-style-type: none"> • ± 2 kV (IEC 61000-4-4, burst, length > 30 m) • ± 1 kV (IEC 61000-4-4, burst, length < 30 m) • ± 2 kV (IEC 61000-4-5, symm. surge, length > 30 m) |
| Immunity to static discharge | <ul style="list-style-type: none"> • ± 4 kV, contact discharge (IEC 61000-4-2) • ± 8 kV, air discharge (IEC 61000-4-2) |
| Immunity to high radio frequency interference | <ul style="list-style-type: none"> • 1 V/m 80% AM; 2 ... 2.7 GHz (IEC 61000-4-3) • 10 V/m 80% AM; 80 MHz ... 1 GHz and 1.4 GHz ... 2 GHz (IEC 61000-4-3); • 10 V, 10 kHz ... 80 MHz (IEC 61000-4-6) |
| Immunity to magnetic fields | 100 A/m, 50/60 Hz (IEC 61000-4-8) |
| Ambient temperature during operation | 5 ... 40 °C Note: Limitations for operation of DVD±R/RW |
| Humidity during operation | 5 ... 80% at 25 °C (no condensation) |
| Approvals | |
| Safety regulations | IEC 60950-1; UL60950; CSA |
| Approvals | cULus 60950 |
| CE mark | For use in industrial areas as well as domestic, business and commercial environments: <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-3:2007 • Noise immunity: EN 61000-6-2:2005 |
| Dimensions and weights | |
| Mounting dimensions (W x H x D) in mm | 434 x 177 x 446 |
| Weight, approx. | 19 kg |

Note regarding SIMATIC PC operating system licenses:

The accompanying operating system license is only valid for installation on the supplied SIMATIC PC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

- 1) Memory information:
In order to use a memory expansion with more than 4 GB, a 64-bit operating system is required. In configurations with at least 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems) and in configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.
- 2) SATA RAID controller onboard in Intel CH10DO chipset
- 3) Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

PC-based Automation

Rack PC

SIMATIC IPC547C

Ordering data

Order No.

Configuration ³⁾

SIMATIC IPC547C

D

6AG4 104 - 1

Interfaces: 2 X Gbit LAN (RJ45);
1 x serial (COM1);
6 x USB rear, 2x USB front,
1 x USB internal; 2 x PS/2; audio;
7 slots (4x PCI long, 1 x PCIe x16,
1 x PCIe x8 (1 lane),
1 x PCIe x1);
slots: 6 (3 x 5.25", 1 x 3.5" externally
accessible; 2 x 3.5" internally
accessible)
temperature and fan monitoring,
watchdog; card retainer

Processor/motherboard

- Pentium Dual Core E5300
(2.6 GHz, 800 MHz FSB, 2 MB
L2 cache, EM64-T)
- Core2 Duo E8400 (3.0 GHz,
1333 MHz FSB, 6 MB L2 cache,
EM64-T, VT)
- Core2 Quad Q9400 (2.66 GHz,
1333 MHz FSB, 6 MB L2 cache,
EM64-T, VT)

Hard disks:

- 250 GB HDD SATA; internal
- 500 GB HDD SATA; internal
- RAID1, 500 GB (2 x 500 GB
HDD SATA, mirror disks);
internal ¹⁾
- 500 GB HDD SATA in swap
frame; at the front
- 2 x 500 GB HDD SATA in swap
frame; at the front
- RAID1, 500 GB (2 x 500 GB
HDD SATA, mirror disks) in swap
frames; for hot swapping; at the
front
- RAID5, 1 TB (3 x 500 GB HDD
SATA, striping with parity) in
swap frame; hot swapping;
at the front

Memory expansion:

- 1 GB DDR2 SDRAM (1 x 1 GB),
single channel
- 2 GB DDR2 SDRAM (2 x 1 GB),
dual channel
- 4 GB DDR2 SDRAM (2 x 2 GB),
dual channel
- 8 GB DDR2 SDRAM ²⁾
(4 x 2 GB), dual channel

A

C

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A

B

D

G

H

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1

2

3

Order No.

Configuration ³⁾

SIMATIC IPC547D (continued)

D

6AG4 104 - 1

Swap media:

- DVD-ROM; without FDD
- DVD±RW; without FDD
- DVD-ROM & FDD
- DVD±RW & FDD

1

2

3

4

Expansion (hardware)

- Without expansions
- Serial (COM2) and parallel (LPT)
- Serial (COM2) and parallel (LPT)
+ DVI extension adapter (DVI-D)
- Serial (COM2) & parallel (LPT) +
PCIe x16 graphic card (Dual
Head: 2 x VGA or 2 x DVI),
256 MB

0

1

2

3

Operating system (preinstalled and activated)

- Windows XP Professional, MUI
(Eng, Ger, Fr, It, Sp), 32 bit, SP3
- Windows Vista Ultimate, MUI
(Eng, Ger, Fr, It, Sp), 32 bit, SP1,
SP2 supplied
- Windows 7 Ultimate, MUI
(Eng, Ger, Fr, It, Sp), 32 bit
- Windows Server 2003 R2
Standard Edition incl. 5 clients,
MUI (Eng, Ger, Fr, It, Sp), 32 bit,
SP2
- Windows Server 2008 Standard
Edition incl. 5 clients, MUI
(Eng, Ger, Fr, It, Sp), 32 bit, SP1,
SP2 supplied
- Without operating system

B

C

E

N

P

X

Expansion (software)

- SIMATIC IPC DiagMonitor V4.2
software included
- SIMATIC IPC Image & Partition
Creator V3.1 software included
- SIMATIC IPC DiagMonitor V4.2
and Image & Partition Creator
V3.1 software included
- Without software

A

B

C

X

Power supply, with country- specific cable:

- 100/240V AC industrial power
supply; power cable for Europe
- 100/240V AC industrial power
supply; power cable for China
- 2 x 100/240 V AC redundant
industrial power supply; without
power cable

0

5

6

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ Not in combination with redundant power supply

²⁾ Can only be used on 64-bit operating systems

³⁾ For an up-to-date overview, see the SIMATIC PC online configurator
at: www.siemens.com/ipc-configurator

| Ordering data | Order No. | Order No. |
|--|-----------|----------------------------|
| Preferred versions (ex-stock) | | |
| SIMATIC IPC547C | | |
| <ul style="list-style-type: none"> Pentium Dual Core E5300 (2.6 GHz, 800 MHz FSB, 2 MB L2 Cache, EM64-T); 250 GB HDD SATA internal; 1 GB DDR2 SDRAM (1 x 1 GB), single channel; DVD-ROM & FDD; interfaces: 2 x Gbit LAN (RJ45), 2 x serial, 1 x parallel, 6 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe; without operating system | D | 6AG4 104-1AA03-1XX0 |
| <ul style="list-style-type: none"> Core2 Duo E8400 (3.0 GHz, 1333 MHz FSB, 6 MB L2 Cache, EM64-T, VT); 250 GB HDD SATA internal; 1 GB DDR2 SDRAM (1 x 1 GB) single channel DVD±RW & FDD; interfaces: 2 x Gbit LAN (RJ45), 2 x serial, 1 x parallel, 6 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe; Windows XP Professional MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP3 | D | 6AG4 104-1CA04-1BX0 |
| <ul style="list-style-type: none"> Core2 Quad Q9400 (2.66 GHz, 1333 MHz FSB, 6 MB L2 Cache, EM64-T, VT); 250 GB HDD SATA internal; 2 GB DDR2 SDRAM (2 x 1 GB), dual channel; DVD±RW & FDD, interfaces: 2 x Gbit LAN (RJ45), 2 x serial, 1 x parallel, 6 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe, Windows XP Professional MUI (Eng, Ger, Fr, It, Sp), 32-bit SP3 | D | 6AG4 104-1DA14-1BX0 |
| Accessories | | |
| Memory expansion | | |
| • 1 GB DDR2 800 DIMM | A | 6ES7 648-2AF40-0JA0 |
| • 2 GB DDR2 800, DIMM, kit for dual channel technology | A | 6ES7 648-2AF50-0JB0 |
| • 4 GB DDR2 800, DIMM, kit for dual channel technology | A | 6ES7 648-2AF60-0JB0 |
| Tower Kit | | 6ES7 648-1AA00-0XC0 |
| for converting the computer into an industrial tower PC | | |
| Retainer | | 6ES7 648-1AA00-0XJ0 |
| for pin assignment of the internal USB port | | |
| Power cable, straight, 3 m long | | |
| • Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden | | 6ES7 900-0AA00-0XA0 |
| • United Kingdom | | 6ES7 900-0BA00-0XA0 |
| • Switzerland | | 6ES7 900-0CA00-0XA0 |
| • USA | | 6ES7 900-0DA00-0XA0 |
| • Italy | | 6ES7 900-0EA00-0XA0 |
| • China | | 6ES7 900-0FA00-0XA0 |
| Rack unit for low-profile HDD swap frame | | 6ES7 648-0EG00-1BA0 |
| for 3.5" hard disk, SATA (without hard disk) | | |
| Expansion components | | |
| SIMATIC PC keyboard German/international | | |
| • USB port | | 6ES7 648-0CB00-0YA0 |
| • incl. 4-way USB hub | A | 6ES7 648-0CD00-0YA0 |
| SIMATIC PC USB mouse | A | 6ES7 790-0AA01-0XA0 |
| (optical, 3-button) for PG and PC with PS/2-adapter | | |
| SIMATIC IPC USB FlashDrive | A | 6ES7 648-0DC50-0AA0 |
| 8 GB, USB 2.0, metal enclosure, bootable | | |
| SIMATIC IPC Service USB FlashDrive | B | 6AV7 672-8JD01-0AA0 |
| 8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD | | |
| Communication products | | see expansion components |
| RMOS real-time operating system | | see expansion components |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

1) Not in combination with redundant power supply

2) Can only be used on 64-bit operating systems

3) For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configuratorNote:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

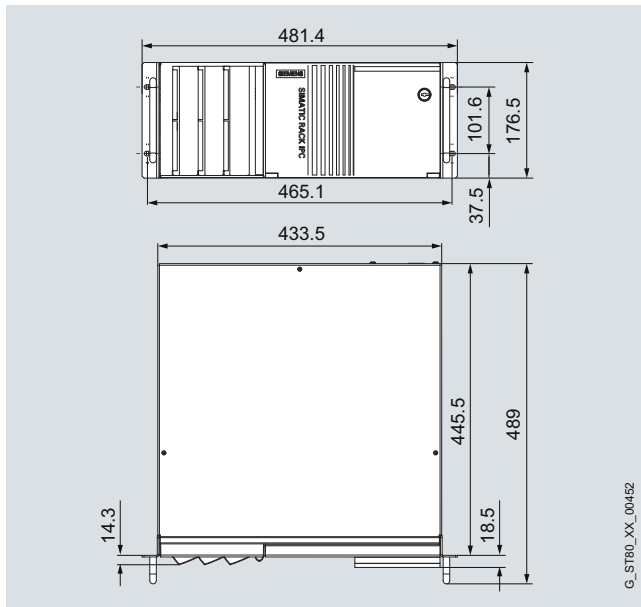
PC-based Automation

Rack PC

SIMATIC IPC547C

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Technical data of the telescopic rails

| | |
|------------------------------|-----------|
| Ultimate load per pair, min. | 30 kg |
| Full extraction length, min. | 470 mm |
| Rail thickness, max. | 9.7 mm |
| Fixing screws | M5 x 6 mm |

The fixing screws of the telescopic rails may not protrude more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

- Co. Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet
- Co. Schroff: Type 20110-072

Overview



The SIMATIC IPC647C is a very rugged, high-performance industrial PC in 19" rack design (2 HU) with excellent industrial functionality.

It offers:

- extreme compactness
- extreme ruggedness
- Intel Core i technology

Benefits

Extremely compact and industry-compatible for 24-hour continuous use in an industrial environment

- Compact enclosure design (2 HMs)
- Suitable for installation in space-saving control cabinets only 500 mm deep
- Maximum processor performance (in maximum configuration) without loss of power (throttling) at ambient temperatures of up to 50 °C
- Distinct product design with new front design and fully-coated, dirt-resistant surfaces
- All-metal housing with high EMC for use in industrial environment
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Special hard disk holders and card retainers for protection against vibration and shock

High productivity thanks to faster data processing

- New 2010 Intel® Core™ processors – with Turbo Boost, Hyper-Threading and Virtualization technology
- Memory and graphics controller integrated into processor for extraordinary memory and graphic performance
- Maximum performance (e. g. Intel QM57 Express Chipset, DDR3 memory with the support of Dual Channel technology)
- High data transfer rates (e. g. with Serial ATA hard disks, dual Gigabit Ethernet)

Reduction in downtimes through high system availability

- Secure 24-hour operation (high MTBF, variable-speed fan)
- Efficient self-diagnostics (status display for Ethernet and PROFIBUS; alarm indication for fan, temperature, watchdog and hard disks in RAID1 configuration, SIMATIC IPC DiagMonitor)
- High degree of data security due to RAID1 (mirror disk system)
- Rapid identification and replacement of the hard disk in the event of a fault (e. g. front LEDs for HDD alarm in RAID1 configuration)
- "Hot swap" removable frame in RAID configuration (replacement of hard disk during operation)
- Solid-state drive (SSD) in single level cell (SLC) architecture and ECC memory (optional)
- Securing of the replaceable components at the front (e. g. USB software dongle) against unauthorized access by means of a lockable door
- Locked fan cover: Filter mat and front fan can only be replaced when front door is open
- The enclosure cover can only be opened if the front door is open
- Service-friendly device setup (modifications, service)

PC-based Automation

Rack PC

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Benefits (continued)

Cost reductions through high investment security

- Availability of 3 to 5 years, guaranteed availability of spare parts for 5 years
- System-tested with SIMATIC components
- Certification for worldwide marketing (cULus)
- Support for legacy interfaces (PS/2, COM, LPT)
- Installation compatible for many device generations
- Worldwide service and support

Reduced costs due to time savings for commissioning, operation and servicing

- High degree of flexibility and expansion thanks to integrated interfaces and up to 3 slots (PCI and PCI Express)
- Preinstalled and activated operating system
- AMT (Intel Active Management Technology) functionality for remote access to IPC (remote maintenance)
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- Low noise output thanks to controlled fan
- Universal implementation as an industrial workstation or server
- PROFIBUS or PROFINET interface and RAID1 controller onboard (optional)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with teaming capability)
- Flexible application options in locations with telescopic rails or as desktop industrial PC

Application

The SIMATIC IPC647C provides mechanical engineers, plant engineers, and control cabinet manufacturers with a high-performance, extremely flexible 19" rack PC platform for machine-level industrial use:

- Measuring, open-loop and closed-loop control of process and machine data
- Visualization of production processes
- Image processing and editing in the context of quality inspections
- Data recording and management
- Server applications

The SIMATIC IPC647C has the CE mark for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can therefore also be used in building services automation or in facilities open to the public.

The SIMATIC Rack IPCs can be ordered in connection with WinCC flexible or WinCC as SIMATIC HMI packages at favorable prices.

Design

Basic design

- All-metal 19" enclosure (2 HMs) for high mechanical robustness (vibration/shock) and high EMC
- For mounting in a horizontal position and prepared for the mounting of telescopic rails
- Lockable front door for authorized access (access protection) to swap media at the front, operating controls (Reset, Power), USB interface, front fan and dust filter
- Card retainer for PC modules for safe operation and transport (vibration, shock)
- Opening of the enclosure cover with only one screw and replacement of PC components (e. g. PC cards or HDD) with a single tool
- Front fan and dust filter can be replaced without tools
- Dust protection through pressurized cooling with front fan mounted in roller bearing via filter
- 3 slots for installing drives
 - Front: 2 x HDD swap frames (low profile); 1 x optical drive (slimline) or 1x CF drive
 - Internal: 2 x 3.5" (in optional, shock and vibration-damped disk-drive support) as an alternative to swap frames
- Graphics onboard on the PCI-Express bus, Intel GMA HD integrated in the processor, up to 2048 x 1536 pixels, 60 Hz, 16 bit colors
- Interfaces:
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45, team capability)
 - 4 x USB 2.0 at the rear, 2 x USB 2.0 at the front (one of which can be used when door is closed), 1 x internal, e. g. for software dongle
 - 2 x PS/2, COM1, COM2, LPT1, DVI-I
 - Audio: Line Out, Micro
- 3 spare slots for expansions (all long):
 - 1 x PCI
 - 1 x PCI-Express x16
 - 1 x PCI-Express x8 (4-lane)
- Power supply: 100 ... 240 V AC, 50 ... 60 Hz

Design versions

- Processor:
 - Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, Turbo Boost, VT-d, iAMT, EM64T)
 - Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T)
 - Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T)
 - Main memory expansion
 - from 1 GB up to 8 GB, DDR3 1066 SDRAM (configured as dual channel for the highest performance from 2 GB upwards)
 - ECC memory
- Memory tip:
a 64-bit operating system is required to use a memory expansion with more than 4 GB. In configurations with at least 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems) and in configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

Design (continued)

- Fieldbus onboard:
 - PROFIBUS/MPI, CP 5611-compatible or PROFINET, 3 x RJ45, CP 1616-compatible
 - Bus modules with 3 spare slots (2 x PCI, 1 x PCI-Express x16)
 - Graphic expansion:
 - PCI-Express graphic card x16, (dual head with display port: 2 x VGA or 2 x DVI-D via adapter), 256 MB, up to 2 048 x 1 536 pixels, 75 Hz, 32-bit colors
 - Adapter cable (DVI-I to VGA) for the onboard graphic interface (1 x VGA) for connecting an analog monitor
 - SATA 3.5" hard disks with NCQ technology or SATA 2.5" solid-state drive:
 - Mounted internally on the permanent hard disk support:
 - 1x 32 GB SSD in single level cell (SLC) architecture
 - Mounted internally in vibration/shock-absorbing hard-disk support or at the front in a swap frame (hot-swap in RAID1 configuration):
 - 1 x 250 GB
 - 1 x or 2 x 500 GB
 - RAID1, 500 GB (2 x 500 GB, mirror disks), RAID controller onboard
 - Optical drive: DVD+/-R/RW, slimline
 - CompactFlash drive, at front
 - Country-specific power cable
 - Preinstalled operating systems:
 - Windows XP Professional multi language, 32 bit
 - Windows 7 Ultimate multi language, 32 bit
 - Windows Server 2008 Standard Edition incl. 5 Client multi language, 32-bit
 - SIMATIC IPC DiagMonitor ¹⁾
 - SIMATIC PC/PG Image Creator ¹⁾
- ¹⁾ Further information can be found under "Expansion components".



Front view of SIMATIC IPC647C, with open front door

Function

Multi Core processor technology

Thanks to the use of two processor cores with hyper-threading, the Core i processors are ideally suited to multi-thread application programs and multitasking. Several demanding applications - such as visualization applications with demanding graphics or programs executing extensive calculations - can be executed at the same time to enhance the response time of the system. Thanks to energy-optimized Multi Core technology and outstanding energy-saving properties, the Intel Core i processors operate without any loss of performance even at increased temperatures up to 50 °C in demanding applications.

Multi-display technology

The multi-display architecture with its modern functions for desktop and application management supports working with several screens and therefore considerably enhances productivity. The SIMATIC IPC647C with an optional dual-head graphic card (PCI-Express x16) is optimized for industrial multi-display environments. The following multidisplay modes are supported: Native DualView, Span or Big Desktop, Clone.

Connection options: 2 x VGA or 2 x DVI-D

Monitoring functions

Integrated monitoring functions (program execution (watchdog), temperature, fan speed and hard disk status in RAID configuration). Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor):

- Runtime meter
- Hard disk status
- System status (Heart Beat)
- Automatic logging of all alarms by means of a log file
- Capability for central monitoring of networked SIMATIC PCs
- RAID1 (RAID controller onboard) for automatic data mirroring on two SATA hard disks

AMT functionality (Intel Active Management Technology)

This feature allows remote access to the IPC for diagnostics and troubleshooting (service work) even with the operating system shut down:

- Controlled startup/shutdown of the IPC
- Access to BIOS settings and BIOS update
- Measures by means of remote access in the event of a fault, e. g. reboot
- Software updates from integrated ISO image

RAID controller onboard

- RAID1 (mirroring) for automatic data mirroring on two SATA hard disks

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Integration

Integrated interfaces:

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or for coupling to the SIMATIC S7 (with the "SOFTNET for PROFIBUS" software package).
- **PROFINET**
The optional PROFINET interface can be used for connecting distributed field devices or for controlling drives.
- **Further interfaces**
For the connection of further I/O devices, 2 free slots are available for PC modules, 1 free PCI-Express x16 slot for optional graphic expansions, as well as seven USB 2.0 interfaces, two serial interfaces, and one parallel interface.

Technical specifications

| SIMATIC IPC647C | |
|---------------------------------------|---|
| General features | |
| Design | 19" rack, 2 HMs, external coating |
| Processor | <ul style="list-style-type: none"> • Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T) |
| Chipset | Intel QM57 |
| Main memory | <ul style="list-style-type: none"> • from 1 GB DDR3 1066 SDRAM • Dual channel support • 2 DIMM base • Expandable up to 8 GB, ECC optional ³⁾ |
| Spare slots for expansions (all long) | <ul style="list-style-type: none"> • 2 x PCI • 1 x PCI-Express x16 or <ul style="list-style-type: none"> • 1 x PCI • 1 x PCI-Express x8 (4-lane) • 1 x PCI-Express x16 |
| Graphics | <ul style="list-style-type: none"> • Onboard Intel GMA HD graphics controller integrated into processor; dynamic video memory; up to 2048 x 1536 pixels with 75 Hz refresh rate and 16-bit colors • PCI-Express graphic card (Dual Head: 2 x VGA or 2 x DVI-D via display port adapter) in the PCIe x16 slot; 256 MB; up to 2048 x 1536 pixels with 75 Hz refresh rate and 32-bit colors (optional) |
| Operating system | <ul style="list-style-type: none"> • Without • Preinstalled, activated, and supplied on restore DVD • Windows XP Professional MUI, 32-bit • Windows 7 Ultimate MUI, 32-bit • Windows Server 2008 incl. 5 Client MUI, 32-bit MUI: Multilanguage User Interface; 5 languages (English, French, German, Italian, Spanish) <ul style="list-style-type: none"> • Project-specific on request ¹⁾ • Others |
| Power supply | 100 ... 240 V AC, 50 ... 60 Hz; with bridging of temporary power failures according to NAMUR: max. 20 ms at 0.85% rated voltage |

Technical specifications (continued)

| SIMATIC IPC647C | |
|--|--|
| Drives | |
| SATA 3.5" hard disk or solid-state drive, SATA 2.25" | Mounted in internal shock/vibration-resistant disk drive support <ul style="list-style-type: none"> • 250 GB • 500 GB • 2 x 500 GB • 500 GB RAID1 ²⁾, 2 x 500 GB (mirror disks) Installation in front drive support <ul style="list-style-type: none"> • 32 GB SSD, SLC Mounted in front drive support in swap frame (low profile) <ul style="list-style-type: none"> • 250 GB • 500 GB • 2 x 500 GB • 500 GB RAID1 ²⁾, 2 x 500 GB (mirror disks), "hot swap" • 32 GB SSD, SLC |
| DVD+/-R/RW, slimline | <ul style="list-style-type: none"> • 8 x 8 x 6 x (DVD media) • 24 x 24 x 24 x (CD media) |
| Slots for drives | Front: <ul style="list-style-type: none"> • 2 x low profile swap frames (for 3.5" HDD) • 1 x 12.7 mm slimline (for ODD or CF drive) Internal: <ul style="list-style-type: none"> • 2 x 3.5" as an alternative to swap frames (in the optional, shock and vibration-damped drive support) |
| Interfaces | |
| PROFINET | 3 x RJ45 (CP 1616-compatible), optional |
| PROFIBUS/MPI | 12 Mbit/s (isolated, compatible with CP 5611), optional |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ45, team-capability) |
| USB 2.0 | <ul style="list-style-type: none"> • 2 x front (high current) • 4 x rear (high current) • 1 x internal (high current), e. g. for USB dongle |
| Serial | <ul style="list-style-type: none"> • 9-pin COM1 (V.24) • 9-pin COM2 (V.24) |
| Parallel | LPT1 |
| VGA | 1 x |
| Keyboard | PS/2 |
| Mouse | PS/2 |
| Audio | 1 x Line Out; 1 x Micro |

| SIMATIC IPC647C | |
|--------------------------------------|---|
| Monitoring functions | |
| Basic functionality | Message locally via DiagBase software |
| Temperature | <ul style="list-style-type: none"> • Overshoot/undershoot of permissible operating temperature range • Messages can be evaluated by the application program |
| Fan | <ul style="list-style-type: none"> • Speed monitoring • 2 x housing fan (front) • 1 x power supply fan |
| Watchdog | <ul style="list-style-type: none"> • Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program |
| Monitoring functions via the network | SIMATIC IPC DiagMonitor (optional) Version 4.2 and higher Remote monitoring capability for: <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • System/Ethernet monitoring (Heart Beat) Communication: <ul style="list-style-type: none"> • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Structure of log files |
| Front LEDs | <ul style="list-style-type: none"> • POWER (internal power supply unit, PC switched on) • HARDDISK (access to hard disk) • ETHERNET1 (Ethernet status, "Heart Beat") • ETHERNET2 (Ethernet status, "Heart Beat") • PROFIBUS/MPI (PROFIBUS status) • SF PROFINET (PROFINET status) • WATCHDOG (ready/fault indication) • TEMP (temperature status) • FAN (fan speed monitoring) • HDD1 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software) • HDD2 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software) |

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SIMATIC IPC647C

Technical specifications (continued)

| SIMATIC IPC647C | |
|--|--|
| Ambient conditions | |
| Degree of protection | IP41 at the front, IP20 at the rear acc. to EN 60529 |
| Dust protection | With front door closed: G2 EN 779, 99% of particles > 0.5 mm are held back |
| Protection class | Protection class I according to IEC 61140 |
| Vibration load during operation | EN 60068-2-6, 10 cycles Internal mounting of the hard disk drives in optional, internal drive supports: <ul style="list-style-type: none"> 10 ... 58 Hz: 0.0375 mm; 58 ... 500 Hz: 5 m/s² (ca. 0.5 g) Note: Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Shock load during operation | EN 60068-2-27, IEC 60068-2-29 Internal mounting of the hard disk drives in optional, internal drive supports: <ul style="list-style-type: none"> Half-sine: 50 m/s², 30 ms (ca. 5 g), 100 shocks per axis Note: Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Electromagnetic compatibility (EMC) | |
| Radiated interference (AC) | EN 61000-6-3, EN 61000-3-3, EN 61000-3-2 Class D; FCC Class A |
| Immunity to conducted interference on the supply lines | ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, symm. surge) ± 2 kV (IEC 61000-4-5, asymm. surge) |

| SIMATIC IPC647C | |
|---|--|
| Immunity to interference on signal lines | ± 1 kV (IEC 61000-4-4, burst, length < 30 m) ± 2 kV (IEC 61000-4-4, symm. surge, length > 30 m) ± 2 kV (IEC 61000-4-5, asymm. surge, length > 30 m) |
| Immunity to static discharge | ± 6 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) |
| Immunity to high radio frequency interference | 1 V/m 80% AM 1 kHz; 2 ... 2.7 GHz (IEC 61000-4-3) 10 V/m 80% AM 1 kHz; 80 MHz - 1 GHz and 1.4 GHz - 2 GHz (IEC 61000-4-3); 10 V, 10 kHz to 80 MHz (IEC 61000-4-6) |
| Immunity to magnetic fields | 100 A/m, 50/60 Hz (IEC 61000-4-8) |
| Ambient temperature during operation | 5 ... 50 °C Note: Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Relative humidity during operation | 5 ... 85% at 30 °C (no condensation) |
| Approvals | |
| Safety regulations | IEC 60950-1 Second Edition, EN 60950-1, UL 60950, CSA C22.2 No 60950 |
| Approvals | cULus 60950 |
| CE mark | Use in industry: <ul style="list-style-type: none"> Noise immunity: EN 61000-6-2:2005 Use in domestic environments: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-3:2007 |
| Dimensions and weights | |
| Mounting dimensions (W x H x D, in mm) | 430 x 88 x 445 |
| Weight | Minimum 16 kg, maximum 23 kg |

- 1) Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX" (LINUX is a trademark of Linus Torvald).
- 2) SATA RAID controller on board in Intel chipset
- 3) Memory information:
In order to use a memory expansion with more than 4 GB, a 64-bit operating system is required. In configurations with at least 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems) and in configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

Note regarding SIMATIC PC operating system licenses:

The accompanying operating system license is only valid for installation on the supplied SIMATIC PC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

| Ordering data | Order No. | Order No. | |
|--|--------------|--|--------------|
| Configuration ¹⁾ | | Configuration ¹⁾ | |
| SIMATIC IPC647C | D 6AG4 112-1 | SIMATIC IPC647C | D 6AG4 112-1 |
| (continued) | | (continued) | |
| Interfaces: 2 x 10/100/1000 Mbit/s Ethernet (RJ45); 1 x graphic (DVI-I); 2 x COM; 1 x LPT; 2 x PS/2; 4 x USB 2.0 at rear, 2 x USB 2.0 at front; 1 x USB 2.0 internal; audio; temperature and fan monitoring, watchdog; card retainer | | Hard disks: | |
| Processor/motherboard | | • 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | A |
| • Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard without fieldbus | G | • 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | B |
| • Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard with PROFIBUS/MPI | H | • 2 x 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | C |
| • Core i3-330E (2C/4T; 2.13 GHz, 3 MB cache), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾ | J | • RAID1 500 GB (2 x 250 GB HDD SATA, mirror disks); 0.5 g vibration, 5 g shock, internal | D |
| • Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard without fieldbus | K | • 250 GB HDD SATA in swap frame; front | H |
| • Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI | L | • 500 GB HDD SATA in swap frame; front | K |
| • Core i5-520E (2C/4T; 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾ | M | • 2 x 500 GB HDD SATA in swap frame; front | M |
| • Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard without field bus | N | • RAID1 500 GB (2 x 250 GB HDD SATA) in swap frame, for hot swapping; front | P |
| • Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI | P | • 32 GB SSD (SLC) SATA, internal | S |
| • Core i7-610E (2C/4T; 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾ | R | • 32 GB SSD (SLC) SATA in swap frame; front | T |
| | | Memory expansion: | |
| | | • 1 GB DDR3 SDRAM (1 x 1 GB), single channel | 0 |
| | | • 2 GB DDR3 SDRAM (1 x 2 GB), single channel | 1 |
| | | • 4 GB DDR3 SDRAM (2 x 2 GB), dual channel | 2 |
| | | • 6 GB DDR3 SDRAM (1 x 2 GB, 1 x 4 GB), dual channel | 3 |
| | | • 8 GB DDR3 SDRAM (2 x 4 GB), dual channel | 4 |
| | | • 2 GB DDR3 SDRAM (2 x 1 GB), dual channel | 5 |
| | | • 4 GB DDR3 SDRAM (2 x 2 GB), dual channel | 6 |
| | | • 8 GB DDR3 SDRAM (2 x 4 GB), dual channel | 7 |

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator²⁾ Not in combination with Windows 7 and Windows Server 2008

PC-based Automation

Rack PC

SIMATIC IPC647C

Ordering data

Order No.

Configuration ¹⁾

SIMATIC IPC647C (continued)

D

6AG4 112-1 ■ ■ ■ ■ ■ - ■ ■ ■ ■ ■

Swap media:

- CompactFlash drive, at front
- DVD±RW
- without swap medium

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8

Bus module / hardware expansion

- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16; without hardware
expansions
- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16; DVI-VGA adapter
(1 x VGA) for onboard graphics
- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16 assigned; +
graphic card PCIe x16, 2 x DP
(2 x DVI-D via 2 x DP-DVI
adapters)
- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16 assigned; +
graphic card PCIe x16, 2 x DP
(2 x VGA via 2 x DP-VGA
adapters)
- Bus modules 3 slots: 1 x PCI,
1 x PCIe x8 (4-lane); 1 x PCIe
x16; without HW expansions
- Bus modules 3 slots: 1 x PCI;
1 x PCIe x8 (4-lane); 1 x PCIe
x16; DVI-VGA adapter (1 x VGA)
for onboard graphics
- Bus modules 3 slots: 1 x PCI;
1 x PCIe x8 (4-lane); 1 x PCIe
x16 assigned; + graphic card
PCIe x16, 2 x DP (2x DVI-D via
2x DP-DVI adapters)
- Bus modules 3 slots: 1 x PCI;
1 x PCIe x8 (4-lane); 1 x PCIe
x16 assigned; + graphic card
PCIe x16, 2 x DP (2x VGA via 2x
DP-VGA adapters)

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Order No.

Configuration ¹⁾

SIMATIC IPC647C (continued)

D

6AG4 112-1 ■ ■ ■ ■ ■ - ■ ■ ■ ■ ■

Operating system

(preinstalled and activated)

- Windows XP Professional, MUI
(Eng, Ger, Fr, It, Sp), SP3, 32-bit
- Windows 7 Ultimate, MUI
(Eng, Ger, Fr, It, Sp), 32-bit
- Windows Server 2008 Standard
Edition incl. 5 clients, MUI
(Eng, Fr, Ger, It, Sp), SP2, 32-bit
- Without operating system

B
E
P
X

Expansion (software)

- SIMATIC IPC DiagMonitor 4.2
included
- SIMATIC IPC Image Creator
software 3.1 included
- SIMATIC IPC DiagMonitor 4.2
and Image Creator Software 3.1
included
- Without software

A
B
C
X

Power supply, with country- specific cable:

- 100/240 V AC industrial power
supply with Namur; power cable
for Europe
- 100/240 V AC industrial power
supply with Namur; power cable
for United Kingdom
- 100/240 V AC industrial power
supply with Namur; power cable
for Switzerland
- 100/240 V AC industrial power
supply with Namur; power cable
for USA
- 100/240 V AC industrial power
supply with Namur; power cable
for Italy
- 100/240 V AC industrial power
supply with Namur; power cable
for China

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5

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator
at: www.siemens.com/ipc-configurator

| Ordering data | Order No. | Order No. |
|--|------------------------------|----------------------------|
| Accessories | | |
| Memory expansion | | |
| • 1 GB DDR3 1066 SDRAM, DIMM | A 6ES7 648-2AJ40-0KA0 | |
| • 2 GB DDR3 1066 SDRAM, DIMM | A 6ES7 648-2AJ50-0KA0 | |
| • 4 GB DDR3 1066 SDRAM, DIMM | A 6ES7 648-2AJ60-0KA0 | |
| • 1 GB DDR3 1066 SDRAM, DIMM, ECC | A 6ES7 648-2AJ40-1KA0 | |
| • 2 GB DDR3 1066 SDRAM, DIMM, ECC | A 6ES7 648-2AJ50-1KA0 | |
| • 4 GB DDR3 1066 SDRAM, DIMM, ECC | A 6ES7 648-2AJ60-1KA0 | |
| Hard disk slide-in unit for swap frame | 6ES7 648-0EG00-1BA0 | |
| SIMATIC PC accessories, slide-in HDD swap frame, low-profile, for 3.5" hard disk, serial ATA (without hard disk) | | |
| Power cable, straight, 3 m long | | |
| • Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden | 6ES7 900-0AA00-0XA0 | |
| • United Kingdom | 6ES7 900-0BA00-0XA0 | |
| • Switzerland | 6ES7 900-0CA00-0XA0 | |
| • USA | 6ES7 900-0DA00-0XA0 | |
| • Italy | 6ES7 900-0EA00-0XA0 | |
| • China | 6ES7 900-0FA00-0XA0 | |
| Retainer | | 6ES7 648-1AA00-0XK0 |
| for pin assignment of the internal USB port | | |
| SIMATIC PC keyboard | | |
| German/international, | | |
| • USB port | A 6ES7 648-0CB00-0YA0 | |
| • incl. 4-way USB hub | A 6ES7 648-0CD00-0YA0 | |
| SIMATIC PC mouse | A 6ES7 790-0AA01-0XA0 | |
| (optical, 3-button) for PG and PC with adapter | | |
| SIMATIC IPC USB FlashDrive | A 6ES7 648-0DC50-0AA0 | |
| 8 GB, USB 2.0, metal enclosure, bootable | | |
| SIMATIC IPC Service USB FlashDrive | B 6AV7 672-8JD01-0AA0 | |
| 8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD | | |
| Communication products | | see expansion components |
| RMOS real-time operating system | | see expansion components |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

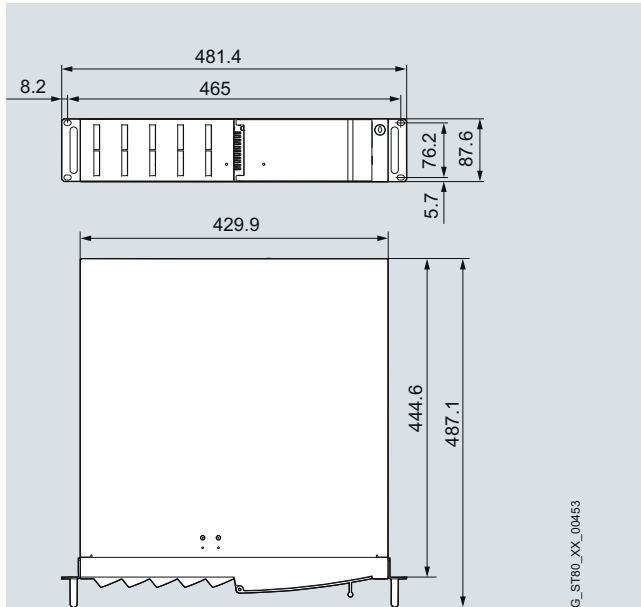
PC-based Automation

Rack PC

SIMATIC IPC647C

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Technical data for telescopic rails

| | |
|--|-----------|
| Carrying capacity per pair, min. | 30 kg |
| Extended length when fully withdrawn, min. | 470 mm |
| Rail thickness, max. | 9.7 mm |
| Fixing screws | M5 x 6 mm |

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

- Co. Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet

Overview



The SIMATIC IPC847C is a very robust, high-performance industrial PC in 19" rack design (4 HU) with excellent industrial functionality.

It offers:

- maximum expandability
- extreme ruggedness
- Intel Core i technology

Benefits

Maximum industrial compatibility and compactness for 24-hour use in an industrial environment

- Maximum processor performance (in maximum configuration) without loss of power (throttling) at ambient temperatures of up to 50 °C
- Distinct product design with new front design and fully-coated, dirt-resistant surfaces
- All-metal housing with high EMC for use in industrial environment
- Suitable for installing in space-saving control cabinets only 500 mm deep
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Special hard disk holders and card retainers for protection against vibration and shock

High productivity thanks to faster data processing

- New 2010 Intel® Core™ processors – with Turbo-Boost, Hyper-Threading and Virtualization technology
- Memory and graphics controller integrated into processor for extraordinary memory and graphic performance
- Maximum performance (e. g. Intel QM57 Express Chipset, DDR3 memory with the support of Dual Channel technology)
- High data transfer rates (e. g. with Serial ATA hard disks, dual Gigabit Ethernet)

Reduction in downtimes through high system availability

- Secure 24-hour operation (high MTBF, variable-speed fan)
- Efficient self-diagnostics (status display for Ethernet and PROFIBUS; alarm indication for fan, temperature, watchdog and hard disks in RAID1/5 configurations, SIMATIC PC DiagMonitor)
- High degree of data security due to RAID1 (mirror disk system) or RAID5 (striping with parity)
- Rapid identification and replacement of the hard disk in the event of a fault (e. g. front LEDs for HDD alarm in RAID configurations)
- "Hot swap" removable frame in RAID configurations (replacement of hard disk during operation)
- Solid-state drive (SSD) in single level cell (SLC) architecture and ECC memory (optional)
- Redundant power supply with "hot swap" functionality (replacement of power supply module during operation)
- Securing of the replaceable components at the front (e. g. USB software dongle) against unauthorized access by means of a lockable door
- Locked fan cover: Filter mat and front fan can only be replaced when front door is open
- The enclosure cover can only be opened if the front door is open
- Service-friendly device setup (modifications, service)

PC-based Automation

Rack PC

SIMATIC IPC847C

Benefits (continued)

Cost reductions through high investment security

- Platform with long-term stability and embedded Intel components
- Availability of 3 to 5 years, guaranteed availability of spare parts for 5 years
- System-tested with SIMATIC components
- Certification for worldwide marketing (cULus)
- Support for legacy interfaces (PS/2, COM, LPT)
- Installation compatible for many device generations
- Worldwide service and support

Reduced costs due to time savings for commissioning, operation and servicing

- High degree of flexibility and expandability thanks to integrated interfaces and up to 11 slots (PCI and PCI Express)
- Preinstalled and activated operating system
- AMT (Intel Active Management Technology) functionality for remote access to IPC (remote maintenance)
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- Low noise output thanks to controlled fan
- Universal implementation as an industrial workstation or server
- PROFIBUS or PROFINET interface and RAID1/5 controller onboard (optional)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with teaming capability)
- Flexible applications in many different positions with telescopic rails or as tower industrial PC

Application

The SIMATIC IPC847C provides mechanical engineers, plant engineers, and control cabinet manufacturers with a high-performance, extremely flexible 19" rack PC platform for machine-level industrial use:

- Measuring, open-loop and closed-loop control of process and machine data
- Visualization of production processes
- Image processing and editing in the context of quality inspections
- Data recording and management

The SIMATIC IPC847C has the CE mark for use in the industrial sector.

The SIMATIC Rack IPCs can be ordered in connection with WinCC flexible or WinCC as SIMATIC HMI packages at favorable prices.

Design

Basic design

- All-metal 19" enclosure (4 HMs) for high mechanical resilience (vibration/shock) and high EMC
- Prepared for mounting of telescopic rails
- Horizontal and vertical installation is possible, can be used as an industrial tower PC by using the appropriate kit
- Lockable front door for authorized access (access protection) to swap media at the front, operating controls (Reset, Power), USB interface, front fan and dust filter
- Card retainer for PC modules for safe operation and transport (vibration, shock)
- Opening of the enclosure cover with only one screw and replacement of PC components (e. g. PC cards or HDD) with a single tool
- Front fan and dust filter can be replaced without tools
- Dust protection by means of overpressure ventilation using bearing seated front fan through filter
- 6 slots for installing drives
 - Front: 1 x 3.5"; 3 x 5.25" or 1 x 3.5"; 1 x 5.25"; 3 x HDD swap frame (low profile)
 - Internal: 2 x 3.5" (in the optional vibration-damping drive bracket or in the fixed hard disk support)
- Graphics onboard, Intel GMA HD integrated in the processor, up to 2048 x 1536 pixels, 60 Hz, 16-bit colors
- Interfaces:
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45, team capability)
 - 4 x USB 2.0 at the rear, 2 x USB 2.0 at the front (one of which can be used when door is closed), 1 x internal, e. g. for software dongle
 - 2 x PS/2, COM1, COM2, LPT1, DVI-I
 - Audio: Line Out, Mic
- 11 spare slots for expansions (all long):
 - 7 x PCI
 - 1 x PCI-Express x16
 - 3 x PCI-Express x4
- Power supply: 100 ... 240 V AC, 50 ... 60 Hz

Design (continued)

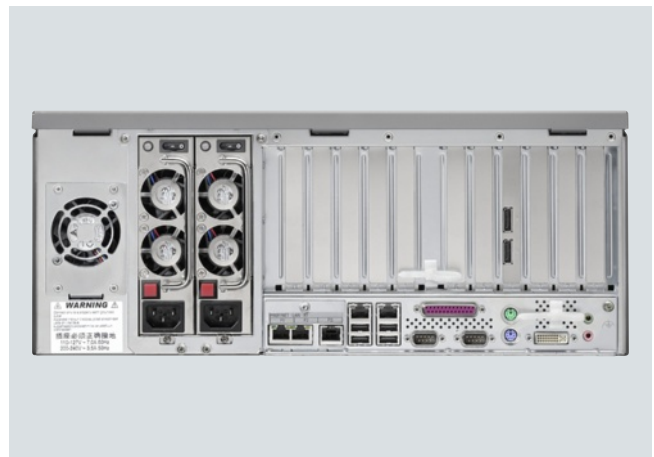
Design versions

- Processor:
 - Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, Turbo Boost, VT-d, iAMT, EM64T)
 - Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T)
 - Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T)
- Main memory expansion
 - from 1 GB up to 8 GB, DDR3 1066 SDRAM (configured as dual channel for the highest performance from 2 GB upwards)
 - ECC memory
 Memory information:
 In order to use a memory expansion with more than 4 GB, a 64-bit operating system is required. In configurations with at least 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems) and in configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.
- Fieldbus onboard:
 - PROFIBUS/MPI, CP 5611-compatible or PROFINET, 3 x RJ45, CP 16116-compatible
- Bus module with only 8 free slots (7 x PCI, 1 x PCI-Express x16)
- Graphic expansion:
 - PCI-Express graphic card x16, (dual head with display port: 2 x VGA or 2 x DVI-D via adapter), 256 MB, up to 2048 x 1536 pixels, 75 Hz, 32-bit colors
 - Adapter cable (DVI-I to VGA) for the onboard graphic interface (1 x VGA) for connecting an analog monitor
- SATA 3.5" hard disks with NCQ technology or SATA 2.5" solid-state drive:
 - Mounted internally on the permanent hard disk support:
 - 1x 250 GB HDD
 - 1x 32 GB SSD (SLC)
 - Mounted internally in vibration/shock-absorbing hard-disk support or at the front in a swap frame (hot-swap in RAID1/5 configuration):
 - 1 x 250 GB
 - 1 x or 2 x 500 GB
 - RAID1, 500 GB (2 x 500 GB, mirror disks), RAID controller onboard
 - RAID5, 1 TB (3 x 500 GB, striping with parity), RAID controller onboard
 - 1x 32 GB SSD (SLC) at front in swap frame
- Optical drives: DVD-ROM or DVD±R/RW
- Power supply:
 - 100 to 240 V AC, 50 to 60 Hz redundant
 - Country-specific power cable
- Preinstalled and activated operating systems:
 - Windows XP Professional multi language, 32 bit
 - Windows 7 Ultimate multi language, 32 bit
 - Windows Server 2008 Standard Edition incl. 5 Client multi language, 32 bit
- SIMATIC IPC DiagMonitor ¹⁾
- SIMATIC PC/PG Image Creator ¹⁾

¹⁾ Further information can be found under "Expansion components".



Front view of SIMATIC Rack IPC847C, with open front door



Rear of SIMATIC IPC847C with redundant power supply (optional)

A Tower Kit can be ordered as an accessory for converting the computer into an industrial tower PC.

See "Ordering data for accessories".



PC-based Automation

Rack PC

SIMATIC IPC847C

Function

Multi Core processor technology

Thanks to the use of two processor cores with hyper-threading, the Core i processors are ideally suited to multi-thread application programs and multitasking. Several demanding applications – such as visualization applications with demanding graphics or programs executing extensive calculations – can be executed at the same time to enhance the response time of the system. Thanks to energy-optimized Multi Core technology and outstanding energy-saving properties, the Intel Core i processors operate without any loss of performance even at increased temperatures up to 50 °C in demanding applications.

The SIMATIC IPC847C is preconfigured for Multi Core technology with Intel Core i processors and Microsoft operating systems, and offers higher performance and better multitasking in the industrial environment.

Multi-display technology

The multi-display architecture with its modern functions for desktop and application management supports working with several screens and therefore considerably enhances productivity. The SIMATIC IPC847C with an optional dual-head graphic card (PCI Express x16) is optimized for industrial multi-display environments.

The following screen modes are supported: Native DualView, Span or Big Desktop, Clone.

Connection options: 2 x VGA or 2 x DVI-D

Monitoring functions

Integrated monitoring functions: temperature inside enclosure, fan speed (CPU, power supply and front fan), program execution (watchdog)

Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor):

- Runtime meter
- Hard disk status, also for RAID configuration
- System status (Heart Beat)
- Automatic logging of all alarms by means of a log file
- Capability for central monitoring of networked SIMATIC IPC

AMT functionality (Intel Active Management Technology)

This feature allows remote access to the IPC for diagnostics and troubleshooting (service work) even with the operating system shut down:

- Controlled startup/shutdown of the IPC
- Access to BIOS settings and BIOS update
- Measures by means of remote access in the event of a fault, e. g. reboot
- Software updates from integrated ISO image

RAID controller onboard

RAID1 (mirroring) for automatic data mirroring on two SATA hard disks, or RAID5 (striping with parity) for optimized utilization of capacity with high degree of fault tolerance on three SATA hard disks.

Integration

Integrated interfaces.

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or to interface to the SIMATIC S7 (with the "SOFTNET for PROFIBUS" software packages).
- **PROFINET**
The optional PROFINET interface can be used for connecting distributed field devices or for controlling drives.
- **Further interfaces**
For connecting additional I/O devices, 8 or 11 free slots are available for PC modules as well as seven USB 2.0 (Universal Serial Bus), two serial interfaces, and one parallel interface.

Technical specifications

| SIMATIC IPC847C | |
|---------------------------------------|---|
| General features | |
| Design | 19" rack, 4 HU, externally painted |
| Processor | <ul style="list-style-type: none"> Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, Turbo Boost, VT-d, iAMT, EM64T) Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T) Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T) |
| Chipset | Intel QM57 |
| Main memory | <ul style="list-style-type: none"> from 1 GB DDR3 1066 SDRAM Dual channel support 2 DIMM base Expandable up to 8 GB ¹⁾ |
| Spare slots for expansions (all long) | <ul style="list-style-type: none"> 7 x PCI 1 x PCI-Express x16 3 x PCI-Express x4 or <ul style="list-style-type: none"> 7 x PCI 1 x PCI-Express x16 |
| Graphics | <ul style="list-style-type: none"> Onboard Intel GMA HD graphics controller integrated into processor; dynamic video memory; up to 2048 x 1536 pixels with 75 Hz refresh rate and 16-bit colors PCI-Express graphic card (Dual Head: 2 x VGA or 2 x DVI-D via display port adapter) in the PCIe x16 slot; 256 MB; up to 2048 x 1536 pixels with 75 Hz refresh rate and 32-bit colors (optional) |
| Operating system | <ul style="list-style-type: none"> without Preinstalled and activated / supplied on restore DVD Windows XP Professional MUI, 32-bit Windows 7 Ultimate MUI, 32-bit Windows Server 2008 incl. 5 Client MUI, 32-bit MUI: Multilanguage User Interface; 5 languages (English, French, German, Italian, Spanish) Project-specific on request Linux ¹⁾ Other |
| Power supply | <ul style="list-style-type: none"> 100 ... 240 V AC, 50 ... 60 Hz with bridging of temporary power failures according to NAMUR: max. 20 ms at 0.85% rated voltage Redundant 100 ... 240 V AC, 50 ... 60 Hz |

| SIMATIC IPC847C | |
|--|---|
| Drives | |
| SATA 3.5" hard disk or SATA 2.25" solid-state drive | Installation in internal drive support <ul style="list-style-type: none"> 250 GB 32 GB SATA solid-state drive (SLC) Can be installed in internal shock and vibration-damped drive support (optional) <ul style="list-style-type: none"> 250 GB 500 GB 2 x 500 GB 500 GB RAID1 ²⁾, 2 x 500 GB (mirror disks) Installation in front drive support in swap frame <ul style="list-style-type: none"> 250 GB 2 x 500 GB 500 GB RAID1 ²⁾, 2 x 500 GB (mirror disks), "hot swap" 1 TB RAID5 ²⁾, 3 x 500 GB (mirror disks), "hot swap" 32 GB SATA solid-state drive (SLC) |
| DVD-ROM, 5.25", SATA | <ul style="list-style-type: none"> 16 x (DVD media) 48 x (CD media) |
| DVD+/-R/RW, 5.25", SATA | <ul style="list-style-type: none"> 16 x 16 x 12 x (DVD media) 48 x 32 x 48 x (CD media) |
| Floppy disk | - |
| Slots for drives | Front: <ul style="list-style-type: none"> 3 x 5.25" and 2 x 3.5" Internal: <ul style="list-style-type: none"> 2 x 3.5" (in the optional, vibration-damping drive bracket) |
| Interfaces | |
| PROFINET | 3x RJ45 (CP 1616-compatible), optional |
| PROFIBUS/MPI | 12 Mbit/s (isolated, compatible with CP 5611), optional |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ45, teaming-capable) |
| USB 2.0 | <ul style="list-style-type: none"> 2 x front (high current) 4 x rear (high current) 1 x internal (high current), e. g. for USB dongle |
| Serial | <ul style="list-style-type: none"> 9-pin COM1 (V.24) 9-pin COM2 (V.24) |
| Parallel | LPT1 |
| VGA | 1 x |
| Keyboard | PS/2 |
| Mouse | PS/2 |
| Audio | 1 x Line Out; 1 x Micro |

PC-based Automation

Rack PC

SIMATIC IPC847C

Technical specifications (continued)

| SIMATIC IPC847C | |
|--------------------------------------|---|
| Monitoring functions | |
| Basic functionality | Message locally via DiagBase software |
| Temperature | <ul style="list-style-type: none"> • Overshoot/undershoot of permissible operating temperature range • Messages can be evaluated by the application program |
| Fan | <ul style="list-style-type: none"> • Speed monitoring • 2 x enclosure fans • 1 x fan power supply |
| Watchdog | <ul style="list-style-type: none"> • Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program |
| Monitoring functions via the network | SIMATIC PC DiagMonitor (optional) Remote monitoring capability for: <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • System/Ethernet monitoring (Heart Beat) Communication: <ul style="list-style-type: none"> • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Layout of log files |
| Front LEDs | <ul style="list-style-type: none"> • POWER (internal power supply unit, PC switched on) • HARDDISK (access to hard disk) • ETHERNET1 (Ethernet status, "Heart Beat") • ETHERNET2 (Ethernet status, "Heart Beat") • PN / MPI/DP (PROFINET/PROFIBUS status) • WATCHDOG (ready/fault indication) • TEMP (temperature status) • FAN (fan speed monitoring) • HDD1 ALARM (hard disk alarm in conjunction with RAID and monitoring software) • HDD2 ALARM (hard disk alarm in conjunction with RAID and monitoring software) • HDD3 ALARM (hard disk alarm in conjunction with RAID and monitoring software) |

| SIMATIC IPC847C | |
|--|--|
| Ambient conditions | |
| Degree of protection | <ul style="list-style-type: none"> • IP41 at the front, IP20 at the rear acc. to EN 60529 |
| Dust protection | <ul style="list-style-type: none"> • With front door closed: G2 EN 779, 99% of particles > 0.5 mm are held back |
| Protection class | <ul style="list-style-type: none"> • Protection class I according to IEC 61140 |
| Vibration load during operation | EN 60068-2-6, 10 cycles Internal mounting of the hard disk drives in optional, internal drive supports: <ul style="list-style-type: none"> • 10 ... 58 Hz: 0.0375 mm; • 58 ... 500 Hz: 5 m/s² (ca. 0.5 g) Permanently installed internal hard disk drives: <ul style="list-style-type: none"> • 10 ... 58 Hz: 0.019 mm; • 58 ... 500 Hz: 3 m/s² (ca. 0.3 g) Note: Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Shock load during operation | EN 60068-2-27, IEC 60068-2-29 Internal mounting of the hard disk drives in optional, internal drive supports: <ul style="list-style-type: none"> • Half-sine: 50 m/s², 30 ms (ca. 5 g), 100 shocks per axis Permanently installed internal hard disk drives: <ul style="list-style-type: none"> • 30 m/s², 30 ms (ca. 3 g) Note: Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Electromagnetic compatibility (EMC) | |
| Radiated interference (AC) | EN 61000-6-3 FCC Class A EN 61000-3-2 Class D and EN 61000-3-3 |
| Immunity to conducted interference on the supply lines | <ul style="list-style-type: none"> • ± 2 kV (IEC 61000-4-4, burst) • ± 1 kV (IEC 61000-4-5, symm. surge) • ± 2 kV (IEC 61000-4-5, asymm. surge) |
| Immunity to interference on signal lines | <ul style="list-style-type: none"> • ± 1 kV (IEC 61000-4-4, burst, length < 30 m) • ± 2 kV (IEC 61000-4-4, symm. surge, length > 30 m) • ± 2 kV (IEC 61000-4-5, asymm. surge, length > 30 m) |
| Immunity to static discharge | <ul style="list-style-type: none"> • ± 6 kV, contact discharge (IEC 61000-4-2) • ± 8 kV, air discharge (IEC 61000-4-2) |

Technical specifications (continued)

| SIMATIC IPC847C | |
|---|--|
| Immunity to high radio frequency interference | <ul style="list-style-type: none"> • 1 V/m 80% AM; 2-2.7 GHz (IEC 61000-4-3) • 10 V/m 80% AM; 80 MHz to 1 GHz and 1.4 GHz and 2 GHz (IEC 61000-4-3); • 10 V, 10 kHz to 80 MHz (IEC 61000-4-6) |
| Immunity to magnetic fields | 100 A/m, 50/60 Hz (IEC 61000-4-8) |
| Ambient temperature during operation | 5 ... 50 °C Note: Limitations when DVD-ROM and DVD+/-RW operated in a swap frame |
| Relative humidity during operation | 5 ... 80% at 25 °C (no condensation) |

- ¹⁾ Memory information: In order to use a memory expansion with more than 4 GB, a 64-bit operating system is required. In configurations with at least 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems) and in configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.
- ²⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).
- ³⁾ SATA RAID controller on board in Intel chipset

| SIMATIC IPC847C | |
|--|--|
| Approvals | |
| Safety regulations | IEC 60950-1 Second Edition, EN 60950-1:2006, UL 60950-1 Second Edition CSA C22.2 No 60950-1-07 Second Edition |
| Approvals | cULus 60950-1 Second Edition |
| CE mark | <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-3:2007 • Noise immunity: EN 61000-6-2:2005 |
| Dimensions and weights | |
| Mounting dimensions (W x H x D, in mm) | 430 x 177 x 448 |
| Weight | Minimum 16 kg, maximum 23 kg |

Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the supplied SIMATIC PC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

PC-based Automation

Rack PC

SIMATIC IPC847C

Ordering data

Order No.

Configuration ¹⁾

SIMATIC IPC847C

D

6AG4 114 - 1 ■ ■ ■ ■ - ■ ■ ■ ■

Interfaces: 2 x 10/100/1000 Mbit/s Ethernet (RJ45); 1 x graphic (DVI-I); 2 x COM; 1 x LPT; 2 x PS/2; 4 x USB 2.0 at rear, 2 x USB 2.0 at front; 1 x USB 2.0 internal; audio; temperature and fan monitoring; watchdog; card retainer

Processor, motherboard:

- Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard without fieldbus
- Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard with PROFIBUS/MPI
- Core i3-330E (2C/4T; 2.13 GHz, 3 MB cache), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾
- Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard without fieldbus
- Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI
- Core i5-520E (2C/4T; 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard without field bus
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI
- Core i7-610E (2C/4T; 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ²⁾

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Order No.

Configuration ¹⁾

SIMATIC IPC847C

(continued)

D

6AG4 114 - 1 ■ ■ ■ ■ - ■ ■ ■ ■

Hard disks:

- 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal
- 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal
- 2 x 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal
- RAID1 500 GB (2 x 500 GB HDD SATA, mirror disks); 0.5 g vibration, 5 g shock, internal
- 250 GB HDD SATA; 0.3 g vibration, 3 g shock, internal
- 250 GB HDD SATA in swap frame; front
- 500 GB HDD SATA in swap frame; front
- 2 x 500 GB HDD SATA in swap frame; front
- RAID1 500 GB (2 x 500 GB HDD SATA) in swap frame, for hot swapping; front
- RAID5 1 TB (3 x 500 GB HDD SATA) in swap frame, for hot swapping; front
- 32 GB SSD (SLC) SATA, internal
- 32 GB SSD (SLC) SATA in swap frame; front

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Memory expansion:

- 1 GB DDR3 SDRAM (1 x 1 GB), single channel
- 2 GB DDR3 SDRAM (1 x 2 GB), single channel
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel
- 6 GB DDR3 SDRAM (1 x 2 GB, 1 x 4 GB), dual channel
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel
- 2 GB DDR3 SDRAM (2 x 1 GB), dual channel
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel

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D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

²⁾ Not in combination with Windows 7 and Windows Server 2008

| Ordering data | Order No. | Ordering data | Order No. |
|--|----------------|---|----------------|
| Configuration ¹⁾ | | Configuration ¹⁾ | |
| SIMATIC IPC847C (continued) | D 6AG4 114 - 1 | SIMATIC IPC647C (continued) | D 6AG4 114 - 1 |
| <u>Swap media:</u> | | <u>Operating system (preinstalled and activated)</u> | |
| • DVD-ROM | 1 | • Windows XP Professional, MUI (Eng, Ger, Fr, It, Sp), SP3, 32 bit | B |
| • DVD+/-RW | 2 | • Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 32 bit | E |
| • Without swap medium | 8 | • Windows Server 2008 Standard Edition incl. 5 clients, MUI (Eng, Fr, Ger, It, Sp), SP2, 32 bit | P |
| <u>Bus module / hardware expansion</u> | | • Without operating system | X |
| • Bus module, 8 slots: 7 x PCI, 1 x PCIe x16; without hardware expansions | 0 | <u>Software expansion</u> | |
| • Bus module, 8 slots: 7 x PCI; 1x PCIe x16; DVI-VGA adapter (1 x VGA) for onboard graphics | 1 | • SIMATIC IPC DiagMonitor 4.2 included | A |
| • Bus module, 8 slots: 7x PCI; 1x PCIe x16 assigned; + graphic card PCIe x16, 2 x DP (2 x DVI-D via 2 x DP-DVI adapters) | 2 | • SIMATIC IPC Image Creator software 3.1 included | B |
| • Bus module, 8 slots: 7x PCI; 1x PCIe x16 assigned; + graphic card PCIe x16, 2 x DP (2 x VGA via 2 x DP-VGA adapters) | 3 | • SIMATIC IPC DiagMonitor 4.2 & Image Creator software 3.1 included | C |
| • Bus module, 11 slots: 7 x PCI, 1 x PCIe x16, 3 x PCIe x4; without hardware expansions | 4 | • Without software | X |
| • Bus module, 11 slots: 7 x PCI, 1x PCIe x16, 3 x PCIe x4; + DVI-VGA adapter (VGA) for onboard graphics | 5 | <u>Power supply, country-specific cable</u> | |
| • Bus module, 11 slots: 7 x PCI; 1x PCIe x16 assigned, 3 x PCIe x4; + graphic card PCIe x16, 2 x DP (2 x DVI-D via 2 x DP-DVI adapters) | 6 | • 100/240 V AC industrial power supply with Namur; power cable for Europe | 0 |
| • Bus module, 11 slots: 7x PCI; 1x PCIe x16 assigned; 3x PCIe x4; + graphic card PCIe x16, 2 x DP (2 x VGA via 2 x DP-VGA adapters) | 7 | • 100/240 V AC industrial power supply with Namur; power cable for United Kingdom | 1 |
| | | • 100/240 V AC industrial power supply with Namur; power cable for Switzerland | 2 |
| | | • 100/240 V AC industrial power supply with Namur; power cable for USA | 3 |
| | | • 100/240 V AC industrial power supply with Namur; power cable for Italy | 4 |
| | | • 100/240 V AC industrial power supply with Namur; power cable for China | 5 |
| | | • 100/240 V AC industrial redundant power supply unit with Namur; without power cable | 6 |

D: Subject to export regulations: AL: N and ECCN: 5D992

1) For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

PC-based Automation

Rack PC

SIMATIC IPC847C

Ordering data

Accessories

Memory expansion

- 1 GB DDR3 1066 SDRAM, DIMM A
- 2 GB DDR3 1066 SDRAM, DIMM A
- 4 GB DDR3 1066 SDRAM, DIMM A
- 1 GB DDR3 1066 SDRAM, DIMM, ECC A
- 2 GB DDR3 1066 SDRAM, DIMM, ECC A
- 4 GB DDR3 1066 SDRAM, DIMM, ECC A

6ES7 648-2AJ40-0KA0

6ES7 648-2AJ50-0KA0

6ES7 648-2AJ60-0KA0

6ES7 648-2AJ40-1KA0

6ES7 648-2AJ50-1KA0

6ES7 648-2AJ60-1KA0

Hard disk slide-in unit for swap frame

SIMATIC PC accessories, slide-in unit for low-profile HDD swap frame, for 3.5" hard disk, serial ATA (without hard disk)

6ES7 648-0EG00-1BA0

Filter mats

For Rack PC 847B and IPC847C
Packing unit 10 units

A5E01064980

Power cable, straight, 3 m long

- Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden
- United Kingdom
- Switzerland
- USA
- Italy
- China

6ES7 900-0AA00-0XA0

6ES7 900-0BA00-0XA0

6ES7 900-0CA00-0XA0

6ES7 900-0DA00-0XA0

6ES7 900-0EA00-0XA0

6ES7 900-0FA00-0XA0

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

Order No.

Order No.

Tower Kit

for converting the computer into an industrial tower PC

6ES7 648-1AA00-0XD0

Retainer

for pin assignment of the internal USB port

6ES7 648-1AA00-0XK0

SIMATIC PC keyboard

German/international,

- USB port
- incl. 4-way USB hub

6ES7 648-0CB00-0YAO

6ES7 648-0CD00-0YAO

SIMATIC PC mouse

(optical, 3-button) for programming device and PC with adapter

6ES7 790-0AA01-0XA0

SIMATIC IPC USB FlashDrive

8 GB, USB 2.0, metal enclosure, bootable

6ES7 648-0DC50-0AA0

SIMATIC IPC Service USB FlashDrive

8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD

6AV7 672-8JD01-0AA0

Communication products

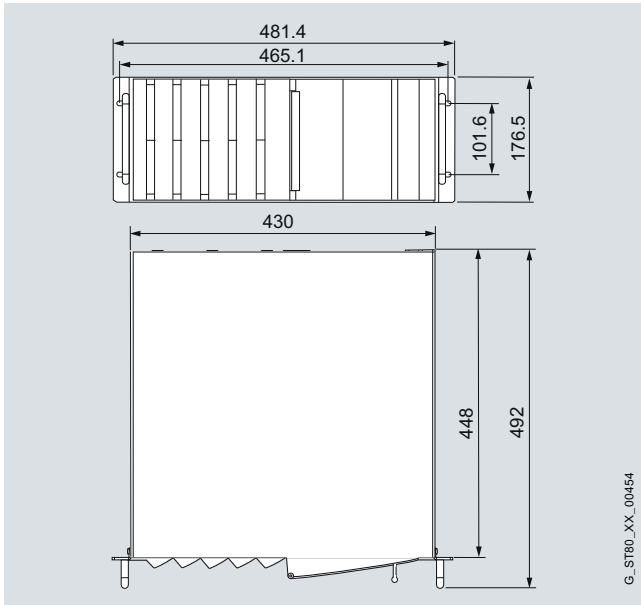
see expansion components

RMOS real-time operating system

see expansion components

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



Technical data for telescopic rails

| | |
|--|-----------|
| Carrying capacity per pair, min. | 30 kg |
| Extended length when fully withdrawn, min. | 470 mm |
| Rail thickness, max. | 9.7 mm |
| Fixing screws | M5 x 6 mm |

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

- Co. Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet
- Co. Schrock: Type 20110-072

More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

PC-based Automation

Rack PC

SIMATIC Rack PC 647B

Overview



The SIMATIC Rack PC 647B is an extremely rugged, powerful, industrial PC for installation in 19" racks (2 HU) with a high degree of industrial functionality.

It offers:

- extreme compactness
- extreme ruggedness
- Intel Core2 Duo technology

Benefits

Extremely compact and industry-compatible for 24-hour continuous use in an industrial environment

- Compact enclosure design (2 HU)
- Suitable for installing in space-saving control cabinets only 500 mm deep
- Maximum processor performance (in maximum configuration) without loss of power (throttling) at ambient temperatures of up to 50 °C
- Distinct product design with new front design and fully-coated, dirt-resistant surfaces
- All-metal housing with high EMC for use in industrial environment
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Special hard disk holders and card retainers for protection against vibration and shock

High productivity thanks to faster data processing

- State-of-the-art PC technology (e. g. Intel Core2 Duo and Extended Memory 64 (EM64T) processor technology)
- Maximum performance (e. g. Intel 945GM Express Chipset, DDR2 memory with the support of Dual Channel technology)
- High data transfer rates (e. g. with Serial ATA hard disks, dual Gigabit Ethernet)

Reduction in downtimes through high system availability

- Secure 24-hour operation (high MTBF, variable-speed fan)
- Efficient self-diagnostics (status display for Ethernet and PROFIBUS; alarm indication for fan, temperature, watchdog and hard disks in RAID1 configuration, SIMATIC PC DiagMonitor)
- High degree of data security due to mirrored drive system, optionally in "hot swap" frames
- Service-friendly device setup (modifications, service)

Cost reductions through high investment security

- Platform with long-term stability and embedded Intel components
- Availability of 3 to 5 years, guaranteed availability of spare parts for 5 years
- System-tested with SIMATIC components
- Certification for worldwide marketing (cULus)
- Support for legacy interfaces (PS/2, COM, LPT)
- Installation compatible for many device generations
- Worldwide service and support

Benefits (continued)

Reduced costs due to time savings for commissioning, operation and servicing

- Preinstalled and activated operating system
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- Low noise output thanks to controlled fan
- Universal implementation as an industrial workstation or server
- PROFIBUS or PROFINET interface and RAID1 controller onboard (optional)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with team capability)
- Fast identification and replacement of the hard disk in the event of a fault (e. g. front LEDs for HDD alarm in RAID1 configuration)
- High degree of flexibility and expansion thanks to integrated interfaces and up to 3 slots (PCI and PCI Express)

Application

The SIMATIC Rack PC 647B offers machine, plant and control cabinet builders a high-performance, highly flexible 19"-rack PC platform for industrial use at the machine:

- Measuring, open-loop control and closed-loop control of process data and machine data
- Visualization of production processes
- Image processing and evaluation in the context of quality inspection
- Data acquisition and management

The SIMATIC Rack PC 647B has CE marking for implementation in industrial environments as well as in domestic, commercial and office environments and can therefore be used in building automation or in public buildings as well as in industrial applications.

Design

Basic design

- All-metal 19" enclosure (2 HU) for high mechanical robustness (vibration/shock) and high EMC
- For mounting in a horizontal and prepared for the mounting of telescopic rails
- Lockable front door for authorized access (access protection) to swap media at the front, operating controls (Reset, Power), USB interface, front fan and dust filter
- Card retainer for PC modules for safe operation and transport (vibration, shock)
- Opening of the enclosure cover with only one screw and replacement of PC components (e. g. PC cards or HDD) with a single tool
- Front fan and dust filter can be replaced without tools
- Dust protection through pressurized cooling with front fan mounted in roller bearing via filter
- 3 slots for installing drives
 - Front: 2 x HDD swap frames (low profile); 1 x optical drive (slimline)
 - Internal: 2 x 3.5" (in the optional, shock and vibration-damped disk-drive support) as an alternative to swap frames
- Onboard graphics on the PCI Express bus, Intel GMA950 integrated to chipset, up to 2048 x 1536 pixels, 75 Hz, 16-bit colors
- Interfaces:
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45, teaming-capable)
 - 4 x USB 2.0 on the rear, 2 x USB 2.0 on the front (1 of which can be used with the door closed)
 - 2 x PS/2, COM1, COM2, LPT1, VGA
 - Audio: Line Out, Mic
- 3 spare slots for expansions (all long)
- Power supply: 100/240 V AC, 50/60 Hz, cable in country-specific design

PC-based Automation

Rack PC

SIMATIC Rack PC 647B

Design (continued)

Design versions

- Processor:
 - Intel Core2 Duo T7400, 2.16 GHz, 667 MHz FSB, 4 MB L2 cache with Extended Memory 64 (EM64) and virtualization technology (VT)
 - Intel Core2 Duo T5500 (1.66 GHz, 667 MHz FSB, 2 MB L2 Cache with Extended Memory 64 (EM64) technology)
 - Intel Celeron M 440, 1.86 GHz, 533 MHz FSB, 1 MB L2 cache
- Main memory expansion from 512 MB to 4 GB DDR2 667 SDRAM (configured as dual channel for top performance from 2 GB upwards)
- Fieldbus onboard:
 - PROFIBUS/MPI, CP 5611-compatible or PROFINET, 3 x RJ45, CP 1616-compatible
- Bus modules with 3 free slots (2 x PCI or 1 x PCI, 1 x PCI Express x4; 1 x PCI Express x16)
- Graphic expansion:
 - PCI-Express graphic card x16, (Dual Head: 2 x VGA or 2 x DV-I), 128 MB, up to 2048 x 1536 pixels, 75 Hz, 32 bit colors
 - ADD card via PCI Express x16 slot, (1 x DVI-D) for connecting a digital monitor
- Drives:
 - Serial ATA 3.5" hard disks with NCQ technology: Mounted internally on the permanent hard disk support (1x 160 GB)
 - Mounted internally in vibration/shock-absorbing hard-disk support or at the front in a swap frame (hot-swap in RAID1 configuration):
 - 1 x 160 GB
 - 1 x or 2 x 250 GB
 - RAID1, 2 x 250 GB (RAID controller onboard)
 - Optical drive DVD±R/RW slimline
 - CompactFlash drive, internal
- Country-specific power cable
- Preinstalled operating systems:
 - Windows XP Professional multi language
 - Windows Vista Ultimate multi language
 - Windows Server 2003 Standard Edition incl. 5 Client multi language
- SIMATIC PC DiagMonitor ¹⁾
- SIMATIC PC/PG Image Creator ¹⁾

¹⁾ Further information can be found under "Expansion components".



Front SIMATIC Rack PC 647B, with opened front door



Rear SIMATIC Rack PC 647B

Function

Dual Core processor technology

Thanks to the use of two processor cores, the Dual Core processors are ideally suited to multi-thread application programs and multitasking. Several demanding applications – such as highly graphical visualization applications or highly computational programs can execute simultaneously and therefore enhance the speed of the system response.

Thanks to energy-optimized dual core technology and outstanding energy-saving properties, the Intel®Core™ 2 Duo processors operate without any loss of performance even at increased temperatures up to 50 °C in very demanding applications.

The SIMATIC Rack PC 647B is preconfigured for dual core technology with Intel®Core™ 2 Duo processors and Microsoft Windows XP Professional or Windows Server 2003 and offers higher performance and better multitasking in the industrial environment.

Multi-display technology

The multi-display architecture with its modern functions for desktop and application management supports working with several screens and therefore considerably enhances productivity. The SIMATIC Rack PC 647B with its optional Dual Head graphic card (PCI Express x16) is optimized for industrial multi-display environments. The following multidisplay modes are supported: Native DualView, Span or Big Desktop, Clone.

Connection options: 2 x VGA or 2 x DVI-D

Monitoring functions

Integrated monitoring functions (program execution (watchdog), temperature, fan speed and hard disk status in RAID configuration)

Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor):

- Runtime meter
- Hard disk status
- System status (Heart Beat)
- Automatic logging of all alarms by means of a log file
- Capability for central monitoring of networked SIMATIC PCs
- RAID1 (RAID controller onboard) for automatic data mirroring on two SATA hard disks

Integration

Integrated interfaces:

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or for coupling to the SIMATIC S7 (with the "SOFTNET for PROFIBUS" software package).
- **PROFINET**
The optional PROFINET interface can be used for connecting distributed field devices or for controlling drives.
- **Further interfaces**
For connecting additional I/O devices, there are 2 free slots for PCI modules, 1 free PCI Express x16 slot for optional graphic expansions and six USB 2.0 as well as two serial interfaces and one parallel interface.

PC-based Automation

Rack PC

SIMATIC Rack PC 647B

Technical specifications

| SIMATIC Rack PC 647B | |
|---------------------------------------|---|
| General features | |
| Design | 19" rack, 2 HU, external coating |
| Processor | <ul style="list-style-type: none"> Intel Core2 Duo T7400 (2.16 GHz, 667 MHz FSB, 4 MB L2 Cache with extended memory 64 (EM64) technology) and virtualization technology (VT) software Intel Core2 Duo T5500 (1.66 GHz, 667 MHz FSB, 2 MB L2 Cache with extended memory 64 (EM64) technology) Intel Celeron M 440 (1.86 GHz, 533 MHz FSB, 1 MB L2 cache) |
| Chipset | Intel 945 GM |
| Main memory | <ul style="list-style-type: none"> From 512 MB DDR2 667 SDRAM Dual channel support 2 SODIMM base Expandable up to 4 GB |
| Spare slots for expansions (all long) | <ul style="list-style-type: none"> 2 x PCI 1 x PCI-Express x16 (PEG) or <ul style="list-style-type: none"> 1 x PCI 1 x PCI-Express x4 1 x PCI-Express x16 (PEG) |
| Graphics | <ul style="list-style-type: none"> Onboard Intel GMA950 graphics controller integrated into chipset; Dynamic Video Memory; up to 2048 x 1536 pixels for 75 Hz display refresh rate and 16 bit colors PCI-Express graphic card (Dual Head: 2 x VGA or 2 x DVI-D) in the PCIe x16 slot; 128 MB; up to 2048 x 1536 pixels at 75 Hz display refresh rate and 32 bit colors (optional) |
| Operating system | <ul style="list-style-type: none"> without MUI: Multilanguage User Interface; 5 languages (English, French, German, Italian, Spanish) Preinstalled/supplied on Restore DVD Project-specific on request ¹⁾ <ul style="list-style-type: none"> Windows XP Professional MUI Windows Vista Ultimate MUI Windows Server 2003 incl. 5 Client MUI MUI: Multilanguage User Interface; 5 languages (English, French, German, Italian, Spanish) Project-specific on request ¹⁾ <ul style="list-style-type: none"> Other |
| Power supply | 100/240 V AC, 50 to 60 Hz; with bridging of temporary supply failures according to NAMUR: Max. 20 ms at 0.85% rated voltage |

| SIMATIC Rack PC 647B | |
|--|--|
| Drives | |
| Hard disk, 3.5" Serial ATA with NCQ technology | Mounted in internal shock/vibration-resistant disk drive support <ul style="list-style-type: none"> 160 GB 250 GB 2 x 250 GB RAID1 ²⁾, 2 x 250 GB (mirror disks) or Mounted in front drive support in swap frame (low profile) <ul style="list-style-type: none"> 160 GB 250 GB 2 x 250 GB RAID1 ²⁾, 2 x 250 GB, (mirror disks), for hot swapping |
| DVD+/-R/RW, slimline | <ul style="list-style-type: none"> 8 x 8 x 6 x (DVD media) 24 x 24 x 24 x (CD media) |
| Slots for drives | Front: <ul style="list-style-type: none"> 2 x low profile swap frames (for 3.5" HDD) 1 x 12.7 mm slimline (for ODD) Internal: <ul style="list-style-type: none"> 2 x 3.5" as an alternative to swap frames (in the optional, shock and vibration-damped disk-drive support) 1 x CompactFlash drive, optional |
| Interfaces | |
| PROFINET | 3 x RJ45 (CP 1616-compatible), optional |
| PROFIBUS/MPI | 12 Mbit/s (isolated, compatible with CP 5611), optional |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ45, team-capability) |
| USB | <ul style="list-style-type: none"> 2 x at front (high current); high-speed USB 2.0 4 x at rear (high current); high-speed USB 2.0 |
| Serial | <ul style="list-style-type: none"> 9-pin COM1 (V.24) 9-pin COM2 (V.24) |
| Parallel | LPT1 |
| VGA | 1 x |
| Keyboard | PS/2 |
| Mouse | PS/2 |
| Audio | 1 x Line Out; 1 x Micro |

¹⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

²⁾ SATA RAID controller on board in Intel ICH7R chipset

Technical specifications (continued)

| SIMATIC Rack PC 647B | |
|--------------------------------------|---|
| Monitoring functions | |
| Basic functionality | Message locally via SOM (safecard on motherboard) software |
| Temperature | <ul style="list-style-type: none"> • Overshoot/undershoot of permissible operating temperature range • Messages can be evaluated by the application program |
| Fan | <ul style="list-style-type: none"> • Speed monitoring <ul style="list-style-type: none"> - 2 x housing fan (front) - 1 x fan power supply |
| Watchdog | <ul style="list-style-type: none"> • Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program |
| Monitoring functions via the network | SIMATIC PC DiagMonitor (optional) Version 3.2 and higher <u>Remote monitoring capability for:</u> <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • System/Ethernet monitoring (Heart Beat) <u>Communication:</u> <ul style="list-style-type: none"> • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Layout of log files |
| Front LEDs | <ul style="list-style-type: none"> • POWER (internal power supply unit, PC switched on) • HARDDISK (access to hard disk) • ETHERNET1 (Ethernet status, "Heart Beat") • ETHERNET2 (Ethernet status, "Heart Beat") • PROFIBUS/MPI (PROFIBUS status) • SF PROFINET (PROFINET status) • WATCHDOG (ready/fault indication) • TEMP (temperature status) • FAN (fan speed monitoring) • HDD1 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software) • HDD2 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software) |

| SIMATIC Rack PC 647B | |
|--|--|
| Ambient conditions | |
| Degree of protection | IP41 at the front, IP20 at the rear acc. to EN 60529 |
| Dust protection | With front door closed: G2 EN 779, 99% of particles > 0.5 mm are held back |
| Protection class | Protection class I according to IEC 61140 |
| Vibration load during operation | EN 60068-2-6, 10 cycles <u>Internal mounting of the hard disk drives in optional, internal drive supports:</u> 10 ... 58 Hz: 0.0375 mm; 58 ... 500 Hz: 5 m/s ² (ca. 0.5 g) <u>Note:</u> Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Shock load during operation | EN 60068-2-27, IEC 60068-2-29 <u>Internal mounting of the hard disk drives in optional, internal drive supports:</u> Half-sine: 50 m/s ² , 30 ms (ca. 5 g), 100 shocks per axis <u>Note:</u> Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Electromagnetic compatibility (EMC) | |
| <ul style="list-style-type: none"> • Radiated interference (AC) • Immunity to conducted interference on the supply lines | EN 55022 Class B; FCC Class A ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, symm. surge) ± 2 kV (IEC 61000-4-5, asymm. surge) ± 1 kV (IEC 61000-4-4, burst, length < 3 m) ± 2 kV (IEC 61000-4-4, symm. surge, length > 3 m) ± 2 kV (IEC 61000-4-5, asymm. surge, length > 30 m) ± 6 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) 1 V/m 80% AM 1 kHz; 2 ... 2.7 GHz (IEC 61000-4-3) 10 V/m 80% AM 1 kHz; 80 MHz ... 1 GHz and 1.4 GHz ... 2 GHz (IEC 61000-4-3); 10 V, 10 kHz to 80 MHz (IEC 61000-4-6) 100 A/m, 50/60 Hz (IEC 61000-4-8) |
| <ul style="list-style-type: none"> • Immunity to interference on signal lines | |
| <ul style="list-style-type: none"> • Immunity to static discharge | |
| <ul style="list-style-type: none"> • Immunity to high radio frequency interference | |
| <ul style="list-style-type: none"> • Immunity to magnetic fields | |

PC-based Automation

Rack PC

SIMATIC Rack PC 647B

Technical specifications (continued)

| SIMATIC Rack PC 647B | |
|--|--|
| Ambient temperature during operation | 5 ... 50 °C <u>Note:</u> Limitations when DVD+/-RW and HDD are operated in a swap frame |
| Relative humidity during operation | 5 ... 85% at 30 °C (no condensation) |
| Approvals | |
| Safety regulations | IEC 60950-1, EN 60950-1, UL 60950, CSA C22.2 No 60950 |
| Approvals | cULus 60950 |
| CE mark | Use in industry: • Noise immunity: EN 61000-6-2:2005 Use in domestic environments: • Emitted interference: EN 61000-6-3:2007 |
| Dimensions and weights | |
| Mounting dimensions (W x H x D, in mm) | 430 x 88 x 445 |
| Weight | Minimum 16 kg, maximum 23 kg |

Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the supplied SIMATIC PC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

| Ordering data | Order No. | Order No. | |
|---|--------------|---|--------------|
| Configuration ³⁾ | | Configuration ³⁾ | |
| SIMATIC Rack PC 647B | D 6AG4 112-0 | SIMATIC Rack PC 647B | D 6AG4 112-0 |
| Interfaces: 2 x 10/100/1000 Mbit/s Ethernet (RJ45); 1 x graphic (VGA); 2 x COM; 1 x LPT; 2 x PS/2; 4 x USB 2.0 at rear, 2 x USB 2.0 at front; audio; drive slots: 3 (2 x low-profile swap frame, 1 x slimline ODD externally accessible; 2 x 3.5" internally accessible, alternative to swap frame), temperature and fan monitoring, watchdog, card retainer; | | Hard disks: | |
| <u>Processor/motherboard</u> | | | |
| • Celeron M 440 (1.86 GHz, 1 MB L2 cache), motherboard without fieldbus | A | • 160 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | A |
| • Celeron M 440 (1.86 GHz, 1 MB L2 cache), motherboard with PROFIBUS/MPI | B | • 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | B |
| • Celeron M 440 (1.86 GHz, 1 MB L2 cache), motherboard with PROFINET (3 x RJ45, CP 1616 compatible) ¹⁾ | C | • 2 x 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal | C |
| • Core2 Duo T5500 (1.66 GHz, 2 MB L2 cache, EM64-T), motherboard without fieldbus | G | • RAID1 (2 x 250 GB HDD SATA, mirror disks); 0.5 g vibration, 5 g shock, internal | D |
| • Core2 Duo T5500 (1.66 GHz, 2 MB L2 cache, EM64-T), motherboard with PROFIBUS/MPI | H | • 160 GB HDD SATA in swap frame; front | H |
| • Core2 Duo T5500 (1.66 GHz, 2 MB L2 cache, EM64-T), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ¹⁾ | J | • 250 GB HDD SATA in swap frame; front | K |
| • Core2 Duo T7400 (2.16 GHz, 4 MB L2 cache, EM64-T, VT), motherboard without fieldbus | K | • 2 x 250 GB HDD SATA in swap frame; front | M |
| • Core2 Duo T7400 (2.16 GHz, 4 MB L2 cache, EM64-T, VT), motherboard with PROFIBUS/MPI | L | • RAID1 (2 x 250 GB HDD SATA) in swap frame, for hot swapping; front | P |
| • Core2 Duo T7400 (2.16 GHz, 4 MB L2 cache, EM64-T, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) ¹⁾ | M | | |
| | | <u>Memory expansion:</u> | |
| | | • 512 MB DDR2 SDRAM (1 x 512 MB), single channel | 1 |
| | | • 1 GB DDR2 SDRAM (1 x 1 GB), single channel | 2 |
| | | • 2 GB DDR2 SDRAM (2 x 1 GB), dual channel | 3 |
| | | • 4 GB DDR2 SDRAM (2 x 2 GB), dual channel | 4 |
| | | <u>Swap media:</u> | |
| | | • CompactFlash drive, internal | 0 |
| | | • DVD±RW | 1 |
| | | • without swap medium | 8 |

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ Not in combination with Windows 2003 Server²⁾ Not in combination with Windows Vista Ultimate³⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

PC-based Automation

Rack PC

SIMATIC Rack PC 647B

Ordering data

Order No.

Order No.

Configuration ³⁾

SIMATIC Rack PC 647B (continued)

Bus module / hardware expansion

- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16; without hardware
expansions 0
- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16 assigned; + DVI
extension adapter (DVI-D) 1
- Bus modules 3 slots: 2 x PCI;
1 x PCIe x16 assigned; +
graphic card PCIe x16, DH
(2 x DVI or 2 x VGA) 2
- Bus modules 3 slots: 1 x PCI,
1 x PCIe x4; 1 x PCIe x16;
without hardware expansions 3
- Bus modules 3 slots: 1 x PCI,
1 x PCIe x4; 1 x PCIe x16
assigned; + DVI extension
adapter (DVI-D) 4
- Bus modules 3 slots: 1 x PCI,
1 x PCIe x4; 1 x PCIe x16
assigned; + graphic card PCIe
x16, DH (2 x DVI or 2 x VGA) 5

Operating system (preinstalled and activated)

- Windows XP Professional, MUI
(Eng, Ger, Fr, It, Sp), SP2; SP3
assigned B
- Windows Vista Ultimate, MUI
(Eng, Ger, Fr, It, Sp); SP1
assigned C
- Windows Server 2003 Standard
Edition incl. 5 Client, MUI (Eng,
Ger, Fr, It, Sp), SP1; SP2
assigned M
- Without operating system X

Expansion (software)

- SIMATIC PC DiagMonitor 3.2 ²⁾
software enclosed A
- SIMATIC PC Image Creator 2.1
software enclosed B
- SIMATIC PC DiagMonitor 3.2 ²⁾
and Image Creator 2.1 software
enclosed C
- Without software X

Power supply, with country- specific cable:

- 100/240 V AC industrial power
supply with Namur; power cable
for Europe 0
- 100/240 V AC industrial power
supply with Namur; power cable
for United Kingdom 1
- 100/240 V AC industrial power
supply with Namur; power cable
for Switzerland 2
- 100/240 V AC industrial power
supply with Namur; power cable
for USA 3
- 100/240 V AC industrial power
supply with Namur; power cable
for Italy 4
- 100/240 V AC industrial power
supply with Namur power cable
for China 5

Accessories

Memory expansion

- 512 MB DDR2 667 SDRAM,
SO DIMM A **6ES7 648-2AG30-0HA0**
- 1 GB DDR2 667 SDRAM,
SO DIMM A **6ES7 648-2AG40-0HA0**
- 2 GB DDR2 667 SDRAM,
SO DIMM A **6ES7 648-2AG50-0HA0**

Power cable, straight, 3 m long

- Austria, Belgium, Finland,
France, Germany, Netherlands,
Spain, Sweden **6ES7 900-0AA00-0XA0**
- United Kingdom **6ES7 900-0BA00-0XA0**
- Switzerland **6ES7 900-0CA00-0XA0**
- USA **6ES7 900-0DA00-0XA0**
- Italy **6ES7 900-0EA00-0XA0**
- China **6ES7 900-0FA00-0XA0**

Expansion components

SIMATIC PC keyboard German/international

- USB port **6ES7 648-0CB00-0YA0**
- incl. 4-way USB hub A **6ES7 648-0CD00-0YA0**

SIMATIC PC mouse

- (optical, 3-button) for PG and PC
with adapter A **6ES7 790-0AA01-0XA0**

SIMATIC IPC USB FlashDrive

- 8 GB, USB 2.0, metal enclosure,
bootable A **6ES7 648-0DC50-0AA0**

SIMATIC IPC Service USB FlashDrive

- 8 GB, USB 2.0, metal enclosure,
bootable, with BIOS-Manager,
Image & Partition Creator pre-
installed, incl. CD B **6AV7 672-8JD01-0AA0**

Communication products

see expansion components

Power supplies and DC UPS

see expansion components

RMOS real-time operating system

see expansion components

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ Not in combination with Windows 2003 Server

²⁾ Not in combination with Windows Vista Ultimate

³⁾ For an up-to-date overview, see the SIMATIC PC online configurator
at: www.siemens.com/ipc-configurator

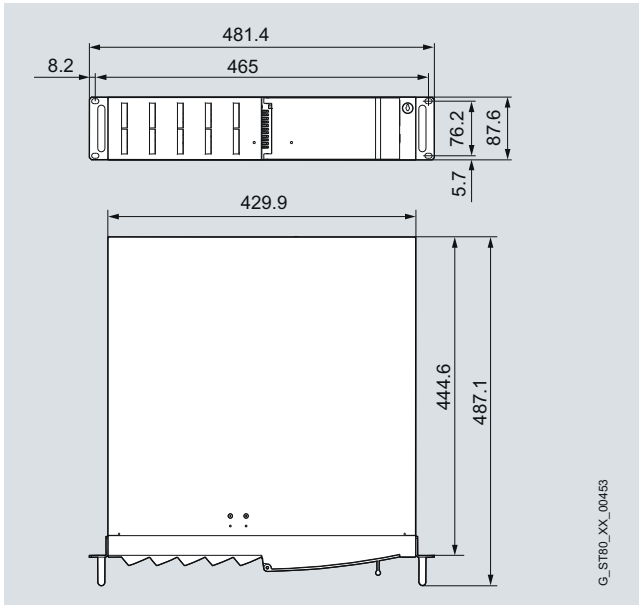
Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



Technical specifications of the telescopic rails

| | |
|---|-----------|
| Carrying capacity per pair, min. | 30 kg |
| Extension length for full extension, min. | 470 mm |
| Rail thickness, max. | 9.7 mm |
| Fastening screws | M5 x 6 mm |

The fastening screws for the telescopic rails are permitted to extend 5 mm into the housing.

The housing is prepared for the following telescopic rails:

- Co. Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet

More information

Further information can be found on the Internet at:

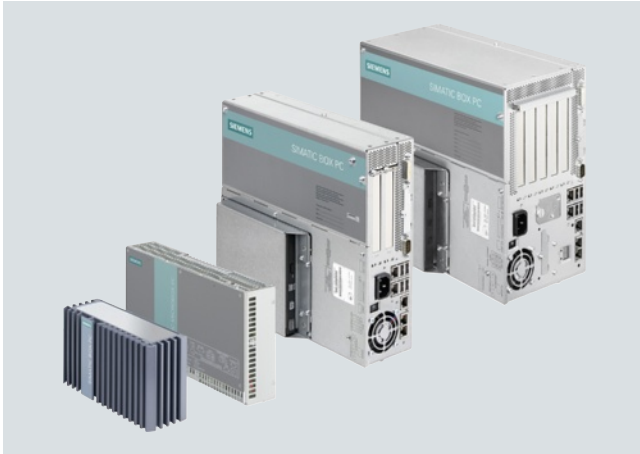
www.siemens.com/simatic-pc

PC-based Automation

Box PC

Box PC

Overview



SIMATIC Box PC provide mechanical engineers, plant engineers and control cabinet makers with particularly rugged industrial PC systems for use in powerful yet compact applications.

The following device classes are available for various requirements:

- SIMATIC IPC227 (Nanobox PC) – the new Nanobox PC with maximum flexibility – absolutely maintenance-free
- SIMATIC IPC427 (Microbox PC) – ultra-compact and maintenance-free: The flexible embedded industrial PC
- SIMATIC IPC627 (Box PC) – maximum performance in the most restricted space
- SIMATIC IPC827 (Box PC) – maximum performance with high expandability

Shared industrial functionality:

- Extreme compactness
- Certification for global marketing
- System-tested with SIMATIC components
- High vibration/shock load during operation
- Wide operational temperature range
- Robust data storage with CompactFlash or Solid-State Drive (SSD)
- Integrated PROFIBUS or PROFIBUS/MPI interface (optional)
- Varied mounting possibilities for flexibility with installation
- Designed for 24-hour continuous operation
- Integrated parameterizable monitoring functions (temperature, fan, watchdog)
- High service friendliness
- Operating system preinstalled and activated for fast startup
- Motherboard developed and manufactured by Siemens
- Availability for 3 to 5 years
- Repairs and spare parts service for 5 years
- High continuity of the components/design
- Installation and software compatible with predecessor model
- Long-term availability of PC components from the Intel embedded line

SIMATIC IPC227D – for implementation of simple control, data collection or communication tasks

- Maximum compactness with approx. 1 liter enclosure volume with integrated industrial power supply for minimum space requirements in the control cabinet
- Maximum flexibility thanks to four mounting options and interfaces on one side suitable for every installation situation
- Optimum variety of interfaces due to a large number of integrated interfaces such as a selectable serial port (RS232/RS485/CAN) and 2 x teaming-capable Gigabit LAN
- Maximum industrial functionality due to closed enclosure for optimum dust protection and non-volatile retentive memory
- Further device options for optimum adaptation to the application with additional PCIe slot or RS232 interfaces or digital input/output

Overview (continued)**SIMATIC IPC427 (Microbox PC) – ultra-compact and maintenance-free: the flexible embedded industrial PC**

- Fanless operation
- High performance with highly compact design
- Optimized for embedded applications
- Expandable with as many as 3 PC/104-Plus or PCI-104 I/O cards
- Flexible installation options due to DIN rail/wall/front upright mounting, even outside a control cabinet

SIMATIC IPC627 (Box PC) – maximum performance in the most restricted space

- Maximum system performance for complex measuring, control and visualization tasks
- Highly compact for space-saving installation with compact enclosure design (6 liters in volume)
- Flexible, space-saving installation with mounting brackets or portrait assembly kits
- Rugged design for direct installation in the machine
- RAID1 controller onboard
- Maximum processor performance up to ambient temperature of 55 °C
- High shock/vibration resistance in all possible mounting positions
- High system availability
- Battery-backed SRAM as memory for WinAC data
- 2 x 7-segment display and 2 signal LEDs (freely programmable)

SIMATIC IPC827 (Box PC) – maximum performance with high expandability

- Maximum system performance for complex measuring, control and visualization tasks
- High flexibility with 5 expansion slots and integrated interfaces
- Flexible, space-saving installation with mounting brackets or portrait assembly kits
- Rugged design for direct installation in the machine
- RAID1 controller onboard
- Maximum processor performance up to ambient temperature of 55 °C
- High shock/vibration resistance in all possible mounting positions
- All interfaces on one side to allow optimum installation in control cabinet
- 2 CompactFlash drives, both accessible from the outside
- High system availability
- Battery-backed SRAM as memory for WinAC data
- 2 x 7-segment display and 2 signal LEDs (freely programmable)

| | SIMATIC IPC227D (Nanobox PC) | SIMATIC IPC427C (Microbox PC) | SIMATIC IPC627C (Box PC) | SIMATIC IPC827C (Box PC) |
|---------------------------|--|---|--|--|
| Design | | | | |
| Rail or wall mounting | • | • | - | - |
| Wall or portrait mounting | • Also: Side mounting | • | • | • |
| General features | | | | |
| Processor | <ul style="list-style-type: none"> • Intel Atom E660 1.3 GHz • Intel Atom E620 600 MHz | <ul style="list-style-type: none"> • Intel Core2 Duo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Core2 Solo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Celeron M 1.2 GHz, 800 MHz FSB, 1 MB SLC | <ul style="list-style-type: none"> • Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, 4 MB cache, TB, HT, VT-x, VT-d • Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, 3 MB cache, HT, VT-x • Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache | <ul style="list-style-type: none"> • Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, 4 MB cache, TB, HT, VT-x, VT-d • Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, 3 MB cache, HT, VT-x • Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache |
| Main memory | 512 MB, 1 GB | 1 GB, (2/4 GB optional) DDR3 SDRAM | 1 GB, expandable up to 4 GB, optional ECC | 1 GB, expandable up to 4 GB, optional ECC |
| Static RAM | 512 KB (MRAM) | 2 MB | 2 MB | 2 MB |
| Free slots for expansions | 1 x PCIe with PCIe enclosure option | Up to 3 x PCI-104 (with expansion frame) | 2 x PCI or 1 x PCI-Express x16 / 1 x PCI (175 mm / 265 mm) | 3 x PCI (290/290/240 mm), 1 PCI-Express x (185 mm) 1 x PCI-Express x16 (240 mm) |
| Graphics | Onboard | Onboard | Onboard | Onboard |

PC-based Automation

Box PC

Box PC

Overview (continued)

| | SIMATIC IPC227D (Nanobox PC) | SIMATIC IPC427C (Microbox PC) | SIMATIC IPC627C (Box PC) | SIMATIC IPC827C (Box PC) |
|---|---|--|--|--|
| Operating system | | | | |
| Without | • | • | • | • |
| Preinstalled and activated / supplied on restore CD | <ul style="list-style-type: none"> Windows XP Embedded Standard 2009, in combination with CF card of 2 GB or more, solid-state drive, or hard drive Windows XP Professional MUI (in combination with solid-state drive or hard drive) | <ul style="list-style-type: none"> Windows Embedded Standard 2009, in combination with CF card ≥ 2 GB, solid-state drive, or hard drive Windows XP Professional multi language; in combination with solid-state drive or hard drive Windows 7 Ultimate MUI Windows Embedded Standard 7 | <ul style="list-style-type: none"> Windows XP Professional MUI Windows Embedded Standard 2009 English on 8 GB CompactFlash Windows 7 Ultimate MUI | <ul style="list-style-type: none"> Windows XP Professional MUI Windows Embedded Standard 2009 English on 8 GB CompactFlash Windows 7 Ultimate MUI |
| Order separately | - | RMOS3 V3.50 | RMOS3 V3.50 | RMOS3 V3.50 |
| Project-specific on request | <ul style="list-style-type: none"> Linux ¹⁾ Other | <ul style="list-style-type: none"> Linux ¹⁾ Other | <ul style="list-style-type: none"> Linux ¹⁾ Other | <ul style="list-style-type: none"> Linux ¹⁾ Other |
| Interfaces | | | | |
| PROFINET onboard | Via standard Ethernet | 3 x RJ45 (CP 1616 compatible) onboard, optional | 3 x RJ45 (CP 1616 compatible) onboard, optional | 3 x RJ45 (CP 1616 compatible) onboard, optional |
| PROFIBUS/MPI | - | 12 Mbit/s (CP 5611-compatible), optional | 12 Mbit/s (CP 5611-compatible) onboard, optional | 12 Mbit/s (CP 5611-compatible) onboard, optional |
| Ethernet | 2 x 10/100/1000 Mbit/s | 2 x 10/100/1000 Mbit/s | 2 x 10/100/1000 Mbit/s | 1 x 10/100/1000 Mbit/s |
| USB 2.0 (high current) | 4 x | 4 x | 4 x | 4 x |
| VGA, LVDS, DVI | 1 x DVI-D | 1 x DVI-I (DVI and VGA) | 1 x DVI-I | 1 x DVI-I |
| Drives | | | | |
| Hard disks | 1 x 2.5" (optional) | 1 x 2.5" (optional) | <ul style="list-style-type: none"> 1 x 3.5" 2 x 2.5" RAID1/2 x 2.5" | <ul style="list-style-type: none"> 1 x 3.5" 2 x 2.5" RAID1/2 x 2.5" |
| Solid State Drive | 1 x 2.5" Solid-State Drive (optional) | 1 x 2.5" (optional SATA) | 1 x 2.5" SATA (optional) | 1 x 2.5" SATA (optional) |
| FlashDrive | 1 x externally accessible | <ul style="list-style-type: none"> 1 x externally accessible 1 x internal, in place of HDD, SSD (optional) | <ul style="list-style-type: none"> 1 x at the front, externally accessible 1 x internal, in place of HDD (optional) | <ul style="list-style-type: none"> 1 x at the front, externally accessible 1 x at the front, in place of HDD (optional) |
| Optical drives | - | - | DVD R/W | DVD R/W |
| Ambient conditions | | | | |
| Vibration/shock load during operation | | 1 g / 15 g (with Flash drive) | 1 g / 5 g | 1 g / 5 g |
| Ambient temperature during operation | 0 °C ... 50 °C | With maximum configuration: 0 ... 50/55 °C (with flash drive) 5 ... 40 °C (with hard disk) | With maximum configuration: 5 ... 45 °C 5 ... 50/55 °C (with 20/10 W load on PCI/PCI-Express bus) | With maximum configuration: 5 ... 45 °C 5 ... 50/55 °C (with 20/10 W load on PCI/PCI-Express bus) |

• Available

- Not available

¹⁾ Suitable for specific Linux versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for Linux", see www.siemens.com/simatic-pc/suited-for-linux (Linux is a trademark of Linus Torvald).

Benefits

Compact dimensions

The SIMATIC IPC227D is a particularly compact and energy-efficient PC in the Nano format. The heart of the Nanobox PC with particularly many mounting options are high-performance Intel Atom processors of the latest generation.

The SIMATIC IPC427 (Microbox PC) is an ultra-compact and rugged device for DIN rail mounting, portrait or wall mounting, and for use in the machine: mounting depth from 47 mm.

With a maximum mounting depth of 100 mm (80 mm without DVD drive), the SIMATIC IPC627 (Box PC) can be used even in the smallest of spaces. In addition, space-saving portrait mounting is possible with the SIMATIC Box IPC627/IPC827.

Rugged design

All designs aim to achieve maximum safety in the case of vibration and shock loads. For example, a special vibration-absorbing suspension of the hard disk ensures operational reliability, even at very high mechanical loads. A flash drive slot, which is easily accessible from outside, or the solid-state drive (SSD) in the single level cell (SLC) architecture, which is particularly suitable for industrial applications, is available for setting up low-maintenance, fault-tolerant, diskless systems. Thanks to its fan-free design and use of CompactFlash cards, the Microbox PC and the new Nanobox PC are especially suitable for maintenance-free 24-hour continuous operation.

Service-friendly device design

The Box PC can simply be folded out for speedy component replacement. The inside of the device is easily accessible for future expansions.

Integrated interfaces

On Box PCs, all interfaces are located on one side. Box PCs can be interfaced with the control/cell level via onboard Ethernet interfaces and communicate in the field via an integrated PROFIBUS interface, which is available as an option. External monitors or displays can be connected via a VGA or DVI-I interface.

Flexibility

Especially the SIMATIC IPC827 with its 5 free PC slots offers many expansion options. All Box PCs have CE certification for use in industrial applications and domestic/commercial applications and can therefore be used in building automation or public installations in addition to industrial applications.

Continuity

Thanks to motherboards developed and manufactured in-house, the SIMATIC Box PCs offer very high continuity and security of investment. The SIMATIC Box PC models can normally be ordered for a period of three years and spare parts are obtainable for at least 5 years after active marketing is concluded.

System availability

SIMATIC Box PCs can be ordered in custom configurations and are supplied ready for use. The high system availability by design can be further increased by means of additional data backup options (e.g. RAID system, SIMATIC PC Image&Partition Creator) and efficient software for self-diagnosis (SIMATIC IPC DiagMonitor).

More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Information material can be ordered or downloaded from the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

Box PC

SIMATIC IPC227D

Overview



SIMATIC IPC227D available for implementing simple control, data collector or communication tasks:

- Maximum compactness from approx. 1 liter enclosure volume with integrated industrial power supply for minimum space requirements in the control cabinet
- Maximum flexibility thanks four mounting options and interfaces on one side suitable for every installation situation
- Optimum variety of interfaces due to a large number of integrated interfaces such as a selectable serial port (RS232/RS485/CAN) and 2 x teaming-capable Gigabit LAN
- Maximum industrial functionality due to closed enclosure for optimum dust protection and non-volatile retentive memory
- Further device options for optimum adaptation to the application with additional PCIe slot or RS232 interfaces or digital input/output

Benefits

- Flexible installation (rail, wall, portrait, side mounting); all mounting positions are allowed
- Minimum space requirements (installation space from approx. 1 liter; all interfaces on one side, integrated industrial power supply)
- Up to 50°C ambient temperature; dust protection due to closed enclosure
- LED for efficient self-diagnostics (e.g. using WinAC: Run/Stop, Error, Maintenance); optimized for headless operation
- Device options for optimum adaptation to the application (optional)
 - Simple expansion by means of a PCIe slot or
 - three additional RS232 interfaces or
 - four additional digital inputs and outputs each, 24 V DC

High-performance data processing at low power consumption

- Intel Atom technology of the Power-Optimized family E6xx
- Power consumption from 8 W (low waste heat in protective enclosure/control cabinet)
- Wake-on-LAN for remote-controlled switching between standby and active state
- Support of Sleep States/SpeedStep (dynamic power adaptation depending on the required computing performance)
- Intel VT-x technology for virtualization

High degree of industrial functionality and flexibility for implementing the embedded solution

- Flexible memory concepts: CompactFlash or more, Solid-State Drive, or hard drive
- 2 Gbit Ethernet (teaming-capable); PROFINET with RT functionality (via Standard Ethernet)
- 4 high-speed USB 2.0 ports
- 1 RS232; alternatively as: RS485 or CAN (optional)
- Ready-to-run embedded bundles with WinAC RTX2010 (F) and/or WinCC RT Advanced (optional)
- 512 KB retentive memory (MRAM), of which 128 KB can be written to within the buffer time (optional)
- Embedded and standard operating systems for selection: WES 2009 and Windows XP Prof.; WES 7 and Windows 7 available soon
- Suited for Linux certificate for simple, secure implementation of proprietary Linux-based solutions available soon

High system availability in order to reduce the risk of potential failures and maintenance costs

- Maintenance-free since there are no rotating parts (fans, HDD)
- Battery-free operation even if retentive memory option is selected (with time-of-day synchronization over network)
- Comprehensive self-diagnostics thanks to pre-installed local diagnostics software SIMATIC IPC DiagBase

High investment security in order to reduce engineering costs

- Long-term availability: Service & Support period of 8 – 10 years after market launch

Application

The SIMATIC IPC227D is a particularly compact and energy-efficient PC in the Nano format. The heart of the Nanobox PC with particularly many mounting options are high-performance Intel Atom processors of the latest generation. The Nanobox PC is designed for maintenance-free 24-hour continuous use as well as for high temperature, vibration, shock and EMC requirements in the following applications:

- Simple control, visualization and communication tasks, data collector, for example in mechanical engineering, transportation systems or power transmission.
- Acquisition, further processing and visualization of data
- All machine-level applications created in C/C++ or with WinAC/WinCC RT Advanced that require rugged, compact IPCs
- Additional new applications such as shipbuilding, building automation, storage & logistics

The application spectrum ranges from automation computers fully integrated in TIA with WinAC, for example, to C/C++-based automation solutions and "standalone" applications for general IT applications. For software products that require Windows XP Professional, the combination of Windows XP Professional multi language is available preinstalled on the Solid-State Drive or hard disk.

The SIMATIC IPC227D can be operated both in the industrial sector as well as in domestic, business and commercial environments. The SIMATIC IPC227D can be used in conjunction with WinCC RT Advanced and/or with WinAC RTX 2010/F as ready-to-run bundle and is available at an attractive price.

Design

Basic design

- All-metal enclosure, resistant to vibrations and shocks, also with high electromagnetic compatibility
- Onboard graphics, DVI (digital)
 - DVI-D resolution: up to 1920 x 1200 pixels
- Optical drives can be connected externally via USB interface, not included in scope of supply
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45)
 - 4 x high-speed USB V2.0
 - 1 x COM1 (RS232)
- Fieldbus
 - PROFINET Realtime via Standard Ethernet interface
 - Isolated power supply: 24 V DC (20.4 to 28.8 V)

Design versions

- Processor / main memory expansion:
 - Intel Atom E660 1.3 GHz, 2 GB RAM
 - Intel Atom E640 1.0 GHz, 1 GB RAM
 - Intel Atom E620 600 MHz, 512 MB RAM
- Retentive memory
 - 512 KB retentive memory (MRAM), of which 128 KB can be written to within the buffer time (optional)
- Hardware expansion as device versions:
 - COM2-4
 - 4 dig. inputs/outputs each, 24 V
 - 1 PCIe slot (x1)
- Drives:
 - CompactFlash drive (replaceable, accessible): 2 GB, 4 GB or 8 GB
 - Solid-State Drive 50 GB, rugged alternative to hard disk (SLC technology)
 - Hard disk 250 MB Serial ATA, 2.5"
- Preinstalled operating systems:
 - Windows XP Embedded Standard 2009
 - Windows XP Professional multi language
 - Windows Embedded Standard 7 / Windows 7 available soon

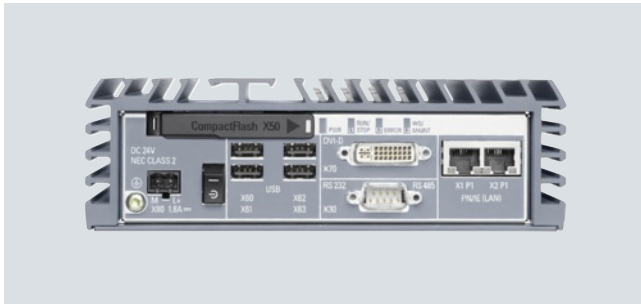
PC-based Automation

Box PC

SIMATIC IPC227D

Design (continued)

SIMATIC IPC227D (bottom side), basic version



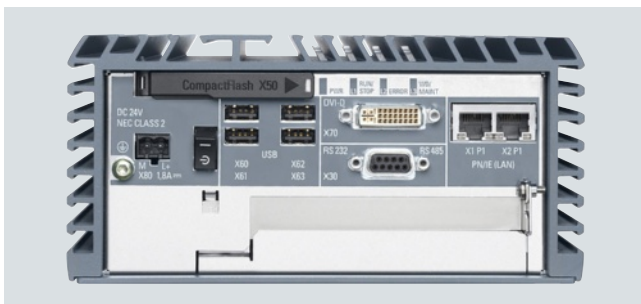
SIMATIC IPC227D (bottom side), COM version



SIMATIC IPC227D (bottom side), IO version



SIMATIC IPC227D (bottom side), PCIe version



SIMATIC IPC227D bundles: HMI, RTX, RTX F and HMI/RTX

HMI, RTX, RTX F and HMI/RTX complete turnkey solutions (the software is already preinstalled and configured) for visualization and automation in combination with WinCC RT Advanced and WinAC RTX 2010 /F

- Quick start in automation solutions with Embedded Automation
- HMI: SIMATIC WinCC RT Advanced preinstalled and ready to run
- RTX: SIMATIC WinAC RTX 2010 preinstalled and ready to run
- RTX F: SIMATIC WinAC RTX 2010 F preinstalled and ready to run
- HMI/RTX (F): SIMATIC WinCC RT Advanced and SIMATIC WinAC RTX 2010(F) preinstalled and ready to run
- PROFINET (RT) pre-configured for use in a SIMATIC environment
- Configuration and programming with SIMATIC WinCC Engineering System and SIMATIC STEP 7 via Industrial Ethernet
- Flexibility of a PC-based automation environment
- Open for additional PC applications
- Connection option for USB devices
- Use of WinAC ODK with SIMATIC WinAC RTX
- Data retentivity for WinAC RTX without uninterruptible power supply (UPS)

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnostics of PC problems
- Comprehensive monitoring of temperature, watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)
- Network-wide monitoring via SNMP and OPC interface possible

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks, SSD)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.1
- Ultra-compact and rugged

Function

Diagnosis

- Integrated, parameterizable monitoring functions (program execution/watchdog, processor and board temperature)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)
 - Runtime meter
 - Hard disk status
 - System status (Heart Beat)
 - Automatic logging of all alarms by means of a log file
 - Capability for central monitoring of networked SIMATIC IPC
- DiagBase: Integrated, parameterizable monitoring functions (program flowchart/watchdog, internal enclosure temperature, DIAG bit for CF cards similar to S.M.A.R.T for hard disks/SSD)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)

Integration

Integrated interfaces:

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s, teaming-capable) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFINET**
The PROFINET interface can be used for connecting distributed field devices or for controlling drives (PROFINET RT via Standard Ethernet).

Technical specifications

| SIMATIC IPC227D | |
|---------------------------|---|
| General features | |
| Design | Rail, wall, portrait or side mounting |
| Processor | <ul style="list-style-type: none"> • Intel Atom E660 1.3 GHz, 2 GB RAM • Intel Atom E640 1.0 GHz, 1 GB RAM • Intel Atom E620 600 MHz, 512 MB RAM |
| Chipset | Intel Controller Hub EG20T |
| Buffered MDRAM | 512 KB, of which 128 KB can be written within the buffer time |
| Free slots for expansions | Optional PCIe expansion slot |
| Graphics | <ul style="list-style-type: none"> • Integrated into Intel Atom CPU E6xx • 8 to 256 MB (shared memory), 1920 x 1200, 60 Hz, 32-bit colors |
| Operating system | <ul style="list-style-type: none"> • without • Windows XP Embedded Standard 2009 preinstalled, in combination with CF card, or Solid-State Drive, or hard drive (optional) • Windows XP Professional MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) (optional) • Windows 7 Ultimate and Windows Embedded Standard 7 available soon • Linux ¹⁾ (project-specific, on request) • Others on request project-specifically |
| Design | Rail, wall, portrait or side mounting |
| Power supply | 24 V DC (20.4 V ... 28.8 V) Isolated With buffering of temporary power failures: max. 10 ms Line side switch With power failure indication by means of Power Fail signal |
| Drives | |
| Flash drive | Optional; replaceable, accessible, diagnosable <ul style="list-style-type: none"> • 2 GB • 4 GB • 8 GB |
| Solid State Drive (SSD) | Optional 50 GB SATA, 2.5" in single-level cell (SLC) technology, especially suitable for industrial applications |
| Hard disk | Optional 250 GB SATA |
| CD-ROM | Via USB (not included in scope of delivery) |
| DVD-RW | Via USB (not included in scope of delivery) |
| Floppy disk | Via USB (not included in scope of delivery) |

PC-based Automation

Box PC

SIMATIC IPC227D

Technical specifications (continued)

| SIMATIC IPC227D | |
|--------------------------------------|---|
| Interfaces | |
| PROFINET | PROFINET RT via Standard Ethernet controller |
| PROFIBUS/MPI | - |
| Ethernet | <ul style="list-style-type: none"> • 2 x 10/100/1000 Mbit/s (RJ 45) • Two independent Intel Controllers: Intel 82574L / Intel Controller Hub EG20T • With teaming function |
| USB | V2.0/High Speed: 4 x |
| Serial | COM1 (V.24), optional COM2-4 |
| DVI-I | 1 x DVI-D |
| Keyboard | Via USB (not included in scope of delivery) |
| Mouse | Via USB (not included in scope of delivery) |
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> • Processor temperature • Motherboard <p>Messages can be evaluated by the application program</p> |
| Watchdog | <ul style="list-style-type: none"> • Monitoring of program execution • Monitoring time can be parameterized in software • Can be parameterized for a fault or restart <p>Messages can be evaluated by the application program.</p> |
| Monitoring functions via the network | <ul style="list-style-type: none"> • DiagBase • SIMATIC IPC DiagMonitor <p>Remote monitoring capability for:</p> <ul style="list-style-type: none"> • Watchdog • Temperature • Mass memory monitoring (SMART) • System/Ethernet monitoring (Heart Beat) • Runtime meter <p>Communication:</p> <ul style="list-style-type: none"> • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Layout of log files |

| SIMATIC IPC227D | |
|--|--|
| Ambient conditions | |
| Degree of protection to EN 60529 (front/rear) | IP20 |
| Ambient temperature during operation | 0 °C up to 50 °C |
| Approvals | |
| Marine approval Only for configurations with CompactFlash or SSD memory | Available soon |
| Device versions | |
| Basic version | Width x Height x Depth: approx. 191 x 100 x 60 mm |
| COM | <ul style="list-style-type: none"> • 3 additional, integrated serial interfaces (COM2-4); only sending/receiving of data • Width x Height x Depth: approx. 191 x 100 x 89 mm |
| IO | <ul style="list-style-type: none"> • 4 digital inputs/outputs each, 24 V, integrated • Width x Height x Depth: approx. 191 x 100 x 89 mm |
| PCIe | <ul style="list-style-type: none"> • 1 PCIe (x1) slot, integrated • Width x Height x Depth: approx. 191 x 187 x 89 mm |

¹⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

| Ordering data | Order No. | Order No. |
|--|------------|--|
| <p><u>Configuration</u></p> <p>SIMATIC IPC227D</p> <p>Interfaces: 2 x Gbit LAN (RJ45), 1 x serial (COM1), 4 x USB</p> <p><u>Processors / memory expansion / retentivity</u></p> <ul style="list-style-type: none"> • Atom E660 (1.3 GHz), 2 GB RAM • Atom E660 (1.3 GHz), 2 GB RAM, retentivity • Atom E640 (1.0 GHz), 1 GB RAM • Atom E640 (1.0 GHz), 1 GB RAM, retentivity • Atom E620 (600 MHz), 512 MB RAM • Atom E620 (600 MHz), 512 MB RAM, retentivity <p><u>Drives</u></p> <ul style="list-style-type: none"> • Without drive, with CF slot • 250 GB HDD SATA • 50 GB solid-state drive SATA (SLC) • 2 GB SIMATIC PC CompactFlash • 4 GB SIMATIC PC CompactFlash • 8 GB SIMATIC PC CompactFlash <p><u>COM interface</u></p> <ul style="list-style-type: none"> • COM1: RS232 • COM1: RS485 • COM1: CAN | On request | <p><u>Configuration</u></p> <p>SIMATIC IPC227D</p> <p><u>Operating system</u></p> <ul style="list-style-type: none"> • Without operating system • Windows Embedded Standard 2009 preinstalled (CF from 2 GB/SSD/HD) • XP-Prof. MUI preinstalled on SSD / HD • Windows Embedded Standard 7 preinstalled (CF from 4 GB/SSD/HD) • Windows 7 MUI preinstalled on SSD / HD <p><u>Software bundles</u></p> <ul style="list-style-type: none"> • Without RTX/HMI software • RTX: WinAC RTX 2010 • RTX-F: WinAC RTX F 2010 • HMI: WinCC RT Advanced 128 PT • HMI: WinCC RT Advanced 512 PT • HMI: WinCC RT Advanced 2048 PT • HMI: WinCC RT Advanced 4096 PT • HMI/RTX: RT 128 PT • HMI/RTX: RT 512 PT • HMI/RTX: RT 2048 PT • HMI/RTX: RT 4096 PT <p><u>Device versions</u></p> <ul style="list-style-type: none"> • Basis • PCIe (1 slot) • COM (COM2-4: RS232) • IO (4x dig. inputs/outputs each) <p><u>Mounting accessories</u></p> <ul style="list-style-type: none"> • Standard mounting rail • Wall mounting • Portrait mounting • Side mounting |

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

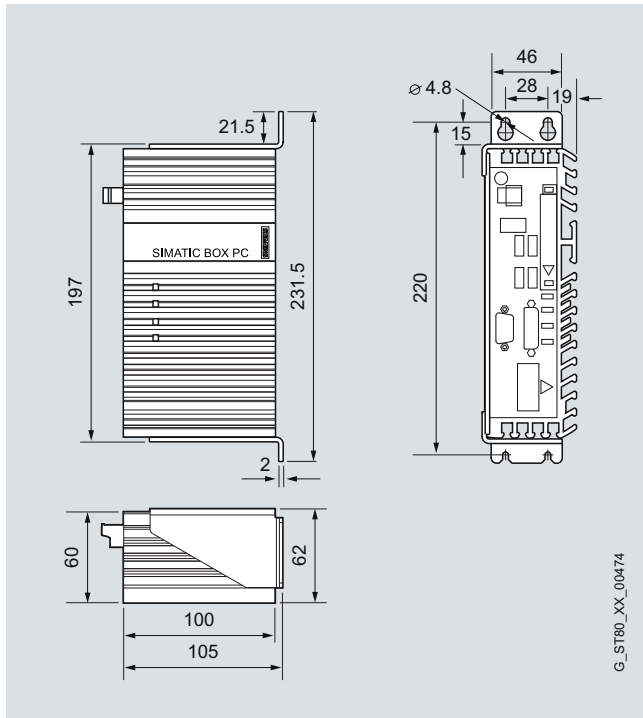
PC-based Automation

Box PC

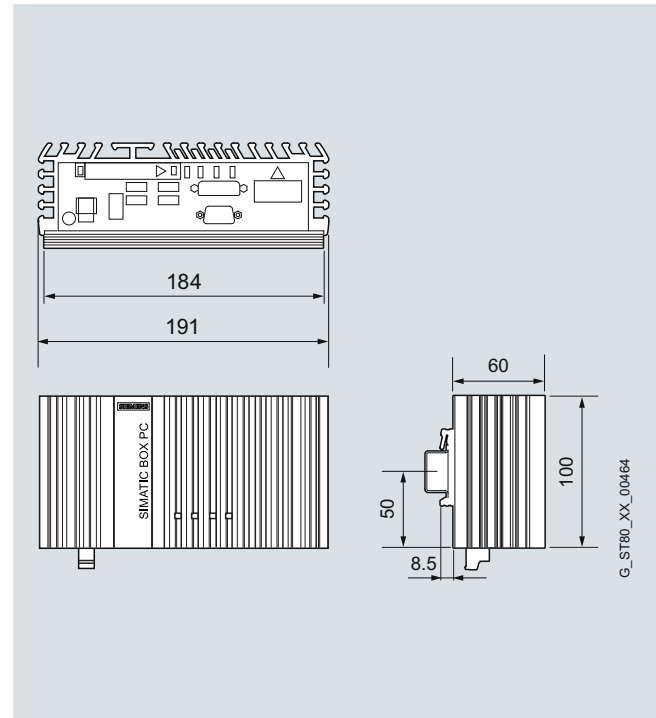
SIMATIC IPC227D

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.

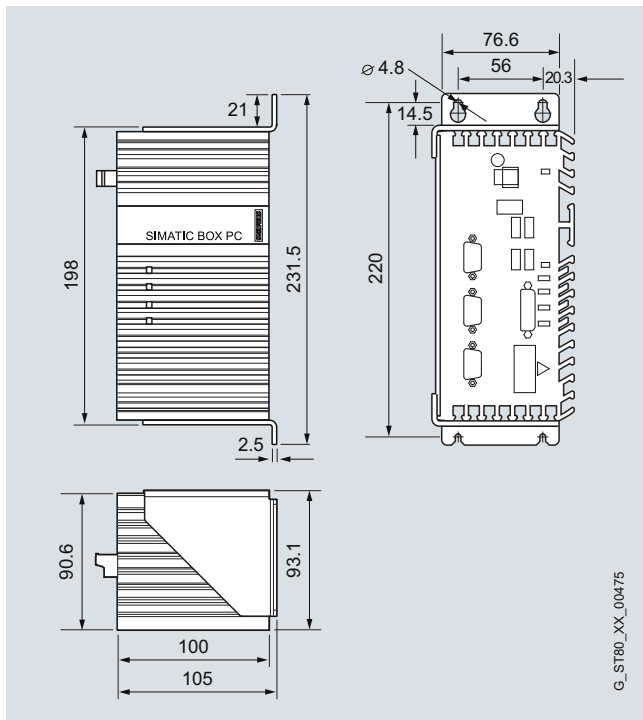


IPC227D basic unit, portrait mounting

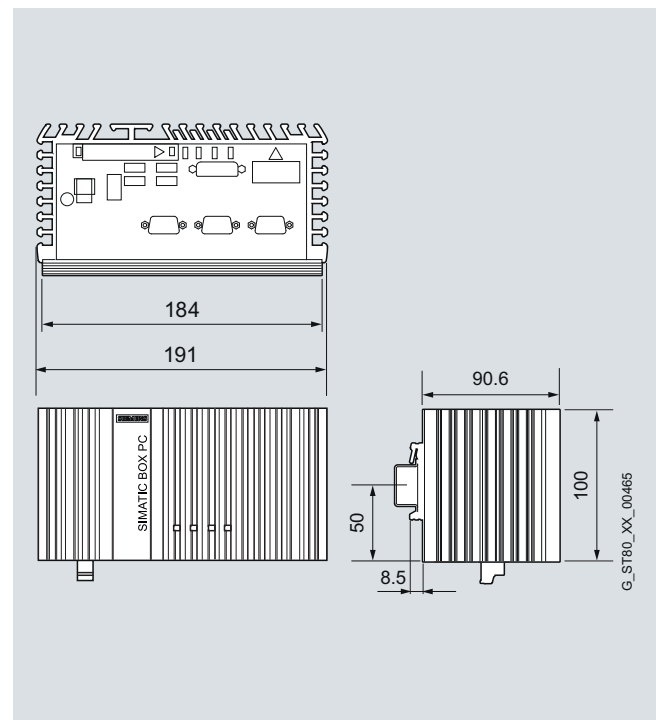


IPC227D basic unit, standard rail mounting

5

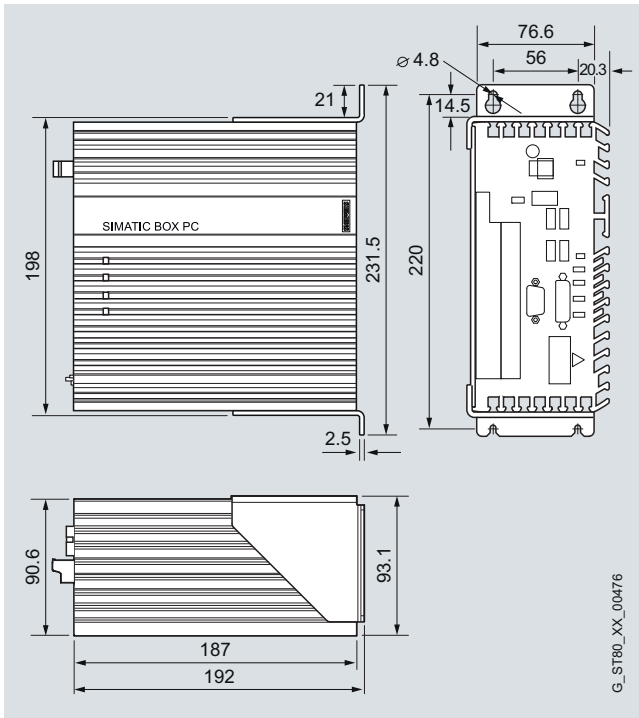


IPC227D COM version, portrait mounting

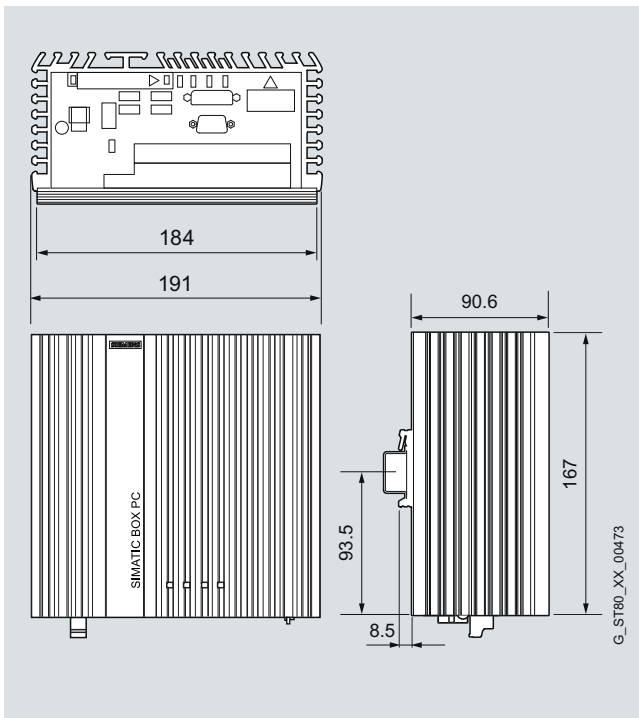


IPC227D COM version, standard rail mounting

Dimensional drawings (continued)



IPC227D PCIe version, portrait mounting



IPC227D PCIe version, standard rail mounting

More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

PC-based Automation

Box PC

SIMATIC IPC427C

Overview



The Microbox PC SIMATIC IPC427C is the powerful embedded industrial PC for use at the machine:

- Ultra-compact
- Maintenance-free
- Intel Core2 Duo technology

Benefits

High data processing speed for high productivity

- Up to Core2 Duo 2 x 1.2 GHz, fanless
- DDR3 memory technology up to 4 GB
- Graphic performance for Vista Aero user interface

Maximum compactness and ruggedness for use directly on the machine

- Low mounting depth, up to 55 °C ambient temperature
- Upright mounting as second standard mounting position (50 °C ambient temperature)
- Solid State Drive (SSD) (32 GB, optional), SATA hard disk, or up to FlashDrive 2-CompactFlash with 8 GB

High degree of industrial functionality and flexibility for implementing the Embedded solution

- Flexible memory concepts (e. g. 2 mass storage units are possible)
- 2 x LAN 10/100/1000 Mbit/s connections; teaming capability
- Onboard PROFIBUS or PROFINET interface (optional)
- 4 x high-speed USB 2.0 ports; 2 serial interfaces (2nd interface is optional)
- Flexible installation with mounting options (rail, wall, front upright mounting)
- Easy expansion (up to 3 PCI-104 slots), e. g. high-speed, central I/O
- On/Off switch

High system availability in order to reduce the risk of potential failures and maintenance costs

- Maintenance-free since no rotating parts (fans, hard disks) and no battery are installed
- 2 MB buffered SRAM, of which 128 KB can be written within the buffer time
- Front LED for efficient self-diagnostics; optimized for headless operation through special BIOS properties
- SIMATIC software system-tested

High investment security in order to reduce engineering costs

- Long-term availability: Service and support period of 8 to 10 years after market launch
- Mounting compatibility and interface compatibility with predecessor versions as of 2004

Application

The SIMATIC IPC427C provides mechanical engineers, plant engineers and control cabinet manufacturers with a high-performance, compact PC platform for use at machine or process level, or in the industrial environment for:

- Measuring and checking, open-loop and closed-loop control of process and machine data
- Acquisition, further processing and visualization of data
- All applications at the machine level - created in C/C++ or with WinAC/WinCC flexible - which require rugged, ultra-compact IPCs with high computing power
- Additional new applications such as shipbuilding, building automation, water treatment, RFID

The application spectrum ranges from automation computers fully integrated in TIA with, for example, WinAC, through C/C++-based automation solutions with the tried and tested SIMATIC RMOS3 operating system with real-time and multi-tasking capability, all the way to "standalone" applications in general IT use. For software products that require Windows XP Professional, the combination of Windows XP Professional multi language is available preinstalled on the hard disk.

The SIMATIC IPC427C has the CE mark for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can also be used in building services automation or in facilities open to the public. The device also has the most important marine approvals (available soon), provided that configurations with CompactFlash memory are used.

Due to the fan-free design and use of SIMATIC PC CompactFlash memories, there are no rotating parts and the system availability is increased. It is possible to order the CompactFlash memory either accessible externally so that it can be swapped, or integrated so that it is protected against access.

The SIMATIC PCs can be ordered in connection with WinCC flexible, WinCC or WinCC V11 (Advanced, Professional) as SIMATIC HMI packages at favorable prices.

Design

Basic design

- All-metal enclosure, resistant to vibrations and shocks, also with high electromagnetic compatibility
- Graphics onboard, on AGP bus: DVI-I: VGA (analog) and DVI (digital)
 - CRT resolution: up to 1920 x 1200 pixels / true color / 60 to 120 Hz
 - DVI-D resolution: up to 1920 x 1200 pixels / true color
- Optical drives can be connected externally via USB interface, not included in scope of supply
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45)
 - 4 x high-speed USB V2.0
 - 1 x COM1 (RS232)
- Free slots (when using the expansion rack):
 - Up to 3 x PCI104-Plus cards
- Isolated power supply: 24 V DC (19.2 to 28.8 V)

Design versions

- Processor:
 - Intel Core2 Duo 1.2 GHz, 800 MHz FSB, 3 MB SLC
 - Intel Core2 Solo 1.2 GHz, 800 MHz FSB, 3 MB SLC
 - Intel Celeron M 1.2 GHz, 800 MHz FSB, 1 MB SLC
- Main memory expansion of 1 GB (2/4 GB optional), DDR3 SDRAM
- Fieldbus
 - PROFINET onboard, 3 x RJ45, CP 1616-compatible
 - PROFIBUS DP/MPI on board, compatible with CP 5611
- Hardware expansion:
 - Second RS232 interface (COM2) in expansion rack
- Drives:
 - Solid-state drive, 32 GB, rugged alternative to hard disk
 - Flash drive (replaceable, accessible): 256 MB, 2 GB, 4 GB or 8 GB
 - Flash drive (internal, not accessible): 256 MB, 2 GB, 4 GB, 8 GB
 - Hard disk serial ATA, 2.5"
- Preinstalled operating systems:
 - Windows XP Embedded Standard 2009 (successor to Windows XP Embedded)
 - Windows XP Professional multi language
 - Windows 7 Ultimate MU1
 - Windows Embedded Standard 7

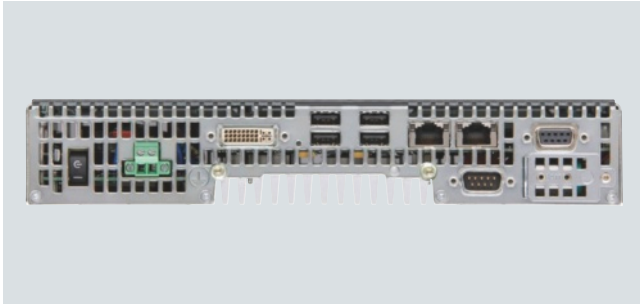
PC-based Automation

Box PC

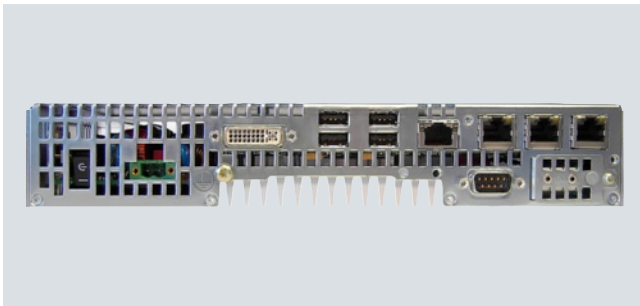
SIMATIC IPC427C

Design (continued)

SIMATIC IPC427C (bottom side), PROFIBUS version



SIMATIC IPC427C (bottom side), PROFINET version



Function

- Integrated and parameterizable monitoring functions (program execution/watchdog, processor and board temperature)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC PC DiagMonitor)
 - Runtime meter
 - Hard disk status
 - System status (heartbeat)
 - Automatic logging of all alarms by means of a log file
 - Possibility for central monitoring of a networked SIMATIC PC

Integration

Integrated interfaces:

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or for coupling to the SIMATIC S7 (with the "SOFTNET for PROFIBUS" software package).
- **PROFINET**
The PROFINET interface can be used for connecting distributed field devices or for controlling drives.
- **Further interfaces**
For connecting additional I/O devices, up to three free slots are available for PCI-104 modules (with expansion frames), as well as 4 high-speed USB interfaces and two serial interfaces.

Technical specifications

| SIMATIC IPC427C | |
|---------------------------|--|
| General features | |
| Design | DIN rail or wall mounting, front upright mounting, mounting position preferably horizontal, vertical possible |
| Processor | <ul style="list-style-type: none"> Intel Core2 Duo 1.2 GHz, 800 MHz FSB, 3 MB SLC Intel Core2 Solo 1.2 GHz, 800 MHz FSB, 3 MB SLC Intel Celeron M 1.2 GHz, 800 MHz FSB, 1 MB SLC |
| Chipset | Intel GM45 / ICH9M |
| Main memory | 1 GB, (2/4 GB) DDR3 SDRAM |
| Buffered SRAM | 2 MB, of which 128 KB can be written within the buffer time |
| Free slots for expansions | Up to 3 x PCI-104, 3 W per slot |
| Graphics | <ul style="list-style-type: none"> Integrated Intel GMAX4500 graphics 8 ... 512 MB shared graphics memory (managed dynamically) CRT resolution: 640 x 480 pixels up to max. 1920 x 1200 pixels at 32 bit colors DVI-D resolution: 640 x 480 pixels up to max. 1920 x 1200 pixels at 32 bit colors |
| Operating system | <ul style="list-style-type: none"> without Windows XP Embedded Standard 2009 preinstalled, in combination with CF card of 2 GB or more, solid-state drive, or hard drive Windows XP Professional MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) Windows 7 Ultimate MUI or Windows Embedded Standard 7 RMOS3 (order separately) Linux¹⁾ (project-specific, on request) Others on request project-specifically |
| Power supply | <ul style="list-style-type: none"> 24 V DC (19.2 V ... 28.8 V) Isolated With buffering of temporary power failures: Max. 10 ms at 0.85% rated voltage Line side switch With power failure indication by means of Power Fail signal |
| Drives | |
| Flash drive | <p>Optional; replaceable, accessible, diagnosable</p> <ul style="list-style-type: none"> 256 MB 2 GB 4 GB 8 GB <p>Optional; internal, not accessible, diagnosable</p> <ul style="list-style-type: none"> 256 MB 2 GB 4 GB 8 GB |

| SIMATIC IPC427C | |
|--------------------------------------|---|
| Solid-State Drive (SSD) | <p>Optional</p> <ul style="list-style-type: none"> 32 GB SATA, 2.5" in single-level cell (SLC) architecture, especially suitable for industrial applications |
| Hard disk | <p>Optional</p> <ul style="list-style-type: none"> > 250 GB SATA |
| CD-ROM | Via USB (not included in scope of delivery) |
| DVD-RW | Via USB (not included in scope of delivery) |
| Disk | Via USB (not included in scope of delivery) |
| Interfaces | |
| PROFINET | 3 x RJ45 (CP 1616-compatible, optional) |
| PROFIBUS/MPI | 12 Mbit/s (isolated, compatible to CP 5611) optional |
| Ethernet | <ul style="list-style-type: none"> 2 x 10/100/1000 Mbit/s (RJ 45) Two independent Intel 82574L controllers (via PCI-Express) One controller with none-shared interrupt Team capability |
| USB | V2.0/High Speed: 4 x |
| Serial | COM1 (V.24) COM2 (V.24) optional (in expansion frame) |
| DVI-I | 1 x DVI-I (includes DVI-D and VGA) |
| Keyboard | Via USB (not included in scope of delivery) |
| Mouse | Via USB (not included in scope of delivery) |
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> Processor temperature Motherboard Messages can be evaluated by the application program |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software Can be parameterized for a fault or restart Messages can be evaluated by the application program. |
| Monitoring functions via the network | <ul style="list-style-type: none"> DiagBase SIMATIC IPC DiagMonitor <p><u>Remote monitoring capability for:</u></p> <ul style="list-style-type: none"> Watchdog Temperature Mass memory monitoring (SMART) System/Ethernet monitoring (Heart Beat) Runtime meter <p><u>Communication:</u></p> <ul style="list-style-type: none"> Ethernet interface (SNMP protocol) OPC for integration in SIMATIC software Configuration of client/server architectures Layout of log files |

¹⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

PC-based Automation

Box PC

SIMATIC IPC427C

Technical specifications (continued)

| SIMATIC IPC427C | |
|--|--|
| Ambient conditions | |
| Degree of protection to EN 60529 (front/rear) | IP20 |
| Vibration load during operation | <p><u>Devices without hard disk:</u></p> <ul style="list-style-type: none"> Requirements according to: IEC 61131-2 Tested according to: IEC 60068-2-6, Test Fc Devices without drive: <ul style="list-style-type: none"> 5-9 Hz, 3.5 mm deviation, 10x /axis, 1 octave/min 9-150 Hz, 9.8 m/s², 10x /axis, 1 octave/min <p><u>Devices with hard disk:</u></p> <p><u>Wall mounting</u></p> <ul style="list-style-type: none"> Requirements according to: IEC 61131-2 Tested according to: IEC 60068-2-6, Test Fc 10 ... 58 Hz, 0.0375 mm deviation, 10x /axis, 1 octave/min 58 ... 200 Hz, 4.9 m/s², 10x /axis, 1 octave/min |
| Shock load during operation | <p><u>Devices without hard disk:</u></p> <ul style="list-style-type: none"> Requirements according to: IEC 61131-2 Tested according to: IEC 60068-2-27, Test Ea Module/rack: 150 m/s², power-up, 11 ms shock duration <p><u>Devices with hard disk:</u></p> <p><u>Wall mounting</u></p> <ul style="list-style-type: none"> Requirements according to: IEC 61131-2 Tested according to: IEC 60068-2-27, Test Ea Devices with drive: 50 m/s², power-up, 30 ms shock duration |
| Electromagnetic compatibility (EMC) | |
| <ul style="list-style-type: none"> Emitted interference Interference immunity, burst | <p>EN 55022 Class B</p> <p>EN 61000-6-2 or IEC 61131-2:</p> <ul style="list-style-type: none"> 2 kV - Tested acc. to IEC 61000-4-4 1 kV symmetrical / 2 kV asymmetrical - Tested acc. to IEC 61000-4-5 |
| <ul style="list-style-type: none"> Interference immunity, surge | <p>1 kV to IEC 61000-4-5; symmetrical</p> <p>2 kV to IEC 61000-4-5; asymmetrical</p> |
| <ul style="list-style-type: none"> ESD interference immunity | <p>According to NAMUR Recommendation NE 21 and EN 61000-6-2:</p> <ul style="list-style-type: none"> 6 kV contact discharge - Tested acc. to IEC 61000-4-2 8 kV air discharge - Tested acc. to IEC 61000-4-2 |
| <ul style="list-style-type: none"> Immunity to high radio frequency interference | <p>According to EN 61000-6-2 or IEC 61131-2:</p> <ul style="list-style-type: none"> Interference immunity 80 ... 1000 MHz: 10 V/m with 80% AM (1 kHz); tested acc. to IEC 61000-4-3; 1.4 GHz ... 2 Hz: 10 V/m with 50% pulse modulation; tested according to IEC 61000-4-3 |
| <ul style="list-style-type: none"> Immunity to high-frequency current feed | <p>Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2:</p> <ul style="list-style-type: none"> 10 kHz ... 80 MHz: 10 V with 80% AM (1 kHz) tested acc. to IEC 61000-4-6 |

| SIMATIC IPC427C | |
|---|---|
| Electromagnetic compatibility (EMC) | |
| <ul style="list-style-type: none"> Immunity to magnetic fields | <p>Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2:</p> <p>50/60 Hz; 100 A/m rms value - tested acc. to IEC 61000-4-8</p> |
| Ambient temperature during operation | <ul style="list-style-type: none"> 0 ... 55 °C with flash drive/SSD (horizontal; preferred mounting position; with derating) 0 ... 50 °C with flash drive/SSD (horizontal; preferred mounting position; maximum configuration) 0 ... 50 °C with flash drive/SSD (vertical) 5 ... 40 °C with hard disk (horizontal and vertical) |
| Moist heat | <ul style="list-style-type: none"> With CompactFlash card/SSD: 95% With hard drive 80% |
| System-tested SIMATIC Industrial Software | WinAC RTX (F), WinCC flexible, WinCC (SCADA as of V7.0), WinCC RT Advanced and Professional |
| Approvals | |
| Marine approval (available soon) Only for configurations with CompactFlash or SSD memory | <ul style="list-style-type: none"> GL - Germanische Lloyd BV - Bureau Veritas LR - Lloyds Register of Shipping ABS - American Bureau of Shipping DNV - Det Norske Veritas NKK - Nippon Kaiji Kyokai |
| Safety regulations | IEC 61131-2 IEC 61010-1 EN 60950-1 |
| Approvals | UL508, UL60950, cULus |
| CE mark | <ul style="list-style-type: none"> EC Directive 89/336/EEC (EMC Directive) Use in industry: Applications in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-4 Noise immunity: EN 61000-6-2 Applications in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-3 Noise immunity: EN 61000-6-1 |
| Dimensions and weights | |
| Equipment dimensions (in mm) | <ul style="list-style-type: none"> Width x height: 262 x 134 Depth of basic unit: 47 Depth of basic unit above rail: 50 Additional depth per expansion (1-3): 17 each |
| Weight, approx. | 2 kg |

| Ordering data | Order No. | Order No. |
|---|-----------|--|
| Configuration SIMATIC IPC427C D 6ES7 647-7 B - - - - 0 | | Configuration SIMATIC IPC427C D 6ES7 647-7 B - - - - 0 |
| Intel Celeron M 1.2 MHz, 800 MHz FSB, SLC 0 KB; 512 MB DDR3 RAM; without HD; without flash drive; without operating system; 24 V DC industrial power supply <u>Processor/motherboard</u> <ul style="list-style-type: none"> Intel Celeron M 1.2 GHz, 800 MHz FSB A Intel Celeron M 1.2 GHz, 800 MHz FSB, PROFIBUS B Intel Celeron M 1.2 GHz, 800 MHz FSB, CAN D Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB E Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFIBUS F Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFINET G Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB J Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFIBUS K Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFINET L | | <u>Drives exchangeable (accessible)</u> <ul style="list-style-type: none"> Without drive 0 256 MB CompactFlash 1 2 GB CompactFlash 2 4 GB CompactFlash 3 8 GB CompactFlash 4 |
| <u>Memory expansion:</u> <ul style="list-style-type: none"> 1 GB DDR3 1066, SODIMM 2 2 GB DDR3 1066, SODIMM 3 4 GB DDR3 1066, SODIMM 4 | | <u>Drives internal (not accessible)</u> <ul style="list-style-type: none"> Without internal drive X 250 GB HDD SATA A 32 GB solid-state drive SATA D 256 MB CompactFlash internal M 2 GB CompactFlash internal N 4 GB CompactFlash internal P 8 GB CompactFlash internal Q |
| <u>Expansion (HW):</u> <ul style="list-style-type: none"> No expansion (HW) 0 Second RS232 interface in expansion rack 1 | | <u>Operating system (preinstalled and activated) ²⁾</u> <ul style="list-style-type: none"> Without operating system X Windows Embedded Standard 2009 preinstalled on internal drive A Windows XP Professional MUI preinstalled on internal drive B Windows 7 Embedded Standard preinstalled on internal drive C Windows 7 Ultimate MUI preinstalled on internal drive D |

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

²⁾ XP Embedded on 2 GB CompactFlash or hard disk.
XP Professional or Windows 7 only with hard disk/SSD.

PC-based Automation

Box PC

SIMATIC IPC427C

| Ordering data | Order No. | Order No. |
|--|-----------|----------------------------|
| Accessories | | |
| Memory expansion | | |
| • 1 GB DDR3 1066 SDRAM, SODIMM | A | 6ES7 648-2AH40-0KA0 |
| • 2 GB DDR3 1066 SDRAM, SODIMM | A | 6ES7 648-2AH50-0KA0 |
| • 4 GB DDR3 1066 SDRAM, SODIMM | A | 6ES7 648-2AH60-0KA0 |
| Expansion kit PC/104 | A | 6ES7 648-2AH30-0KA0 |
| For integration of PC/104 modules in the SIMATIC Microbox PC; packing unit contains 6 expansion frames | | |
| SIMATIC PC adapter cable | | 6ES7 648-3AB00-0XA0 |
| DVI-I to VGA, 250 mm | | |
| Portrait assembly kit | | |
| Interfaces to the front | A | 6ES7 648-1AA20-0YB0 |
| SIMATIC PC keyboard German/international, USB port | | 6ES7 648-0CB00-0YA0 |
| SIMATIC PC keyboard German/international, USB port, incl. 4-port USB hub | A | 6ES7 648-0CD00-0YA0 |
| USB mouse (optical, 3-button) for PG and PC with adapter | A | 6ES7 790-0AA01-0XA0 |
| SIMATIC PC CompactFlash | | |
| • 256 MB | A | 6ES7 648-2BF02-0XC0 |
| • 2 GB | A | 6ES7 648-2BF02-0XF0 |
| • 4 GB | A | 6ES7 648-2BF02-0XG0 |
| • 8 GB | A | 6ES7 648-2BF02-0XH0 |
| SIMATIC PC USB FlashDrive | A | 6ES7 648-0DC50-0AA0 |
| 8 GB, USB 2.0, metal enclosure, bootable | | |
| SIMATIC IPC Service USB FlashDrive | B | 6AV7 672-8JD01-0AA0 |
| 8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD | | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

Accessories



SIMATIC IPC427C with expansion rack; a maximum of 4 PC-IO expansion racks can be stacked.

For particularly fast and real-time-capable measuring, open-and closed-loop control tasks, the SIMATIC IPC427C can be modularly and flexibly expanded by a central PC-I/O.

By means of PCI-104 expansion slots, encoders/counters as well as digital and analog I/O modules can be integrated using expansion racks in an extremely compact configuration.

The base module PC I/O Base 400 is plugged directly into the PC104 slot of the SIMATIC IPC427C, and any encoders/counters required are routed externally via the KIT 040 (encoder expansion rack).

One or two I/O modules are screwed into the KIT 030 and attached with this to the enclosure of the SIMATIC IPC427C, while the electrical connection to the PC IO Base 400 is made using flat ribbon cables. The I/O can be connected by means of direct connectors.

| Module | Description |
|--|--|
| PC IO Base 400 (base module) | <ul style="list-style-type: none"> • PCI104 interface to the host • 4 encoder inputs, optionally usable individually as counters • 4 digital inputs • Management of the encoder inputs and associated counters, as well as up to 4 I/O modules via their own communications interfaces • Power supply distribution for 4 encoders |
| PC IO MOD digital 010 (digital I/O module 0) | <ul style="list-style-type: none"> • 24 binary inputs 24 V • 16 binary outputs 24 V |
| PC IO MOD analog 020 (analog I/O module 0) | <ul style="list-style-type: none"> • 8 analog inputs, 12 bit, 0 ... 5 V, 0 ... 10 V ± 5 V, ± 10 V • 8 analog outputs, 16 bit, ± 10 V • 4 Pt100 connections, 2-wire |
| PC IO KIT 040 (encoder expansion rack) | Connection unit for: <ul style="list-style-type: none"> • 4 encoder inputs • 4 digital inputs • Encoder voltage feed |
| PC IO KIT 030 (I/O expansion rack) | Expansion rack for accepting <ul style="list-style-type: none"> • max. 2 I/O modules in the SIMATIC IPC427C system |

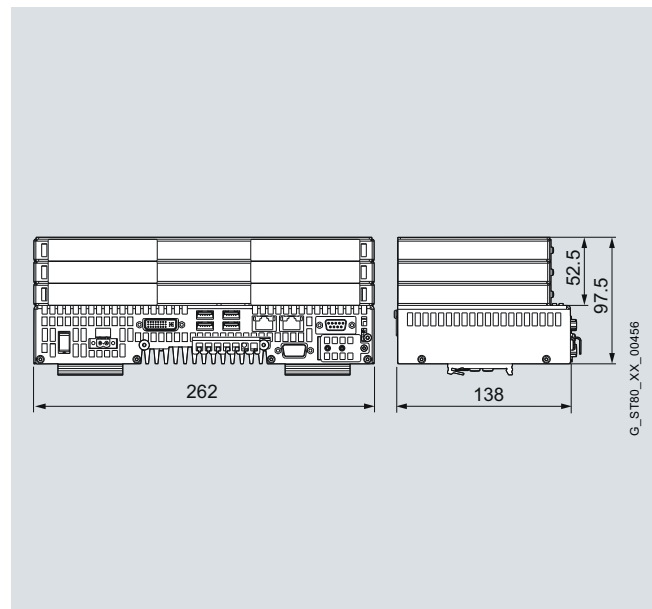
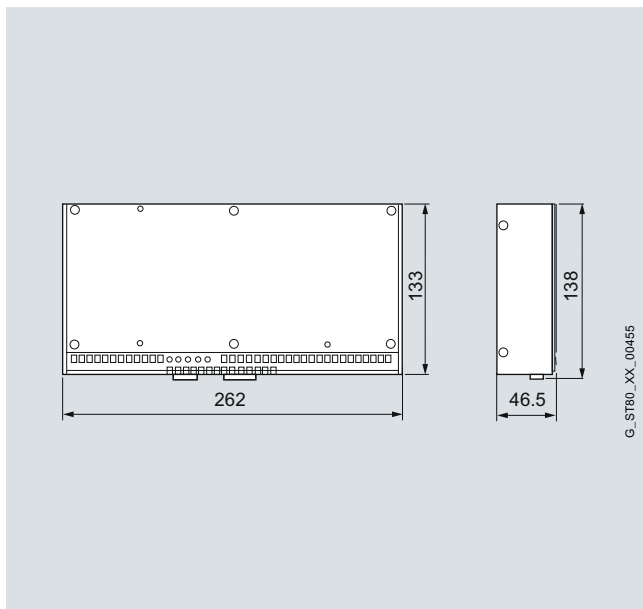
PC-based Automation

Box PC

SIMATIC IPC427C

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Overview



The SIMATIC IPC627C Box PC is ideally suited to high-performance PC applications installed at the machine.

It offers:

- maximum performance in the smallest space
- Intel Core i7 technology

Benefits

Maximum system performance for complex measuring, control and visualization tasks

- Intel processors: Core i7, Core i3 or Celeron; in each case with 2 cores, with turbo-boost technology and AMT (i7) and hyper-threading (i7, i3)
- Intel BD82QM57 Platform Controller Hub (PCH)
- DDR3 1066 memory technology up to 8 GB RAM
- Intel HD graphics media accelerator for high graphic performance
- PCI Express x16 slot for x16 graphic card support
- SATA hard disks with up to 500 GB capacity and NCQ technology (Native Command Queuing) for larger data volumes

Highly compact design for space-saving and flexible installation

- Compact housing design (volume 6 liters)
- Flexible installation in many different positions with mounting brackets or portrait installation kits
- Free expansion slots: 2 x PCI or optionally 1 x PCI-Express x16 and 1 x PCI
- 3 x PROFINET interfaces onboard (optional, IRT-capable, 3-port, switching-enabled, CP 1616-compatible)
- 1 x PROFIBUS interface onboard (optional, CP 5611-compatible)
- RAID1 controller onboard (no occupation of a PC slot)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with teaming capability)
- 4 x USB ports 2.0 (high current)
- DVI-I interface (for VGA and/or DVI-D monitors)

Rugged design for direct installation in the machine

- Maximum processor performance up to ambient temperature of 55 °C
- High shock/vibration resistance in all possible mounting positions
- High EMC for safe operation
- SATA Solid-State Drive (SSD) with 32 GB in Single Level Cell architecture (SLC) for high reliability and speed
- 2 x CompactFlash drives (one optional)
- Strain relief for all cables/connectors

PC-based Automation

Box PC

SIMATIC IPC627C

Benefits (continued)

High system availability, fast startup, maintenance and servicing

- High data security thanks to mirror disk system (RAID1, optional) or solid-state drive (SSD, optional)
- ECC memory (optional, for 1-bit error correction)
- 2 MB battery-buffered SRAM, 128 KB of which can be used as memory for retentive WinAC RTX data
- AMT (Intel Active Management Technology) functionality for remote access to IPC (remote maintenance)
- CMOS buffer battery accessible from outside, replaceable during operation. Status can be scanned by software
- Two 7-segment displays and 2 signal LEDs (two-color) for diagnostics purposes, freely programmable
- Operating system preinstalled, ready to run, and already activated (eliminates need for usual product activation via the Internet or by telephone)
- Following system failure, fast restoration of hard disk contents to as-delivered status using supplied recovery and restore CD
- Worldwide service and support

Cost reductions through high investment security

- Platform with long-term stability and embedded Intel components
- Availability of 3 to 5 years, then guaranteed availability of spare parts for further 5 years
- Part of the scalable Box PC range with identical performance features and footprint
- System-tested with SIMATIC components
- Certification for worldwide marketing (e. g.: cULus)
- Installation compatible for all device generations, software compatible with predecessor model

Application

The SIMATIC IPC627C provides mechanical engineers, plant engineers, and control cabinet makers with a high-performance, compact PC platform for application at the machine or in the industrial environment for:

- Measuring and controlling of process and machine data (e. g. automated washing systems, robot controls)
- Operating and visualization tasks with separate display/monitor solutions (e. g. information terminals, large-scale displays in automotive production)
- Data acquisition and processing (e. g. production data acquisition, distributed process control)
- Motion Control

The SIMATIC IPC627C has CE certification for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can also be used in building service automation or in facilities open to the public.

It can also be integrated in confined spaces thanks to the low mounting depth of 100 mm (80 mm without CD drive).

The SIMATIC Box PCs can be ordered in combination with WinCC flexible or WinCC as SIMATIC HMI packages at a reduced price.

Design

Basic design

- Rugged metal enclosure, resistant to vibration and shock, with high electromagnetic compatibility
- Card retainer for reliable operation of PC modules in the event of vibrations and shocks
- Graphics onboard 1600 x 1200, 85 Hz, 32-bit colors
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45)
 - DVI-I graphic interface
 - 4 x USB 2.0
 - 1 x serial (COM1)
- CompactFlash drive (can be operated from outside)
- Two 7-segment displays (Port 80) and two dual-color LEDs for status indication (freely programmable)

Design (continued)

Design versions

- Processor:
 - Intel Core i7-610E processor (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache)
 - Intel Core i3-330E processor (2C/4T, 2.13 GHz, HT, VT, 3 MB cache)
 - Intel Celeron P4505 processor (2C/2T, 1.86 GHz, 2 MB cache)
- Main memory
 - 1 GB to 4 GB, DDR3 1066
 - ECC memory 2 GB/4 GB, DDR3 1066
- Fieldbus:
 - PROFINET onboard, IRT-capable, switching-enabled, 3 x RJ45, CP 1616-compatible, PROFINET versions feature onboard 2 MB SRAM with battery back-up
 - PROFIBUS/MPI onboard, CP 5611-compatible, PROFIBUS versions feature 2 MB SRAM with battery back-up onboard
- Drives:
 - SATA hard disks: 250/500 GB, 3.5"; RAID1 2 x 250 GB, 2.5"
 - SATA solid state drive 32 GB (SSD) in single level cell architecture (SLC)
 - Second CompactFlash drive (internal) instead of HDD, ODD, without CF
 - Optical drives SATA DVD+/-RW/-RAM/-DL
- Free slots for expansions:
 - 2 x PCI (175/265 mm) or
 - 1 x PCI-Express x16 (175 mm) and 1 x PCI (265 mm)
- Power supply:
 - 100/240 V AC (wide range), 50/60 Hz
 - 24 V DC industrial power supply
- Preinstalled operating systems:
 - Windows XP Professional, multi language
 - Windows 7 Ultimate, multi language
 - Windows Embedded Standard 2009 English (XP-based, on 8 GB CompactFlash)
- SIMATIC IPC DiagMonitor ¹⁾
- SIMATIC IPC Image Creator ¹⁾

¹⁾ Further information can be found under "Expansion components".

Function

- Integrated, parameterizable monitoring functions (program execution (watchdog), internal enclosure temperature, external enclosure temperature, speed monitoring of fans, CMOS battery)
- Extended diagnostics/alarms via Ethernet, e-mail, text message and for direct infeed into the SIMATIC software via OPC and logging (optionally via SIMATIC PC DiagMonitor):
 - Runtime meter
 - Hard disk status
 - Automatic logging of all alarms by means of a log file
 - Long-term recording and graphic display of measured values (temperature, fan)
 - Capability for central monitoring of networked SIMATIC PCs
- RAID1 for automatic data mirroring on two serial ATA hard disks
- Flash drive, via CompactFlash card or solid-state drive accessible from outside, for especially rugged data storage and systems without hard drive
- AMT functionality (Intel Active Management Technology). This property permits remote access to the IPC (for servicing), even when the operating system is shut down, e. g.:
 - Starting/shutdown of the IPC
 - BIOS update
- CMOS batteries are externally accessible and therefore easily replaced
- Flash BIOS with the ability to store customer-specific CMOS settings in a non-volatile memory area
- The PROFINET and PROFIBUS versions offer 2 MB of battery-backed SRAM for application data
- After an unexpected power interruption, up to 128 KB of important process data can be written to the battery-backed SRAM
- Two 7-segment displays (Port 80) for the power-up display and for customer outputs (user-programmable)
- Two 2-color LEDs (green/red) for the indication of status messages (user-programmable)

Integration

Integrated interfaces:

- **Ethernet**
Two integrated Ethernet interfaces (10/100/1000 Mbit/s) for IT communication and for exchanging data with automation devices such as SIMATIC S7 (with the software package "SOFTNET S7").
- **PROFINET**
The optional PROFINET interface for connecting distributed field devices or for controlling drives.
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or to interface to the SIMATIC S7 (with the "SOFTNET for PROFIBUS" software packages).
- **Further interfaces**
There are two spare slots for PC modules, 4 USB (Universal Serial Bus) and a serial interface for connecting additional I/O devices.

PC-based Automation

Box PC

SIMATIC IPC627C

Technical specifications

| SIMATIC IPC627C | |
|---------------------------|--|
| General features | |
| Design | Panel mounting device, box |
| Processor | <ul style="list-style-type: none"> Intel Core i7-620E processor (2C/4T, 2.53 GHz, 4 MB L2, turbo boost, VT-d, AMT) Intel Core i3-330E processor (2C/4T, 2.13 GHz, 3 MB L2) Intel Celeron P4505 processor (2C/2T, 1.86 GHz, 2 MB L2) |
| Chipset | Intel Platform Controller Hub BD82QM57 |
| Main memory | <ul style="list-style-type: none"> 1 GB; DDR3 1066, DIMM; expandable up to 4 GB, (2 memory bases) ECC memory 2/4 GB optional |
| Free slots for expansions | <ul style="list-style-type: none"> 1 x PCI (265 mm) and 1 x PCI (175 mm) or <ul style="list-style-type: none"> 1 x PCI (265 mm) and 1 x PCIe x16 (175 mm) |
| Graphics | Onboard, Intel HD graphics, 256 MB (Dynamic Shared Memory), VGA: 1600 x 1200 / 32 bit colors / 85 Hz, DVI-I: 1600 x 1200 / 32 bit colors / 60 Hz, LCD: 1280 x 1024 / 18 bit |
| Operating system | <ul style="list-style-type: none"> without Preinstalled, activated, and supplied on restore DVD: <ul style="list-style-type: none"> XP Prof. MUI, SP3 Windows 7 Ultimate MUI Windows Embedded Standard 2009 English on 8 GB Compact-Flash MUI: Multi User Interface; 5 languages (English, French, German, Italian, Spanish) <ul style="list-style-type: none"> RMOS3 (separately orderable) Project-specific on request <ul style="list-style-type: none"> Linux ¹⁾ Other |
| Power supply | <ul style="list-style-type: none"> 100/240 V AC, 190 W; wide range; with short-term bridging of power failures in accordance with NAMUR: max. 20 ms at 93 V or 264 V 50 to 60 Hz (47 to 63 Hz) 24 V DC, 210 W isolated (optional) |
| Drives | |
| Hard disk | <ul style="list-style-type: none"> without 250 GB SATA, 3.5" 500 GB SATA, 3.5" 2 x 250 GB SATA, 2.5" RAID1, 2 x 250 GB SATA, 2.5" 32 GB SATA solid-state drive in single-level cell architecture |

| SIMATIC IPC627C | |
|-----------------------------|---|
| Flash drive | <ul style="list-style-type: none"> 1 x CompactFlash drive on front 1 x internal CompactFlash drive, optional |
| Optical drives | DVD+/-RW/DL SATA, optional (depth is increased from 80 mm to 100 mm) |
| Interfaces | |
| PROFINET | 3 x RJ45 (CP 1616-compatible, optional) Note: The PROFINET options are supplied with 2 MB battery-backed SRAM. |
| PROFIBUS/MPI | 12 Mbit/s (isolated, CP 5611-compatible, optional) Note: The PROFIBUS/MPI options are supplied with 2 MB battery-backed SRAM. |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ 45, teaming capability) |
| USB | 4 x USB 2.0 (high current), high-speed |
| Serial | 1 x COM1 |
| Parallel | Multi_IO-PCI module (available as accessory) |
| DVI-I | 1 x (analog, digital) |
| VGA | Via adapter cable, DVI-I to VGA adapter (available as accessory) |
| Dual Monitor | Via adapter cable, DVI-I to VGA & DVI (available as accessory) |
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> Overshoot/undershoot of permissible operating temperature range Outdoor temperature Messages can be evaluated by the application program |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software Restart can be parameterized in the event of a fault Messages can be evaluated by the application program |
| Fan | <ul style="list-style-type: none"> Speed monitoring |
| Local displays | <ul style="list-style-type: none"> Port 80 display: Two 7-segment displays for monitoring the PC power-up (freely programmable) Two 2-color LEDs for status outputs (freely programmable) |

Technical specifications (continued)

| SIMATIC IPC627C | |
|--------------------------------------|--|
| Monitoring functions via the network | SIMATIC IPC DiagMonitor (optional) Remote monitoring capability for: <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • Operating hours counter Communication: <ul style="list-style-type: none"> • Internet (Web server) • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Structure of client/server architectures • Structure of log files • Long-term recording of measured data (temperature, fan) and graphic display |
| Ambient conditions | |
| Degree of protection (front/rear) | IP20 according to EN 60529 |
| Ambient temperature during operation | With maximum configuration: <ul style="list-style-type: none"> • 5 to 45 °C • 5 to 50 °C (up to 20 W load on PCI bus) • 5 to 55 °C (up to 10 W load on PCI bus) |
| Vibration | |
| • During operation | <ul style="list-style-type: none"> • 10 to 58 Hz: 0.75 mm; 58 to 500 Hz: 9.8 m/s² (approx. 1 g) With DVD operation: <ul style="list-style-type: none"> • 10 to 58 Hz: 0.018 mm; 58 to 500 Hz: 2.5 m/s² (approx. 0.25 g) Note: No vibration permitted when burning DVDs |
| • Storage/transport | 5 ... 9 Hz: 3.5 mm, 9 ... 500 Hz: 9.8 m/s ² |
| Shock | |
| • During operation | <ul style="list-style-type: none"> • 50 m/s² With DVD operation: <ul style="list-style-type: none"> • 50 m/s², 11 ms (approx. 5 g) Note: No shock permitted when burning DVDs |
| • Storage/transport | 250 m/s ² , 6 ms |
| Relative humidity | |
| • During operation | <ul style="list-style-type: none"> • 5% to 80% at 25 °C (no condensation) • 5% to 95% at 25 °C (no condensation) |
| • Storage/transport | |
| Protection class | Protection class I acc. to VDE 0106 Part 1 (IEC 536) |

| SIMATIC IPC627C | |
|--|---|
| Electromagnetic compatibility (EMC) | |
| Emitted interference | EN 55022 Class B |
| Immunity to conducted interference on the supply lines | <ul style="list-style-type: none"> • ±2 kV (IEC 61000-4-4, burst) • ±1 kV (IEC 61000-4-5, symm. surge) • ±2 kV (IEC 61000-4-5, asymm. surge) |
| Immunity to interference on signal lines | <ul style="list-style-type: none"> • ±1 kV (IEC 61000-4-4, burst, length < 3 m) • ±2 kV (IEC 61000-4-4, burst, length > 3 m) • ±2 kV (IEC 61000-4-5, surge, length > 30 m) |
| Immunity to static discharge | <ul style="list-style-type: none"> • ±6 kV, contact discharge (IEC 61000-4-2) • ±8 kV, air discharge (IEC 61000-4-2) |
| Immunity to high radio frequency interference | <ul style="list-style-type: none"> • 10 V/m, 80 ... 1000 MHz 80% AM (according to IEC 61000-4-3) • 10 V/m, 1.4 ... 2.0 GHz, 50% duty cycle (according to IEC 61000-4-3) • 10 V 80% AM, 9 KHz ... 8 MHz (according to IEC 61000-4-6) |
| Immunity to magnetic fields | 100 A/m, 50 MHz (IEC 61000-4-6) |
| Software | |
| System-tested SIMATIC Industrial Software | <ul style="list-style-type: none"> • STEP 7 • WinAC • ProTool/Pro • WinCC • SOFTNET Note: Compliance with system configuration rules is essential |
| Approvals | |
| Safety regulations | IEC 60950-1 |
| Approvals | cULus508, cULus1950, FCC Class A |
| CE mark | Use in industry: <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-4:2001 • Noise immunity: EN 61000-6:2001 Application in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-1, 2001 • Noise immunity: EN 61000-6-1:2000 Other standards: <ul style="list-style-type: none"> • EN 61000-3-2-2000 (harmonic currents) • EN 61000-3-3:1995 (voltage fluctuations and flicker) |

PC-based Automation

Box PC

SIMATIC IPC627C

Technical specifications (continued)

| | SIMATIC IPC627C |
|--|--|
| Dimensions | |
| • Equipment dimensions W x H x D (in mm) | 298 x 301 (incl. mounting rail) x 100 |
| • Without DVD drive W x H x D (in mm) | 298 x 301 (incl. mounting rail) x 80 |
| Weight | Approx. 7 kg |
| Miscellaneous | |
| Battery-backed SRAM | 2 MB onboard (in the case of motherboard with PROFIBUS/PROFINET version) |
| CMOS battery | Service-friendly, simple replacement from outside, warning for timely replacement |
| DiagBase diagnostics software | Software for local PC diagnostics (temperature, battery, HDD, ...) |
| Interface module | PCI interface card for COM2, LPT (accessory) |
| Portrait mounting | Accessories for particularly space-saving PC installation in control cabinets: Assembly kit for interface outlet on front Assembly kit for interface outlet on top or bottom |

| | SIMATIC IPC627C |
|--------------------|---|
| Component sticker | Sticker on enclosure for identifying the PC components (processor, HDD, MAC addresses, ...) |
| Fan | For active device heat dissipation <ul style="list-style-type: none"> • 1 x enclosure • 1 x power supply This is a prerequisite for the flexible installation options |
| Mounting positions | 5 installation options underline the flexibility |
| Cable grips | <ul style="list-style-type: none"> • 1 x for 100/240 V AC / 24 V DC supply cable • 1 x for all USB and Ethernet interfaces (LAN FastConnect connectors are supported) • 1 x for PROFINET |

¹⁾ Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

| Ordering data | Order No. | Order No. |
|--|-----------|---|
| Configuration ¹⁾ SIMATIC IPC627C D 6ES7 647-6 C ■ ■ ■ ■ - ■ ■ ■ ■ ■ | | Configuration ¹⁾ SIMATIC IPC627C D 6ES7 647-6 C ■ ■ ■ ■ - ■ ■ ■ ■ ■ |
| HD graphics onboard, 128 MB dyn. shared memory; 2 x 10/100/1000 Mbit/s Ethernet RJ45; 4 x USB V2.0 (high current); 1 x serial (COM1), RAID controller onboard; CompactFlash drive No. 1 at front (without CF); watchdog, temp./fan monitoring; <u>Processor/motherboard:</u> <ul style="list-style-type: none"> Celeron P4505 (2C/2T, 1.86 GHz, 2 MB cache) A Celeron P4505 (2C/2T, 1.86 GHz, 2 MB cache), PROFIBUS/MPI, 2 MB battery-backed SRAM B Celeron P4505 (2C/2T, 1.86 GHz, 2 MB cache), PROFINET (3 x RJ45, CP 1616-compatible), 2 MB battery-backed SRAM C Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache) D Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache), PROFIBUS/MPI, 2 MB battery-backed SRAM E Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache), PROFINET (3 x RJ45, CP 1616-compatible), 2 MB battery-backed SRAM F Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache) G Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache), PROFIBUS/MPI, 2 MB battery-backed SRAM H Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache), PROFINET (3 x RJ45, CP 1616-compatible), 2 MB battery-backed SRAM J <u>Memory expansion</u> <ul style="list-style-type: none"> 1 GB DDR3 1066, DIMM 0 2 GB DDR3 1066 DIMM 1 3 GB DDR3 1066 DIMM 2 4 GB DDR3 1066 DIMM 3 2 GB DDR3 1066 DIMM, ECC 5 4 GB DDR3 1066 DIMM, ECC 6 <u>Country-specific version/power supply</u> <ul style="list-style-type: none"> 100/240 V AC industrial power supply with Namur; European cable 0 100/240 V AC industrial power supply with Namur; UK cable 1 100/240 V AC industrial power supply with Namur; CH cable 2 | | <u>Country-specific version/power supply</u> (continued) <ul style="list-style-type: none"> 100/240 V AC industrial power supply with Namur; USA cable 3 100/240 V AC industrial power supply with Namur; Italian cable 4 100/240 V AC industrial power supply with Namur; Chinese cable 5 24 V DC industrial power supply 6 <u>PC slots</u> <ul style="list-style-type: none"> 2 x PCI free 0 1 x PCI, 1x PCIe (x16) free 1 <u>Drives</u> <ul style="list-style-type: none"> 250 GB HDD SATA A 250 GB HDD SATA; DVD+/-RW B 500 GB HDD SATA C 500 GB HDD SATA; DVD+/-RW D 2 x 250 GB SATA (2.5") E 2 x 250 GB SATA (2.5") + DVD+/-RW F RAID1 2 x 250 GB SATA (2.5") G RAID1 2 x 250 GB SATA (2.5"); DVD+/-RW H 32 GB SATA solid state drive (SLC) J 32 GB SATA solid state drive (SLC); DVD+/-RW K CompactFlash drive No. 2 installed, DVD+/-RW U CompactFlash drive No. 2 installed V DVD+/-RW W Without drives X <u>Operating system</u> (preinstalled and activated) <ul style="list-style-type: none"> Windows XP Professional MUI, SP3 (Eng, Ger, Fr, It, Sp) A Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp) B Windows Embedded Standard 2009 English on 8 GB CompactFlash F Without operating system X <u>Expansion</u> <ul style="list-style-type: none"> No expansion (software) 0 SIMATIC IPC DiagMonitor software included 1 SIMATIC IPC Image&Partition Creator software included 2 SIMATIC IPC DiagMonitor, Image & Partition Creator software included 3 |

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Box PC

SIMATIC IPC627C

Ordering data

Accessories

Memory expansions

| | | |
|-----------------------------|---|----------------------------|
| • 1 GB DDR3 1066, DIMM | A | 6ES7 648-2AJ40-0KA0 |
| • 1 GB DDR3 1066 DIMM; ECC | A | 6ES7 648-2AJ40-1KA0 |
| • 2 GB DDR3 1066, DIMM | A | 6ES7 648-2AJ50-0KA0 |
| • 2 GB DDR3 1066, DIMM; ECC | A | 6ES7 648-2AJ50-1KA0 |
| • 4 GB DDR3 1066, DIMM | A | 6ES7 648-2AJ60-0KA0 |
| • 4 GB DDR3 1066, DIMM; ECC | A | 6ES7 648-2AJ60-1KA0 |

PCI expansion card with COM1 and LPT

A **6ES7 648-2CA01-0AA0**

Graphic adapter cable

| | |
|--|----------------------------|
| • DVI-I acc. to VGA, 250 mm long | 6ES7 648-3AB00-0XA0 |
| • DVI-I acc. to VGA and DVI-D, 250 mm long (Y cable) | 6ES7 648-3AE00-0XA0 |

Portrait assembly kit

| | |
|------------------------------|------------------------------|
| • Interfaces upward/downward | 6ES7 648-1AA10-0YA0 |
| • Interfaces to the front | A 6ES7 648-1AA10-0YB0 |

SIMATIC PC, 230 V AC power cable

angled, 3 m for Box PC and Panel PC for

| | |
|--|----------------------------|
| • Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden | 6ES7 900-1AA00-0XA0 |
| • United Kingdom | 6ES7 900-1BA00-0XA0 |
| • Switzerland | 6ES7 900-1CA00-0XA0 |
| • USA | 6ES7 900-1DA00-0XA0 |
| • Italy | 6ES7 900-1EA00-0XA0 |
| • China | 6ES7 900-1FA00-0XA0 |

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

Order No.

Expansion components

SIMATIC PC keyboard

German/international, USB connection

6ES7 648-0CB00-0YA0

SIMATIC PC mouse

(optical, 3-button); for PG and PC with adapter

A **6ES7 790-0AA01-0XA0**

CompactFlash card

- Compact Flash, 4 GB, Industrial A Grade - DIAG
- Compact Flash, 8 GB, Industrial A Grade - DIAG

6ES7 648-2BF02-0XG0

6ES7 648-2BF02-0XH0

SIMATIC IPC USB FlashDrive

8 GB, USB 2.0, metal enclosure, bootable

A **6ES7 648-0DC50-0AA0**

SIMATIC IPC Service USB FlashDrive

8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD

B **6AV7 672-8JD01-0AA0**

Communication products

see expansion components

Power supply units and UPS

see expansion components

RMOS3 real-time operating system

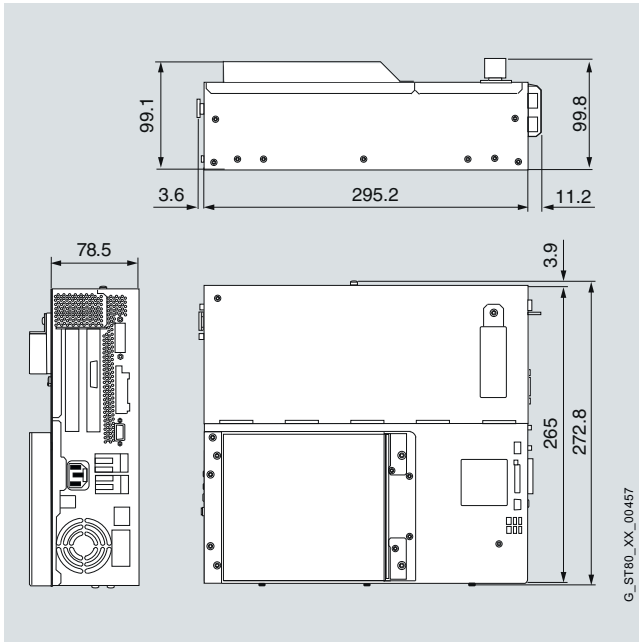
see expansion components

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

PC-based Automation

Box PC

SIMATIC IPC827C

Overview



The SIMATIC IPC827C Box PC is a rugged and flexibly expandable control cabinet PC for machine-level usage in 24-hour continuous operation at ambient temperatures of up to 55 °C.

It offers:

- maximum performance and high expandability
- with Intel Core i technology

Benefits

Maximum system performance for complex measuring, control and visualization tasks

- Intel processors: Core i7, Core i3 or Celeron; in each case with 2 cores, with turbo-boost technology and AMT (i7) and hyper-threading (i7, i3)
- Intel BD82QM57 Platform Controller Hub (PCH)
- DDR3 1066 memory technology up to 8 GB RAM
- Intel HD Graphics Media Accelerator for significantly increased graphic performance
- PCI Express x16 slot for x16 graphic card support
- SATA hard disks with up to 500 GB capacity and NCQ technology (Native Command Queuing) for high-speed processing of large data volumes

High flexibility and expandability

- Flexible installation in many different positions with mounting brackets or portrait assembly kit
- Vacant expansion slots: 3 x PCI, 1 x PCIe Express (x16) and 1 x PCIe (x4)
- 3 x PROFINET interfaces onboard (optional, IRT-capable, 3-port, switching-enabled, CP 1616-compatible)
- 1 x PROFIBUS interface onboard (optional, CP 5611-compatible)
- RAID1 controller onboard (no occupation of a PC slot)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with teaming capability), PROFINET RT-compatible
- 4 x high-speed USB 2.0 ports
- DVI-I interface (for VGA and/or DVI-D monitors)

Rugged design for direct installation in the machine

- Maximum processor performance up to an ambient temperature of 55 °C
- High shock/vibration resistance in all possible mounting positions
- High EMC for safe operation
- SATA Solid State Drive (SSD) with 32 GB in Single Level Cell architecture (SLC) for high reliability and speed
- 1 x CompactFlash drive externally accessible
- Strain relief for all cables/connectors

Benefits (continued)

High system availability, fast startup, maintenance and servicing

- High degree of data security thanks to mirror disk system (RAID1, optional) or Solid State Drive (SSD, optional)
- RAM with ECC (optional) for increased data security: 1-bit memory errors are corrected automatically
- 2 MB battery-backed SRAM, of which 128 KB can be used as memory for retentive WinAC RTX data
- Active Management Technology (Intel AMT) for Core i7 versions (remote access to the device, also in shut-down state)
- Externally accessible CMOS backup battery, replaceable during operation, status can be scanned by software
- Two 7-segment displays and 2 signal LEDs (two-color) for diagnostics purposes, freely programmable
- Operating system preinstalled, ready to run, and already activated (eliminates need for usual product activation via the Internet or by telephone)
- Following system failure, fast restoration of hard disk contents to factory status using supplied recovery and restore DVD
- Worldwide service and support

Cost reductions through high investment security

- Long-term platform with Intel embedded components
- Availability of 3 to 5 years, then guaranteed availability of spare parts for further 5 years
- Part of the scalable Box PC range with identical performance features and footprint
- System-tested with SIMATIC hardware and software
- Certification for worldwide marketing (e. g.: cULus)
- Installation compatible for all device generations, software compatible with predecessor model

Application

The SIMATIC IPC827C provides mechanical engineers, plant engineers, and control cabinet makers with a high-performance, compact PC platform for application at the machine or in the industrial environment for:

- Measuring and controlling of process and machine data (e. g. automated washing systems, robot controls)
- Operating and visualization tasks with separate display/monitor solutions (e. g. information terminals, large-scale displays in automotive production)
- Data acquisition and processing (e. g. production data acquisition, distributed process control)

The SIMATIC IPC827C has CE certification for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can also be used in building services automation or in facilities open to the public.

The SIMATIC Box PCs can be ordered in combination with WinCC flexible or WinCC as SIMATIC HMI packages at a reduced price.

Design

Basic equipment

- Rugged metal installation housing, resistant to vibrations and shocks, with high electromagnetic compatibility
- Card retainer for reliable operation of PC modules in the event of vibrations and shocks
- Vibration and shock-absorbing hard disk holder
- Graphics onboard 1600 x 1200, 85 Hz, 32-bit colors
- Vacant slots: 2 x PCI 290 mm, 1 x PCI 240 mm, 1 x PCIe x16 240 mm, and 1 x PCIe x4 185 mm
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45)
 - DVI-I graphic interface
 - 4 x USB 2.0
 - 1 x serial (COM1)
 - CompactFlash drive (external operation possible)
 - Two 7-segment displays (port 80) and two 2-color signal LEDs for status display (freely programmable)

Design versions

- Processor:
 - Intel Core i7-610E processor (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache)
 - Intel Core i3-330E processor (2C/4T, 2.13 GHz, HT, VT, 3 MB cache)
 - Intel Celeron P4505 processor (2C/2T, 1.86 GHz, 2 MB cache)
- Main memory:
 - 1 GB to 4 GB, DDR3 1066
 - ECC memory 2 GB / 4 GB, DDR3 1066
- Fieldbus:
 - PROFINET onboard, IRT-capable, switching-enabled, 3 x RJ45, CP 1616-compatible, PROFINET versions feature 2 MB battery-backed SRAM onboard
 - PROFIBUS/MPI onboard, CP 5611-compatible, PROFIBUS versions feature 2 MB battery-backed SRAM onboard
- Drives:
 - SATA hard disks: 250/500 GB, 3.5"; RAID1 2 x 250 GB, 2.5"
 - Solid State Drive (SSD) SATA 32 GB in Single Level Cell architecture (SLC)
 - Optical drive SATA DVD+/-RW/-RAM/-DL
- Power supply:
 - 100 / 240 V AC (wide range), 50/60 Hz
 - 24 V DC industrial power supply
- Preinstalled operating systems:
 - Windows XP Professional, multi language
 - Windows 7 Ultimate, multi language
 - Windows Embedded Standard 2009 English (XP-based, on 8 GB CompactFlash)
- SIMATIC IPC DiagMonitor ¹⁾
- SIMATIC IPC Image & Partition Creator software ¹⁾

¹⁾ Further information can be found under "Expansion components/accessories".

PC-based Automation

Box PC

SIMATIC IPC827C

Function

- Integrated, parameterizable monitoring functions (program execution (watchdog), internal enclosure temperature, external enclosure temperature, speed monitoring of fans, CMOS battery)
- Expanded diagnostics/signaling via Ethernet, e-mail, text message, and for direct infeed to SIMATIC software via OPC and logging (optional using SIMATIC IPC DiagMonitor):
 - Operating hours counter
 - Hard disk status
 - Automatic logging of all messages to a log file
 - Long-term recording and graphic display of measured values (temperature, fan)
 - Option for remote monitoring of networked SIMATIC IPCs
- RAID1 for automatic data mirroring on two serial ATA hard disks
- FlashDrive, via externally accessible CompactFlash card or Solid State Drive for extremely rugged data storage or the design of systems without hard disk
- AMT functionality (Intel Active Management Technology). This feature allows remote access to the IPC (for service work) even with operating system shut down, e. g.:
 - Starting up/shutting down the IPC
 - BIOS update
- CMOS batteries are externally accessible and therefore easily replaced
- Flash BIOS with the ability to store customer-specific CMOS settings in a non-volatile memory area
- The PROFINET and PROFIBUS versions offer 2 MB of battery-backed SRAM for application data
- After an unexpected power interruption, up to 128 KB of important process data can be written into the battery-backed SRAM
- Two 7-segment displays (port 80) for power-up display and for customer outputs (freely programmable)
- Two 2-color LEDs (green/red) for display of status messages (freely programmable)

Integration

Integrated interfaces:

- **Ethernet**
Two integrated Ethernet interfaces (10/100/1000 Mbit/s) for IT communication and for exchanging data with automation devices such as SIMATIC S7 (with the software package "SOFTNET S7").
- **PROFINET**
The optional PROFINET interface for connecting distributed field devices or for controlling drives.
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or for the interface to SIMATIC S7 (with the "SOFTNET for PROFIBUS" software packages).
- **Further interfaces**
There are two free slots for PC modules, 4 USB (Universal Serial Bus) and a serial interface for connecting additional I/O devices.

Technical specifications

| SIMATIC IPC827C | |
|---------------------------|---|
| General features | |
| Design | Rack-mountable, wall or portrait mounting |
| Processor | <ul style="list-style-type: none"> Intel Core i7-620E processor (2C/4T, 2.53 GHz, 4 MB L2, turbo boost, VT-d, AMT); Intel Core i3-330E processor (2C/4T, 2.13 GHz, 3 MB L2) Intel Celeron P4505 processor (2C/2T, 1.86 GHz, 2 MB L2) |
| Chipset | Intel Platform Controller Hub BD82QM57 |
| Main memory | <ul style="list-style-type: none"> 1 GB; DDR3 1066, DIMM expandable up to 4 GB (2 memory bases) ECC memory 2/4 GB optional |
| Free slots for expansions | <ul style="list-style-type: none"> 2 x PCI 290 mm, 1 x PCI 240 mm, 1 x PCIe x16 240 mm and 1 x PCIe x4 185 mm |
| Graphics | Onboard, Intel HD graphics, 256 MB (dynamic shared memory), VGA: 1600 x 1200 / 32 bit colors / 85 Hz, DVI-I: 1600 x 1200 / 32 bit colors / 60 Hz, LCD: 1280 x 1024 / 18 bit |
| Operating system | <ul style="list-style-type: none"> Without operating system Preinstalled, activated, and supplied on restore DVD: <ul style="list-style-type: none"> XP Prof. MUI, SP3; Windows 7 Ultimate MUI, Windows Embedded Standard 2009 English on 8 GB CompactFlash (XP-based) MUI: Multi User Interface; 5 languages (English, French, German, Italian, Spanish) <ul style="list-style-type: none"> RMOS3 (separately orderable) Project-specific on request: <ul style="list-style-type: none"> Linux¹⁾ Other |
| Power supply | <ul style="list-style-type: none"> 100/240 V AC, 190 W; wide range; with short-term bridging of power failures in accordance with NAMUR: max. 20 ms at 93 V or 264 V 50 to 60 Hz (47 to 63 Hz) 24 V DC, 210 W isolated (optional) |

| SIMATIC IPC827C | |
|-----------------------------|---|
| Drives | |
| Hard disk | <ul style="list-style-type: none"> without 250 GB SATA, 3.5" 500 GB SATA, 3.5" 2 x 250 GB SATA, 2.5" RAID1, 2 x 250 GB SATA, 2.5" |
| Solid State Drive (SSD) | 32 GB SATA 2.5" in Single Level Cell architecture (SLC) |
| FlashDrive | CompactFlash drive at front |
| Optical drives | SATA-DVD+/-RW/DL, optional (depth is increased from 155 mm to 175 mm) |
| Interfaces | |
| PROFINET | 3 x RJ45 (CP 1616-compatible, optional) Note: The PROFINET options are supplied with 2 MB battery-backed SRAM. |
| PROFIBUS/MPI | 12 Mbit/s (isolated, CP 5611-compatible, optional) Note: The PROFIBUS/MPI options are supplied with 2 MB battery-backed SRAM. |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ 45, teaming-capable) |
| USB | 4 x USB 2.0 (high current), high-speed |
| Serial | 1 x COM1 |
| Parallel | Multi IO PCI module (available as accessory) |
| DVI-I | 1 x (analog, digital) |
| VGA | Via adapter cable, DVI-I to VGA adapter (available as accessory) |
| Dual monitor | Via adapter cable, DVI-I to VGA & DVI (available as accessory) |
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> Overshoot/undershoot of permissible operating temperature range Outdoor temperature Messages can be evaluated by the application program |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software Restart can be parameterized in the event of a fault Messages can be evaluated by the application program |

PC-based Automation

Box PC

SIMATIC IPC827C

Technical specifications (continued)

| SIMATIC IPC827C | |
|--|--|
| Monitoring functions (continued) | |
| Fan | Speed monitoring |
| Local displays | <ul style="list-style-type: none"> Port 80 display: Two 7-segment displays for monitoring the PC power-up (freely programmable) Two 2-color LEDs for status outputs (freely programmable) |
| Monitoring functions via the network | SIMATIC IPC DiagMonitor (optional) Remote monitoring capability for: <ul style="list-style-type: none"> Watchdog Temperature Fan speed Hard disk monitoring (SMART) Operating hours counter Communication: <ul style="list-style-type: none"> Internet (Web server) Ethernet interface (SNMP protocol) OPC for integration in SIMATIC software Structure of client/server architectures Structure of log files Long-term recording of measured data (temperature, fan) and graphic display |
| Ambient conditions | |
| Degree of protection | IP 20 to EN 60529 |
| Ambient temperature during operation | With maximum configuration: <ul style="list-style-type: none"> 5 to 45 °C 5 to 50 °C (up to 50 W load on PCI(e) bus) 5 to 55 °C (up to 10 W load on PCI(e) bus) |
| Vibration | |
| • During operation | <ul style="list-style-type: none"> 10 to 58 Hz: 0.75 mm; 58 to 500 Hz: 9.8 m/s² (approx. 1 g) With DVD operation: <ul style="list-style-type: none"> 10 to 58 Hz: 0.018 mm; 58 to 500 Hz: 2.5 m/s² (approx. 0.25 g) Note: No vibration permitted when burning DVDs |
| • During storage/transport | 5 ... 9 Hz: 3.5 mm, 9 ... 500 Hz: 9.8 m/s ² |
| Shock | |
| • During operation | <ul style="list-style-type: none"> 50 m/s² With DVD operation: <ul style="list-style-type: none"> 50 m/s², 11 ms (approx. 5 g) Note: No shock permitted when burning DVDs |
| • During storage/transport | 250 m/s ² , 6 ms |

| SIMATIC IPC827C | |
|--|---|
| Relative humidity | |
| • During operation | 5 ... 80% at 25 °C (no condensation) |
| • During storage/transport | 5 ... 95% at 25 °C (no condensation) |
| Electromagnetic compatibility (EMC) | |
| • Emitted interference | EN 55022 Class B |
| • Immunity to conducted interference on the supply lines | <ul style="list-style-type: none"> ±2 kV (IEC 61000-4-4, burst) ±1 kV (IEC 61000-4-5, symm. surge) ±2 kV (IEC 61000-4-5, asymm. surge) |
| • Immunity to interference on signal lines | <ul style="list-style-type: none"> ±1 kV (IEC 61000-4-4, burst, length < 3 m) ±2 kV (IEC 61000-4-4, burst, length > 3 m) ±2 kV (IEC 61000-4-5, surge, length > 30 m) |
| • Immunity to static discharge | <ul style="list-style-type: none"> ±6 kV, contact discharge (IEC 61000-4-2) ±8 kV, air discharge (IEC 61000-4-2) |
| • Immunity to high radio frequency interference | <ul style="list-style-type: none"> 10 V/m, 80 ... 1000 MHz, 80% AM (according to IEC 61000-4-3) 10 V/m, 1.4 ... 2.0 GHz, 50% duty cycle (according to IEC 61000-4-3) 10 V 80% AM, 9 kHz ... 8 MHz (according to IEC 61000-4-6) |
| • Immunity to magnetic fields | 100 A/m, 50 MHz (IEC 61000-4-6) |
| Software | |
| System-tested SIMATIC industrial software | <ul style="list-style-type: none"> STEP 7 WinAC WinCC SOFTNET Note: Compliance with system configuration rules is essential. |
| Approvals | |
| Safety regulations | IEC 60950-1 |
| Approvals | cULus508, cULus1950, FCC Class A |
| CE mark | Use in industry: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-4:2001 Noise immunity: EN 61000-6:2001 Application in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> Emitted interference: EN 61000-6-1, 2001 Noise immunity: EN 61000-6-1:2000 Other standards: <ul style="list-style-type: none"> EN 61000-3-2-2000 (harmonic currents) EN 61000-3-3:1995 (voltage fluctuations and flicker) |

Technical specifications (continued)

| SIMATIC IPC827C | |
|---------------------------------------|---|
| Dimensions | |
| • Device dimensions (W x H x D) in mm | 298 x 301 (incl. mounting rail) x 175 |
| • Without DVD drive in mm | 298 x 301 (incl. mounting rail) x 155 |
| Weight | Approx. 9 kg |
| Miscellaneous | |
| Battery-backed SRAM | 2 MB onboard (in the case of motherboard with PROFIBUS/PROFINET version) |
| CMOS battery | Service-friendly, simple replacement from outside, warning for timely replacement |
| DiagBase diagnostics software | Software for local PC diagnostics (temperature, battery, HDD, ...) |
| Interface module | PCI interface card for COM2, LPT (accessory) |
| Portrait mounting | Accessories for particularly space-saving PC installation in control cabinets: Mounting kit for interface outlet at front, mounting kit for interface outlet up or down |

| SIMATIC IPC827C | |
|--------------------|---|
| Component sticker | Sticker on enclosure for identifying the PC components (processor, HDD, MAC addresses, ...) |
| Fan | For active device heat dissipation <ul style="list-style-type: none"> • 1 x enclosure • 1 x power supply This is a prerequisite for the flexible installation options |
| Mounting positions | 5 installation options underline the flexibility |
| Cable grips | <ul style="list-style-type: none"> • 1 x for 100/240 V AC / 24 V DC supply cable • 1 x for all USB and Ethernet interfaces (LAN FastConnect connectors are supported) • 1 x for PROFINET |

1) **Note:** The PROFINET/PROFIBUS options are supplied with 2 MB battery-backed SRAM

2) No vibration permitted when burning DVDs;

3) No shock permitted when burning DVDs

PC-based Automation

Box PC

SIMATIC IPC827C

Ordering data

Order No.

Configuration

SIMATIC IPC827C

D

6ES7 647-6 P ■ ■ ■ - ■ ■ ■ ■ ■

Processor:

- Celeron P 4505 (2C/2T, 1.86 GHz, 2 MB cache) **A**
- Celeron P 4505 (2C/2T, 1.86 GHz, 2 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM **B**
- Celeron P 4505 (2C/2T, 1.86 GHz, 2 MB cache); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **C**
- Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache) **D**
- Core i3-330E (2.13 GHz, HT, VT, 3 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM **E**
- Core i3-330 (2C/4T, 2.13 GHz, HT, VT, 3 MB cache); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **F**
- Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache) **G**
- Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM **H**
- Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **J**

Memory expansion:

- 1 GB DDR3 1066 DIMM **0**
- 2 GB DDR3 1066 DIMM **1**
- 3 GB DDR3 1066 DIMM **2**
- 4 GB DDR3 1066 DIMM **3**
- 2 GB DDR3 1066 DIMM, ECC **5**
- 4 GB DDR3 1066 DIMM, ECC **6**

Power supply

- 100/240 V AC industrial power supply with Namur; European cable **0**
- 100/240 V AC industrial power supply with Namur; UK cable **1**
- 100/240 V AC industrial power supply with Namur; Swiss cable **2**
- 100/240 V AC industrial power supply with Namur; USA cable **3**

D: Subject to export regulations: AL: N and ECCN: 5D992

Order No.

Configuration

SIMATIC IPC827C

D

6ES7 647-6 P ■ ■ ■ - ■ ■ ■ ■ ■

Power supply (continued)

- 100/240 V AC industrial power supply with Namur; Italian cable **4**
- 100/240 V AC industrial power supply with Namur; Chinese cable **5**
- 24 V DC industrial power supply **6**

Expansions (HW)

- 3x PCI, 2x PCIe (x4), 1x PCIe (x16) vacant **0**

Mass storage

- 250 GB HDD SATA **A**
- 250 GB HDD SATA; DVD+/-RW **B**
- 500 GB HDD SATA **C**
- 500 GB HDD SATA; DVD+/-RW **D**
- 2x 250 GB SATA (2.5") **E**
- 2x 250 GB SATA (2.5"); DVD+/-RW **F**
- RAID1 2x 250 GB SATA (2.5") **G**
- RAID1 2x 250 GB SATA (2.5"); DVD+/-RW **H**
- Solid State Drive 32 GB (SLC) **J**
- Solid State Drive 32 GB (SLC); DVD+/-RW **K**
- DVD+/-RW **W**
- Without drives **X**

Operating system (preinstalled and activated)

- Windows XP Prof. MUI, SP3 (English, German, French, Italian, Spanish) **A**
- Windows 7 Ultimate MUI (English, German, French, Italian, Spanish) **B**
- Windows XP Embedded Standard 2009 English on 8 GB CompactFlash **F**
- Without operating system **X**

Expansion software

- No expansion (software) **0**
- SIMATIC IPC DiagMonitor software included **1**
- SIMATIC IPC Image&Partition Creator included **4**
- SIMATIC IPC DiagMonitor & Image&Partition Creator included **5**

Note:

Windows Embedded only without RAID option

| Ordering data | | Order No. | Order No. | |
|---|---|----------------------------|--|----------------------------|
| Accessories | | | Expansion components | |
| Memory expansions | | | SIMATIC PC keyboard | |
| • 1 GB DDR3 1066 DIMM | A | 6ES7 648-2AJ40-0KA0 | German/international, USB port | 6ES7 648-0CB00-0YA0 |
| • 1 GB DDR3 1066 DIMM, ECC | A | 6ES7 648-2AJ40-1KA0 | | |
| • 2 GB DDR3 1066 DIMM | A | 6ES7 648-2AJ50-0KA0 | SIMATIC PC mouse | 6ES7 790-0AA01-0XA0 |
| • 2 GB DDR3 1066 DIMM, ECC | A | 6ES7 648-2AJ50-1KA0 | (optical, 3-button) for PG and PC with adapter | |
| • 4 GB DDR3 1066 DIMM | A | 6ES7 648-2AJ60-0KA0 | | |
| • 4 GB DDR3 1066 DIMM, ECC | A | 6ES7 648-2AJ60-1KA0 | CompactFlash card | |
| PCI expansion card with COM1 and LPT | A | 6ES7 648-2CA01-0AA0 | • CompactFlash, 4 GB, industrial grade - DIAG | 6ES7 648-2BF02-0XG0 |
| Graphic adapter cable | | | • CompactFlash, 8 GB, industrial grade - DIAG | 6ES7 648-2BF02-0XH0 |
| • DVI-I acc. to VGA, 250 mm long | | 6ES7 648-3AB00-0XA0 | SIMATIC IPC USB FlashDrive | 6ES7 648-0DC50-0AA0 |
| • DVI-I acc. to VGA and DVI-D, 250 mm long (Y cable) | | 6ES7 648-3AE00-0XA0 | 8 GB, USB 2.0, metal enclosure, bootable | |
| Portrait assembly kit | | | SIMATIC IPC Service USB FlashDrive | 6AV7 672-8JD01-0AA0 |
| • Interfaces upward/downward | A | 6ES7 648-1AA30-0YA0 | 8 GB, USB 2.0, metal enclosure, bootable, with BIOS Manager, Image & Partition Creator ready-installed, incl. CD | |
| • Interfaces to the front | A | 6ES7 648-1AA30-0YB0 | | |
| Power cable | | | Communication products | see expansion components |
| SIMATIC PC, power cable for 230 V AC, angled, 3 m for Box PC and Panel PC for | | 6ES7 900-1AA00-0XA0 | For power supplies and uninterruptible power supplies | see expansion components |
| • Germany, France, Spain, Netherlands, Belgium, Sweden, Austria, Finland | | | RMOS3 real-time operating system | see expansion components |
| • United Kingdom | | 6ES7 900-1BA00-0XA0 | | |
| • Switzerland | | 6ES7 900-1CA00-0XA0 | | |
| • USA | | 6ES7 900-1DA00-0XA0 | | |
| • Italy | | 6ES7 900-1EA00-0XA0 | | |
| • China | | 6ES7 900-1FA00-0XA0 | | |

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

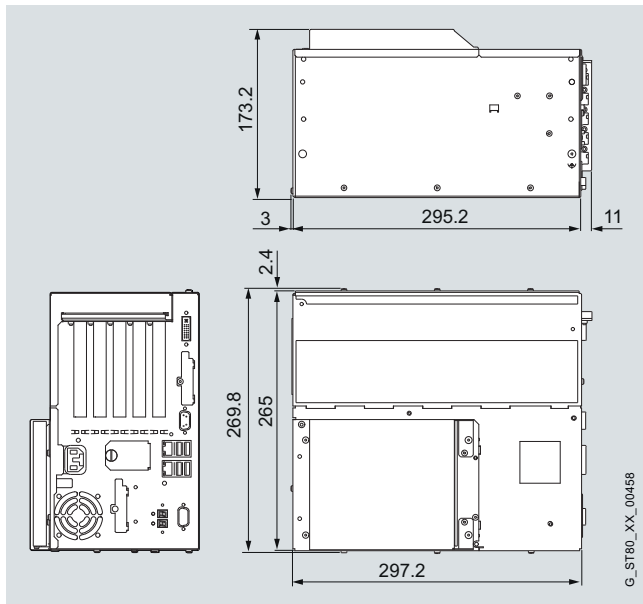
PC-based Automation

Box PC

SIMATIC IPC827C

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Overview



The SIMATIC Box PC 827B is a control cabinet PC for high-performance PC applications at machine level.

It offers:

- maximum performance with a high degree of flexibility
- Intel Core2 Duo technology

Benefits

Maximum system performance for complex measuring, control and visualization tasks

- Intel processors: Core2 Duo or Celeron M
- Intel chipset: 945GM Express + ICH7R
- Intel GMA 950 graphics media accelerator
- PCI Express technology
- DDR2 667 memory technology up to 4 GB
- SATA hard disks up to 500 GB

High flexibility and expandability

- Flexible installation in many different positions with mounting brackets or portrait installation kit
- Onboard: PROFINET or PROFIBUS interface and RAID1 controller (optional)
- 4 x PCI and 1 x PCIe-Express (x4) or 2 x PCI and 3 x PCIe (x4)
- 2 x LAN 10/100/1000 Mbit/s connections (Gbit LAN with teaming capability)
- 4 x high-speed USB-2.0 ports

Rugged design for direct installation in the machine

- Maximum processor performance up to ambient temperature of 55 °C
- High shock/vibration resistance in all possible mounting positions
- High EMC for safe operation
- 2 x CompactFlash drives, both accessible from the outside (one of which is optional)

High system availability, fast startup, maintenance and servicing

- High degree of data security thanks to mirror disk system (RAID1, optional)
- Battery-backed SRAM as memory for WinAC data (with 24 V DC industrial power supply)
- All interfaces and control/display elements on one side to allow optimum installation in control cabinet
- 2 x 7-segment display and 2 x two-color signal LEDs (freely programmable) for diagnostics purposes
- CMOS battery compartment accessible from outside
- Operating system preinstalled, ready to run, and already activated (eliminates need for usual product activation via the Internet or by telephone)
- Fast restoration of delivery state of hard disk contents with recovery and restore CDs
- Worldwide service and support

Cost reductions through high investment security

- Long-term platform with embedded Intel components
- Availability of 3 to 5 years, guaranteed availability of spare parts for 5 years
- Part of the scalable Box-PC range with identical performance features and footprint
- System-tested with SIMATIC hardware and software
- Certification for worldwide marketing (cULus)

PC-based Automation

Box PC

SIMATIC Box PC 827B

Application

The SIMATIC Box PC 827B provides mechanical engineers, plant engineers, and control cabinet makers with a high-performance, compact PC platform for application at the machine or in the industrial environment for:

- Measuring, testing, open-loop and closed-loop control of process and machine data (e. g. filling plants, packaging machines, machines for the semiconductor industry, CD/DVD production machines)
- Operating and visualization tasks with separate display/monitor solutions (e. g. information terminals, large-scale displays in automotive production)
- Data acquisition and processing (e. g. wind-driven power stations, energy management, test systems)

The SIMATIC Box PC 827B has CE certification for use in the industrial sector as well as in residential and commercial areas, and small businesses. In addition to industrial applications, it can also be used in building services automation or in facilities open to the public.

The SIMATIC Box PCs can be ordered in combination with WinCC flexible or WinCC as SIMATIC HMI packages at a reduced price.

Design

Basic design

- Rugged metal enclosure, resistant to vibration and shock, with high electromagnetic compatibility
- Card retainer for reliable operation of PC modules in the event of vibration and shock
- Graphics onboard 1600 x 1200, 85 Hz, 32-bit colors
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45, teaming-capable)
 - DVI-I graphic interface
 - 4 x USB 2.0
 - 1 x serial (COM1)
- CompactFlash drive (can be plugged in from outside)
- Two 7-segment displays and two two-color LEDs for status indication (freely programmable)

Design versions

- Processor:
 - Intel Celeron M 440 1.86 GHz, 533 MHz FSB, 1 MB L2 cache
 - Intel Core2 Duo T5500 1.66 GHz, 677 MHz FSB, 2 MB L2 cache
 - Intel Core2 Duo T7400 2.16 GHz, 677 MHz FSB, 4 MB L2 cache
- Main memory expansion from 256 MB to 4 GB, DDR2 677
- Fieldbus:
 - PROFINET onboard, 3 x RJ45, CP 1616-compatible, PROFINET versions feature 2 MB battery-backed SRAM onboard
 - PROFIBUS/MPI onboard, CP 5611-compatible, PROFIBUS versions feature 2 MB SRAM with battery back-up onboard
- Drives:
 - Hard disks Serial ATA
 - 160 GB, 3.5"
 - 250/500 GB, 3.5"
 - RAID1, 2 x 250 GB, 2.5"
 - Optical drives DVD+/-RW/-RAM/-DL
 - CompactFlash drive (internal) instead of HDD, ODD
- Spare slots for expansion:
 - 1 x PCI-Express x4 (175 mm) and 4 x PCI (265 mm)
 - 1 x PCI-Express x4 (175 mm), 2 x PCI-Express x4 and 2 x PCI (265 mm)
- Power supply:
 - 110/230 V AC (autorange), 50/60 Hz
 - 24 V DC industrial power supply
- Preinstalled and activated operating systems
 - Windows 2000 Professional, multi language
 - Windows XP Professional, multi language
 - Windows XP Embedded English (on 2 GB CompactFlash)
 - Windows Vista Ultimate, Multi Language
- SIMATIC PC DiagMonitor ¹⁾
- SIMATIC PC/PG Image Creator ¹⁾

¹⁾ Further information can be found under "Expansion components".

Function

- Integrated and configurable monitoring functions (program execution (watchdog)), internal enclosure temperature, external enclosure temperature, fan speed monitoring)
- Extended diagnostics/alarms via Ethernet, e-mail, text message and for direct infeed into the SIMATIC software via OPC and logging (optionally via SIMATIC IPC DiagMonitor):
 - Runtime meter
 - Hard disk status
 - Automatic logging of all alarms by means of a log file
 - Long-term recording and graphic display of measured values (temperature, fan)
 - Capability for central monitoring of networked SIMATIC PCs
- RAID1 for automatic data mirroring on two serial ATA hard disks
- 2 x CompactFlash drive, can be accessed externally, for extremely rugged data storage and for configuring systems without hard disks
- Externally accessible CMOS battery supports easy battery replacement
- Flash BIOS with capability for saving customer-specific CMOS settings in a non-volatile memory area
- The PROFINET and PROFIBUS versions offer 2 MB of battery-backed SRAM for application data
- When using the DC power supply, important process data can still be written into the battery-backed SRAM following an unforeseen power interruption
- Two 7-segment displays (Port 80) for the power-up display and for customer outputs (user-programmable)
- Two 2-color LEDs (green/red) for the indication of status messages (user-programmable)
- All interfaces and control elements on one side permit simple installation of the PC in a control cabinet

Integration

Integrated interfaces:

- **Ethernet**
Two integrated, teaming-capable Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software packages).
- **PROFINET**
The optional, isolated PROFINET interface can be used for connecting distributed field devices or for controlling drives.
- **PROFIBUS**
The optional floating PROFIBUS interface (12 Mbit/s) can be used to connect distributed field devices or for the interface to SIMATIC S7 (with the "SOFTNET for PROFIBUS" software packages).
- **Further interfaces**
For connecting additional I/O devices, 2 free slots are available for PC modules as well as 4 USB (Universal Serial Bus) interfaces and one serial interface.

Technical specifications

| SIMATIC Box PC 827B | |
|--|---|
| General features | |
| Design | Rack-mountable, wall or portrait mounting |
| Processor | <ul style="list-style-type: none"> • Intel Core2 Duo 7400, 2.16 GHz, 677 MHz FSB, 4 MB L2 cache • Intel Core2 Duo 5500, 1.66 GHz, 677 MHz FSB, 2 MB L2 cache • Intel Celeron M 440 1.86 GHz, 533 MHz FSB, 1 MB L2 cache |
| Chipset | Intel 945 GM Express |
| Main memory | 256 MB; DDR2 677, SODIMM; expandable up to 4 GB (2 memory bases) |
| Free slots for expansions | <ul style="list-style-type: none"> • 1 x PCI-Express x4 (175 mm) and 4 x PCI (265 mm) • 1 x PCI-Express x4 (175 mm), 2 x PCI-Express x4 and 2 x PCI (265 mm) |
| Graphics | <ul style="list-style-type: none"> • Onboard, Intel GMA 950 graphics controller • 8 ... 128 MB SDRAM (dynamic shared memory) • VGA: 1600 x 1200 / 32-bit colors / 85 Hz • DVI-I: 1600 x 1200 / 32-bit colors / 60 Hz • LCD: 1280 x 1024 / 18-bit |
| Operating system | <ul style="list-style-type: none"> • Without • Windows 2000 Professional MUI ²⁾; SP4 • Windows XP Professional MUI ²⁾; SP2 • Windows Vista Ultimate MUI ²⁾ • Windows XP Embedded ^{3) 4)} (SP2) English on 2 GB • CompactFlash |
| Preinstalled and activated, and supplied on restore DVD: | |
| Order separately | • RMOS3 |
| Project-specific on request | <ul style="list-style-type: none"> • Linux ¹⁾ • Other |
| Power supply | <ul style="list-style-type: none"> • 100/240 V AC, 190 W; autorange; with short-term bridging of power failures in accordance with NAMUR: max. 20 ms at 93 V or 264 V 50 to 60 Hz (47 to 63 Hz) • 24 V DC, 210 W isolated (optional) |

PC-based Automation

Box PC

SIMATIC Box PC 827B

Technical specifications (continued)

| SIMATIC Box PC 827B | |
|-----------------------------|---|
| Drives | |
| Hard disk | <ul style="list-style-type: none"> • without • 160 GB 3.5" • 250 GB 3.5" • 2 x 250 GB 2.5" • RAID1, 2 x 250 GB 2.5" |
| Flash drive | <ul style="list-style-type: none"> • CompactFlash drive No. 1 at front • CompactFlash drive No. 2 at front, instead of HDD, ODD |
| DVD+/-RW | Optional (depth is increased by 20 mm) |
| Interfaces | |
| PROFINET | <ul style="list-style-type: none"> • 3 x RJ45 (CP 1616-compatible, optional) <p>Note The PROFINET options are supplied with 2 MB battery-backed SRAM.</p> |
| PROFIBUS/MPI | <ul style="list-style-type: none"> • 12 Mbit/s (isolated, compatible with CP 5611, optional) <p>Note: The PROFIBUS/MPI options are supplied with 2 MB SRAM with battery back-up.</p> |
| Ethernet | 2 x 10/100/1000 Mbit/s (RJ45, teaming-capable) |
| USB | 4 x USB 2.0 (high current), high-speed |
| Serial | 1 x COM1 |
| Parallel | PCI interface module (optional) |
| DVI-I | 1 x (analog, digital) |
| VGA | Via DVI-I to VGA adapter (available as accessory) |
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> • Overshoot/undershoot of permissible operating temperature • Outside temperature • Messages can be evaluated by the application program |
| Watchdog | <ul style="list-style-type: none"> • Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program |
| Fan | Speed monitoring |

| SIMATIC Box PC 827B | |
|--|--|
| Local displays | <ul style="list-style-type: none"> • Port 80 display: • Two 7-segment displays for monitoring the PC power-up (user-programmable) • Two 2-color LEDs for status outputs (user-programmable) |
| Monitoring functions via the network | SIMATIC PC DiagMonitor (optional) <u>Remote monitoring capability for:</u> <ul style="list-style-type: none"> • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • Runtime meter <u>Communication:</u> <ul style="list-style-type: none"> • Internet (Web server) • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Structure of client/server architectures • Layout of log files • Long-term recording of measured values (temperature, fan) and graphic display |
| Ambient conditions | |
| Degree of protection (front/rear) | IP20 to EN 60529 |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • With maximum configuration • up to 50 W load on PCIe bus • up to 10 W load on PCIe bus | 5 ... 45 °C 5 ... 50 °C 5 ... 55 °C |
| Vibration | |
| <ul style="list-style-type: none"> • During operation | 10 ... 58 Hz: 0.75 mm; 58 ... 500 Hz: 9.8 m/s ² (approx. 1 g) <u>With DVD operation:</u> 10 ... 58 Hz: 0.018 mm; 58 ... 500 Hz: 2.5 m/s ² (approx. 0.25 g) Note: No vibration permitted when burning DVDs |
| <ul style="list-style-type: none"> • Storage/transport | 5 ... 9 Hz: 3.5 mm, 9 ... 500 Hz: 9.8 m/s ² |
| Shock | |
| <ul style="list-style-type: none"> • During operation | 50 m/s ² <u>With DVD operation:</u> 50 m/s ² , 11 ms (approx. 5 g) Note: No shock permitted when burning DVDs |
| <ul style="list-style-type: none"> • Storage/transport | 250 m/s ² , 6 ms |

Technical specifications (continued)

| SIMATIC Box PC 827B | |
|--|--|
| Relative humidity | |
| • During operation | 5 ... 80% at 25 °C (no condensation) |
| • Storage/transport | 5 ... 95% at 25 °C (no condensation) |
| Protection class | Protection class I acc. to VDE 0106 Part 1 (IEC 536) |
| Electromagnetic compatibility (EMC) | |
| • Emitted interference | EN 55022 Class B |
| Noise immunity | |
| • to conducted interference on the supply cables | ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, surge symm.) ± 2 kV (IEC 61000-4-5, surge unsymm.) |
| • on signal cables | ± 1 kV (IEC 61000-4-4, burst, length < 3 m) ± 2 kV (IEC 61000-4-4, burst, length > 3 m) ± 2 kV (IEC 61000-4-5, surge, length > 30 m) |
| • to static discharge | ± 6 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) |
| • to radiofrequency radiation | 10 V/m, 80 to 1000 MHz, 80% AM (according to IEC 61000-4-3) 10 V/m, 1.4 to 2.0 GHz, 50% ED (according to IEC 61000-4-3) 10 V 80% AM, 9 KHz to 8 MHz (according to IEC 61000-4-6) |
| • to magnetic fields | 100 A/m, 50 MHz (IEC 61000-4-6) |

| SIMATIC Box PC 827B | |
|---|---|
| System tested SIMATIC Industrial Software | <ul style="list-style-type: none"> • STEP 7 • WinAC • ProTool/Pro • WinCC • SOFTNET <p>Note: Compliance with system configuration rules is essential</p> |
| Approvals | |
| Safety regulations | IEC 60950-1 |
| Approvals | cULus508, cULus1950, FCC Class A |
| CE mark | |
| Use in industrial environments | <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-4:2001 • Noise immunity: EN 61000-6:2001 |
| Applications in residential areas, business and trade environments, as well as in small companies | <ul style="list-style-type: none"> • Emitted interference: EN 61000-6-1, 2001 • Noise immunity: EN 61000-6-1:2000 |
| Other standards | <ul style="list-style-type: none"> • EN 61000-3-2:2000 (harmonic currents) • EN 61000-3-3:1995 (voltage variations and flicker) |
| Dimensions | |
| • Equipment dimensions (in mm) | 298 x 301 (incl. mounting rail) x 175 |
| • Without DVD drive | 298 x 301 (incl. mounting rail) x 155 |
| Weight | |
| Weight, approx. | 9 kg |

- 1) Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).
- 2) MUI: Multi-user interface; 5 languages (English, French, German, Italian, Spanish)
- 3) XPe and Vista require at least 512 MB of memory expansion
- 4) XPe does not support RAID1 function

PC-based Automation

Box PC

SIMATIC Box PC 827B

Ordering data

Order No.

Configuration ¹⁾

SIMATIC Box PC 827B

D

6ES7 647-6 N ■ ■ ■ - ■ ■ ■ ■ ■

Graphics onboard, 128 MB shared memory; 2 x 10/100/1000 Mbit/s Ethernet RJ45; 4 x USB V2.0 (high current); 1 x serial (COM1), RAID controller onboard; CompactFlash drive No. 1 at front; watchdog, temp./fan monitoring

Processor

- Celeron M 440 (1.86 GHz, 1 MB L2, 533 MHz FSB) **A**
- Celeron M 440 (1.86 GHz, 1 MB L2, 533 MHz FSB); PROFIBUS/MPI; 2 MB battery-backed SRAM **B**
- Celeron M 440 (1.86 GHz, 1 MB L2, 533 MHz FSB); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **C**
- Core2 Duo T5500 (1.66 GHz, 2 MB L2, 667 MHz FSB); **D**
- Core2 Duo T5500 (1.66 GHz, 2 MB L2, 667 MHz FSB); PROFIBUS/MPI; 2 MB battery-backed SRAM **E**
- Core2 Duo T5500 (1.66 GHz, 2 MB L2, EM64-T); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **F**
- Core2 Duo T7400 (2.16 GHz, 4 MB L2, 667 MHz FSB) **G**
- Core2 Duo T7400 (2.16 GHz, 4 MB SLC, 667 MHz FSB); PROFIBUS/MPI; 2 MB battery-backed SRAM **H**
- Core2 Duo T7400 (2.16 GHz, 4 MB SLC, EM64-T, 667 MHz FSB); PROFINET (3 x RJ45, CP 1616-compatible); 2 MB battery-backed SRAM **J**

Memory expansion

- 256 MB DDR2 667 SODIMM **0**
- 512 MB DDR2 667 SODIMM **1**
- 1 GB DDR2 667 SODIMM **2**
- 2 GB DDR2 667 SODIMM **3**
- 3 GB DDR2 667 SODIMM **4**
- 4 GB DDR2 667 SODIMM **5**

Country-specific version/power supply

- 110/230 V AC industrial power supply with Namur; power cable for Europe **0**
- 110/230 V AC industrial power supply Namur; power cable for United Kingdom **1**
- 110/230 V AC industrial power supply Namur; power cable for Switzerland **2**
- 110/230 V AC industrial power supply Namur; power cable for USA **3**
- 110/230 V AC industrial power supply Namur; power cable for Italy **4**
- 110/230 V AC industrial power supply with Namur; power cable for China **5**
- 24 V DC industrial power supply **6**

Order No.

Configuration ¹⁾

SIMATIC Box PC 827B

D

6ES7 647-6 N ■ ■ ■ - ■ ■ ■ ■ ■

Expansions (HW)

- 4 x PCI, 1 x PCIe (x4) free; **0**
- 2 x PCI, 3 x PCIe (x4) free; **1**
- PCI interface card with COM2, LPT1; 1 x PCI, 3 x PCIe free; **3**
- PCI card with COM2, LPT1; 3 x PCI, 1 x PCIe free; **4**

Drives

- 160 GB HDD SATA **A**
- 160 GB HDD SATA; DVD+/-RW **B**
- 250 GB HDD SATA **C**
- 250 GB HDD SATA; DVD+/-RW **D**
- 2 x 250 GB SATA (2.5") **E**
- 2 x 250 GB SATA (2.5"); DVD+/-RW **F**
- RAID1 2 x 250 GB SATA (2.5") **G**
- RAID1 2 x 250 GB SATA (2.5"); DVD+/-RW **H**
- CompactFlash drive No. 2 at front **W**
- Without drives **X**

Operating system (preinstalled and activated)

Note:

Windows XP Embedded: at least 512 MB; do not select RAID1 option;

- Windows 2000 Prof. multi language SP4 (Eng, Fr, Ger, It, Sp) **D** **A**
- Windows XP Prof. multi language SP2 (Eng, Fr, Ger, It, Sp) **D** **B**
- Windows Vista Ultimate multi language (Eng, Ger, Fr, It, Sp); (at least 512 MB memory) **C**
- Windows XP Embedded (SP2) English on 2 GB CompactFlash; (at least 512 MB memory; no RAID1) **F**
- Without operating system **X**

Expansion software

- Without expansion (software) **0**
- SIMATIC IPC DiagMonitor software included **1**
- SIMATIC IPC Image&Partition Creator V3.0 included **4**
- SIMATIC IPC DiagMonitor & Image&Partition Creator V3.0 included **5**

D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

| Ordering data | | Order No. | Order No. | |
|---|---|----------------------------|--|------------------------------|
| Accessories | | | Expansion components | |
| Memory expansions | | | SIMATIC PC keyboard | |
| • 256 MB, DDR2 667, SODIMM | A | 6ES7 648-2AG20-0HA0 | German/international, USB connection | 6ES7 648-0CB00-0YA0 |
| • 512 MB, DDR2 667, SODIMM | A | 6ES7 648-2AG30-0HA0 | | |
| • 1 GB, DDR2 667, SODIMM | A | 6ES7 648-2AG40-0HA0 | | |
| • 2 GB, DDR2 667, SODIMM | A | 6ES7 648-2AG50-0HA0 | | |
| PCI expansion card | | | SIMATIC PC mouse | |
| with COM2 and LPT | A | 6ES7 648-2CA01-0AA0 | (optical, 3-button) for programming device and PC with adapter | 6ES7 790-0AA01-0XA0 |
| Graphic adapter cable | | | CompactFlash card | |
| • DVI-I acc. to VGA, 250 mm long | | 6ES7 648-3AB00-0XA0 | • 2 GB | A 6ES7 648-2BF01-0XF0 |
| • DVI-I acc. to VGA and DVI-D, 250 mm long; (Y cable) | | 6ES7 648-3AE00-0XA0 | • 4 GB | A 6ES7 648-2BF01-0XG0 |
| Portrait assembly kit | | | SIMATIC IPC USB FlashDrive | |
| • Interfaces upward/downward | A | 6ES7 648-1AA30-0YA0 | 8 GB, USB 2.0, metal enclosure, bootable | A 6ES7 648-0DC50-0AA0 |
| • Interfaces to the front | A | 6ES7 648-1AA30-0YB0 | | |
| Power cable | | | SIMATIC IPC Service USB FlashDrive | |
| SIMATIC PC, power cable for 230 V AC, angled, 3 m for Box PC and Panel PC for | | 6ES7 900-1AA00-0XA0 | 8 GB, USB 2.0, metal enclosure, bootable, with BIOS-Manager, Image & Partition Creator pre-installed, incl. CD | B 6AV7 672-8JD01-0AA0 |
| • Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden | | 6ES7 900-1BA00-0XA0 | | |
| • United Kingdom | | 6ES7 900-1CA00-0XA0 | | |
| • Switzerland | | 6ES7 900-1DA00-0XA0 | | |
| • USA | | 6ES7 900-1EA00-0XA0 | | |
| • Italy | | 6ES7 900-1FA00-0XA0 | | |
| • China | | | | |
| | | | Communication products | see expansion components |
| | | | Power supply units and UPS | see expansion components |
| | | | RMOS3 real-time operating system | see expansion components |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

1) For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

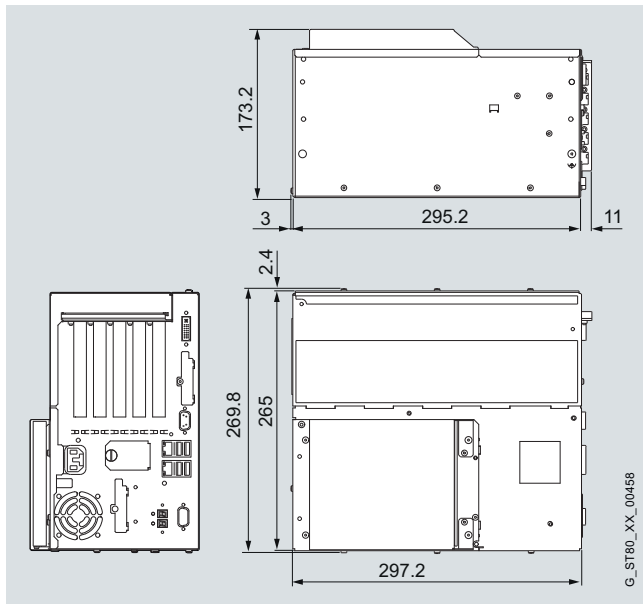
PC-based Automation

Box PC

SIMATIC Box PC 827B

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.

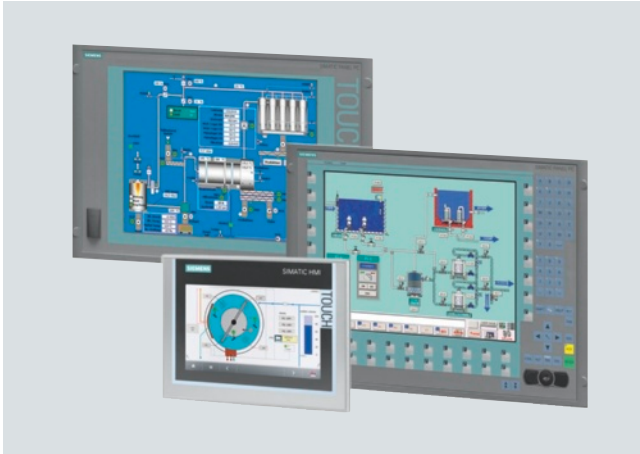


More information

Further information can be found on the Internet at:

www.siemens.com/simatic-pc

Overview



SIMATIC Panel PCs are suitable thanks to their high industrial compatibility both for use in control cabinets, consoles and control panels, as well as directly on the machine. Typical areas of application can be found in both production and process automation.

There is a broad range of robust, high-performance SIMATIC Panel PCs available for different requirements.

Shared industrial functionality

- High-quality components and modules with a high MTBF (mean time between failure), which also ensure 24-hour operation in the extended temperature range
- High swing/shock capacity of the devices through special hard-disk suspensions, locked connectors and card retainers
- Rugged housing model with high electromagnetic compatibility (EMC) and integrated industrial power supplies (also as per NAMUR)
- Service-friendly device design
- Bright, brilliant displays in different sizes up to 19"
- Same front panel mounting dimensions and uniform front design across all device families
- Rugged fronts protected from dust, humidity and chemical substances (front-side IP65 / NEMA 4 degrees of protection)

SIMATIC HMI IPC277D

for implementing simple visualization and control tasks

- High degree of flexibility for selecting rugged widescreen fronts from 7" to 12" for a more freely configurable display area
- High resolution, large viewing angle, and up to 100% dimmable backlighting for a brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash and SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory
- Ready-to-use embedded bundles with visualization or/and control software

SIMATIC HMI IPC477C

Ultra-compact and maintenance-free Panel PC in embedded technology

- Compact design (only 61 to 69 mm mounting depth for 12" to 19" display)
- No rotating parts (without fan and hard disk)
- High security due to the Microsoft Windows Embedded Standard 2009 operating system
- Ready-to-use devices with optionally preinstalled software
 - HMI: Innovative HMI software WinCC flexible (incl. archives and recipes)
 - RTX: with real-time capable software PLC WinAC RTX
- Retentive memory on board (NV-RAM, usable with WinAC RTX)

SIMATIC HMI IPC577C

Industrial functionality and openness at an attractive price

- Full PC openness and performance boost with Intel Core2 Duo processors
- Rugged design for industrial use
- Can be expanded using a PCI slot and additional interfaces
- More rugged due to SSD (solid-state drive) or CompactFlash
- The configurator (best-fit for the customer) makes ordering more flexible
- Compact design

SIMATIC HMI IPC677C

Maximum performance, flexibility and availability

- Rugged, expandable industrial PC with different front panels
- Rugged design for industrial use
- Complete PC openness
- Optional PROFIBUS or PROFINET onboard
- All CPUs with dual core

SIMATIC Panel PC 677B

Flexibility and compactness with maximum performance

- Maximum performance thanks to latest process technology from Intel
- Dual Core technology: up to Intel Core2 Duo 2.16 GHz
- Compact structure with simultaneous expandability through PCI/PCIe slots
- Strong communication through two Ethernet and integrated PROFIBUS DP/MPI interfaces
- Control and computer units can be separated by up to 30 m
- RAID1 controller on board
- Retentive memory on board (NV-RAM, usable with WinAC RTX)

PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC

Overview (continued)

| | SIMATIC HMI IPC277D | SIMATIC HMI IPC477C | SIMATIC HMI IPC577C | SIMATIC HMI IPC677C |
|--|--|--|---|---|
| Design | | | | |
| Centralized configuration | • | • | • | • |
| Distributed configuration (via remote kit) | - | - | - | - |
| Display | | | | |
| Size | 7"/9"/12" widescreen | 12"/15"/19" TFT | 12"/15"/19" TFT | 12"/15"/19" TFT |
| Resolution | 800 x 480/ 800 x 480/ 1280 x 800 | 800 x 600/ 1024 x 768/ 1280 x 1024 | 800 x 600/ 1024 x 768/ 1280 x 1024 | 800 x 600/ 1024 x 768/ 1280 x 1024 |
| Operator controls | | | | |
| Membrane keyboard | - | • ¹⁾ | • ¹⁾ | • ¹⁾ |
| Touch screen | • | • | • | • |
| General features | | | | |
| Power supply 24 V DC / 110/240 V AC | •/- | •/- | •/• | •/-/• |
| Processor | Intel Atom E640, 1.0 GHz | Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Intel Core2 Duo 1.2 GHz | Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Intel Core2 Duo 1.86 GHz | Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache; Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, 3 MB cache, HT, VT-x; Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, 4 MB, cache, TB, HT, VT-x, VT-d |
| Main memory | 1 GB | 1 GB, 2 GB or 4 GB | 1 GB, 2 GB or 4 GB | 1 GB expandable to 4 GB or 2 GB /4 GB with ECC |
| Expansion slots | 1 x CF slot for Compact- Flash Card (externally accessible) | 1 x CF slot for Compact- Flash Card (externally accessible) | 1 x PCI ³⁾ ; 1 x CF slot for CompactFlash Card (externally accessible) | 2 x PCI ²⁾ or 1 x PCI and 1 x PCIe x16 Compact- Flash Card (externally accessible) |
| Operating system | None; Windows Embedded Standard 2009 or XP Professional MUI | Without; Windows Embedded 2009 or XP Professional MUI; Windows 7 Ultimate MUI or Windows Embedded Standard 7 | None; Windows Embedded 2009 or XP Professional MUI | Without operating system, Windows XP Professional MUI, Windows 7 Ultimate MUI, Windows Embedded Standard 2009 on CF |
| Interfaces | | | | |
| PROFIBUS/MPI | - | • | • | • |
| PROFINET (RT/IRT) | • / - | • | • | • |
| Ethernet | 2 x 10/100/1000 Mbit | 10/100/1000 Mbit | 10/100/1000 Mbit | 10/100/1000 Mbit |
| PS/2 (mouse/keyboard) | - | - | - | - |
| USB | • | • | • | • |
| Serial interface | • | • | • | • |
| Parallel interface | - | - | - | - |
| Audio in/out | - | - | - | - |
| Graphic interface | - | • | • | • |

Overview (continued)

| | SIMATIC HMI IPC277D | SIMATIC HMI IPC477C | SIMATIC HMI IPC577C | SIMATIC HMI IPC677C |
|---|---------------------|--------------------------------|--------------------------------|--------------------------------|
| Ambient conditions | | | | |
| Vibration load during operation | | 1 g | 1 g ⁴⁾ | 1 g |
| Shock loading during operation | | 5 g | 5 g ⁴⁾ | 5 g |
| Permissible temperature during operation with maximum configuration | +0 °C ... +50 °C | +0 °C ... +45 °C ⁸⁾ | +0 °C ... +45 °C ⁸⁾ | +5 °C ... +50 °C ⁸⁾ |
| Power loss in maximum configuration | | | | |
| 12" display | | 40 W ⁶⁾ | 55 W ⁷⁾ | 140 W ⁷⁾ |
| 15" display | | 45 W ⁶⁾ | 57 W ⁷⁾ | 140 W ⁷⁾ |
| 19" display | | 60 W ⁶⁾ | 84 W ⁷⁾ | 163 W ⁷⁾ |

- Available
- Not available

- 1) 12"/15" displays
 3) All slots with card retainer
 4) Valid with CF or SSD; with HDD: 5 g/0.5 g;
 5) 3 W taken into account for each PCI/PCIe slot
 6) 15 W taken into account for each PCI/PCIe slot
 7) 15 W taken into account for each PCI/PCIe slot
 8) 0 °C to +50 °C; max. +50 °C in installation space; max. 40 °C if at the front

| SIMATIC Panel PC 677B | |
|--|---|
| Design | |
| Centralized configuration | • |
| Distributed configuration (via remote kit) | • ²⁾ |
| Display | |
| Size | 12"/15"/15" INOX/17"/19" TFT |
| Resolution | 800 x 600/ 1024 x 768/ 1280 x 1024 |
| Operator controls | |
| Membrane keyboard | • ¹⁾ |
| Touch screen | • |
| General features | |
| Power supply 24 V DC / 110/230 V AC | •/• |
| Processor | Intel Celeron M 1.86 GHz; Intel Core2 Duo 1.66 GHz; Intel Core2 Duo 2.16 GHz |
| Main memory | 1 GB; 2 GB; 3 GB; 4 GB |
| Expansion slots | 2 x PCI or 1x PCI and 1x PCIe x4 ³⁾ ; 1 x CF slot (externally accessible) |
| Operating system | Without; Windows 2000 Professional MUI; Windows XP Professional MUI; Windows Vista Ultimate MUI; Windows 2003 Standard Server; Windows XP embedded on CF |

| SIMATIC Panel PC 677B | |
|---|---|
| Interfaces | |
| PROFIBUS/MPI | • |
| PROFINET | • |
| Ethernet | 10/100/1000 Mbit |
| PS/2 (mouse/keyboard) | - |
| USB | • |
| Serial interface | • |
| Parallel interface | - |
| Audio in/out | - |
| Graphic interface | • |
| Ambient conditions | |
| Vibration load during operation | 1 g |
| Shock loading during operation | 5 g |
| Permissible temperature during operation with maximum configuration | +5 °C ... +50 °C; max. 50 °C in installation space, max. 40 °C at the front ⁴⁾ |
| Power loss in maximum configuration | |
| 12"/15" display | 140 W ⁵⁾ |
| 17"/19" display | 163 W ⁵⁾ |

- Available
- Not available

- 1) 12"/15" displays
 2) With optional expansion rack
 3) All slots with card retainer
 4) With 19" Touch
 5) 15 W taken into account for each PCI/PCIe slot

PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC

Benefits

High degree of industrial capability

The entire construction is designed for purely industrial use. Thus, for example, a special vibration-absorbing suspension of the hard disk ensures operational reliability, even at high mechanical loads. SIMATIC Panel PCs are thus designed for a vibration load of 1 g (Panel PC 577B: 0.25 g) and a shock load of 5 g (Panel PC 577B: 1 g) during operation.

Performance

Thanks to the use of the latest Intel processors from ULV (Ultra Low Voltage) to Intel Core technology, SIMATIC Panel PCs are flexibly scalable for your application.

- Scalable computing power
- Highest computing power
- Latest Intel processor technology
- Dual Core, ULV, Atom

Investment security

High component continuity and guaranteed availability of spare parts for up to 5 years after product phase-out are ensured e. g. through the development and production of our own motherboards. This enables long-lasting machine concepts without renewed engineering effort.

Service-friendly device design

Upgrades and exchange of components are easy thanks to the device design.

Integrated interfaces

The different already-integrated interfaces allow various communication and expansion options. Many models are already equipped with Gigabit Ethernet and PROFIBUS DP/MPI interface.

Extendibility

Depending on the model, ISA, PCI, PCI Express, PC/104 Plus and PC/104 slots are available for individual expandability. This enables the further use of existing and new expansion cards.

Compact dimensions

Considering the desired expandability, SIMATIC Panel PCs have an extremely low mounting depth and can thus be used in very narrow installation locations.

Options

Various options enable an individual solution for your industrial application. Thus, the operator control unit can be operated separately from the computer unit by up to 30 m. The direct control key module increases the operating safety, as it can be used to run the process independently of the operating system and without delay directly on PROFIBUS DP/MPI.

Individually expandable system availability

- RAID1 configuration - high system stability through redundant data management
- SIMATIC IPC DiagMonitor – Monitoring of the operating states and early detection of problems locally and in the network
- SIMATIC PC/PG Image & Partition Creator - downtime minimization through preventative data backup
- SITOP and Masterguard power supply (UPS) – Bridging of voltage dips

More information

Additional information is available on the Internet at:

www.siemens.com/simatic-panel-pc

Overview



SIMATIC HMI IPC277D for implementing simple visualization and control tasks

- Offers great flexibility in the selection of rugged widescreen fronts
- From 7" to 12" for more freely configurable display area
- High resolution, large viewing angle, and up to 100% dimmable backlighting for a brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash and SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory
- Ready-to-use embedded bundles with visualization or/and control software

The following front installation versions are available:

- 7" Touch
- 9" Touch
- 12" Touch
- 15" / 19" available soon
- All fronts as widescreen version

Benefits

SIMATIC HMI IPC277D

- Rugged, industry-standard widescreen displays (Touch) with 7" / 9" / 12"
 - High resolution, 16 million colors, large viewing angle, can be dimmed from 0 to 100% (this also optimizes the power consumption)
 - Integrated front concept (Panel PC, Comfort Panels)
 - Fanless up to 50 °C ambient temp.
 - 15" / 19" with front USB interface available soon

High-performance data processing at low power consumption

- Intel Atom technology of the Power-Optimized family E6xx
- Wake-on-LAN for remote-controlled switching between standby and active state
- Support of Sleep States/SpeedStep -> dynamic power adaptation depending on the required computing performance
- Intel VT-x technology for virtualization

High degree of industrial functionality and flexibility for implementing the embedded solution

- Flexible memory concepts: CompactFlash or Solid-State Drive
- 2 Gbit Ethernet (teaming-capable); PROFINET with RT functionality (via Standard Ethernet)
- 3 high-speed USB 2.0 ports
- 1 RS232
- Ready-to-run embedded bundles with WinAC RTX2010 (F) and/or WinCC RT Advanced (optional)
- 512 KB retentive memory (MRAM), of which 128 KB can be written to within the buffer time (optional)

High system availability in order to reduce the risk of potential failures and maintenance costs

- Maintenance-free since there are no rotating parts (fans, HDD)
- Battery-free operation even if retentive memory option is selected (with time-of-day synchronization via network)
- Comprehensive self-diagnostics thanks to pre-installed local diagnostic software SIMATIC IPC DiagBase

High investment security in order to reduce engineering costs

- Long-term availability: Service & Support period of 8 to 10 years after market launch

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC277D

Application

The SIMATIC HMI IPC277D is a particularly compact and energy-saving Nanopanel PC with integrated touch displays with 7" screen diagonal or larger. The heart of the SIMATIC HMI IPC277D are high-performance Intel Atom processors of the latest generation. The Nanopanel PCs are designed for maintenance-free 24-hour continuous use as well as for high temperature, vibration, shock and EMC requirements in the following applications:

- Simple visualization and control tasks, for example in mechanical engineering, plant construction, transportation systems or power transmission.
- Acquisition, further processing and visualization of data
- All machine-level applications created in C/C++ or with WinAC/WinCC RT Advanced that require rugged, compact IPCs
- Additional new applications such as shipbuilding, building automation, storage & logistics

The application spectrum ranges from automation computers fully integrated in TIA with, for example, WinAC to C/C++-based automation solutions with the customer-specific operating systems. For software products that require Windows XP Professional, the combination of Windows XP Professional multi language is available preinstalled on the Solid-State Drive.

The SIMATIC HMI IPC277D can be used in conjunction with WinCC RT Advanced and/or with WinAC RTX 2010/F as ready-to-run bundle and is available at an attractive price.

Design

The HMI IPC277D is a compact device comprising an operator control unit with integrated computer unit.

Computing unit:

- Rugged metal enclosure, resistant to vibration and shock, with high electromagnetic compatibility
- Processor / main memory expansion:
 - Intel Atom E640 1.0 GHz, 1 GB RAM GHz
 - Intel Atom E660 1.3 GHz, 2 GB RAM GHz available soon
- Interfaces (accessible from one side):
 - 2 x LAN 10/100/1000 Mbit/s Ethernet interface (RJ45)
 - 3 x high-speed USB V2.0
 - 1 x COM1 (RS232)
- Fieldbus
 - PROFINET Realtime via Standard Ethernet interface
- Retentive memory
 - 512 KB retentive memory (MRAM), of which 128 KB within the buffer time (optional)
- Isolated power supply: 24 V DC (20.4 to 28.8 V)
- Drives:
 - CompactFlash drive (replaceable, accessible): 2 GB, 4 GB or 8 GB
 - Solid-State Drive 50 GB (SLC technology)
- Preinstalled operating systems:
 - Windows XP Embedded Standard 2009
 - Windows XP Professional multi language
 - Windows Embedded Standard 7 / Windows 7 available soon

Components of the operator control unit:

The operator control units are available in the following versions:

7" Touch

- 7" TFT color display, 800 x 480 pixels
- Resistive analog touch screen

9" Touch

- 9" TFT color display, 800 x 480 pixels
- Resistive analog touch screen

12" Touch

- 12" TFT color display, 1280 x 800 pixels
- Resistive analog touch screen

15" / 19" Touch available soon

Design (continued)

SIMATIC HMI IPC227D bundles: HMI, RTX, RTX F and HMI/RTX

HMI, RTX, RTX F and HMI/RTX complete turnkey solutions (the software is already preinstalled and configured) for visualization and automation in combination with WinCC RT Advanced and WinAC RTX 2010 (F).

- Quick start in automation solutions with Embedded Automation
- HMI: SIMATIC WinCC RT Advanced preinstalled and ready to run
- RTX: SIMATIC WinAC RTX 2010 preinstalled and ready to run
- RTX F: SIMATIC WinAC RTX 2010 F preinstalled and ready to run
- HMI/RTX (F): SIMATIC WinCC RT Advanced and SIMATIC WinAC RTX 2010(F) preinstalled and ready to run
- PROFINET (RT) pre-configured for use in a SIMATIC environment
- Configuration and programming with SIMATIC WinCC Engineering System and SIMATIC STEP 7 via Industrial Ethernet
- Flexibility of a PC-based automation environment
- Open for additional PC applications
- Connection option for USB devices
- Use of WinAC ODK with SIMATIC WinAC RTX
- Data retentivity for WinAC RTX without uninterruptible power supply (UPS)

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnosis of PC problems
- Comprehensive monitoring of temperature, watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)
- Network-wide monitoring via SNMP and OPC interface possible

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, SSD)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.1
- Ultra-compact and rugged

Note:

For further information, see "Expansion components".

Function

Diagnosis

- DiagBase: Integrated, parameterizable monitoring functions (program execution/watchdog, internal enclosure temperature, DIAG bit for CF cards similar to S.M.A.R.T for hard disks)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)

Integration

Integrated interfaces:

- **Ethernet**
The two integrated Gigabit Ethernet interfaces (10/100/1000 Mbit/s, teaming-capable) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software package).
- **PROFINET**
The PROFINET interface can be used for connecting distributed field devices or for controlling drives (PROFINET RT via Standard Ethernet).

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC277D

Technical specifications

| SIMATIC HMI IPC277D | |
|-------------------------|--|
| General features | |
| Processors | <ul style="list-style-type: none"> Intel Atom E640 1.0 GHz, 1 GB RAM Intel Atom E660 1.3 GHz, 2 GB RAM available soon |
| Chipset | Intel Controller Hub EG20T |
| Battery-backed MRAM | 512 KB, of which 128 KB can be written within the buffer time |
| Operating system | <ul style="list-style-type: none"> without Windows XP Embedded Standard 2009 preinstalled, in combination with CF card of 2 GB or more, or Solid-State Drive, or hard drive (optional) Windows XP Professional MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) (optional) Windows 7 Ultimate and Windows Embedded Standard 7 available soon Linux¹⁾ (project-specific, on request) Others on request project-specifically |
| Power supply | <ul style="list-style-type: none"> 24 V DC (20.4 V ... 28.8 V) Isolated With buffering of temporary power failures: max. 10 ms Line side switch With power failure indication by means of Power Fail signal |
| Drives | |
| FlashDrive | Optional; replaceable, accessible, diagnosable <ul style="list-style-type: none"> 2 GB 4 GB 8 GB |
| Solid-State Drive (SSD) | Optional 50 GB SATA, 2.5" in single-level cell (SLC) technology, especially suitable for industrial applications |
| CD/DVD/Floppy | Via USB (not included in scope of delivery) |
| Interfaces | |
| PROFINET | PROFINET RT via Standard Ethernet controller |
| Ethernet | <ul style="list-style-type: none"> 2 x 10/100/1000 Mbit/s (RJ 45) Two independent Intel Controllers: Intel 82574L / Intel Controller Hub EG20T With teaming function |
| USB | V2.0/High Speed: 3 x |
| Serial | COM1 (V.24) |
| Keyboard | Via USB (not included in scope of delivery) |
| Mouse | Via USB (not included in scope of delivery) |

| SIMATIC HMI IPC277D | |
|---|---|
| Monitoring functions | |
| Temperature | <ul style="list-style-type: none"> Processor temperature Motherboard Messages can be evaluated by the application program |
| Watchdog | <ul style="list-style-type: none"> Monitoring of program execution Monitoring time can be parameterized in software Can be parameterized for a fault or restart Messages can be evaluated by the application program. |
| Monitoring functions via the network | <ul style="list-style-type: none"> DiagBase SIMATIC IPC DiagMonitor Remote monitoring capability for: <ul style="list-style-type: none"> Watchdog Temperature Mass memory monitoring (SMART) System/Ethernet monitoring (Heart Beat) Runtime meter Communication: <ul style="list-style-type: none"> Ethernet interface (SNMP protocol) OPC for integration in SIMATIC software Configuration of client/server architectures Layout of log files |
| Ambient conditions | |
| Degree of protection according to EN 60529 (front/rear) | IP65/IP20 |
| Ambient temperature during operation | 0 °C ... 50 °C |
| Certifications | |
| Marine approval (available soon) | Available soon |
| Only for configurations with CompactFlash or SSD memory | |

¹⁾ for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suited for LINUX", see www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

Technical specifications (continued)

| SIMATIC HMI IPC277D | | | |
|---|--------------------------|--------------------------|---------------------------|
| Front panel | 7" TFT Touch, widescreen | 9" TFT Touch, widescreen | 12" TFT Touch, widescreen |
| Display | | | |
| Resolution (W x H in pixels) | 800 x 480 | 800 x 480 | 1280 x 800 |
| Type of operation | | | |
| Function keys | No | No | No |
| Alphanumeric keyboard | No | No | No |
| Touch screen (analog/resistive) | Yes | Yes | Yes |
| Mouse on front | No | No | No |
| Design | | | |
| Centralized configuration | Yes | Yes | Yes |
| Distributed configuration | No | No | No |
| Dimensions | | | |
| Mounting dimensions in centralized configuration (W x H x D, without optical drive) in mm | 197 x 141 x 71 | 251 x 166 x 71 | 310 x 221 x 66 |
| Operator control unit (W x H) in mm | 214 x 158 | 274 x 190 | 330 x 241 |
| Accessories | Touch pen | Touch pen | Touch pen |

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC277D

Ordering data

Order No.

Order No.

Configuration

SIMATIC HMI IPC277D

Interfaces: 2 x Gbit LAN (RJ45),
1 x serial (COM1), 3 x USB

Operating unit

- Touch 7" TFT
- Touch 9" TFT
- Touch 12" TFT
- Touch 15" TFT, front USB interface
- Touch 19" TFT, front USB interface

Processors / memory expansion / retentivity

- Atom E660 (1.3 GHz), 2 GB RAM
- Atom E660 (1.3 GHz), 2 GB RAM, retentivity
- Atom E640 (1.0 GHz), 1 GB RAM
- Atom E640 (1.0 GHz), 1 GB RAM, retentivity

Drives

- Without drive, with CF slot
- 2 GB SIMATIC IPC CompactFlash
- 4 GB SIMATIC IPC CompactFlash
- 8 GB SIMATIC IPC CompactFlash
- 50 GB Solid-State Drive SATA (SLC)

Operating system

- Without operating system
- Windows Embedded Standard 2009 preinstalled (CF from 2 GB/SSD)
- XP-Prof. MUI preinstalled on SSD
- Windows Embedded Standard 7 preinstalled (CF from 4 GB/SSD)
- Windows 7 MUI preinstalled on SSD

Software bundles

- Without RTX/HMI software
- RTX: WinAC RTX 2010
- RTX-F: WinAC RTX F 2010
- HMI: WinCC RT Advanced 128 PT
- HMI: WinCC RT Advanced 512 PT
- HMI: WinCC RT Advanced 2048 PT
- HMI: WinCC RT Advanced 4096 PT
- HMI/RTX: RT 128 PT
- HMI/RTX: RT 512 PT
- HMI/RTX: RT 2048 PT
- HMI/RTX: RT 4096 PT

On request

Accessories

Touch pen

Undetachable pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit

6AV7 672-1JB00-0AA0

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

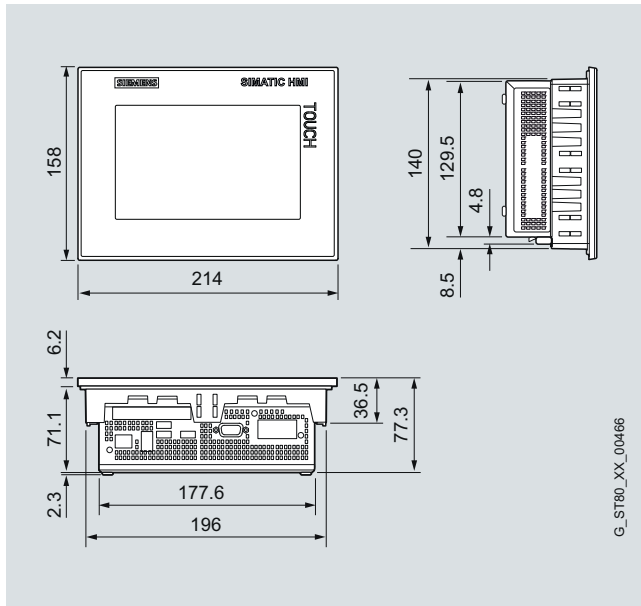
Please note:

The HMI IPC277D with Bundle SW is always supplied with inserted CF card.

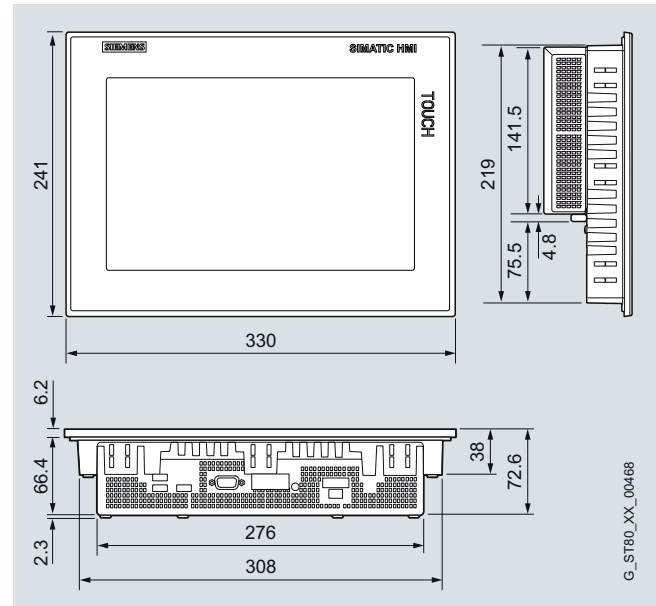
The licenses are on the supplied USB flash drive.

Dimensional drawings

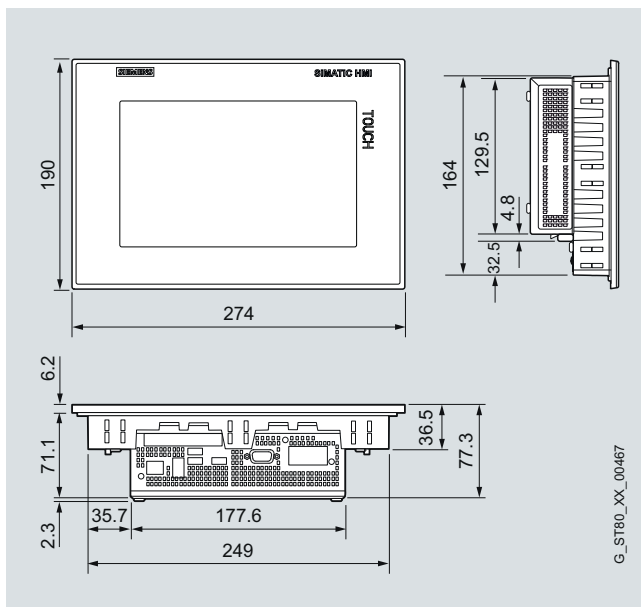
All specifications in mm. Panel cutout see technical specifications.



HMI IPC227D 7"



HMI IPC227D 12"



HMI IPC227D 9"

More information

Further information can be found on the Internet at:

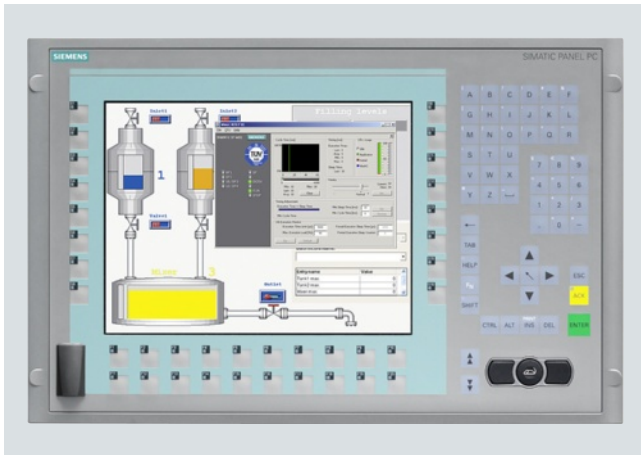
www.siemens.com/simatic-panel-pc

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC477C

Overview



- Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Compact design (only 61-69 mm installation depth for 12"-19")
- Battery-backed retentive memory onboard
- High investment protection
- Fast integration capability

The following front versions are available:

- Built-in versions
 - 12" and 15" TFT Touch
 - 12" and 15" TFT Key
 - 19" Touch
- Support arm versions
 - PRO 15" and PRO 19" Touch
 - Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand

Benefits

- Maximum industrial compatibility due to rugged construction, even when subjected to extreme vibration and shocks
- High degree of investment protection thanks to assured availability of spare parts (for a period of 5 years following the end of active marketing)
- High continuity of components for long-term machine concepts without renewed engineering outlay
- Savings in time and costs thanks to service-friendly device design:
 - USB 2.0 interfaces on the front and rear for quick and easy connection of additional hardware components
- High degree of industrial functionality thanks to integrated PROFIBUS DP/MPI and PROFINET interfaces
- Maintenance-free due to lack of rotating components (fan and hard disk)
- Minimized downtimes thanks to high system availability
 - Efficient self-diagnostics (DiagBase and SIMATIC IPC DiagMonitor)
 - High reliability and security of an embedded platform
- Integrated component of Totally Integrated Automation (TIA):
 - Enhanced productivity, reduction of engineering overhead, reduction of lifecycle costs
- Complete turnkey solutions are supplied (the software is preinstalled and preconfigured) for visualization and automation, in combination with WinCC flexible and/or WinAC RTX as well as with WinCC.

Application

SIMATIC HMI IPC477C is designed for use directly at the machine, where the focus is on a combination of ruggedness and maximum reliability (the reliability of an embedded platform), and the openness of a PC is also required (e.g. module expansion and the connection of I/O devices such as printers, keyboards, etc.).

Due to the minimal mounting depth, it can also be used in confined spaces.

The PC can be used in production automation as well as in process automation and can be mounted in control cabinets, control desks, 19" cabinets/racks and as PRO version direct on swivel arms (booms).

The SIMATIC HMI IPC477C is the ideal platform for PC based automation:

- PC-based visualization on-site at the machine with SIMATIC WinCC flexible, WinCC Advanced, or WinCC Professional
- PC based Control with SIMATIC WinAC RTX
- SIMATIC WinCC Client (standard or multi client) for distributed operation and monitoring
- SIMATIC WinCC as single-user station solution for centralized operation and monitoring (also in combination with WinCC WebNavigator server)

Siemens offers a complete modular system of automation components that complement one another perfectly.

Design

The HMI IPC477C is a compact device comprising an operator control unit with integrated computer unit.

Standard components of the computer unit:

- Rugged metal enclosure, resistant to vibration and shock, with high electromagnetic compatibility
- Processors:
 - Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Intel Core2 Duo 1.2 GHz
- Main memory basic configuration:
 - 1, 2 or 4 GB (DDR3)
 - Battery-backed retentive memory 2 MB
- CompactFlash Drive (internal) with pre-installed Windows XP embedded operating system (Image) and optional software or Solid State Drive (SSD) with Windows XP Embedded or Windows XP Professional (MUI)
- Graphics onboard (1280 x 1024)
- Interfaces:
 - 2 x PROFINET (IE) onboard (10/100/1000 Mbit/s)
 - Optional 2 x PROFINET (IE) onboard (10/100/1000 Mbit/s) and 1 x PROFIBUS DP/MPI onboard, CP 5611-compatible
 - Optional 1 x PROFINET (IE) onboard (10/100/1000 Mbit/s) and 1 x PROFINET (RT/IRT) with 3 ports, CP 1616-compatible
 - 5 x USB 2.0 port, 500 mA (1 x on front)
 - 1 x COM1 (RS232)
 - 1 x DVI-I (for connecting a second display unit)
- Battery-backed retentive memory onboard
- Free slots for expansions:
 - 1 x CompactFlash slot (externally accessible)
- Power supply: 24 V DC

Components of the operator control unit:

The operator control units are available in the following versions:

12" Key

- 12" TFT color display, 800 x 600 pixels (SVGA)
- Membrane keyboard with international PC character set and 36 additional function keys as well as integrated mouse
- USB port (on the front)

12" Touch

- 12" TFT color display, 800 x 600 pixels (SVGA)
- Resistive analog touch screen
- USB port (on the front)

15" Key

- 15" TFT color display, 1024 x 768 pixels (XGA)
- Membrane keyboard with international PC character set and 36 additional function keys as well as integrated mouse
- USB port (on the front)

15" Touch

- 15" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen
- USB port (on the front)

19" Touch

- 19" TFT color display, 1280 x 1024 (SXGA)
- Resistive analog touch screen
- USB port (on the front)

PRO 15" Touch

- Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand
- 15" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen

PRO 19" Touch

- Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand
- 19" TFT color display, 1280 x 1024 (SXGA)
- Resistive analog touch screen

The built-in devices are equipped with an USB 2.0 interface at the front for connecting external I/O devices such as a mouse or keyboard and at the front fulfill the requirements of degree of protection IP65 and NEMA 4.

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC477C

Design (continued)

SIMATIC HMI IPC477C PRO 15"/19" Touch devices

- For mounting on a support arm/stand
- All-round IP65, enclosure type 4x
- 15"/19" Touch Display
- Rugged aluminum enclosure
- Two internal USB interfaces, one of which can be implemented as "USB service interface" using accessories
- Adaptation of the device optionally from above or below
- Direct connection on support arm systems from renowned manufacturers (e.g. Rittal, Bernstein, Rose, Rolec)
- Supports the globally established VESA 75 / VESA 100 standard for flexible mounting
- Customer-side expansion possible using extension units

SIMATIC HMI IPC477C bundles: HMI, RTX, RTX F and HMI/RTX

(Bundles with WinCC RT Advanced and WinCC RT Professional available soon)

HMI, RTX, RTX F and HMI/RTX complete turnkey solutions (the software is already preinstalled and configured) for visualization and automation in combination with WinCC flexible and WinAC RTX

- Quick start in automation solutions with Embedded Automation
- HMI: SIMATIC WinCC flexible RT preinstalled and ready to use
- RTX: SIMATIC WinAC RTX preinstalled and ready to use
- RTX F: SIMATIC WinAC RTX F preinstalled and ready to use
- HMI/RTX (F): SIMATIC WinCC flexible and SIMATIC WinAC RTX (F) preinstalled and ready to use
- PROFIBUS and PROFINET (RT/IRT) preconfigured for use in a SIMATIC environment
- Configuration and programming with SIMATIC WinCC flexible ES and SIMATIC STEP 7 via Industrial Ethernet or PROFIBUS
- Flexibility of a PC-based automation environment
- Open for additional PC applications
- Connection option for USB devices, flat panel monitor or screen
- Use of WinAC ODK with SIMATIC WinAC RTX
- Data retentivity for WinAC RTX without uninterruptible power supply (UPS)

SIMATIC HMI IPC477C as WinCC client or single-user station

Selected hardware configuration with preinstalled software WinCC V7.0 RT as

- ready-to-run client (standard and multi-client) in a WinCC multi-user station, or
- ready-to-run single-user station with process connection

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnosis of PC problems
- Comprehensive monitoring of temperature, watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)
- Network-wide monitoring via SNMP and OPC interface possible

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning

3.5" USB disk drive

The USB disk drive is provided for fast exchange of user data, e.g. recipes or files. The drive must not be used as a cyclic archiving drive. The front-panel installation and degree of protection IP54 permit data exchange from the front without opening the control cabinet door.

The device is connected via the USB interface of the Panel PC. The power is also supplied over the USB interface. A USB cable of 1 m length is included in the scope of supply. The disk drive corresponds to the USB 1.1 standard. 3.5" high density disks can be used (1.44 MB).

Design (continued)

Operation of the USB disk drive on SIMATIC Panel PCs:

- Windows XP: possible without separate driver
- The driver is included in the scope of supply of the operating system

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC PC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.0
- Ultra-compact and rugged

Industrial USB Hub 4

- Industry-standard USB 2.0 hub, front IP65
- Installation in control cabinet door or on DIN rail
- Inspection window and LEDs for each of the four interfaces

Note:

For further information, see "Expansion components".

Function

Diagnosis

- **DiagBase:** Integrated, parameterizable monitoring functions (program execution/watchdog, internal enclosure temperature, DIAG bit for CF cards similar to S.M.A.R.T for hard disks)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)

Integration

Integrated interfaces:

- **Ethernet**
The integrated PROFINET interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with PLCs such as SIMATIC S7 (with "SOFTNET S7" software packages). Selectable option: PROFINET (RT/IRT) with 3 ports instead of one PROFINET (IE).
- **PROFIBUS onboard (option)**
The isolated PROFIBUS interface (12 Mbit/s) can be used for connecting distributed field devices or for coupling to SIMATIC S7 (with software packages "SOFTNET for PROFIBUS").
- **Other interfaces**
5 USB (Universal Serial Bus) interfaces and one serial interface are available for connecting additional I/O devices.

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC477C

Technical specifications

| 6AV7 884.. | |
|-------------------------------|---|
| General features | |
| Processors | Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Core2 Duo 1.2 GHz |
| Memory type | DDR3-RAM |
| Main memory | 1 GB, 2 GB or 4 GB |
| Free slots | 1 x CF card slot (externally accessible) |
| Operating system | Windows Embedded Standard 2009, Windows XP Professional MUI ¹⁾ , Windows 7 Ultimate MUI ¹⁾ or Windows Embedded Standard 7 |
| Additional OS information | Language: ENG/GER |
| SIMATIC Software | Optionally with pre-installed bundle software SIMATIC WinCC flexible 2008 SP2 and/or WinAC RTX 2010 SIMATIC WinAC RTX F 2010; SIMATIC WinCC V7.0 as Web Client or Standard Client |
| Drives | |
| Floppy disk drive | Optionally via external USB floppy disk drive |
| Optical drives | Possible as external drive via USB |
| Hard drive/mass storage | CompactFlash drive with 2, 4 or 8 GB and/or SSD (Solid State Drive) with 32 GB |
| Interfaces | |
| Graphic interface | DVI-I can be used for additional display unit (only VGA via adapter); color depth 32 bits, graphics memory up to 128 MB; resolution as on relevant integrated display |
| Connection for keyboard/mouse | USB / USB |
| Serial interface | COM1: 1 x V.24 (RS232) |
| PROFIBUS/MPI | Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP 5611-compatible, not upgradeable |
| PROFINET (RT/IRT) | Optional: 3 x RJ45, CP 1616-compatible; not upgradeable |
| USB | 1 x on front, 4 x on rear, USB 2.0 (500 mA) |
| PROFINET (IE), Ethernet | onboard, 2 x 10/100/1000 Mbit (RJ45 with/without PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFINET (RT/IRT)), no plug-in card required |

| 6AV7 884.. | |
|--|---|
| Supply voltage | |
| Supply voltage | 24 V DC |
| Monitoring functions | |
| Temperature | Yes |
| Watchdog | Yes |
| Diagbit (similar to S.M.A.R.T.) | Yes (for CF cards and SSD) |
| Status LEDs | Yes (on rear) |
| Front side according to EN 60529 | IP65 (on the front) according to EN 60529 and NEMA4 |
| Ambient conditions | |
| Vibration load during operation | Tested in accordance with IEC 60068-2-6: 10 - 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s ² (1 g) |
| Shock load during operation | Tested in accordance with IEC 60068-2-7: 50 m/s ² (5 g), 30 ms, 100 shocks |
| Relative humidity | Tested in accordance with DIN IEC 68-78, DIN IEC 60068-2-30: 5% to 80% at 25 °C (no condensation) |
| Maximum permissible installation angle +/- | 45° over vertical |
| Ambient temperature during operation | 0 °C ... +50 °C in maximum configuration; no fan |
| Certifications & standards | |
| Approvals | CE, cULus(508), Marine |
| EMC | CE, FFC A, 55022A, EN 61000-6-4, EN 61000-6-2 |

¹⁾ Multi language means: GER/ENG/FR/IT/SP/CHIN traditional/CHIN simplified/Korean/Japanese

Technical specifications (continued)

| | 6AV7 884-0 | 6AV7 884-1 | 6AV7 884-2 | 6AV7 884-3 | 6AV7 884-5 |
|---|---|---|---|---|---|
| Front panel | 12" TFT Touch | 12" TFT Key | 15" TFT Touch | 15" TFT Key | 19" TFT Touch |
| Display | | | | | |
| Resolution (W x H in pixels) | 800 x 600 | 800 x 600 | 1024 x 768 | 1024 x 768 | 1280 x 1024 |
| MTBF of backlighting (at 25 °C) | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent |
| Type of operation | | | | | |
| Function keys | No | 36 | No | 36 | No |
| Alphanumeric keyboard | No | Yes | No | Yes | No |
| Touch screen (analog/resistive) | Yes | No | Yes | No | Yes |
| Mouse on front | No | Yes | No | Yes | No |
| Design | | | | | |
| Centralized configuration | Yes | Yes | Yes | Yes | Yes |
| Distributed configuration | No | No | No | No | No |
| Dimensions | | | | | |
| Mounting dimensions in centralized configuration (W x H x D, without optical drive) in mm | 368 x 290 x 61 | 450 x 290 x 61 | 450 x 290 x 65 | 450 x 321 x 60 | 450 x 380 x 71 |
| Operator control unit (W x H) in mm | 400 x 310 (7 HU) | 483 x 310 (19", 7 HU) | 483 x 310 (19", 7 HU) | 483 x 355 (19", 8 HU) | 483 x 400 (19", 9 HU) |
| Weight | 6.1 kg | 6.6 kg | 7.0 kg | 7.2 kg | 9.5 kg |
| General features | | | | | |
| Accessories | Touch protective membranes, touch pen | Insertable strips for keyboard | Touch protective membranes, touch pen | Insertable strips for keyboard | Touch protective membranes, touch pen |
| Max. power loss in maximum configuration | 40 W | 40 W | 45 W | 45 W | 60 W |

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC477C

Ordering data

Order No.

Configuration

SIMATIC HMI IPC477C and IPC477C PRO

("built to order" versions with a delivery time of max. 15 working days and with original part repair, if not preferred type)

SIMATIC HMI IPC477C

Embedded and fan-free 5 x USB (500 mA), of which 1 x on the front, battery-backed retentive memory onboard, 24 V DC power supply with On/Off switch

SIMATIC HMI IPC477C PRO

Embedded and fan-free with fully enclosed IP65 enclosure; 5 x USB (500 mA), of which 1 x on the front, battery-backed retentive memory onboard, 24 V DC power supply with On/Off switch

Front Panels

- 12" TFT Touch (not for PRO versions) ¹⁾
- 12" TFT Key (not for PRO versions)
- 15" TFT Touch (not for PRO versions) ¹⁾
- 15" TFT Key (not for PRO versions)
- 19" TFT Touch (not for PRO versions) ¹⁾
- 15" TFT Touch (IP65 enclosure; PRO)
- 15" TFT Key (IP65 enclosure; PRO)

Processors and fieldbus

- Celeron M 1.2 GHz, 2 x PROFINET (IE) ¹⁾
- Celeron M 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 ¹⁾
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE) ¹⁾
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS ¹⁾
- Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (RT/IRT) (3 ports)
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE) ¹⁾
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS ¹⁾
- Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (RT/IRT) (3 ports)

Configuration

SIMATIC HMI IPC477C and IPC477C PRO

Main memory (DDR3 RAM), 1 bank

- 1 GB
- 2 GB ¹⁾
- 4 GB

Second mass storage (installed and formatted)

- Without ¹⁾
- CompactFlash 2 GB ¹⁾
- CompactFlash 4 GB ¹⁾
- CompactFlash 8 GB ¹⁾
- SSD (Solid State Drive), min. 32 GB

Mass storage (built-in, operating system pre-installed)

- CompactFlash 2 GB (only with Windows Embedded Standard 2009) ¹⁾
- CompactFlash 4 GB ¹⁾
- CompactFlash 8 GB ¹⁾
- SSD (Solid State Disk), min. 32 GB

Operating system (preinstalled and activated)

- Windows Embedded Standard 2009 ¹⁾
- Windows XP Professional multi language, only with SSD; without SIMATIC software
- Windows Embedded Standard 7 ²⁾
- Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp) only with SSD; without SIMATIC software

SIMATIC HMI IPC477C (PRO) with SIMATIC software

See Embedded bundles/packages for industrial PCs

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

¹⁾ Preferred types with replacement devices in exchange

²⁾ Only with CF > 4 GB or SSD and from 2 GB main memory)

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

| Ordering data | Order No. | Order No. |
|--|--|--|
| Accessories | | |
| Protective film for Panel PCs 477/577/677 For protecting the touch screen against dirt/scratches <ul style="list-style-type: none"> • for 12" Touch • for 15" Touch (not for PRO) • for 19" Touch | 6AV7 671-2BA00-0AA0 6AV7 671-4BA00-0AA0 6AV7 672-1CE00-0AA0 | |
| Labeling membranes for Panel PCs 477/577/677 For labeling soft keys and function keys, blank, supplied in sets of 10 | 6AV7 672-0DA00-0AA0 | |
| Touch pen Captive pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit | 6AV7 672-1JB00-0AA0 | |
| Expansion components | | |
| SIMATIC IPC DiagMonitor V4.2 B Software tool for monitoring SIMATIC IPCs, incl. manual, on CD-ROM (German/English) | | 6ES7 648-6CA04-2YX0 |
| SIMATIC IPC Image & Partition Creator V3.1 D Software tool for preventive data backup and hard disk partitioning for SIMATIC IPCs, incl. manual on CD-ROM (German, English) | | 6ES7 648-6AA03-1YA0 |
| SIMATIC IPC USB FlashDrive A 8 GB, USB 2.0, metal enclosure, bootable | | 6ES7 648-0DC50-0AA0 |
| SIMATIC IPC Service USB FlashDrive B 8 GB, USB 2.0; metal enclosure, bootable, Image & Partition Creator pre-installed, incl. CD | | 6AV7 672-8JD01-0AA0 |
| SINUMERIK disk drive 3.5", USB 1.1 with 1 m connecting cable | | 6FC5 235-0AA05-1AA2 |
| Industrial USB Hub 4 A 4 x USB 2.0, IP65 for control cabinet door or DIN rail | | 6AV6 671-3AH00-0AX0 |
| CompactFlash Card <ul style="list-style-type: none"> • 2 GB A • 4 GB A • 8 GB A | | 6ES7 648-2BF02-0XF0 6ES7 648-2BF02-0XG0 6ES7 648-2BF02-0XH0 |

Please be sure to note:

The HMI IPC477C is delivered as standard with an inserted CF card.
 The licenses are located on the supplied USB flash drive.

Note:

Further embedded versions based on IPC427C and Embedded Controller (mEC) are listed under SIMATIC PC-based Control.

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

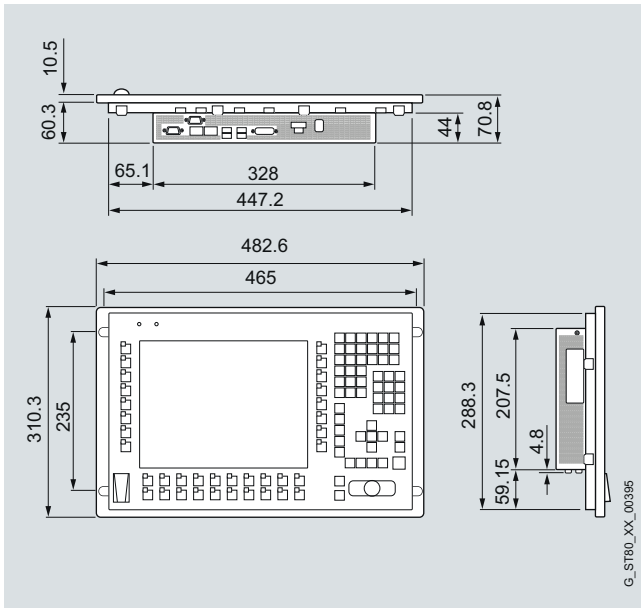
PC-based Automation

SIMATIC Panel PC

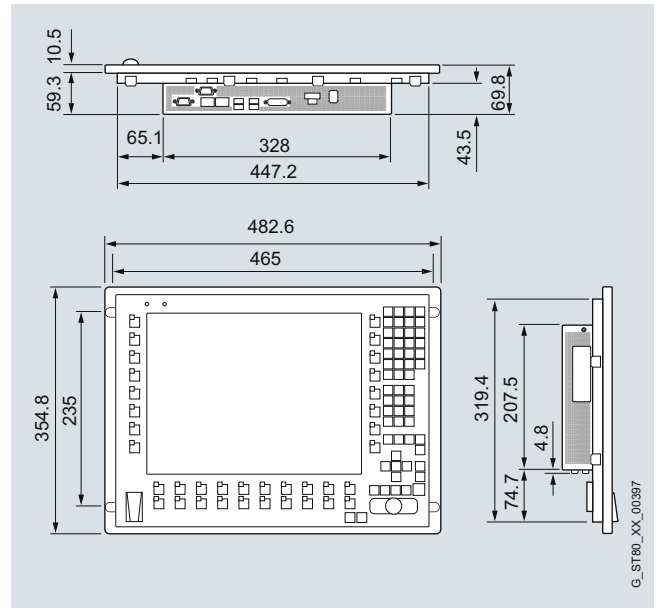
SIMATIC HMI IPC477C

Dimensional drawings

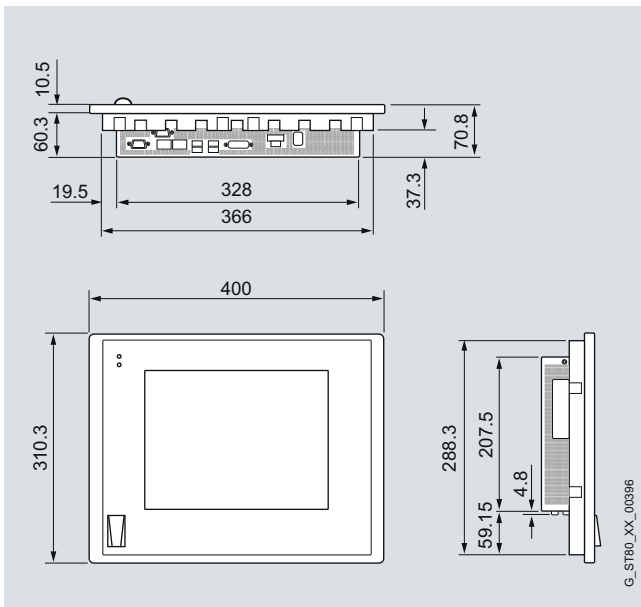
All specifications in mm. Panel cutout see technical specifications.



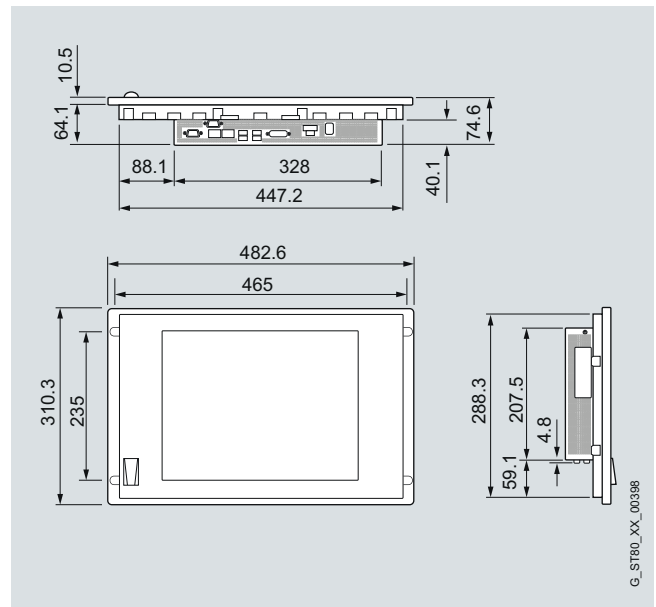
SIMATIC HMI IPC477C 12" Key version



SIMATIC HMI IPC477C 15" Key version

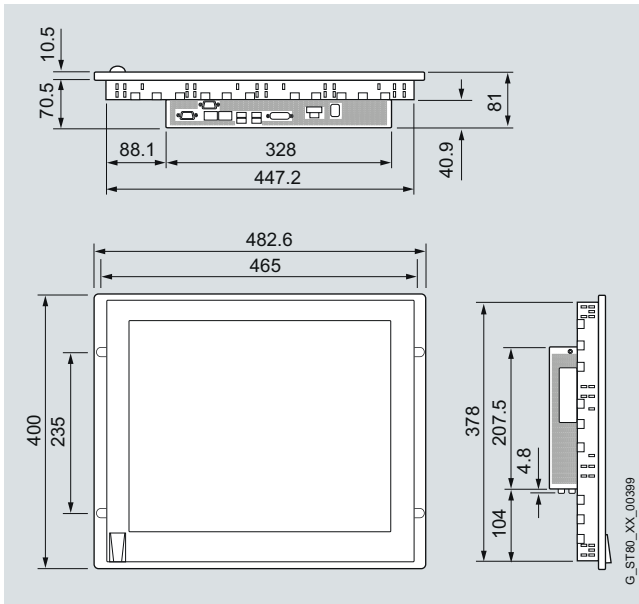


SIMATIC HMI IPC477C 12" Touch version



SIMATIC HMI IPC477C 15" Touch version

Dimensional drawings (continued)



SIMATIC HMI IPC477C 19" Touch version

More information

Additional information is available on the Internet at:

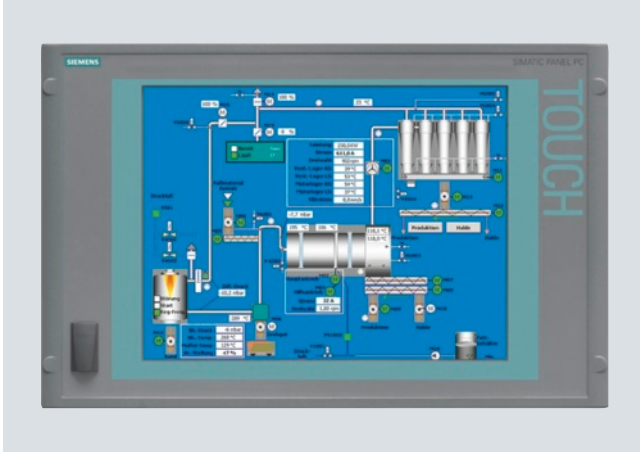
www.siemens.com/simatic-panel-pc

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC577C

Overview



Rugged, expandable industry PC for demanding tasks in the area of PC-based automation with various control units (front panels):

- Rugged and compact design for industrial use
- Full PC openness
 - Windows Embedded Standard or Windows XP Professional, or without operating system
 - CF card, HDD, SSD
 - DVD drive
- Expandable using a PCI slot
- Optionally with PROFIBUS or PROFINET (RT/IRT) onboard
- Installation-compatible with Panel PC 577B
 - Touch screen control units with 12", 15" and 19" TFT display
 - 12" and 15" TFT Key
- High degree of investment protection

Benefits

- High performance due to powerful processor
- Low-cost entry-level industry PC with full PC openness.
- Ideal for applications in industrial environments due to
 - excellent operational reliability – even when subjected to extreme vibration and shock
 - high degree of chemical resistance to oils and grease
 - smooth front, therefore no dirt can accumulate
 - brilliant displays for good clearness of display, even when lighting conditions and viewing angles change.
- High degree of investment protection due to
 - a long marketing period (4 - 5 years) and high continuity of components for long-term machine concepts
 - assured availability of spare parts (for a period of 5 years following the end of active marketing)
 - simple migration from the predecessor product with minimum engineering overhead
 - same installation dimensions as predecessor
 - early detection of faults and minimized downtimes due to self-diagnostics (DiagBase)
- High level of flexibility due to
 - expandable by the customer thanks to diverse interfaces (PCI, CompactFlash, Gbit Ethernet, and others)
 - USB interfaces on the front and rear for quick and easy connection of additional hardware components
 - User-friendly and easy integration in the fieldbus level, thanks to integrated PROFIBUS DP/MPI and 2 Gigabit Ethernet interfaces (onboard)

Application

The SIMATIC HMI IPC577C is used in manufacturing automation and process automation. The device is designed for installation in control cabinets and consoles, 19" cabinets/racks, and swivel arms (booms). Due to the minimal mounting depth, it can also be used in confined spaces, e. g. 83 mm for 15" Touch.

Thanks to its full PC openness and the powerful Core2 Duo processor, it can be used for a host of different applications.

A SIMATIC HMI IPC577C is the ideal platform for PC-based automation:

- PC-based visualization on site at the machine with SIMATIC WinCC flexible
- Complex solutions with SIMATIC WinCC process visualization
- PC-based control with SIMATIC WinAC software PLC

SIMATIC HMI IPCs can be ordered in combination with WinCC flexible or WinCC as SIMATIC HMI packages at a lower price.

Design

The SIMATIC HMI IPC is equipped as follows:

Computing unit

- Processor:
 - Intel Core2 Duo processor 1.86 GHz or
 - Intel Core2 Solo 1.2 GHz or
 - Intel Celeron M 1.2 GHz
- Main memory expansion:
 - 1 GB, 2 GB or 4 GB (SO-DIMM DDR3)
- Retentive memory
- Mass storage
 - Solid-State Drive (SSD) ≥ 32 GB for maximum shock tolerance since there are no rotating parts, or
 - Hard disk HDD ≥ 250 GB (2.5" SATA) with vibration-absorbent hard disk holder, which ensures reliable operation even under conditions of high mechanical stress, and/or
 - CF card (2 GB, 4 GB, or 8 GB)
- Onboard graphics
- Interfaces:
 - 2 x 10/100/1000 PROFINET (IE)
 - 4 x USB 2.0 interfaces on rear + 1 x USB 2.0 interface on front; all high current (500 mA)
 - 1 x serial V.24 (9-pin)
- Free slots for expansions:
 - 1 x PCI (slots with card retainer)
 - 1 x slot for CompactFlash Card (accessible from outside)
- Power supply:
 - 24 V DC or 100/240 V AC (autorange), 50/60 Hz
- Drive (optional)
 - DVD±RW±R combo drive
- Fieldbus onboard (optional)
 - 1 x PROFIBUS DP12/MPI interface (CP 5611-compatible) and 2 x LAN 1 Gbit/s
 - 1 x PROFINET RT/IRT (3 Port), CP 1616-compatible

Operating unit

Operating units are available in the following sizes/resolutions:

- 12" Key: 12.1" TFT color display, 800 x 600 pixels
- Membrane keyboard with tactile feedback and integrated mouse
- 12" Touch: 12.1" TFT color display, 800 x 600 pixels (SVGA)
- 15" Key: 15.1" TFT color display, 1024 x 768 pixels
- Membrane keyboard with tactile feedback and integrated mouse
- 15" Touch: 15.1" TFT color display, 1024 x 768 pixels (XGA)
- 19" Touch: 19.1" TFT color display, 1280 x 1024 pixels (SXGA)

The operating units have the following functionality:

- Analog resistive touch screen or tactile membrane keyboard with system keys and 36 user-configurable function keys
- Degree of protection IP65 and NEMA 4
- USB 2.0 interface on the front for connecting external I/O devices such as mouse or keyboard

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for the early detection and diagnosis of PC problems

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning.

SIMATIC PC USB FlashDrive

- Mobile memory medium for SIMATIC PC/PG

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.0
- Ultra-compact and rugged

Industrial USB Hub 4

- Industry-standard USB 2.0 hub, front IP65

Additional accessories

- Touch pen (cannot be lost) for operating the touch devices
- Protective membranes to protect the touch screen against dirt/scratches
- Labeling membranes for labeling user-configurable function keys of key devices

Function

Diagnosis

- Integrated, parameterizable monitoring functions: Program execution (watchdog), internal temperature of enclosure, fan speed
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC PC DiagMonitor)

Integration

Integrated interfaces:

- **PCI**
One free PCI slot is available for expansion with plug-in cards.
- **Ethernet**
The integrated PROFINET (IE) interfaces (10/100/1000 Mbit/s) can be used for IT communication and for exchanging data with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software packages).
- **Further interfaces**
One CompactFlash Card slot, 5 x USB 2.0 interfaces (Universal Serial Bus), as well as one serial interface are available for further I/O devices.

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC577C

Technical specifications

| | 6AV7 885.. |
|-------------------------------|--|
| General features | |
| Processors | Intel Celeron M 1.2 GHz or Intel Core2 Solo 1.2 GHz or Intel Core2 Duo 1.86 GHz |
| Memory type | DDR3-RAM |
| Main memory | 1 GB, 2 GB or 4 GB |
| Free slots for expansions | 1 x CF card slot (externally accessible) 1 x PCI slot |
| Operating system | Windows Embedded Standard 2009, Windows XP Professional MUI, Windows 7 Ultimate MUI or Windows Embedded Standard 7 ¹⁾ |
| Additional OS information | Language: ENG/GER |
| MTBF backlighting | Typ. 50 000 h at 24 h continuous operation, temperature-dependent |
| Drives | |
| Floppy drive | Optional via external USB floppy drive |
| Optical drives | Optional DVD±RW±R combo drive |
| Hard disk/mass storage | SSD (Solid State Drive) with 32 GB and/or HDD with 250 GB and/or CompactFlash with 2, 4 or 8 GB |
| Interfaces | |
| External graphic interface | DVI-I for additional display unit: Color depth 32 bits |
| Connection for keyboard/mouse | USB / USB |
| Serial interface | COM1: 1 x V.24 (RS232) |
| PROFIBUS DP/MPI | Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP 5611-compatible, not upgradable |
| PROFINET (RT/IRT) | Optional onboard, 3 x RJ 45, CP 1616-compatible, not upgradeable |
| PROFINET (IE), Ethernet | Onboard, 2 x 10/100/1000 Mbit (RJ45 without/with PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFIBUS), no plug-in card necessary |
| USB | 1 x on front, 4 x on rear, USB 2.0 (500 mA) |

| | 6AV7 885.. |
|--|--|
| Supply voltage | |
| Supply voltage | 24 V DC or 100/240 V AC |
| Monitoring functions | |
| Temperature | Yes |
| Watchdog | Yes |
| Diagbit (similar to S.M.A.R.T.) | Yes (for CF cards, HDD and SSD) |
| Front side according to EN 60529 | IP65 (on the front), tested according to EN 60529 and NEMA4 |
| Ambient conditions | |
| Vibration load during operation | Tested according to IEC 60068-2-6: 10 - 58 Hz: 0.075 mm, 58 to 200 Hz: 10 m/s ² (1 g) ³⁾ |
| Shock loading during operation | Tested according to IEC 60068-2-27: 50 m/s ² (5 g), 30 ms, 100 shocks |
| Relative humidity | Tested according to IEC 60068-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation) |
| Maximum permissible installation angle +/- | 45° over vertical |
| Ambient temperature during operation | 0 °C ... +50 °C in maximum configuration |
| Certifications & standards | |
| Approvals | CE, cULus(508) |
| EMC | CE, FCC A, 55022A, EN 61000-6-4 ²⁾ , EN 61000-6-2 |

¹⁾ Multi language means: Ger/Eng/Fr/It/Sp/CHIN traditional/CHIN simplified/Korean/Japanese

²⁾ 61000-6-2 replaces 50082-2; 61000-6-4 replaces 50081-2

³⁾ Valid with CF or SSD; with HDD: 5 g/0.5 g

⁴⁾ Valid with CF or SSD; with HDD: +5 °C to 45 °C

Technical specifications (continued)

| | 6AV7 885-1 | 6AV7 885-0 | 6AV7 885-3 | 6AV7 885-2 | 6AV7 885-5 |
|---|---|---|---|---|---|
| Front panel | 12" TFT Key | 12" TFT Touch | 15" TFT Key | 15" TFT Touch | 19" TFT Touch |
| Display | | | | | |
| Resolution (W x H in pixels) | 800 x 600 | 800 x 600 | 1024 x 768 | 1024 x 768 | 1280 x 1024 |
| MTBF of backlighting (at 25 °C) | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent |
| Type of operation | | | | | |
| Function keys | Yes | No | Yes | No | No |
| Alphanumeric keyboard | Yes | No | Yes | No | No |
| Touch screen (analog/resistive) | No | Yes | No | Yes | Yes |
| Mouse on the front | Yes | No | Yes | No | No |
| Design | | | | | |
| Centralized configuration | Yes | Yes | Yes | Yes | Yes |
| Distributed configuration | No | No | No | No | No |
| Dimensions | | | | | |
| Mounting dimensions in centralized configuration (W x H x D, without optical drive) in mm | 450 x 290 x 84 | 368 x 290 x 84 | 450 x 321 x 87 | 450 x 290 x 87 | 450 x 380 x 94 |
| Operator control unit (W x H) in mm | 400 x 310 (7 HU) | 400 x 310 (7 HU) | 483 x 310 (19", 7 HU) | 483 x 310 (19", 7 HU) | 483 x 400 (19", 9 HU) |
| Weights | 8.0 kg | 8.0 kg | 9.0 kg | 9.0 kg | 11.5 kg |
| General features | | | | | |
| Accessories | Insertable strips for keyboard | Touch protective membranes | Insertable strips for keyboard | Touch protective membranes | Touch protective membranes |
| Power loss in maximum configuration | 24 V DC: max. 55 W | 24 V DC: max. 55 W | 24 V DC: max. 57 W | 24 V DC: max. 57 W | 24 V DC: max. 84 W |

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC577C

Ordering data

Order No.

Configuration

SIMATIC HMI IPC577C

D

6AV7 885 - ■ ■ ■ ■ ■ - ■ ■ ■ ■ ■

Front Panels

- 12" TFT Touch
- 12" TFT Key
- 15" TFT Touch
- 15" TFT Key
- 19" TFT Touch

0
1
2
3
5

Main boards (processor with fieldbus interfaces)

- Celeron M 1.2 GHz, 1 MB cache, 800 MHz FSB
 - with PROFINET (Industrial Ethernet); 2x LAN 1 Gbit/s
- Core2 Solo 1.2 GHz, 3 MB cache, 800 MHz FSB
 - with PROFINET (Industrial Ethernet); 2x LAN 1 Gbit/s
 - with PROFIBUS DP12/MPI (CP 5611-compatible); 2x LAN 1 Gbit/s
 - with PROFINET (RT/IRT) 3 ports, 1x LAN 1 Gbit/s
- Core2 Duo 1.86 GHz, 6 MB cache, 1066 MHz FSB
 - with PROFINET (Industrial Ethernet); 2x LAN 1 Gbit/s
 - with PROFIBUS DP12/MPI (CP 5611-compatible); 2x LAN 1 Gbit/s
 - with PROFINET (RT/IRT) 3 ports, 1x LAN 1 Gbit/s

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RAM

- 1 GB RAM, DDR3
- 2 GB RAM, DDR3
- 4 GB RAM, DDR3

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Second mass storage and/or drive (formatted without operating system)

- No second mass storage/drive
- DVD-RW drive
- HDD + DVD-RW drive
- SSD + DVD-RW drive
- SSD min. 32 GB (Solid-State Drive)
- HDD min. 250 GB

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D: Subject to export regulations: AL: N and ECCN: 5D992

1) Multi language means: GER/ENG/FR/IT/SP/CHIN traditional/CHIN simplified/Korean/Japanese

Order No.

Configuration (continued)

SIMATIC HMI IPC577C

D

6AV7 885 - ■ ■ ■ ■ ■ - ■ ■ ■ ■ ■

First mass storage (formatted, optionally with operating system):

- Without
- HDD min. 250 GB (no, if 2nd mass storage HDD or SSD)
- 2 GB CompactFlash
- 4 GB CompactFlash
- 8 GB CompactFlash
- Solid State Drive (no, if 2nd mass storage HDD or SSD)

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Operating system (pre-installed on first mass storage)

- Without operating system
- Windows Embedded Standard 2009
- Windows XP Professional multi language ¹⁾
- Windows Embedded Standard 7
- Windows 7 Ultimate multi language ¹⁾

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G

Expansion (software)

- Without expansion
- IPC DiagMonitor V4.2 enclosed
- IPC Image & Partition Creator
- IPC DiagMonitor V4.2 and Image & Partition Creator V3.1 enclosed

A
B
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Power supply

- 100/240 V AC industrial power supply with Namur
- 100/240 V AC industrial power supply with Namur; power cable for Europe
- 100/240 V AC industrial power supply with Namur; power cable for the USA
- 100/240 V AC industrial power supply with Namur; CN power cable
- 100/240 V AC industrial power supply with Namur; IT power cable
- 100/240 V AC industrial power supply with Namur; CH cable
- 100/240 V AC industrial power supply with Namur; UK cable
- 24 V DC industrial power supply

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Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

| Ordering data | Order No. | | Order No. |
|---|--|--|----------------------------|
| Accessories | | | |
| Protective film for SIMATIC HMI IPC577C, set of 10 For protecting the touch screen against dirt/scratches • for 12" Touch • for 15" Touch • for 19" Touch | 6AV7 671-2BA00-0AA0 6AV7 671-4BA00-0AA0 6AV7 672-1CE00-0AA0 | SIMATIC IPC Image & Partition Creator V3.1 D Software tool for preventive data backup and hard disk partitioning for SIMATIC IPCs, incl. manual on CD-ROM (German, English). | 6ES7 648-6AA03-1YA0 |
| Labeling strips for Key devices For labeling soft keys and function keys, blank, supplied in sets of 10 | 6AV7 672-0DA00-0AA0 | SIMATIC IPC USB FlashDrive A 8 GB, USB 2.0; metal enclosure, bootable | 6ES7 648-0DC50-0AA0 |
| Touch pen Captive pen for operation of the touch devices, mounting of the support on the control cabinet | 6AV7 672-1JB00-0AA0 | SIMATIC IPC Service USB FlashDrive B 8 GB, USB 2.0; metal enclosure, bootable, Image & Partition Creator pre-installed, incl. CD | 6AV7 672-8JD01-0AA0 |
| Expansion components | | | |
| SIMATIC IPC DiagMonitor V4.2 B Software tool for monitoring SIMATIC IPCs, incl. manual, on CD-ROM (German/English) | 6ES7 648-6CA04-2YX0 | SINUMERIK disk drive 3.5", USB 1.1 with 1 m connecting cable | 6FC5 235-0AA05-1AA2 |
| | | Industrial USB Hub 4 A 4x USB 2.0 interfaces, IP65 for mounting on control cabinet door or on standard mounting rail | 6AV6 671-3AH00-0AX0 |
| Communication components | | | |
| | | PCI interface card A with COM1, COM2 and LPT interfaces | 6ES7 648-2CA01-0AA0 |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

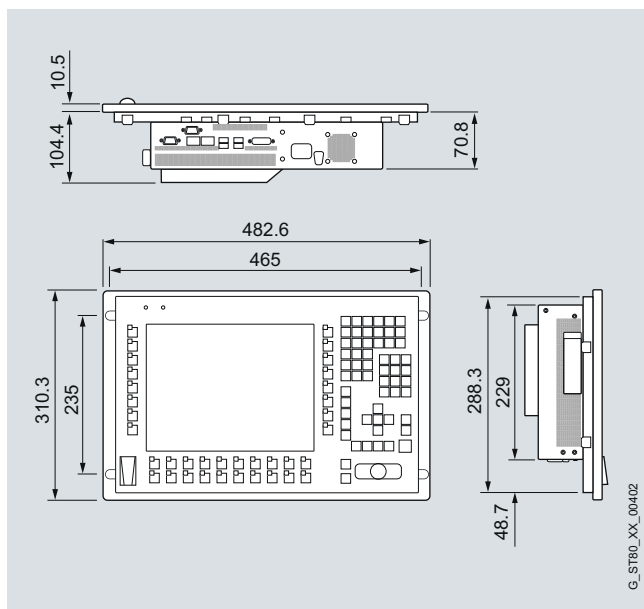
PC-based Automation

SIMATIC Panel PC

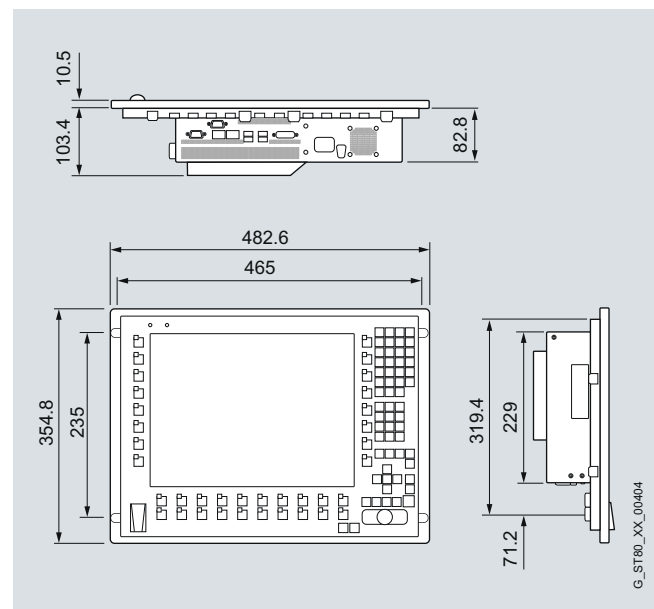
SIMATIC HMI IPC577C

Dimensional drawings

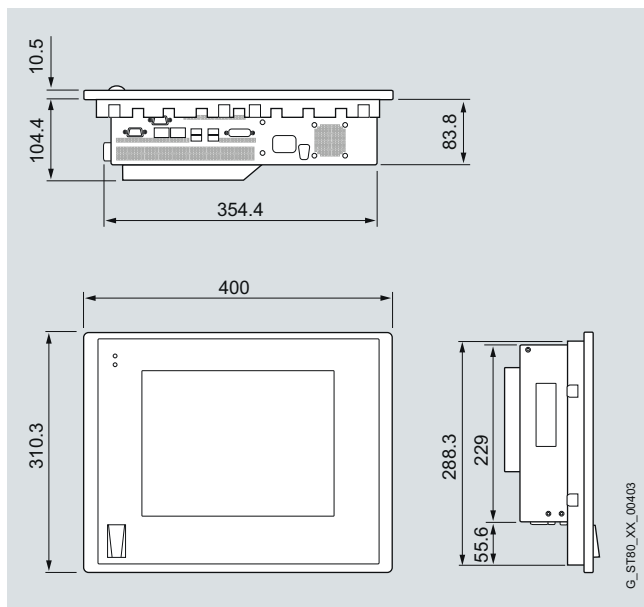
All specifications in mm. Panel cutout see technical specifications.



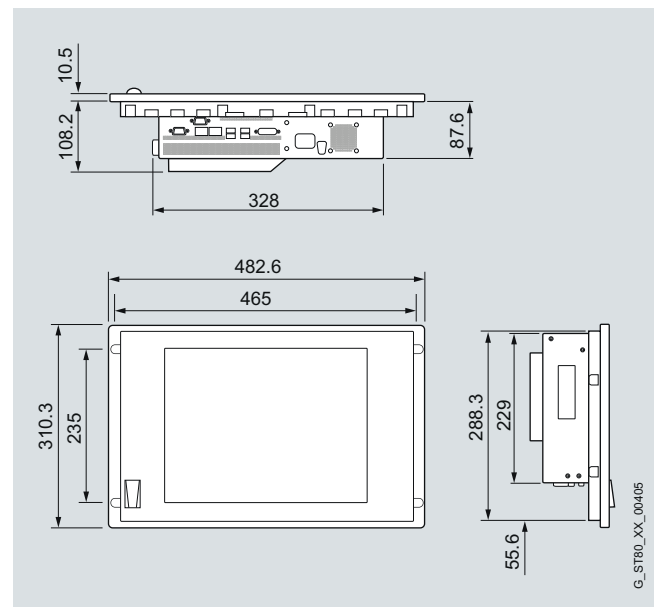
SIMATIC HMI IPC577C 12" Key version



SIMATIC HMI IPC577C 15" Key version

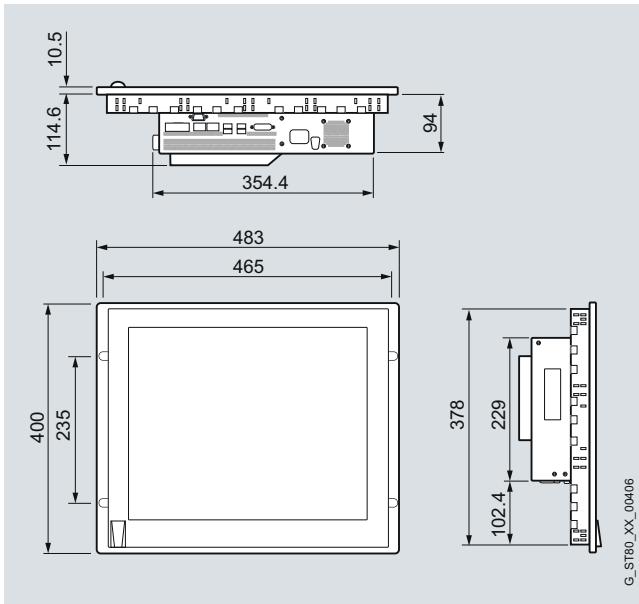


SIMATIC HMI IPC577C 12" Touch version



SIMATIC HMI IPC577C 15" Touch version

Dimensional drawings (continued)



SIMATIC HMI IPC577C 19" Touch version

More information

Additional information is available on the Internet at:

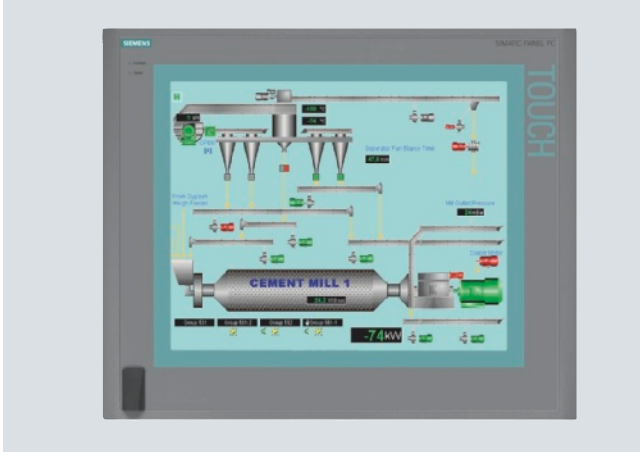
www.siemens.com/simatic-panel-pc

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC677C

Overview



SIMATIC HMI IPC677C

PC platform with high degree of industrial compatibility for demanding tasks in the area of PC-based automation.

Rugged construction:

The PC is resistant to the harshest mechanical stress and is reliable in operation.

- Compact design
- High degree of investment protection
- Fast integration capability
- Front panel versions:
 - 12", 15" and 19" TFT Touch
 - 12" and 15" TFT Keys
 - 15" TFT Touch INOX with stainless steel front for special requirements, e. g. in food, beverages and tobacco industries

Benefits

- Excellent industrial compatibility due to rugged construction, even when subjected to extreme vibration and shock
- High degree of investment protection thanks to assured availability of spare parts (for a period of 5 years following the end of active marketing)
- Excellent continuity of components for machine concepts with a long service life without any new engineering costs
- Savings in time and costs due to service-friendly equipment construction:
 - Operator control unit and computer unit can be opened easily for fast replacement of components or subsequent expansions
 - Front and rear USB 2.0 interfaces for quick and easy connection of additional hardware components
- High degree of industrial functionality thanks to integrated PROFIBUS DP/MPI or PROFINET (CP 1616-compatible) and 2 Gigabit Ethernet interfaces
- 2 x ≥ 250 GB SATA hard disk system (configured as single-disk system or RAID1)
- 32 GB SSD as rugged and high-speed hard disk substitute
- Reduction in standstill times thanks to high system availability
- Minimized energy consumption thanks to support for Wake-On-LAN, shutdown or dimming of the display during operation and use of Notebook components
- Efficient self-diagnostics (SIMATIC IPC DiagMonitor or DiagBase):
 - Solutions for preventive data backup
- Integrated component of Totally Integrated Automation (TIA):
 - increases productivity, minimizes the engineering outlay, reduces the lifecycle costs

Application

The SIMATIC HMI IPC677C is designed for use direct on-site at the machine. Due to the minimal mounting depth of 105/130 mm, it can also be used in confined spaces.

The PC is used both in manufacturing automation and process automation, installed in control cabinets and consoles, 19" cabinets/racks and swing arms (booms).

Thanks to the Dual Core CPUs with Intel Core technology, high-performance control and visualization are possible simultaneously.

With PCIe (x16), the new PCI Express cards (x1, x4 and x8) are also supported.

The integrated NVRAM (battery-backed) is supported by WinAC RTX with DC or AC power supply, devices with PROFIBUS or PROFINET (IRT capability) are equipped with this.

A SIMATIC HMI IPC is the ideal platform for PC-based automation:

- PC-based visualization at the machine level on-site with SIMATIC WinCC flexible
- Complex solutions with SIMATIC WinCC process visualization
- PC-based Control with SIMATIC WinAC RTX Software PLC

Siemens offers the complete modular system of harmonically matched automation components.

The SIMATIC HMI IPCs can be ordered in conjunction with WinCC flexible or WinCC as SIMATIC HMI packages at a price advantage (see SIMATIC HMI complete systems).

Design

The SIMATIC HMI IPC677C comprises a computer unit and an operator control unit.

Components of the computer unit:

- Rugged metal enclosure, resistant to vibrations and shocks, with high electromagnetic compatibility
- Processor:
 - Intel Celeron 1.86 GHz, 2 cores
 - Intel Core i3 2.13 GHz, 2 cores, hyper-threading
 - Intel Core i7 2.53 GHz, 2 cores, hyper-threading, turbo boost
- Main memory basic configuration: 1 GB
- 3.5" SATA hard disk: ≥ 250 Gbyte; the special vibration-absorbing hard disk support ensures reliable operation even under extreme mechanical stress
- Graphics integrated on CPU (Intel Graphics Media Accelerator)
- Interfaces:
 - 2 x 10/100/1000 Ethernet
 - PROFIBUS DP/MPI on board, floating
 - PROFINET (IRT-capable), 3-port, switching-enabled, CP 1616-compatible
 - 4 x USB 2.0 connection
 - 1 x serial V.24 (9-pin)
- Retentive memory:
 - 2 MB NVRAM, can be used with WinAC RTX 128 KB (AC and DC versions)
- Free slots for expansions:
 - 2 x PCI (slots with card retainer)
 - 1 x slot for CompactFlash card
- Power supply: 110/230 V AC (autorange), 50/60 Hz or 24 V DC
- DVI-I interface for connecting a further monitor (DVI or VGA) or Flat Panel monitor

Optional additional components:

- Main memory expansion to 2, 3, or 4 GB, or 2 or 4 GB with ECC
- SATA hard disk ≥ 500 GB
- Dual hard disk module 2 x ≥ 250 GB SATA as single disk configuration or RAID1 preconfigured
- 32 GB SSD (Solid-State Drive)
- Internal CF card slot (unpopulated, instead of hard disks)
- DVD±RW±R combo drive
- 1 x PCIe x16 / 1 x PCI instead of 2 x PCI slots (with card retainers)
- Different Microsoft Windows operating systems incl. Windows 7 Ultimate

Components of the operator control unit:

The operator control units are available in the following versions:

12" Key

- 12.1" TFT color display, 800 x 600 pixels (SVGA)
- Membrane keyboard with international PC character set and 36 additional function keys with LED and an integrated mouse

12" Touch

- 12.1" TFT color display, 800 x 600 pixels (SVGA)
- Resistive analog touch screen

15" Key

- 15.1" TFT color display, 1024 x 768 pixels (XGA)
- Membrane keyboard with international PC character set and 36 additional function keys with LED and an integrated mouse

15" Touch

- 15.1" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen

15" Touch, stainless steel/INOX

- 15.1" TFT color display, 1024 x 768 (XGA)
- Resistive analog touch screen
- Stainless steel front, designed for use in the food and beverages industry
- Developed on the basis of EN 1672-2
- Polished surface (stainless steel 1.4301, line pattern, grain-size 240)
- IP66k on front
- Without USB front interface
- Display shattering protection
- Optimized frame profile, so that liquids can run off
- Minimal number of grooves and joints
- Decorative membrane tested against chemicals in accordance with DIN 42115, Part 2
- Mounting with clamping frame only; sealing material food-safe (EDPM, in accordance with FDA 21 CFR 177.2006)
- Prepared for EHEDG certification for the entire machine

19" Touch

- 19.1" TFT color display, 1280 x 1024 pixels (SXGA)
- Resistive analog touch screen

The operator control units feature a USB 2.0 port on the front for connecting external I/O devices, such as a mouse or keyboard. They fulfill the requirements of degree of protection IP65 and NEMA 4. All operator control units are also available without a USB port on the front.

The computer unit is connected via a connecting cable attached at the rear of the operator control unit.

Distributed configuration

A distributed configuration can be set up with the SIMATIC Box IPC627C and the SIMATIC Flat Panel monitors. The monitor can be placed up to 30m away while retaining the front functionality (incl. rear USB interfaces). The Flat Panel monitors are available in different versions as a device without operating functionality, with touch or key operation.

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC677C

Design (continued)

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnosis of PC problems
- Comprehensive monitoring of temperature, fans, hard disks (SMART), watchdog, BIOS battery
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (German/English)
- Network-wide monitoring via SNMP and OPC interface possible
- Integrated Web server for monitoring over the network using a Web browser

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up

SIMATIC IPC Service USB FlashDrive

- Software tool for adaptation of mass storage partitioning
- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.0
- Ultra-compact and rugged

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC PC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged

Industrial USB Hub 4

USB I/O can be connected and operated without opening the control cabinet door using the Industrial Hub 4.

- Industry-standard USB 2.0 hub, front IP65
- Mounting in control cabinet door or on DIN rail
- Inspection window and LEDs for each of the four interfaces

Note:

For further information, see "Expansion components".

Function

Diagnosis

- integrated, parameterizable monitoring functions (program execution (watchdog), internal enclosure temperature, fan speed, BIOS battery voltage)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct routing into SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)
- RAID1 for automatic data mirroring on two SATA hard disks

Integration

Integrated interfaces:

- **Ethernet**
The integrated Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with PLCs such as SIMATIC S7 (with "SOFTNET S7" software packages).
- **PROFIBUS**
The isolated PROFIBUS interface (12 Mbit/s) can be used for connecting distributed field devices or for coupling to SIMATIC S7 (with "SOFTNET for PROFIBUS" software package).
- **PROFINET**
The three (IRT-enabled) PROFINET ports can be used to connect distributed I/O, SIMATIC S7 and drives. The switching-enabled ports of the CP 1616-compatible PROFINET option support linear bus and tree topologies (WinAC RTX from Version 2008). Alternatively, the interface can be used as a standard Windows interface.
- **Other interfaces**
Two free slots for PCI modules or alternatively 1x PCI and 1x PCIe x16 (incl. x1, x4 or x8) modules, one Compact Flash card interface, 5 USB 2.0 interfaces (Universal Serial Bus) and one serial interface are available for connecting further I/O devices.

Technical specifications

| | 6AV7 89-... |
|-------------------------------|--|
| General features | |
| Processor | Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB L2, Turbo Boost, VT-d) Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB L2) Intel Celeron P4505 (2C/2T, 1.86 GHz, 2 MB L2) |
| Main memory | 1 GB, optional 2 GB or 4 GB or 2 GB or 4 GB with ECC |
| Free slots for expansions | 2 x PCI (slot with card retainer) or 1 x PCI and 1 x PCIe x16 1 x slot for CompactFlash Card (accessible from outside) |
| Operating system | Different Windows operating systems incl. Windows 7 Ultimate |
| Power supply | 24 V DC or 110/240 V AC (autorange), 50/60 Hz |
| MTBF backlighting | Typ. 50 000 h (at 24 h continuous operation, temperature-dependent) |
| Drives | |
| Floppy drive | Optional via external USB floppy drive |
| Optical drives | Optional DVD±RW±R combo drive, at the rear, operable from the side |
| Hard disk/mass storage | 3.5" SATA hard disk ≥ 250 GB; optional 3.5" SATA hard disk ≥ 500 GB, dual hard disk module 2 x ≥ 250 GB SATA as single disk configuration or RAID1 preconfigured, 32 GB SSD (Solid-State Drive) |
| Interfaces | |
| Graphic interface | DVI-I for additional display unit: Color depth 32 bits |
| Connection for keyboard/mouse | USB / USB |
| Serial interface | COM1: 1 x V.24 (RS232) |
| PROFIBUS DP/MPI | Onboard, isolated, max. 12 Mbit/s, compatible with CP 5611, not upgradeable |
| PROFINET (IRT) | Onboard, 3 x RJ 45, CP 1616-compatible, not upgradeable |
| PROFINET (IE), Ethernet | Onboard, 2 x 10/100/1000 Mbit |
| USB | 1 x on front, 4 x on rear, USB 2.0 (500 mA) |
| Audio | Possible via USB (external) |
| Multimedia | No |

¹⁾ 61000-6-2 replaces 50082-2; 61000-6-4 replaces 50081-2

²⁾ Valid with CF or SSD; with HDD: 5 g/0.5 g

| | 6AV7 89-... |
|--|--|
| Monitoring functions | |
| Temperature | Yes |
| Watchdog | Yes |
| Ambient conditions | |
| Degree of protection | IP65 (front) in accordance with EN 60529 and NEMA 4 |
| Vibration load during operation | Tested according to DIN IEC 60068-2-6: 10-58 Hz: 0.075 mm, 58 to 500 Hz: 10 m/s ² (1 g) ²⁾ |
| Shock loading during operation | Tested according to DIN IEC 60068-2-27: 50 m/s ² (5 g), 30 ms, 100 shocks |
| EMC | CE, FCC A, 55022A, EN 61000-6-4 ¹⁾ , EN 61000-6-2 |
| Ambient temperature during operation | 12"/15": 5 °C ... +50 °C in maximum configuration 19": 5 °C ... +45 °C in maximum configuration |
| Relative humidity | Tested according to DIN IEC 60068-78, DIN IEC 60068-2-30: 5% to 80% at 25 °C (no condensation) |
| Maximum permissible installation angle +/- | 20° over vertical |
| Certifications & standards | |
| Approvals | CE, cULus(508) |
| Expansion components | Uninterruptible power supply (UPS), SIMATIC NET communication modules, SIMATIC PC DiagMonitor, SIMATIC IPC Image & Partition Creator, USB disk drive 3.5", SIMATIC IPC USB FlashDrive |

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC677C

Ordering data

Order No.

Configuration

(job-oriented production and delivery)

SIMATIC HMI IPC677C

D 6AV7 89 - - - - -

Front panels

- 12" TFT Touch
- 12" TFT Key
- 15" TFT Touch
- 15" TFT Key
- 19" TFT Touch

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Front options

- With front USB interface
- Without front USB interface
- INOX front, without front USB, with 15" TFT Touch only
- 19" TFT Touch with Atex 22 and UL Class 1 Division 2 certification

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Power supply

- 24 V DC
- 110/230 V AC, power cable for Europe
- 110/230 V AC, without power cable
- 110/230 V AC, power cable for UK
- 110/230 V AC, power cable for CH
- 110/230 V AC, power cable for the USA
- 110/230 V AC, power cable for Italy
- 110/230 V AC, power cable for China

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Processor

- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores
- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFIBUS MPI, 2 MB buffered SRAM
- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFINET MPI (3x RJ45, CP 1616-compatible), 2 MB buffered SRAM
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFIBUS MPI, 2 MB buffered SRAM
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFINET (3x RJ45, CP 1616-compatible), 2 MB buffered SRAM
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFIBUS MPI, 2 MB buffered SRAM
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFINET (3 x RJ45, CP 1616-compatible), 2 MB buffered SRAM

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Order No.

Configuration

SIMATIC HMI IPC677C

D 6AV7 89 - - - - -

Main memory

- 1 GB DDR3
- 2 GB DDR3
- 3 GB DDR3
- 4 GB DDR3
- 2 GB DDR3 with ECC
- 4 GB DDR3 with ECC

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Mass storage

- 250 GB SATA hard disk
- 500 GB SATA hard disk
- RAID1 dual hard disk module 2 x 250 GB SATA, preconfigured
- Dual hard disk module 2 x 250 GB SATA
- 32 GB SSD
- Second CF card slot, internal, empty (not with Windows XP or Windows 7) instead of hard disk or SSD
- Without mass memory

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Optical drives

- Without
- DVD±RW±R combo drive

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Communication interfaces

- 2x PCI free
- 1x PCI, 1x PCIe (x16) free

A
B

Operating system (preinstalled and activated)

- Without operating system
- Windows XP Professional multi language ¹⁾
- Windows 7 Ultimate multi language ¹⁾
- Windows Embedded Standard on 8 GB CF card ²⁾

A 0
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C 0
D 0

Software extension

- Without
- SIMATIC IPC DiagMonitor V4.2 enclosed
- SIMATIC IPC Image & Partition Creator V3.1 enclosed
- SIMATIC IPC DiagMonitor V4.2, Image & Partition Creator V3.1 enclosed

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D: Subject to export regulations: AL: N and ECCN: 5D992

¹⁾ Multi language means: GER/ENG/FR/IT/SP/CHIN

²⁾ Only without RAID 1 option

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC677C

| Ordering data | Order No. | Order No. |
|---|--|---|
| IPC677C stock versions | | |
| 12" TFT Touch with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI 1 GB RAM, 250 GB HDD DVD±R/RW burner PROFIBUS/MPI, NVRAM | D 6AV7 890-0BE00-1AB0 | Non-heating apparatus cable for SIMATIC Box and Panel PC SIMATIC PC power cable, 230 V AC, angled, 3 m, for: • Germany • United Kingdom • Switzerland • USA • Italy • China 6ES7 900-1AA00-0XA0 6ES7 900-1BA00-0XA0 6ES7 900-1CA00-0XA0 6ES7 900-1DA00-0XA0 6ES7 900-1EA00-0XA0 6ES7 900-1FA00-0XA0 |
| 12" TFT Key with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI 1 GB RAM, 250 GB HDD DVD±R/RW burner PROFIBUS/MPI, NVRAM | D 6AV7 891-0BE00-1AB0 | Touch pen A 6AV7 672-1JB00-0AA0 Captive pen for operation of the touch devices, mounting of the support on the control cabinet |
| 15" TFT Touch with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI 1 GB RAM, 250 GB HDD DVD±R/RW burner PROFIBUS/MPI, NVRAM | D 6AV7 892-0BE00-1AB0 | Expansion components SIMATIC IPC DiagMonitor V4.2 B 6ES7 648-6CA04-2YX0 Software tool for monitoring SIMATIC IPCs, incl. manual, on CD-ROM (German/English) |
| 15" TFT Key with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI 1 GB RAM, 250 GB HDD DVD±R/RW burner PROFIBUS/MPI, NVRAM | D 6AV7 893-0BE00-1AB0 | SIMATIC IPC Image & Partition Creator V3.1 D 6ES7 648-6AA03-1YA0 Software tool for preventive data backup and hard disk partitioning for SIMATIC IPCs, incl. manual on CD-ROM (German, English) |
| 19" TFT Touch with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI 1 GB RAM, 250 GB HDD DVD±R/RW burner PROFIBUS/MPI, NVRAM | D 6AV7 894-0BE00-1AB0 | SIMATIC IPC USB FlashDrive A 6ES7 648-0DC50-0AA0 8 GB, USB 2.0, metal enclosure, bootable |
| | | SIMATIC IPC Service USB FlashDrive B 6AV7 672-8JD01-0AA0 8 GB, USB 2.0; metal enclosure, bootable, Image & Partition Creator pre-installed, incl. CD |
| | | Industrial USB Hub 4 A 6AV6 671-3AH00-0AX0 4 x USB 2.0 interfaces, IP65 for mounting on control cabinet door or DIN rail |
| | | Uninterruptible power supplies SITOP Power, 15 A DC UPS module with USB interface with charger unit for 24 V lead battery, input 24 V DC/16 A, output 24 V DC/15 A 6EP1 931-2EC42 |
| | | SITOP Power, battery module 24 V/3.2 Ah for DC UPS module 15 A 6EP1 935-6MD11 |
| | | Communication components PCI interface card With COM1, COM2 and LPT interfaces A 6ES7 648-2CA01-0AA0 |
| Accessories | | |
| Protective foil for Panel PC 477/577/677/Flat Panel, set of 10 For protecting the touch screen against dirt/scratches • for 12" Touch • for 15" Touch • for 19" Touch | 6AV7 671-2BA00-0AA0 6AV7 671-4BA00-0AA0 6AV7 672-1CE00-0AA0 | |
| Labeling strips for Panel PC 477/577/677 key devices For labeling soft keys and function keys, blank, supplied in sets of 10 | 6AV7 672-0DA00-0AA0 | |
| Memory expansion • 1 GB DDR3 DIMM • 2 GB DDR3 DIMM • 1 GB DDR3 DIMM with ECC • 2 GB DDR3 DIMM with ECC | A 6ES7 648-2AJ40-0KA0 A 6ES7 648-2AJ50-0KA0 A 6ES7 648-2AJ40-1KA0 A 6ES7 648-2AJ50-1KA0 | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

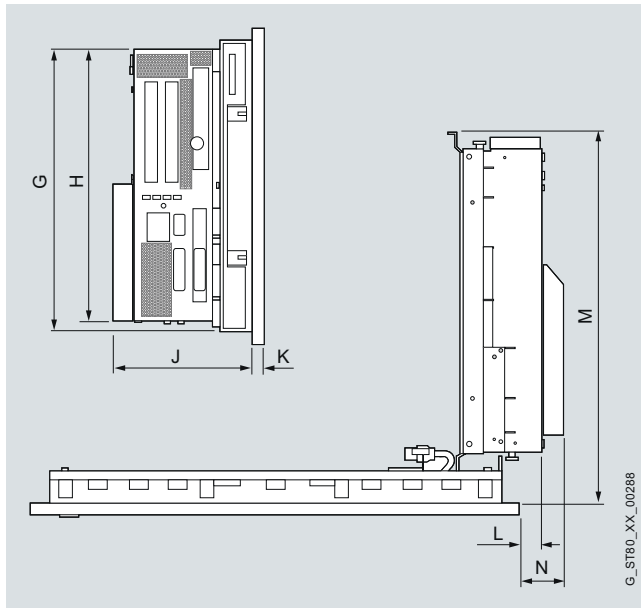
PC-based Automation

SIMATIC Panel PC

SIMATIC HMI IPC677C

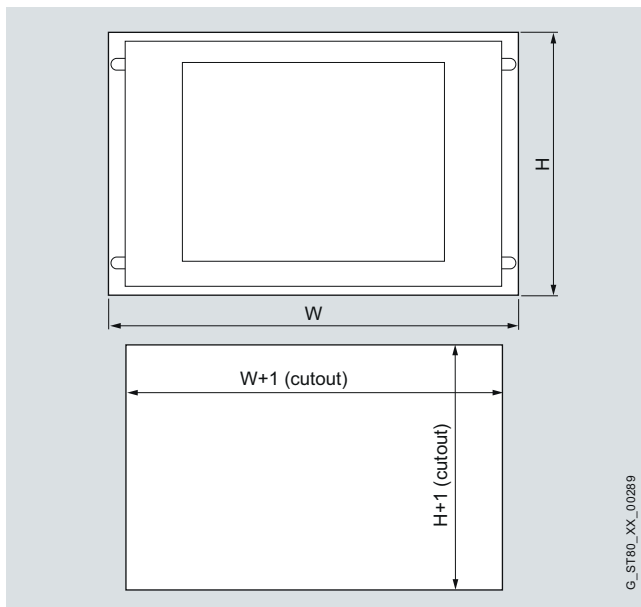
Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



Operator control unit and overall device

| Control units PC 677 | | | | | | | |
|----------------------|-----|-----|-----|----|----|-----|----|
| | G | H | J | K | L | M | N |
| Touch devices | | | | | | | |
| • 12" | 289 | 271 | 141 | 11 | 53 | 369 | 71 |
| • 15" | 289 | 271 | 138 | 11 | 24 | 367 | 42 |
| • 19" | 378 | 271 | 147 | 11 | 18 | 376 | 36 |
| Key devices | | | | | | | |
| • 12" | 289 | 271 | 122 | 11 | 42 | 351 | 59 |
| • 15" | 324 | 271 | 141 | 11 | 31 | 370 | 48 |



Installation cutout

| | Front dimensions | | Installation cutout | | |
|----------------------|------------------|-----|---------------------|-------------------|----|
| | W | H | W+1 | H+1 | D |
| Touch devices | | | | | |
| • 12" | 400 | 310 | 368 | 290 | 51 |
| • 15" | 483 | 310 | 450 | 290 | 55 |
| • 19" | 483 | 400 | 450 | 380 | 57 |
| Key devices | | | | | |
| • 12" | 483 | 310 | 450 | 290 | |
| • 15" | 483 | 355 | 450 | 321 ¹⁾ | |

¹⁾ In addition: Two cutouts 25 x 5 mm on the top for keyboard slide-in label channels.

Note:

All dimensions without screw clearances.

More information

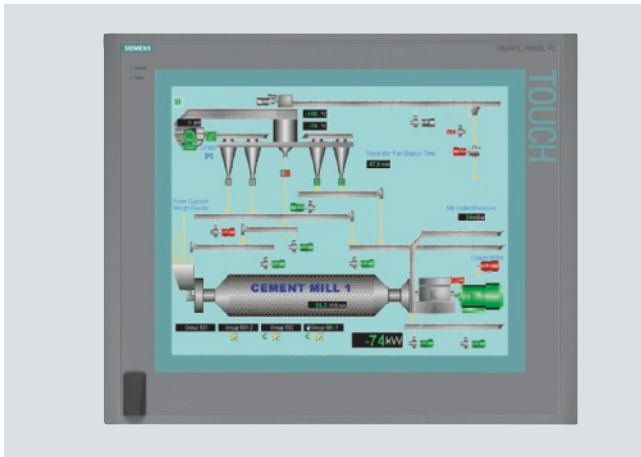
Additional information is available on the Internet at:

www.siemens.com/simatic-panel-pc

Note:

Do you need a specific modification or option for the products described here? Under "Customized products", you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

Overview



Panel PC 677B

PC platform with high degree of industrial compatibility for demanding tasks in the area of PC-based automation.

Rugged construction:

The PC is resistant to the harshest mechanical stress and is reliable in operation.

- Compact design
- High degree of investment protection
- Fast integration capability
- Front panel versions:
 - 12", 15" and 19" TFT Touch
 - 12" and 15" TFT Keys
 - 15" TFT Touch INOX with stainless steel front for special requirements, e. g. in food, beverages and tobacco industries
- The operator control unit and computing unit can be placed 30 m apart (optional).

Benefits

- Excellent industrial compatibility due to rugged construction, even when subjected to extreme vibration and shock
- High level of investment security thanks to assured spare parts availability of the components (for 5 years following the end of active marketing)
- Excellent continuity of components for machine concepts with a long service life without any new engineering costs
- Savings in time and costs due to service-friendly equipment construction:
 - Operator control unit and computer unit can be simply hinged open for fast replacement of components or for future expansion
 - USB 2.0 interfaces on the front and rear for quick and easy connection of additional hardware components
- High degree of industrial functionality thanks to integrated PROFIBUS DP/MPI or PROFINET interfaces (CP 1616-compatible) and 2 GB Ethernet interfaces
- Operational reliability
 - Using the optional direct control key module, the process can be operated without delay over PROFIBUS DP independently of the operating system
- 2 x ≥ 250 GB SATA hard disk system (configured as a single disk system or RAID1)
- Reduction in standstill times thanks to high system availability
- Efficient self-diagnostics (SIMATIC IPC DiagMonitor):
 - Solutions for preventative data security
- integrated component of Totally Integrated Automation (TIA):
 - Enhanced productivity, reduction of engineering costs, reduction of lifecycle costs
 - Spatially separated configuration of computer and operator control unit possible with the Remote Kit (up to 30 m, optionally available as accessories)

Application

SIMATIC Panel PC 677B is designed for use directly at the machine. Due to the minimal mounting depth of only 105/130 mm, it can also be used in confined spaces.

The PC can be used in production automation as well as in process automation and can be mounted in control cabinets, control desks, 19" cabinets/racks and in swing arms (booms).

The Dual Core CPUs with Intel Core2 Duo technology support simultaneously high performance control and visualization.

With PCIe (x4), the new PCI express (PCIe) cards (x1 and x4) are also supported.

The integrated NVRAM (battery-backed) is supported from WinAC RTX 2005 SP2 and with DC power supply.

A SIMATIC Panel PC is the ideal platform for PC based automation:

- PC based visualization on site at the machine with SIMATIC WinCC flexible
- Complex solutions with SIMATIC WinCC process visualization
- PC-based control with SIMATIC WinAC Software PLC

Siemens offers the complete set of building blocks of automation components that are designed to interact perfectly.

The SIMATIC Panel PCs can be ordered in combination with WinCC flexible or WinCC as SIMATIC HMI packages at a lower price (see SIMATIC HMI complete systems).

PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC 677B

Design

The Panel PC 677B comprises a computer unit and an operator control unit.

Components of the computer unit:

- Rugged metal enclosure, resistant to vibrations and shocks, with high electromagnetic compatibility
- Processor:
 - Mobile Intel 945G chip set
 - Intel Celeron M 440/1.86 GHz or
 - Intel Core2 Duo T5500/Dual Core, 1.66 GHz or
 - Intel Core2 Duo T7400/Dual Core, 2.16 GHz
- Main memory basic configuration: 1 GB
- 3.5" SATA hard disk: ≥ 160 GB; the special vibration-absorbing hard disk support ensures reliable operation even under extreme mechanical stress
- Onboard graphics
- Interfaces:
 - 2 x 10/100/1000 Ethernet
 - PROFIBUS DP/MPI on board, floating
 - PROFINET (IRT-capable), 3-port, switching-enabled, CP 1616-compatible
 - 4 x USB 2.0 connection
 - 1 x serial V.24 (9-pin)
- Retentive memory:
 - 2 MB NVRAM, can be used with WinAC RTX 128 KB (DC versions)
- Free slots for expansions:
 - 2 x PCI (slots with card retainer)
 - 1 x slot for CompactFlash card
- Power supply: 110/230 V AC (autorange), 50/60 Hz or 24 V DC
- DVI-I interface for connecting a further monitor (DVI or VGA) or Flat Panel

Optional additional components:

- Main memory expansion to 2, 3 or 4 GB
- SATA hard disk ≥ 250 GB
- Dual hard disk module 2 x ≥ 250 GB SATA preconfigured as single disk configuration or RAID1
- Internal CF card slot (empty, instead of hard disks and optical drive; only with Windows XP embedded operating system)
- DVD±RW±R combo drive
- 1 x PCIe x 4 / 1 x PCI instead of 2 x PCI slots (with card retainers)
- Direct key module (for devices with key front)

Components of the operator control unit:

The operator control units are available in the following versions:

12" Key

- 12.1" TFT color display, 800 x 600 pixels (SVGA)
- Membrane keyboard with international PC character set and 36 additional function keys with LED and an integrated mouse

12" Touch

- 12.1" TFT color display, 800 x 600 pixels (SVGA)
- Resistive analog touch screen

15" Key

- 15.1" TFT color display, 1024 x 768 pixels (XGA)
- Membrane keyboard with international PC character set and 36 additional function keys with LED and an integrated mouse

15" Touch

- 15.1" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen

19" Touch

- 19.1" TFT color display, 1280 x 1024 pixels (SXGA)
- Resistive analog touch screen

The operator control units feature a USB 2.0 port on the front for connecting external I/O devices, such as a mouse or keyboard. They fulfill the requirements of degree of protection IP65 and NEMA 4. All operator control units are also available without a USB port on the front.

The computer unit is connected via a connecting cable attached at the rear of the operator control unit.

Design (continued)

Expansion components

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for the early detection and diagnosis of PC problems
- Comprehensive monitoring of temperature, fans, hard disks (SMART), watchdog, BIOS battery
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)
- Network-wide monitoring via SNMP and OPC interface possible
- Integrated Web server for monitoring over the network using a Web browser

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC PC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.1
- Ultra-compact and rugged

SIMATIC Panel PC Remote Kit

- Spatially separated configuration of computer and operator control unit
- At a maximum distance of up to 30 m
- Pure hardware solution, no need to install additional software
- Maintaining the Panel PC front functionality
- Additional USB interface on the rear
- Centralized and distributed configuration with only one basic unit
- Can be retrofitted

Industrial USB Hub 4

USB I/O can be connected and operated without opening the control cabinet door using the Industrial Hub 4.

- Industry-standard USB 2.0 Hub, Front IP65
- Installation in control cabinet door or on DIN rail
- Inspection window and LEDs for each of the four interfaces

Note:

For further information, see "Expansion components"

Function

Diagnosis

- Integrated, parameterizable monitoring functions (program execution (watchdog), temperature inside housing, fan speed)
- Expanded diagnostics/alarms over Ethernet, by e-mail, as text message, and for direct feed in SIMATIC software over OPC (optionally through SIMATIC IPC DiagMonitor)
- RAID1 for automatic data mirroring on two SATA hard disks

Integration

Integrated interfaces:

- **Ethernet**
The integrated Ethernet interfaces (10/100/1000 Mbit/s) can be used for IT communication and for exchanging data with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software packages).
- **PROFIBUS**
The floating PROFIBUS interface (12 Mbit/s) can be used for connecting distributed field devices or for coupling to SIMATIC S7 (with software package "SOFTNET for PROFIBUS").
- **PROFINET**
The three (IRT-capable) PROFINET ports can be used to connect distributed I/O, SIMATIC S7 and drives. The switching-capable ports of the CP 1616-compatible PROFINET option support linear and tree topologies (WinAC RTX Version 2008 and higher). Alternatively, the interface can be used as a standard Windows interface.
- **Further interfaces**
For connecting additional I/O devices, 2 spare slots are available for PCI modules or alternatively 1 x PCI and 1 x PCIe x4 modules, as well as a Compact Flash Card interface, 5 USB 2.0 interfaces (Universal Serial Bus) and one serial interface.

PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC 677B

Technical specifications

| SIMATIC Panel PC 677B | 6AV7 870-.....-...0 |
|---|---|
| Supply voltage | |
| Supply voltage | 100 V AC / 240 V AC (autorange) 50/60 Hz; optional 24 V DC |
| Memory | |
| Main memory | 512 MB to 4 GB |
| Data areas and their remanence | |
| Retentive data area in total (incl. times, counters, flags), max. | 2 MB battery-backed only DC power supply WinAC RTX 2005 SP1 or higher |
| Monitoring functions | |
| Temperature | Yes |
| Watchdog | Yes |
| Status LEDs | yes |
| Configuration | |
| SIMATIC Software | Optionally in package with SIMATIC WinCC or WinCC flexible |
| Ambient conditions | |
| Vibration load in operation | Tested to IEC 68-2-6: 10 to 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s ² (1 g) |
| Shock loading in operation | Tested to IEC 68-2-29: 50 m/s ² (5g), 30 ms, 100 shocks |
| Relative humidity | Tested to IEC 68-2-3, IEC 68-2-30, IEC 68-2-56: 5% to 80% at 25 °C (no condensation) |
| Maximum permissible installation angle +/- | 20° |
| Temperature | |
| • Ambient temperature in operation | 12", 15": +5 °C to +50 °C in maximum configuration 15", 19": +5 °C to +45 °C in maximum configuration |
| Degree of protection | |
| Front to EN 60529 | IP65 (at the front) acc. to EN 60529 and tested acc. to NEMA4 |
| Certifications & Standards | |
| Approval | CE, cULus (508) |
| EMC | CE, EN 55011, EN 61000-6-4, EN 61000-6-2 |

| SIMATIC Panel PC 677B | 6AV7 870-.....-...0 |
|-------------------------------------|---|
| Interfaces | |
| Interfaces | |
| • Free slots | 2x PCI or 1xPCI & 1x PCIe x4 (slots with card retainer), 1x slot for Compact Flash Card |
| • Graphic interface | DVI-I usable for additional display unit (VGA via adapter); color depth 32 bits, 8 to 128 MB Shared Memory USB / USB |
| • Connection for keyboard/ mouse | |
| • serial interface | COM1: 1 x V.24 (RS232) |
| PROFIBUS/MPI | 1 |
| USB | 1x at front, 4x at rear, USB 2.0 (500 mA) |
| Ethernet | onboard, 2 x 10/100/1000 Mbit/s, RJ45, no plug-in card necessary |
| Operating systems | |
| Operating system | Windows 2000 Prof. (Multi Language), Windows XP Prof. (Multi Language), Windows Vista Ultimate 32 bit, Windows Server 2003 Standard 32 bit (incl. 5 clients), Windows XP embedded (English) on CF card, opt. without operating system |
| Additional info on operating system | Multi Language: Windows 2000, XP: GER, ENG, IT, FR, SP, KOR, CHN (traditional), CHN (simplified), JPN Windows Vista and Server 2003: GER, ENG, IT, FR, SP; further languages downloadable from Microsoft |
| Processor | |
| Processor | Intel Core 2 Duo technology; Intel Celeron M 440, 1.86 GHz, 533 MHz FSB, 1 MB SLC; Core 2 Duo T5500, 1.66 GHz, 667 MHz FSB, 2 MB SLC; Core 2 Duo T7400, 2.16 GHz, 667 MHz FSB, 4 MB SLC |
| Drives | |
| Diskette drive | optional: via external USB floppy disk drive |
| Optical drives | Optional: DVD±R±RW combi drive; on rear, can be operated from side |
| Hard disk/Mass storage | 3.5" SATA hard disk ≥ 80 GB, optional ≥ 160 GB, optional: 2 x 2.5" SATA hard disk module (≥ 80 GB), RAID 1 controller onboard; all drives are vibration-damped |

Technical specifications (continued)

| Product type designation | 6AV7 870-.....0 SIMATIC Panel PC 677B 12" Touch | 6AV7 871-.....0 SIMATIC Panel PC 677B 12" Keyboard | 6AV7 872-.....0 SIMATIC Panel PC 677B 15" Touch | 6AV7 873-.....0 SIMATIC Panel PC 677B 15" Keyboard | 6AV7 875-.....0 SIMATIC Panel PC 677B 19" Touch |
|--|---|---|---|---|---|
| Operator control and monitoring | | | | | |
| Accessory components | Touch protective foil, remote kit | Slide-in keyboard labels, direct key module, remote kit | Touch protective foil (not for Inox front), remote kit | Slide-in keyboard labels, direct key module, remote kit | Touch cover foils, remote kit, fixing elements for screw mounting at the front |
| General features | | | | | |
| Front panel | 12" TFT Touch | 12" TFT Key | 15" TFT Touch | 15" TFT Key | 19" TFT touch display |
| Display | | | | | |
| Expansion components | Uninterruptible power supply (USP), SIMATIC NET communication modules | Uninterruptible power supply (USP), SIMATIC NET communication modules | Uninterruptible power supply (USP), SIMATIC NET communication modules | Uninterruptible power supply (USP), SIMATIC NET communication modules | Uninterruptible power supply (UPS), SIMATIC NET communication modules, DiagMonitor, Image-Partition Creator |
| Power loss in full configuration | 140 W max. (15 W included per slot) | 140 W max. (15 W included per slot) | 140 W max. (15 W included per slot) | 140 W max. (15 W included per slot) | 163 W max. (15 W included per slot) |
| Screen diagonal | 12 in | 12 in | 15 in | 15 in | 19 in |
| Resolution (WxH in pixel) | 800 x 600 | 800 x 600 | 1024 x 768 | 1024 x 768 | 1280 x 1024 |
| Backlighting | | | | | |
| • MTBF backlighting (at 25 °C) | 50000 h in 24 h permanent operation, temperature-dependent | 50000 h in 24 h permanent operation, temperature-dependent | 50000 h in 24 h permanent operation, temperature-dependent | 50000 h in 24 h permanent operation, temperature-dependent | 50000 h in 24 h permanent operation, temperature-dependent |
| Operating mode | | | | | |
| Function keys | No | 36 with LEDs | No | 36 with LEDs | No |
| Mouse, at front | | | No | yes | |
| Touch operation | | | | | |
| • Alphanumeric keyboard | | | No | Yes | No |
| • Touch screen (analog/resistive) | Yes | No | Yes | No | Yes |
| Design | | | | | |
| central design | Yes | Yes | Yes | Yes | Yes |
| distributed design | Yes | Yes | Yes; by means of remote kit | Yes; by means of remote kit | Yes; by means of remote kit |
| Dimensions | | | | | |
| Mounting cutout/device depth (W x H) | 368x290 / 144 (incl. optical drive) | 450x290 / 126 (incl. optical drive) | 450x290 / 142 (incl. optical drive) | 450x321 / 145 (incl. optical drive) | 450x380 / 151 (incl. optical drive) |
| Install. dimensions, centralized design (W x H x D, without optical drive) in mm | 368x290x123 | 450x290x105 | | 450x321x124 | 450x380x130 |
| additional mounting depth (optical drive) | 21 mm | 21 mm | 21 mm | 21 mm | |
| Operator control unit (W x H) in mm | 400x310 (7 HU) | 483x310 (19", 7 HU) | 483x310 (19", 7 HU) | 483x355 (19", 8 HU) | 483x400 (19", 9 HU) |
| Install. dimensions, operator panel with distributed design (W x H x D) in mm | 368x290x87 | 450x290x69 | 450x290x85 | 450x321x89 | 450x380x94 |
| Install. dimensions, computer unit with distributed design (W x H x D) in mm | 298x301x100; (298x301x80 without CD) | 298x301x100; (298x301x80 without CD) | 298x301x100; (298x301x80 without CD) | 298x301x100; (298x301x80 without CD) | 298x301x100; (298x301x80 without CD) |
| Dimensions and weight | | | | | |
| Weight | | | | | |
| • Panel PC in central design, approx. | 13 kg | 12 kg | 14 kg | 16 kg | 17 kg |

PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC 677B

Ordering data

Order No.

Configuration

(job-oriented production and delivery)

SIMATIC Panel PC 677B D 6AV7 87 - - - - - 0

Front panels

- 12" TFT Touch
- 12" TFT Key
- 15" TFT Touch
- 15" TFT Key
- 19" TFT Touch

0
1
2
3
5

Front options

- With front USB interface
- Without front USB interface
- INOX front, without front USB, with 15" TFT Touch only

0
1
2 2

Power supply

- 24 V DC
- 110/230 V AC, power cable for Europe
- 110/230 V AC (without power cable)
- 110/230 V AC, power cable for UK
- 110/230 V AC, power cable for CH
- 110/230 V AC, power cable for the USA
- 110/230 V AC, power cable for Italy
- 110/230 V AC, power cable for China

A
B
C
D
E
F
G
H

Processor

- Intel Celeron M 440 / 1.86 GHz, 533 MHz FSB, 1 MB SLC, slots (free): 2 x PCI
- Intel Celeron M 440 / 1.86 GHz, 533 MHz FSB, 1 MB SLC, slots (free): 1 x PCIe x4 and 1 x PCI
- Intel Core2 Duo T5500 / Dual Core, 1.66 GHz, 677 MHz FSB, 2 MB SLC, slots (free): 2 x PCI
- Intel Core2 Duo T5500 / Dual Core, 1.66 GHz, 677 MHz FSB, 2 MB SLC, slots (free): 1 x PCIe x4 and 1 x PCI
- Intel Core2 Duo T7400 / Dual Core, 2.16 GHz, 677 MHz FSB, 4 MB SLC, slots (free): 2 x PCI
- Intel Core2 Duo T7400 / Dual Core, 2.16 GHz, 677 MHz FSB, 4 MB SLC, slots (free): 1 x PCIe x4 and 1 x PCI

A
B
C
D
E
F

¹⁾ Multi language means: GER/ENG/FR/IT/SP/CHIN traditional/CHIN simplified/Korean/Japanese

²⁾ Not with internal second CF card slot

³⁾ Only without RAID 1 option

⁴⁾ Multi language means: GER/ENG/FR/IT/SP; other languages only by downloading from Microsoft

⁵⁾ Not with Windows 2000 Professional or Windows 2003 Server

⁶⁾ Only with Core2 Duo CPUs, not with PROFINET option

Order No.

Configuration

(continued)

SIMATIC Panel PC 677B D 6AV7 87 - - - - - 0

Main memory

- 1 GB DDR2
- 2 GB DDR2
- 3 GB DDR2
- 4 GB DDR2

2
3
4
5

Mass storage

- 160 GB SATA hard disk
- 250 GB SATA hard disk
- RAID1 dual hard disk module 2 x 80 GB SATA, preconfigured
- Dual hard disk module 2 x 80 GB SATA
- Second CF card slot (only in combination with Windows XP embedded), internal, not fitted, only with version without opt. drive and without HDD

0
1
2
3
4

Optical drives

- Without
- DVD±RW±R combo drive

0
1

Communication interfaces

- PROFIBUS/MPI; 2 x Gbit Ethernet, 2 MB NVRAM
- PROFINET (3 x RJ45, CP 1616-compatible); 2 x Gbit Ethernet, 513 KB NVRAM ⁵⁾

A
B

Operating system (preinstalled and activated)

- Without operating system ²⁾
- Windows 2000 Professional multi language ^{1) 2) 3)}
- Windows XP Professional multi language SP2 (SP3 enclosed) ^{1) 2)}
- Windows Vista Ultimate multi language (SP1 enclosed) ²⁾
- Windows Server 2003 Standard Edition incl. 5 clients ⁶⁾ MUI ⁴⁾, SP1 (SP2 enclosed)
- Windows XP embedded (English) ³⁾ on 2 GB CF card

A
B
C
D
E
F

D: Subject to export regulations: AL: N and ECCN: 5D992

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

| Ordering data | Order No. | Order No. |
|---|--|--|
| Stock versions | | |
| 12" TFT Touch 110/230 V AC power supply Core2 Duo T5500, 1.66 GHz, 2 x PCI 1 GB RAM, 160 GB HDD, DVD±R±RW burner PROFIBUS/MPI Windows XP Prof. MUI (SP2) (Ger/F/I/SP/CHN traditional/CHN simplified/Korean/Japanese) | D | 6AV7 870-0BC20-1AC0 |
| 15" TFT Touch 110/230 V AC power supply Core2 Duo T5500, 1.66 GHz, 2 x PCI 1 GB RAM, 160 GB HDD, DVD±R±RW burner PROFIBUS/MPI Windows XP Prof. MUI (SP2) (Ger/F/I/SP/CHN traditional/CHN simplified/Korean/Japanese) | D | 6AV7 872-0BC20-1AC0 |
| 15" TFT Key 110/230 V AC power supply Core2 Duo T5500, 1.66 GHz, 2 x PCI 1 GB RAM, 160 GB HDD, DVD±R±RW burner PROFIBUS/MPI Windows XP Prof. MUI (SP2) (Ger/F/I/SP/CHN traditional/CHN simplified/Korean/Japanese) | D | 6AV7 873-0BC20-1AC0 |
| 19" TFT Touch 110/230 V AC power supply Core2 Duo T5500, 1.66 GHz, 2 x PCI 1 GB RAM, 160 GB HDD, DVD±R±RW burner PROFIBUS/MPI Windows XP Prof. MUI (SP2) (Ger/F/I/SP/CHN traditional/CHN simplified/Korean/Japanese) | D | 6AV7 875-0BC20-1AC0 |
| Accessories | | |
| Cover membrane for Panel PC 477/577/677(B)/Flat Panel , set of 10 each For protecting the touch screen against dirt/scratches • for 15" Touch | | 6AV7 671-4BA00-0AA0 |
| Memory expansion • 1 GB DDR2 • 2 GB DDR2 | A A | 6ES7 648-2AG40-0HA0 6ES7 648-2AG50-0HA0 |
| Non-heating apparatus cable for SIMATIC Box and Panel PC SIMATIC PC power cable, 230 V AC, angled, 3 m, for: • Germany • United Kingdom • Switzerland • USA • Italy • China | | 6ES7 900-1AA00-0XA0 6ES7 900-1BA00-0XA0 6ES7 900-1CA00-0XA0 6ES7 900-1DA00-0XA0 6ES7 900-1EA00-0XA0 6ES7 900-1FA00-0XA0 |
| Touch pen Captive pen for operation of the touch devices, mounting of the support on the control cabinet | A | 6AV7 672-1JB00-0AA0 |
| Expansion components | | |
| SIMATIC IPC DiagMonitor V4.2 Software tool for monitoring SIMATIC IPCs, incl. manual, on CD-ROM (German/English) | B | 6ES7 648-6CA04-2YX0 |
| SIMATIC IPC Image & Partition Creator V3.1 Software tool for preventive data backup and hard disk partitioning for SIMATIC PCs, incl. manual on CD-ROM (German, English) | D | 6ES7 648-6AA03-1YA0 |
| SIMATIC IPC USB FlashDrive 8 GB, USB 2.0; metal enclosure, bootable | A | 6ES7 648-0DC50-0AA0 |
| SIMATIC IPC Service USB FlashDrive 8 GB, USB 2.0; metal enclosure, bootable Image & Partition Creator V3.0 ready-installed, incl. CD | B | 6AV7 672-8JD01-0AA0 |
| 3.5" USB disk drive With 1 m connecting cable | | 6FC5 235-0AA05-1AA2 |
| SIMATIC Panel PC Remote Kit for the separate configuration of control unit and computer unit • 24 V DC, 5 m • 24 V DC, 10 m • 24 V DC, 15 m • 24 V DC, 20 m • 24 V DC, 30 m • 110/230 V AC, 5 m • 110/230 V AC, 10 m • 110/230 V AC, 15 m • 110/230 V AC, 20 m • 110/230 V AC, 30 m | A A A A A A A A A A A A A A | 6AV7 671-1EA00-5AA1 6AV7 671-1EA01-0AA1 6AV7 671-1EA01-5AA1 6AV7 671-1EA02-0AA1 6AV7 671-1EA03-0AA1 6AV7 671-1EA10-5AA1 6AV7 671-1EA11-0AA1 6AV7 671-1EA11-5AA1 6AV7 671-1EA12-0AA1 6AV7 671-1EA13-0AA1 |
| Industrial USB Hub 4 4 x USB 2.0 interfaces, IP65 for mounting on control cabinet door or DIN rail | A | 6AV6 671-3AH00-0AX0 |
| Uninterruptible power supplies | | |
| SITOP Power, 15 A DC UPS module with USB interface with charger unit for 24 V lead battery, input 24 V DC/16 A, output 24 V DC/15 A | | 6EP1 931-2EC42 |
| SITOP Power, battery module 24 V/3.2 Ah for DC UPS module 15 A | | 6EP1 935-6MD11 |
| Communication components | | |
| PCI interface card With COM1, COM2 and LPT interfaces | A | 6ES7 648-2CA01-0AA0 |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

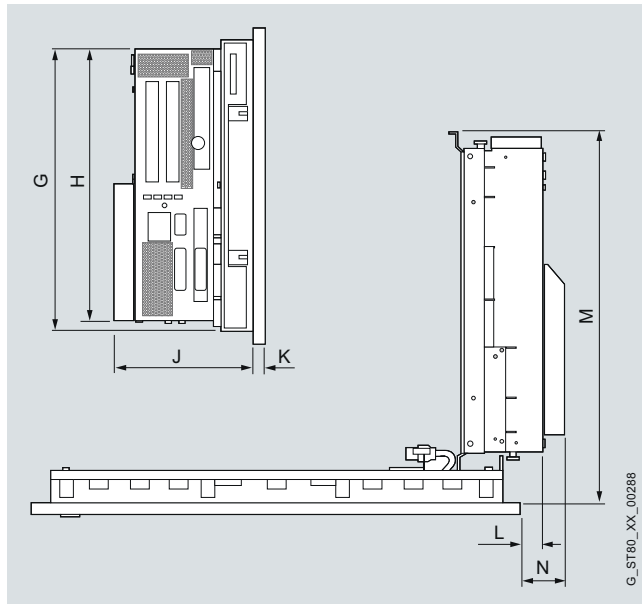
PC-based Automation

SIMATIC Panel PC

SIMATIC Panel PC 677B

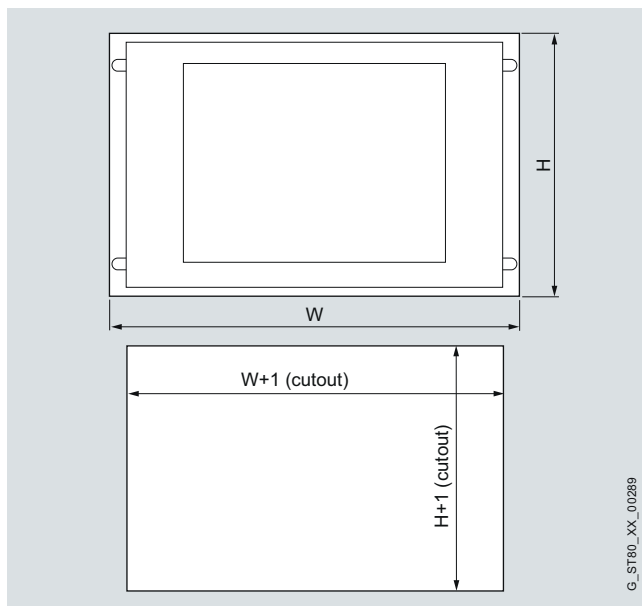
Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



Operating unit and complete unit

| Control units PC 677 | | | | | | | |
|-------------------------|-----|-----|-----|----|----|-----|----|
| | G | H | J | K | L | M | N |
| Touch devices | | | | | | | |
| • 12" | 289 | 271 | 141 | 11 | 53 | 369 | 71 |
| • 15" | 289 | 271 | 138 | 11 | 24 | 367 | 42 |
| • 19" | 378 | 271 | 147 | 11 | 18 | 376 | 36 |
| Key devices | | | | | | | |
| • 12" | 289 | 271 | 122 | 11 | 42 | 351 | 59 |
| • 15" | 324 | 271 | 141 | 11 | 31 | 370 | 48 |



Installation cutout

| | Front dimensions | | Installation cutout | | |
|----------------------|------------------|-----|---------------------|-------------------|----|
| | W | H | W+1 | H+1 | T |
| Touch devices | | | | | |
| • 12" | 400 | 310 | 368 | 290 | 51 |
| • 15" | 483 | 310 | 450 | 290 | 55 |
| • 19" | 483 | 400 | 450 | 380 | 57 |
| Key devices | | | | | |
| • 12" | 483 | 310 | 450 | 290 | |
| • 15" | 483 | 355 | 450 | 321 ¹⁾ | |

¹⁾ In addition: Two cutouts 25 x 5 mm on the top for keyboard slide-in label channels

Note:

All dimensions without screw clearances.

More information

Additional information is available on the Internet at:

www.siemens.com/simatic-panel-pc

Note:

Do you require specific modification or extension to the products described here? Then refer to "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

Overview



Siemens has developed a wide range of matched hardware and software components for PC-based automation.

Focal point: **SIMATIC PC-based Control** with SIMATIC WinAC, the open, flexible and reliable control for your PC-based automation solution.

All automation tasks can be implemented on one platform on the PC, such as open-loop control, closed-loop control, operator control & monitoring and motion control. PC-based Automation is your first choice wherever PC applications have to be handled in addition to classic PLC tasks.

SIMATIC PC-based Control

- Adds PC-based control to the SIMATIC S7 controller family
- Especially suitable where a variety of tasks such as data processing, communication, visualization, technology and control have to be integrated in one PC.

Versions

- **SIMATIC WinAC Software PLC**
for tasks requiring a high level of flexibility and integration capability.
- **SIMATIC WinAC ODK**
allows PC solutions for technological tasks to be integrated flexibly and powerfully into the controller.

Properties

- Runs on standard PCs under Windows XP Professional SP2.
- Code-compatible with SIMATIC S7:
Programmed with SIMATIC industrial software, created programs can also be used for SIMATIC S7.
- Uses standard interfaces for integration into the office environment.
- Open interfaces for the integration of solution-specific technological hardware and software.

Application

SIMATIC WinAC is optimized for the following tasks:

- **Compact design:**
Data processing, communication, visualization, technology and control must be integrated on one PC for space and performance reasons.
- **Openness:**
High-performance integration into the data processing is required.
- **Technology:**
Specific technological tasks must be executed in close corporation with the control functions.
- **Flexibility:**
The task requires the integration of special hardware or software modules.

SIMATIC WinAC is provided for this purpose with open and powerful interfaces. SIMATIC WinAC is therefore the ideal platform for tailored automation solutions.

Further information can be found on the Internet at:

www.siemens.com/pc-based-automation

PC-based Automation

PC-based Controller

SIMATIC PC-based controllers

Function

Interfacing to the process

SIMATIC WinAC software PLCs support access to the process I/O via PROFIBUS DP and PROFINET IO. The PROFIBUS or PROFINET interface modules from the SIMATIC NET product range and the integrated interfaces of the SIMATIC PC are used for this purpose.

Technological tasks

There are various ways of solving technological tasks with WinAC:

SIMATIC Runtime Software – this includes for example Standard PID Control or Easy Motion Control – provides a series of libraries for technological functions, which are directly processed by SIMATIC WinAC.

- SIMATIC function modules such as FM 350 or FM 351 can be used simultaneously in an ET200M station on PROFIBUS or PROFINET.
- An open integration of specific technological tasks can be achieved by means of the WinAC ODK for the SIMATIC WinAC software and slot PLCs.
- The isochronous mode via PROFIBUS DP of WinAC RTX and WinAC Slot allows for exactly reproducible response times and is the basis for precise and fast control applications.

Communication

SIMATIC WinAC supports SIMATIC communication both locally on the same PC and over the SIMATIC networks PROFIBUS and Industrial Ethernet/PROFINET. The following communication connections are possible:

- Programming and commissioning by means of STEP 7 both locally and remotely from a PG/PC
- Visualization with WinCC or WinCC flexible either locally or over a network
- Communication with other WinAC or S7 systems
- Open communication (TCP/UDP) via the PROFINET interface
- PROFINET CBA

Interfacing to visualization

The SIMATIC HMI products WinCC flexible and WinCC have full access to all data and functions of SIMATIC WinAC in accordance with the demands placed on Totally Integrated Automation. They can be operated both locally on the same PC as SIMATIC WinAC and remotely over the supported networks.

Even the SIMATIC Touch and Operator Panels cooperate with SIMATIC WinAC without any restrictions. In this case the access via the PROFIBUS DP or PROFINET IO interface of the SIMATIC WinAC is particularly useful, as this enables the devices to be operated "on site" with minimum wiring outlay.

The SIMATIC NET OPC server, which is included in the delivery of WinAC, alternatively allows access to process data through commercially available visualization systems.

Access to process data

The SIMATIC NET OPC server offers an open access to process data through any OPC client application.

In addition, access to process data from standard Windows applications such as Excel or Access can be carried out simply via the OPC Data Access Automation Interface.

Programming

SIMATIC Software

The PC-based controller is programmed and configured with STEP 7 and the SIMATIC engineering tools for production engineering. For this purpose, all SIMATIC programming languages are also available for WinAC.

The SIMATIC programming languages fulfill the EN 6.1131-3 standard. This minimizes the familiarization and training time.

In addition, the program modules which were programmed for SIMATIC S7 controllers can be reused in WinAC.

STEP 7 for all aspects of the control task:

- Configuring of control and communication:
All characteristics of the PC-based control and the interplay with additional SIMATIC components are handled by STEP 7. All configuring data are centrally and consistently stored at a single location.
- A complete spectrum of programming languages:
STEP 7 and the STEP 7 engineering tools offer a wide spectrum of programming languages for all aspects of control tasks.
- Local and remote programming:
The complete network connection of SIMATIC STEP 7 allows for both the local programming of WinAC on the same PC and the remote programming over LAN or WAN.
- Efficient debugging:
STEP 7 offers efficient support for the testing and commissioning of the control programs. This includes for example online modification of programs, the display and control of variables or single-step processing.

SIMATIC iMap

The actual control functionality of the PC-based controller is programmed using STEP 7.

The interconnection of system components and machine which was generated with WinAC RTX and PROFINET CBA, is implemented with the open tool SIMATIC iMap.

More information

Brochures

Information material for downloading can be found on the Internet:

www.siemens.com/simatic/printmaterial

Overview



- SIMATIC WinAC RTX: optimized for applications that require a high degree of flexibility and integration capability.
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.

New with WinAC RTX 2010:

- Operation under Windows 7
- Web server
- New PROFINET functions:
 - Isochronous mode
 - Shared Device
 - Media redundancy
 - IP configuration

Benefits

- Hard real time and maximum performance
- Implementation of fast, S7-compatible control solutions with low processor loading.
Alongside the control task, sufficient processor capability is available for processing complex, demanding PC applications in parallel.

Application

SIMATIC WinAC RTX is particularly suited to tasks that demand a high degree of flexibility and efficient integration in the overall task. This comprises close interlinking with data processing and logistics systems as well as interfacing with technology tasks such as motion control or vision systems.

SIMATIC WinAC RTX is equally suited to implementation on cost-effective PC platforms with single-core processors and on high-end PCs, e. g. with QuadCore processors. WinAC RTX is optimized for operation on embedded PC platforms such as the S7-modular Embedded Controller, the SIMATIC IPC427C, or the SIMATIC HMI IPC477C. These platforms feature, with their diskless and fanless design, significantly enhanced ruggedness for an automation task. Non-volatile memory is also available which permits storage of up to 512 KB retentive data (S7-mEX, EC31) on a voltage dip, independently of the file system. The I/O is connected via the leading fieldbus standards of PROFINET or PROFIBUS. With the S7-mEC, EC31, operation is also possible in conjunction with centralized signal modules (SM) of S7-300. The support of the integrated PROFINET or PROFIBUS interfaces of the SIMATIC PCs as well as the excellent performance result in an excellent price/performance ratio for PC-based automation.

The WinAC ODK is used for expansion of the PLC functionality with application specific C/C++ applications. It supports:

- integration of complex high-level language algorithms in the control program
- access to the Windows API or Windows system resources
- access to external hardware and software components.

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

Design

SIMATIC WinAC RTX comprises the following components:

- Windows Logic Controller (WinLC RTX V4.6)
- WinAC TimeSynchronization
- SIMATIC NET SOFTNET-S7 Lean incl. SIMATIC NET OPC
- Real-time driver for PROFINET and PROFIBUS interfaces
- IntervalZero RTX real-time core for ensuring real-time and a deterministic response

Optional:

- Interfaces for connection to PROFIBUS DP:
 - CP 5611 A2 or the integrated PROFIBUS interface of the SIMATIC IPC
 - CP 5621
 - CP 5613 A2
 - CP 5603
 - CP 5623
- Interfaces for connection to PROFINET
 - CP 1616 (HW version 8 and above) or integrated CP 1616 onboard interface of the SIMATIC PC
 - CP 1604 (HW version 7 and above)
 - Integrated standard Ethernet interfaces of selected SIMATIC PCs (e. g. SIMATIC IPC427C, HMI IPC477C, IPC227D and HMI IPC277D)
- WinAC Open Development Kit (ODK):
 - For integrating C/C++ code in WinAC RTX
 - Integration of external software (technology programs) or PC components (e. g. barcode scanner, PC cards for measured value acquisition)

Function

Windows Logic Controller (WinLC RTX)

The Windows Logic Controller handles the actual control task and execution of the control program. It coordinates the associated input and output of process values via the lower-level PROFINET or PROFIBUS fieldbus system and makes the process values available for visualization and data processing tasks.

Several processing levels are available for optimum process control:

- Cyclic program processing.
- Interrupt processing.
- Time and date-controlled processing.
- Isochronous processing level with PROFIBUS or PROFINET.

Retentivity

WinAC RTX saves all data that has been declared as retentive on the hard disk upon exiting. An uninterruptible power supply (e. g. SITOP DC UPS) can be used to ensure a defined termination of the WinAC Software PLC even in the case of an unexpected drop in the PC power supply.

Alternatively, storage of retentive data on the integrated, battery-backed SRAM memory of the SIMATIC PC (for example, SIMATIC IPC427C or SIMATIC HMI IPC) can also be selected so that up to 128 KB of data can be stored retentively on voltage failure. For operation on SIMATIC S7-mEC, EC31, as much as 512 KB of retentive data can be stored on the integrated, non-volatile memory. A UPS is not necessary in this case. It is, however, recommended that a UPS is used when supplementary applications such as visualization or data processing demand saving of the current data in the event of voltage failure.

OPC server

The SIMATIC NET OPC server supplied with WinAC provides open access to all process values. Visualization systems or data processing systems can be linked to WinAC via this interface.

Interface to visualization

SIMATIC WinAC RTX is easy to use with the SIMATIC HMI systems SIMATIC WinCC flexible or SIMATIC WinCC.

Visualization systems from third-party suppliers can be connected via the included SIMATIC NET OPC server.

Communication

The programming of the Windows Logic Controller with STEP 7 and also the visualization with SIMATIC HMI can be implemented both locally in the same PC and remotely using the standard SIMATIC networks Industrial Ethernet/PROFINET or PROFIBUS.

WinAC RTX can exchange data with WinAC stations or with S7 controllers over these networks. WinAC RTX supports Open User Communication over the PROFINET interface, which permits communication with any peers via the open protocols TCP, UDP, and now also ISOonTCP. In addition, access to the WinAC web server is also supported via this interface.

A SOFTNET S7 Lean license is included for communication over Industrial Ethernet by means of the integrated Ethernet interfaces of the SIMATIC IPC.

Technical specifications

| 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 | |
|---|---|
| Product type designation | |
| Product version | |
| Hardware product version | - |
| Firmware version | V4.6 |
| Associated programming package | STEP7 as of V5.5 + HW update / iMap V3.0 SP1 |
| Memory | |
| Work memory | |
| • integrated (for program) | 4 Mbyte; Adjustable; depends on Non Paged Memory Pool |
| • integrated (for data) | 4 Mbyte; Adjustable; depends on Non Paged Memory Pool |
| Load memory | |
| • integrated RAM, max. | 8 Mbyte; Adjustable; depends on Non Paged Memory Pool |
| CPU-blocks | |
| DB | |
| • Number, max. | 65 535; Limited only by RAM set for data |
| • Size, max. | 64 Kibyte |
| FB | |
| • Number, max. | 65 536; Limited only by RAM set for code |
| • Size, max. | 64 Kibyte |
| FC | |
| • Number, max. | 65 536; Limited only by RAM set for code |
| • Size, max. | 64 Kibyte |
| OB | |
| • Size, max. | 64 Kibyte |
| Nesting depth | |
| • per priority class | 24 |
| • additional within an error OB | 24 |
| CPU processing times | |
| for bit operations, min. | 0.004 µs; typ. |
| for fixed point arithmetic, min. | 0.003 µs; typ. |
| for floating point arithmetic, min. | 0.004 µs; typ. |
| Reference platform | Pentium IV, 2.4 GHz |
| Counters, timers and their retentivity | |
| S7 counter | |
| • Number | 2 048 |
| • Retentivity | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 2 047 |
| - preset | 8 |
| • Counting range | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 999 |
| IEC counter | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |

| 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 | |
|--|---|
| Product type designation | |
| S7 times | |
| • Number | 2 048 |
| • Retentivity | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 2 047 |
| - preset | 0 |
| • Time range | |
| - lower limit | 10 ms |
| - upper limit | 9 990 s |
| IEC timer | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity | |
| Retentivity without UPS and PS Extension Board | 128 KB with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request |
| Retentivity with UPS | all data |
| Flag | |
| • Number, max. | 16 Kibyte |
| • Retentivity preset | MB 0 to MB 15 |
| • Number of clock memories | 8 |
| Data blocks | |
| • Retentivity adjustable | Yes; via non-retain property on DB |
| • Retentivity preset | Yes |
| Local data | |
| • adjustable, max. | 64 Kibyte |
| • preset | 32 Kibyte |
| • per priority class, max. | 61 440 byte |
| Address area | |
| I/O address area | |
| • Inputs | 16 Kibyte |
| • Outputs | 16 Kibyte |
| • of which, distributed | |
| - DP interface, inputs | 16 Kibyte |
| - DP interface, outputs | 16 Kibyte |
| - PN interface, inputs | 16 Kibyte |
| - PN interface, outputs | 16 Kibyte |
| Process image | |
| • Inputs, adjustable | 8 Kibyte |
| • Outputs, adjustable | 8 Kibyte |
| • Inputs, default | 512 byte |
| • Outputs, default | 512 byte |
| Subprocess images | |
| • Number of subprocess images, max. | 15 |
| Digital channels | |
| • Inputs | 128 000 |
| • Outputs | 128 000 |
| Analog channels | |
| • Inputs | 8 000 |
| • Outputs | 8 000 |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

Technical specifications (continued)

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|--|
| Hardware configuration | |
| Submodules | |
| • Number of submodules, max. | 4 |
| • of which PROFIBUS, max. | 4; Supported interfaces: see 1st and 2nd interface |
| • of which Industrial Ethernet, max. | 1; Supported interfaces: see 3rd and 4th interface |
| Number of operable FMs and CPs (recommended) | |
| • FM | FM distributed: FM 350-1 / 350-2, FM 351, FM 352, FM 353, FM 355 / 355-2 |
| • CP, point-to-point | 2; CP 340, CP 341 distributed |
| • CP, LAN | Over PC CP |
| Time of day | |
| Clock | |
| • Hardware clock (real-time clock) | Yes |
| • battery-backed and synchronizable | Yes |
| Runtime meter | |
| • Number | 8 |
| Clock synchronization | |
| • supported | Yes |
| • to PC-CP, slave | Yes |
| • on Ethernet via NTP | Yes |
| 1st interface | |
| Type of interface | CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC |
| Max. no. of simultaneously operable CPs | 1 |
| Physics | RS 485 / PROFIBUS |
| Isolated | Yes |
| Number of connection resources | 8 |
| Functionality | |
| • MPI | No |
| • DP master | Yes |
| • DP slave | No |
| DP master | |
| • Number of connections, max. | 8 |
| • Services | |
| - PG/OP communication | Yes |
| - Global data communication | No |
| - S7 basic communication | No |
| - S7 communication | Yes |
| - S7 communication, as client | Yes |
| - S7 communication, as server | Yes |
| - Equidistance mode support | Yes; Only in conjunction with isochronous mode |
| - Isochronous mode | Yes |
| - SYNC/FREEZE | Yes |
| - Activation/deactivation of DP slaves | Yes |
| - Direct data exchange (slave-to-slave communication) | Yes |
| - DPV1 | Yes |

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|--|
| DP master | |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 64 |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per DP slave | |
| - Inputs, max. | 244 byte |
| - Outputs, max. | 244 byte |
| 2nd interface | |
| Type of interface | CP 5613, CP 5613-A2, CP 5603 |
| Max. no. of simultaneously operable CPs | 4 |
| Physics | RS 485 / PROFIBUS |
| Isolated | Yes |
| Functionality | |
| • MPI | No |
| • DP master | Yes |
| • DP slave | No |
| DP master | |
| • Number of connections, max. | 50 |
| • Services | |
| - PG/OP communication | Yes |
| - Global data communication | No |
| - S7 basic communication | No |
| - S7 communication | Yes |
| - S7 communication, as client | Yes |
| - S7 communication, as server | Yes |
| - Equidistance mode support | Yes; Only in conjunction with isochronous mode |
| - Isochronous mode | Yes |
| - SYNC/FREEZE | Yes |
| - Activation/deactivation of DP slaves | Yes |
| - Direct data exchange (slave-to-slave communication) | Yes |
| - DPV1 | Yes |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 125 |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per DP slave | |
| - Inputs, max. | 244 byte |
| - Outputs, max. | 244 byte |

Technical specifications (continued)

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|---|
| 3rd interface | |
| Type of interface | PROFINET |
| Max. no. of simultaneously operable CPs | 1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non-shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B, IPC4x7C, IPC6x7C, IPC8x7C |
| Physics | Ethernet |
| Isolated | Yes |
| Integrated switch | No |
| Number of ports | 1 |
| automatic detection of transmission speed | Yes; 10/100 Mbit/s |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Media redundancy | |
| • supported | No |
| Functionality | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | No |
| • PROFINET CBA | Yes |
| PROFINET IO Controller | |
| • Services | |
| - PG/OP communication | Yes |
| - S7 communication | Yes |
| - Isochronous mode | No |
| - Open IE communication | Yes |
| • Transmission rate, min. | 100 Mbit/s |
| • Transmission rate, max. | 100 Mbit/s |
| • Max. number of connectable IO devices for RT | 128 |
| - of which in line, max. | 128 |
| • IRT, supported | No |
| • Prioritized startup supported | Yes |
| - Number of IO Devices, max. | 32 |
| • Activation/deactivation of IO Devices | Yes |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 |
| • IO Devices changing during operation (partner ports), supported | Yes |
| • Device replacement without swap medium | Yes |
| • Send clock times | 1 ms |
| • Updating time | 1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data) |

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|--|
| PROFINET IO Controller | |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per address area, max. | 2 kbyte |
| - User data consistency, max. | 256 byte |
| Open IE communication | |
| • Open IE communication, supported | Yes |
| • Number of connections, max. | 32 |
| • Local port numbers used at the system end | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |
| • Keep-alive function, supported | Yes |
| 4th interface | |
| Type of interface | PROFINET |
| Max. no. of simultaneously operable CPs | 1; CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC |
| Physics | Ethernet |
| Isolated | Yes |
| Integrated switch | Yes |
| Number of ports | 3 |
| automatic detection of transmission speed | Yes; 10/100 Mbit/s |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Media redundancy | |
| • supported | Yes |
| • Switchover time on line break, typically | 200 ms |
| • Number of stations in the ring, max. | 50 |
| Change of IP address at runtime, supported | Yes |
| Number of connection resources | 32 |
| Functionality | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO device | No |
| • PROFINET CBA | Yes |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

Technical specifications (continued)

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|---|
| PROFINET IO Controller | |
| • Services | |
| - PG/OP communication | Yes |
| - S7 communication | Yes |
| - Isochronous mode | Yes |
| - Open IE communication | Yes |
| • Transmission rate, max. | 100 Mbit/s |
| • Max. number of connectable IO Devices for RT | 256 |
| - of which in line, max. | 256 |
| • Number of IO Devices with IRT and the option "high flexibility" | 64 |
| - of which in line, max. | 32 |
| • Number of IO Devices with IRT and the option "high performance", max. | 64 |
| - of which in line, max. | 32 |
| • IRT, supported | Yes |
| • Prioritized startup supported | Yes |
| - Number of IO Devices, max. | 32 |
| • Activation/deactivation of IO Devices | Yes |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 |
| • IO Devices changing during operation (partner ports), supported | Yes |
| • Device replacement without swap medium | Yes |
| • Send clock times | 250 µs, 500 µs, 1 ms |
| • Updating time | 0.25...512 depending on the send cycle |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per address area, max. | 2 kbyte |
| - User data consistency, max. | 256 byte |

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|---|---|
| Open IE communication | |
| • Open IE communication, supported | Yes |
| • Number of connections, max. | 32 |
| • Local port numbers used at the system end | 0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |
| Communication functions | |
| PG/OP communication | Yes |
| Data record routing | Yes; Only with CP 5611 or integrated PROFIBUS interface of the SIMATIC PC |
| Global data communication | |
| • supported | No |
| S7 basic communication | |
| • supported | No |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| • User data per job, max. | 64 Kibyte; When using BSEND/USEND |
| Open IE communication | |
| • TCP/IP | Yes |
| - Number of connections, max. | 32 |
| - Data length for connection type 11H, max. | 65 534 byte |
| - Data length, max. | 65 534 byte |
| • ISO-on-TCP (RFC1006) | Yes |
| - Number of connections, max. | 32 |
| - Data length, max. | 65 534 byte |
| • UDP | Yes |
| - Number of connections, max. | 32 |
| - Data length, max. | 1 472 byte |
| Web server | |
| • supported | Yes |
| • Number of HTTP clients | 2 |
| • User-defined websites | No |

Technical specifications (continued)

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|--|---|
| PROFINET CBA (at set setpoint communication load) | |
| • Setpoint for the CPU communication load | 20% |
| • Number of remote interconnection partners | 64 |
| • Number of functions, master/slave | 30 |
| • Total of all Master/Slave connections | 1 000 |
| • Data length of all incoming connections master/slave, max. | 6 800 byte |
| • Data length of all outgoing connections master/slave, max. | 6 800 byte |
| • Number of device-internal and PROFIBUS interconnections | 500 |
| • Data length of device-internal und PROFIBUS interconnections, max. | 4 000 byte |
| • Data length per connection, max. | 1 400 byte |
| • Remote interconnections with acyclic transmission | |
| - Sampling frequency: Sampling time, min. | 500 ms |
| - Number of incoming interconnections | 100 |
| - Number of outgoing interconnections | 100 |
| - Data length of all incoming interconnections, max. | 2 000 byte |
| - Data length of all outgoing interconnections, max. | 2 000 byte |
| - Data length per connection, max. | 1 400 byte |
| • Remote interconnections with cyclic transmission | |
| - Transmission frequency: Transmission interval, min. | 10 ms |
| - Number of incoming interconnections | 200 |
| - Number of outgoing interconnections | 200 |
| - Data length of all incoming interconnections, max. | 4 800 byte |
| - Data length of all outgoing interconnections, max. | 4 800 byte |
| - Data length per connection, max. | 250 byte |

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|--|---|
| PROFINET CBA (at set setpoint communication load) | |
| • HMI variables via PROFINET (acyclic) | |
| - Number of stations that can log on for HMI variables (PN OPC/iMap) | 3 |
| - HMI variable updating | 500 ms |
| - Number of HMI variables | 200 |
| - Data length of all HMI variables, max. | 2 000 byte |
| • PROFIBUS proxy functionality | |
| - supported | Yes |
| - Number of linked PROFIBUS devices | 16 |
| - Data length per connection, max. | 240 byte; Slave-dependent |
| Number of connections | |
| • overall | 96 |
| S7 message functions | |
| Number of login stations for message functions, max. | 62 |
| SCAN procedure | No |
| Process diagnostic messages | Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ |
| simultaneously active Alarm-S blocks, max. | 20; of a total of 20 for all SFCs |
| Alarm 8-blocks | Yes |
| • Number of instances for alarm 8 and S7 communication blocks, max. | 4 000 |
| Process control messages | No |
| Test commissioning functions | |
| Status/control | |
| • Status/control variable | Yes |
| Forcing | |
| • Forcing | No |
| Status block | Yes |
| Single step | Yes |
| Number of breakpoints | 20 |
| Diagnostic buffer | |
| • present | Yes |
| • Number of entries, max. | 3 200 |
| - can be set | Yes |
| - preset | 120 |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

Technical specifications (continued)

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|--|---|
| Isochronous mode | |
| Isochronous mode | Yes |
| Number of DP masters with isochronous mode | 2 |
| User data per isochronous slave, max. | 128 byte |
| equidistance | Yes |
| shortest clock pulse | 2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image |
| Hardware requirements | |
| Hardware required | PC with color monitor, keyboard, mouse or pointing device for Windows |
| Required memory on hard disk, min. | 100 Mbyte |
| Main memory, min. | 1 Gbyte |
| Processor | Intel Celeron M, 900 MHz or compatible |
| • Multi-processor system | Yes; Dual Pentium, CoreDuo, Core2Duo or compatible |
| • Hyper-threading | Yes |
| Operating systems | |
| Windows NT 4.0 | No |
| Windows 2000 | No |
| Windows XP | Yes; Professional, SP2 and SP3 |
| Windows XP embedded | Yes; With the delivery image of the SIMATIC PC |
| • Supported HAL types under Windows XP | ACPI uniprocessor PC, ACPI multi-processor PC, MPS multiprocessor PC |
| Windows Vista | No |
| Windows embedded Standard 7 | No |
| Windows 7 | Yes; Professional, Enterprise, Ultimate (only 32 bits) |

| Product type designation | 6ES7 671-0RC08-0YA0 SIMATIC WinAC RTX 2010 |
|--|---|
| Configuration | |
| programming | |
| • Programming language | |
| - LAD | Yes |
| - FBD | Yes |
| - STL | Yes |
| - SCL | Yes |
| - CFC | Yes |
| - GRAPH | Yes |
| - HiGraph® | Yes |
| • Nesting levels | 8 |
| • Software libraries | |
| - Easy Motion Control | Yes |
| Know-how protection | |
| • User program protection/ password protection | Yes |
| Open Development interfaces | |
| • CCX (Custom Code Extension) | Yes; WinAC ODK V4.2 or higher |
| • CMI (Controller Management Interface) | Yes; WinAC ODK V4.2 or higher |
| • SMX (Shared Memory Extension) | Yes; WinAC ODK V4.2 or higher |
| - Inputs | 4 Kibyte |
| - Outputs | 4 Kibyte |
| Dimensions and weight | |
| Weight | |
| • Weight, approx. | 100 g; with packaging |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

| Ordering data | | Order No. | | Order No. |
|--|---|----------------------------|---|------------------------|
| SIMATIC WinAC RTX 2010 Software PLC for PC-based automation tasks with stringent deterministic requirements; PROFIBUS and PROFINET; CD-ROM with electronic documentation ge, e, f; single license, executable under Windows XP SP2 and SP3 as well as Windows 7 (32 bit) | B | 6ES7 671-0RC08-0YA0 | CP 5623 communication processor PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English | E 6GK1562-3AA00 |
| SIMATIC WinAC RTX 2010 Upgrade For upgrading from basic/RTX V3.x, V4.0, V4.1 2005, 2008 and 2009; single license, executable under Windows XP SP2 and SP3 and Windows 7 (32 bits) | B | 6ES7 671-0RC08-0YE0 | CP 1616 communication processor PCI Card (32 bit; 3.3/5 V universal key) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO controller (RT operation) and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; German/English | 6GK1 161-6AA01 |
| CP 5611 A2 communication processor PCI card (32 bit) for connection of a PG or PC to PROFIBUS | | 6GK1 561-1AA01 | | |
| CP 5621 communication processor <ul style="list-style-type: none">• PCI Express x1 card (32 bit) for connection of a PG or PC to PROFIBUS• PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m | E | 6GK1 562-1AA00 | | |
| | E | 6GK1 562-1AM00 | | |
| CP 5603 Microbox Package Comprising CP 5603 module and Microbox expansion rack | A | 6GK1 560-3AU00 | CP 1604 Microbox Package Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC | 6GK1 160-4AU00 |
| CP 5613 A2 communication processor PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/Server, Windows XP Professional, German/English | | 6GK1 561-3AA01 | | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX

More information

Add-ons for SIMATIC WinAC

PC-based Competence Center Cologne

Our add-ons supplement the WinAC RTX soft PLC by useful functions which have arisen in the context of projects. You can thus fully utilize the advantages of PC-based automation.

The applications are available in the form of function blocks and are easy to use without special programming knowledge.

Detailed information and prices can be obtained from your Siemens contact or from:

Contact:

Siemens AG
Competence Center Cologne
E-mail: CCCologne@siemens.com

| Application | Function |
|---------------------|--|
| WinAC serial driver | Communication over serial interfaces |
| WinAC PC IO driver | Access to central I/O expansion PC IO including interrupt handling |
| WinAC SQL | Access to SQL databases |
| WinAC TCP/IP driver | Data exchange between WinAC and other communication partners over Windows interface using TCP/IP, UDP, or ISO-on-TCP |
| WinAC OPC Client | Access to various OPC servers |
| WinAC Shutdown | Controlled shutdown of WinAC and PC system |
| WinAC File-I/O | Reading and writing of DBs as file on the PC system |
| WinAC Command | Calling of batch commands from WinAC |
| WinAC Access-DB | High-performance access to DBs, bit memories or I/O image |
| WinAC SMX Cover | Provision of SMX functions, e. g. for Delphi or VB |
| WinAC CMI Wrapper | Simple program-based operation of WinAC |

Brochures

Information material for downloading can be found on the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

Overview



- SIMATIC WinAC RTX F:
Optimized for applications that demand a high degree of flexibility and integration capability and that must also satisfy safety requirements up to SIL 3 (IEC 61508).
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.
- Distributed I/O can be connected over PROFIBUS and/or PROFINET, also safety-related over PROFIsafe.

Benefits

- Hard real-time and maximum performance up to SIL 3 according to IEC 61508/62061 or according to EN ISO 13849-1 up to PL e
- Implementation of fast, S7-compatible control solutions with low processor loading.
Alongside the control task, sufficient processor capability is available for processing complex, demanding PC applications in parallel.

Application

WinAC RTX F is a fail-safe software controller approved by the German Technical Inspectorate for standard and safety-related applications. The STEP 7 option package "S7 Distributed Safety" is used for programming the safety-related (F) program part. SIMATIC WinAC RTX F is particularly suited for tasks requiring a high level of flexibility and effective integration in the overall solution. This also includes close interlinking with data processing systems or logistics systems and integration in the safety control.

WinAC RTX F is equally suited to implementation on cost-effective PC platforms with single-core processors and on high-end PCs, e. g. with QuadCore processors. WinAC RTX F is optimized for operation on embedded PC platforms such as the S7-modular Embedded Controller, the SIMATIC IPC427C, or the SIMATIC HMI IPC477C, IPC227D and HMI IPC277D. These platforms offer, with their diskless and fanless design, significantly enhanced ruggedness for an automation task. Non-volatile memory is also available which permits storage of up to 512 KB retentive data (S7-mEX, EC31) on a voltage dip, independently of the file system. The I/O is connected via the leading fieldbus standards of PROFINET or PROFIBUS. With the S7-mEC, EC31, operation is also possible with the central signal modules (SM) of S7-300.

The support of the integrated PROFINET or PROFIBUS interfaces of the SIMATIC IPCs, as well as the excellent performance result in an excellent price/performance ratio for the PC-based automation.

The WinAC ODK is used for expansion of the PLC functionality with application specific C/C++ applications. In the standard program part, it supports:

- integration of complex high-level language algorithms in the control program
- access to the Windows API or Windows system resources
- access to external hardware and software components

Read-only access is permitted in the safety program part.

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

Design

SIMATIC WinAC RTX F comprises the following components:

- Windows Failsafe Logic Controller (WinLC RTX F V4.6)
- WinAC TimeSynchronization
- SIMATIC NET SOFTNET-S7 Lean
- Real-time driver for PROFINET and PROFIBUS interfaces
- IntervalZero RTX real-time core for ensuring real-time and a deterministic response

Optional:

- Interfaces for connection to PROFIBUS DP:
 - CP 5611 A2 or the integrated PROFIBUS interface of the SIMATIC IPC
 - CP 5621
 - CP 5613 A2
 - CP 5603
 - CP 5623
- Interfaces for connection to PROFINET:
 - CP 1616 (HW version 8 and above) or integrated CP 161 onboard interface of the SIMATIC IPC
 - CP 1604 (HW version 7 and above)
 - Integrated CP 1616 onboard interfaces of the SIMATIC IPC
 - Integrated standard Ethernet interfaces of selected SIMATIC IPCs (e. g. SIMATIC IPC427C and HMI IPC477C)
- WinAC Open Development Kit (ODK):
 - For integrating C/C++ code in WinAC RTX
 - Integration of external software (technology programs) or PC components (e. g. barcode scanner, PC cards for measured value acquisition)

Function

Windows Failsafe Logic Controller (WinLC RTX F)

The Windows Failsafe Logic Controller is responsible for the actual control job and execution of the control program. It coordinates the associated input and output of process values via the lower-level PROFINET or PROFIBUS fieldbus system and makes process values available for visualization and data processing tasks.

Fail-safe programs are created with the STEP 7 option package S7 Distributed Safety.

A safety control can be built up using fail-safe signal modules. This opens up

- classical safety applications in the field of machine safety and press automation as well as
- applications in process engineering and chemicals.

The I/O can be connected over PROFINET IO or PROFIBUS DP. The PROFIsafe profile supports fail-safe communication over the fieldbuses for this purpose.

The functional safety is implemented by means of targeted safety functions in the software. Safety functions are implemented with S7 Distributed Safety, to place the plant in a safe state or to hold it in a safe state. The safety functions are mainly contained within the following components:

- in the safety-related user program (safety program) in WinLC RTX F
- in the fail-safe inputs and outputs (F I/O).

The F I/O ensures safety-related processing of the field information (emergency stop pushbutton, light barriers, motor pre-control). It features all the hardware and software components required for reliable processing, according to the required safety class.

The user only programs the user safety functions. The safety functions for the process can be implemented with a user safety function or a system-internal fault reaction function. If the F system is unable to execute the actual user safety function, it will execute the fault response function: e. g. deactivation of the associated outputs and, if appropriate, F-CPU in STOP.

Interface to visualization

SIMATIC WinAC RTX F is easy to use with the SIMATIC HMI systems SIMATIC WinCC flexible or SIMATIC WinCC.

Visualization systems from third-party suppliers can be connected via the included SIMATIC NET OPC server.

Communication

The programming of the Windows Logic Controller with STEP 7 as well as the visualization with SIMATIC HMI can be implemented both locally in the same PC and remotely using the standard SIMATIC networks Ethernet or PROFIBUS.

WinAC RTX F can exchange data via these networks:

- with additional WinAC stations
- with S7 controllers as well as
- with safety-oriented S7 controllers (safe PLC-to-PLC communication)

A SOFTNET S7 Lean license is included for Industrial Ethernet communication over the integrated Ethernet interfaces of the SIMATIC PC.

Technical specifications

| 6ES7 671-1RC08-0YA0 | |
|---|---|
| Product type designation | SIMATIC WinAC RTX F 2010 |
| Product version | |
| Hardware product version | - |
| Firmware version | V4.6 |
| Associated programming package | STEP7 as of V5.5 + HW update / iMap V3.0 SP1 / option package S7 Distributed Safety V5.4 + SP5 / S7 F Configuration Pack V5.5 + SP6 + HF1 |
| Memory | |
| Work memory | |
| • integrated (for program) | 4 Mbyte; Adjustable; depends on Non Paged Memory Pool |
| • integrated (for data) | 4 Mbyte; Adjustable; depends on Non Paged Memory Pool |
| Load memory | |
| • integrated RAM, max. | Adjustable; depends on No Paged Memory Pool |
| CPU-blocks | |
| DB | |
| • Number, max. | 65 535; Limited only by RAM set for data |
| • Size, max. | 64 Kibyte |
| FB | |
| • Number, max. | 65 536; Limited only by RAM set for code |
| • Size, max. | 64 Kibyte |
| FC | |
| • Number, max. | 65 536; Limited only by RAM set for code |
| • Size, max. | 64 Kibyte |
| OB | |
| • Size, max. | 64 Kibyte |
| Nesting depth | |
| • per priority class | 24 |
| • additional within an error OB | 24 |
| CPU processing times | |
| for bit operations, min. | 0.004 µs; typ. |
| for fixed point arithmetic, min. | 0.003 µs; typ. |
| for floating point arithmetic, min. | 0.004 µs; typ. |
| Reference platform | Pentium IV, 2.4 GHz |
| Counters, timers and their retentivity | |
| S7 counter | |
| • Number | 2 048 |
| • Retentivity | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 2 047 |
| - preset | 8 |
| • Counting range | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 999 |
| IEC counter | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |

| 6ES7 671-1RC08-0YA0 | |
|--|---|
| Product type designation | SIMATIC WinAC RTX F 2010 |
| S7 times | |
| • Number | 2 048 |
| • Retentivity | |
| - can be set | Yes |
| - lower limit | 0 |
| - upper limit | 2 047 |
| - preset | 0 |
| • Time range | |
| - lower limit | 10 ms |
| - upper limit | 9 990 s |
| IEC timer | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity | |
| Retentivity without UPS and PS Extension Board | 128 KB with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request |
| Retentivity with UPS | all data |
| Flag | |
| • Number, max. | 16 Kibyte |
| • Retentivity preset | MB 0 to MB 15 |
| • Number of clock memories | 8 |
| Data blocks | |
| • Retentivity adjustable | Yes; via non-retain property on DB |
| • Retentivity preset | Yes |
| Local data | |
| • adjustable, max. | 64 Kibyte |
| • preset | 32 Kibyte |
| • per priority class, max. | 61 440 byte |
| Address area | |
| I/O address area | |
| • Inputs | 16 Kibyte |
| • Outputs | 16 Kibyte |
| • of which, distributed | |
| - DP interface, inputs | 16 Kibyte |
| - DP interface, outputs | 16 Kibyte |
| - PN interface, inputs | 16 Kibyte |
| - PN interface, outputs | 16 Kibyte |
| Process image | |
| • Inputs, adjustable | 8 Kibyte |
| • Outputs, adjustable | 8 Kibyte |
| • Inputs, default | 512 byte |
| • Outputs, default | 512 byte |
| Subprocess images | |
| • Number of subprocess images, max. | 15 |
| Digital channels | |
| • Inputs | 128 000 |
| • Outputs | 128 000 |
| Analog channels | |
| • Inputs | 8 000 |
| • Outputs | 8 000 |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

Technical specifications (continued)

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|--|
| Hardware configuration | |
| Submodules | |
| • Number of submodules, max. | 4 |
| • of which PROFIBUS, max. | 4; Supported interfaces: see 1st and 2nd interface |
| • of which Industrial Ethernet, max. | 1; Supported interfaces: see 3rd and 4th interface |
| Number of operable FMs and CPs (recommended) | |
| • FM | 4; FM distributed: FM 350-1, FM 350-2, FM 351, FM 352 / FM 352-5, FM 353, FM 354, FM 355, FM 355-2 |
| • CP, point-to-point | 2; CP 340, CP 341 distributed |
| • CP, LAN | Over PC CP |
| Time of day | |
| Clock | |
| • Hardware clock (real-time clock) | Yes |
| • battery-backed and synchronizable | Yes |
| Runtime meter | |
| • Number | 8 |
| Clock synchronization | |
| • supported | Yes |
| • to PC-CP, slave | Yes |
| • on Ethernet via NTP | Yes |
| 1st interface | |
| Type of interface | CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC |
| Max. no. of simultaneously operable CPs | 1 |
| Physics | RS 485 / PROFIBUS |
| Isolated | Yes |
| Number of connection resources | 8 |
| Functionality | |
| • MPI | No |
| • DP master | Yes |
| • DP slave | No |
| DP master | |
| • Number of connections, max. | 8 |
| • Services | |
| - PG/OP communication | Yes |
| - Global data communication | No |
| - S7 basic communication | No |
| - S7 communication | Yes |
| - S7 communication, as client | Yes |
| - S7 communication, as server | Yes |
| - Equidistance mode support | Yes; Only in conjunction with isochronous mode |
| - Isochronous mode | Yes |
| - SYNC/FREEZE | Yes |
| - Activation/deactivation of DP slaves | Yes |
| - Direct data exchange (slave-to-slave communication) | Yes |
| - DPV1 | Yes |

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|---|
| DP master | |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 64 |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per DP slave | |
| - Inputs, max. | 244 byte |
| - Outputs, max. | 244 byte |
| 2nd interface | |
| Type of interface | CP 5613, CP 5613-A2, CP 5603, CP 5623 |
| Max. no. of simultaneously operable CPs | 4 |
| Physics | RS 485 / PROFIBUS |
| Isolated | Yes |
| Functionality | |
| • MPI | No |
| • DP master | Yes |
| • DP slave | No |
| DP master | |
| • Number of connections, max. | 50 |
| • Services | |
| - PG/OP communication | Yes |
| - Global data communication | No |
| - S7 basic communication | No |
| - S7 communication | Yes |
| - S7 communication, as client | Yes |
| - S7 communication, as server | Yes |
| - Equidistance mode support | Yes; Only in conjunction with isochronous mode |
| - Isochronous mode | Yes |
| - SYNC/FREEZE | Yes |
| - Activation/deactivation of DP slaves | Yes |
| - Direct data exchange (slave-to-slave communication) | Yes |
| - DPV1 | Yes |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 125 |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per DP slave | |
| - Inputs, max. | 244 byte |
| - Outputs, max. | 244 byte |

Technical specifications (continued)

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|---|
| 3rd interface | |
| Type of interface | PROFINET |
| Max. no. of simultaneously operable CPs | 1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non-shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B, IPC4x7C, IPC6x7C, IPC8x7C |
| Physics | Ethernet |
| Isolated | Yes |
| Integrated switch | No |
| Number of ports | 1 |
| automatic detection of transmission speed | Yes; 10/100 Mbit/s |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Media redundancy | |
| • supported | No |
| Functionality | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | No |
| • PROFINET CBA | Yes |
| PROFINET IO Controller | |
| • Services | |
| - PG/OP communication | Yes |
| - S7 communication | Yes |
| - Isochronous mode | No |
| - Open IE communication | Yes |
| • Transmission rate, min. | 100 Mbit/s |
| • Transmission rate, max. | 100 Mbit/s |
| • Number of connectable IO Devices, max. | 128 |
| • Max. number of connectable IO devices for RT | 128 |
| - of which in line, max. | 128 |
| • IRT, supported | No |
| • Prioritized startup supported | Yes |
| - Number of IO Devices, max. | 32 |
| • Activation/deactivation of IO Devices | Yes |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 |
| • IO Devices changing during operation (partner ports), supported | Yes |
| • Device replacement without swap medium | Yes |
| • Send clock times | 1 ms |
| • Updating time | 1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data) |

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|--|
| PROFINET IO Controller | |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per address area, max. | 2 Kibyte |
| - User data consistency, max. | 256 byte |
| Open IE communication | |
| • Open IE communication, supported | Yes |
| • Number of connections, max. | 32 |
| • Local port numbers used at the system end | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |
| • Keep-alive function, supported | Yes |
| 4th interface | |
| Type of interface | PROFINET |
| Max. no. of simultaneously operable CPs | 1; CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC |
| Physics | Ethernet |
| Isolated | Yes |
| Integrated switch | Yes |
| Number of ports | 3 |
| automatic detection of transmission speed | Yes; 10/100 Mbit/s |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Media redundancy | |
| • supported | Yes |
| • Switchover time on line break, typically | 200 ms |
| • Number of stations in the ring, max. | 50 |
| Change of IP address at runtime, supported | Yes |
| Number of connection resources | 32 |
| Functionality | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO device | No |
| • PROFINET CBA | Yes |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

Technical specifications (continued)

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|---|
| PROFINET IO Controller | |
| • Services | Yes |
| - PG/OP communication | Yes |
| - S7 communication | Yes |
| - Isochronous mode | Yes |
| - Open IE communication | Yes |
| • Transmission rate, max. | 100 Mbit/s |
| • Number of connectable IO devices, max. | 256 |
| • Max. number of connectable IO Devices for RT | 256 |
| - of which in line, max. | 256 |
| • Number of IO Devices with IRT and the option "high flexibility" | 64 |
| - of which in line, max. | 32 |
| • Number of IO Devices with IRT and the option "high performance", max. | 64 |
| - of which in line, max. | 64 |
| • IRT, supported | Yes |
| • Shared device, supported | Yes |
| • Prioritized startup supported | Yes |
| - Number of IO Devices, max. | 32 |
| • Activation/deactivation of IO Devices | Yes |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 |
| • IO Devices changing during operation (partner ports), supported | Yes |
| • Device replacement without swap medium | Yes |
| • Send clock times | 250 µs, 500 µs, 1 ms |
| • Updating time | 0.25...512 depending on the send cycle |
| • Address area | |
| - Inputs, max. | 16 Kibyte |
| - Outputs, max. | 16 Kibyte |
| • User data per address area, max. | 2 Kibyte |
| - User data consistency, max. | 256 byte |

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|---|---|
| Open IE communication | |
| • Open IE communication, supported | Yes |
| • Number of connections, max. | 32 |
| • Local port numbers used at the system end | 0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |
| Communication functions | |
| PG/OP communication | Yes |
| Data record routing | Yes; Only with CP 5611 or integrated PROFIBUS interface of the SIMATIC PC |
| Global data communication | |
| • supported | No |
| S7 basic communication | |
| • supported | No |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| • User data per job, max. | 64 Kibyte; Depends on which block is used: BSEND/USEND or PUT/GET |
| Open IE communication | |
| • TCP/IP | Yes |
| - Number of connections, max. | 32 |
| - Data length, max. | 65 534 byte |
| • ISO-on-TCP (RFC1006) | Yes |
| - Number of connections, max. | 32 |
| - Data length, max. | 65 534 byte |
| • UDP | Yes |
| - Number of connections, max. | 32 |
| - Data length, max. | 1 472 byte |
| Web server | |
| • supported | Yes |
| • Number of HTTP clients | 2 |
| • User-defined websites | No |

Technical specifications (continued)

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|--|---|
| PROFINET CBA (at set setpoint communication load) | |
| • Setpoint for the CPU communication load | 20% |
| • Number of remote interconnection partners | 64 |
| • Number of functions, master/slave | 30 |
| • Total of all Master/Slave connections | 1 000 |
| • Data length of all incoming connections master/slave, max. | 6 800 byte |
| • Data length of all outgoing connections master/slave, max. | 6 800 byte |
| • Number of device-internal and PROFIBUS interconnections | 500 |
| • Data length of device-internal und PROFIBUS interconnections, max. | 4 000 byte |
| • Data length per connection, max. | 1 400 byte |
| • Remote interconnections with acyclic transmission | |
| - Sampling frequency: Sampling time, min. | 500 ms |
| - Number of incoming interconnections | 100 |
| - Number of outgoing interconnections | 100 |
| - Data length of all incoming interconnections, max. | 2 000 byte |
| - Data length of all outgoing interconnections, max. | 2 000 byte |
| - Data length per connection, max. | 1 400 byte |
| • Remote interconnections with cyclic transmission | |
| - Transmission frequency: Transmission interval, min. | 10 ms |
| - Number of incoming interconnections | 200 |
| - Number of outgoing interconnections | 200 |
| - Data length of all incoming interconnections, max. | 4 800 byte |
| - Data length of all outgoing interconnections, max. | 4 800 byte |
| - Data length per connection, max. | 250 byte |

| Product type designation | 6ES7 671-1RC08-0YA0 SIMATIC WinAC RTX F 2010 |
|--|---|
| PROFINET CBA (at set setpoint communication load) | |
| • HMI variables via PROFINET (acyclic) | |
| - Number of stations that can log on for HMI variables (PN OPC/iMap) | 3 |
| - HMI variable updating | 500 ms |
| - Number of HMI variables | 200 |
| - Data length of all HMI variables, max. | 2 000 byte |
| • PROFIBUS proxy functionality | |
| - supported | Yes |
| - Number of linked PROFIBUS devices | 16 |
| - Data length per connection, max. | 240 byte; Slave-dependent |
| Number of connections | |
| • overall | 96 |
| S7 message functions | |
| Number of login stations for message functions, max. | 62 |
| SCAN procedure | No |
| Process diagnostic messages | Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ |
| simultaneously active Alarm-S blocks, max. | 20; of a total of 20 for all SFCs |
| Alarm 8-blocks | Yes |
| • Number of instances for alarm 8 and S7 communication blocks, max. | 4 000 |
| Process control messages | No |
| Test commissioning functions | |
| Status/control | |
| • Status/control variable | Yes |
| Forcing | |
| • Forcing | No |
| Status block | Yes |
| Single step | Yes |
| Number of breakpoints | 20 |
| Diagnostic buffer | |
| • present | Yes |
| • Number of entries, max. | 3 200 |
| - can be set | Yes |
| - preset | 120 |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

Technical specifications (continued)

| 6ES7 671-1RC08-0YA0 | |
|--|---|
| Product type designation | SIMATIC WinAC RTX F 2010 |
| Isochronous mode | |
| Isochronous mode | Yes |
| Number of DP masters with isochronous mode | 2 |
| User data per isochronous slave, max. | 128 byte |
| Equidistance | Yes |
| Shortest clock pulse | 2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image |
| Hardware requirements | |
| Hardware required | PC with color monitor, keyboard, mouse or pointing device for Windows |
| Required memory on hard disk, min. | 100 Mbyte |
| Main memory, min. | 1 Gbyte |
| Processor | Intel Celeron M 900 MHz or compatible (older PC systems with Programmable Interrupt Controllers (PIC) are not suitable for WinAC RTX F 2010.) |
| • Multi-processor system | No |
| • Hyper-threading | Yes |
| Operating systems | |
| Windows NT 4.0 | No |
| Windows 2000 | No |
| Windows XP | Yes; Professional, SP2 and SP3 |
| Windows XP embedded | Yes; With the delivery image of the SIMATIC PC |
| • Supported HAL types under Windows XP | ACPI uniprocessor PC, ACPI multi-processor PC, MPS multiprocessor PC |
| Windows Vista | No |
| Windows embedded Standard 7 | No |
| Windows 7 | Yes; Professional, Enterprise, Ultimate (only 32 bits) |

| 6ES7 671-1RC08-0YA0 | |
|--|---------------------------------|
| Product type designation | SIMATIC WinAC RTX F 2010 |
| Configuration | |
| programming | |
| • Programming language | |
| - LAD | Yes |
| - FBD | Yes |
| - STL | Yes |
| - SCL | Yes |
| - CFC | Yes |
| - GRAPH | Yes |
| - HiGraph® | Yes |
| • Nesting levels | 8 |
| • Software libraries | |
| - Easy Motion Control | Yes |
| Know-how protection | |
| • User program protection/ password protection | Yes |
| • Block encryption | No |
| Open Development interfaces | |
| • CCX (Custom Code Extension) | Yes; WinAC ODK V4.2 or higher |
| • CMI (Controller Management Interface) | Yes; WinAC ODK V4.2 or higher |
| • SMX (Shared Memory Extension) | Yes; WinAC ODK V4.2 or higher |
| - Inputs | 4 Kibyte |
| - Outputs | 4 Kibyte |
| Dimensions and weight | |
| Weight | |
| • Weight, approx. | 100 g; with packaging |

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

| Ordering data | | Order No. | | Order No. |
|---|---|----------------------------|--|-------------------------|
| SIMATIC WinAC RTX F 2010 | B | 6ES7 671-1RC08-0YA0 | | |
| SIMATIC WinAC RTX F 2010 upgrade | B | 6ES7 671-1RC08-0YE0 | | |
| CP 5611 A2 communication processor | | 6GK1 561-1AA01 | | |
| PCI card (32 bit) for connection of a PG or PC to PROFIBUS | | | | |
| CP 5621 communication processor | | | | |
| PCI Express x1 card (32 bit) for connection of a PG or PC to PROFIBUS | E | 6GK1 562-1AA00 | CP 5623 communication processor | E 6GK1 562-3AA00 |
| PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m | E | 6GK1 562-1AM00 | | |
| CP 5603 Microbox Package | A | 6GK1 560-3AU00 | CP 1616 communication processor | 6GK1 161-6AA01 |
| Comprising CP 5603 module and Microbox expansion rack | | | | |
| CP 5613 A2 communication processor | | 6GK1 561-3AA01 | | |
| PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/Server, Windows XP Professional, German/English | | | | |
| | | | CP 1604 Microbox Package | 6GK1 160-4AU00 |
| | | | Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

PC-based Controller

SIMATIC WinAC RTX F

More information

Add-ons for SIMATIC WinAC

PC-based Competence Center Cologne

Our add-ons supplement the WinAC RTX soft PLC by useful functions which have arisen in the context of projects. In this way, you can fully utilize the advantages of PC based automation.

The applications are available in the form of function blocks and are easy to use without special programming knowledge.

Detailed information and prices can be obtained from your Siemens contact or from:

Contact:

Siemens AG
Competence Center Cologne
E-mail: CCCologne@siemens.com

| Application | Function |
|---------------------|--|
| WinAC serial driver | Communication over serial interfaces |
| WinAC PC IO driver | Access to central I/O expansion PC IO including interrupt handling |
| WinAC SQL | Access to SQL databases |
| WinAC TCP/IP driver | Data exchange between WinAC and other communication partners over Windows interface using TCP/IP, UDP, or ISO-on-TCP |
| WinAC OPC Client | Access to various OPC servers |
| WinAC Shutdown | Controlled shutdown of WinAC and the PC system |
| WinAC File I/O | Reading and writing of DBs as a file on the PC system |
| WinAC Command | Calling batch commands from WinAC |
| WinAC Access DB | High-performance accesses to DBs, bit memories or I/O image |
| WinAC SMX Cover | Provides SMX functions, e. g. for Delphi or VB |
| WinAC CMI Wrapper | Easy program-controlled operation of WinAC |

Brochures

Information material is available for downloading on the Internet at: www.siemens.com/simatic/printmaterial

Overview



- SIMATIC WinAC software PLCs support powerful interfaces which permit close meshing of the control task with PC-based applications.
- WinAC ODK allows the user to develop applications or to integrate already existing applications into the control task.

New with WinAC ODK V4.2:

- CCX interface:
 - New SFB 65003 for asynchronous execution of ODK applications
 - Expansion of data access functions
 - Creation of Windows DLL with C# and VB
- SMX interface:
 - Access to the Shared Memory interface under IntervalZero RTX
 - Expansion of data access functions
 - Creation of Windows applications with C# and VB
- Supports MS Visual Studio 2005 and 2008 (under Windows)

Application

WinAC ODK can be used to meet the following requirements:

- Integration of specific technology into the control task, e. g. measured data acquisition or analysis, vision systems or PC-based motion solutions
- Access to typical PC resources such as file system, interfaces etc.

Typical examples of uses for WinAC ODK include:

- Connection of specific fieldbus systems to the controller
- Direct, powerful connection of the control program to a production database
- Integration of robotics systems
- Implementation of specific communication protocols

Function

SIMATIC WinAC ODK

Overview

WinAC ODK V4.2 supports the development of custom-designed applications for WinAC RTX with a high-level language development tool such as Microsoft Visual Studio. WinAC RTX provides 3 different interfaces for this:

- The **Custom Code Extension (CCX)** interface allows the direct start-up of high-level language applications or functions which are available in the form of DLLs for Windows or real-time DLLs for IntervalZero RTX, the real-time kernel used by WinAC RTX. Implementation as a DLL gives the developer complete access to the operating system APIs, software interfaces of other programs, or even resources of the PC (drivers, hardware). These DLLs are developed with the aid of the ODK.
- The **Shared Memory Extension (SMX)** interface allows the fast exchange of data between the PLC program of the WinAC RTX and a user application. The Shared Memory can be addressed from the PLC in the input/output area and can be used, for example, in the same manner as a DP-DP coupler with a 4 KB input/output area.
- The **Controller Management Interface (CMI)** provides all of the functions of the WinAC panel for the customer application. This allows the WinAC RTX to be operated completely via a customer application such as a visualization software.

Creation of WinAC ODK applications

WinAC ODK applications are created using Microsoft Visual Studio. Depending on the interface runtime environment, it is possible to use different programming languages:

- CCX and SMX applications under IntervalZero RTX: Visual C++
- CCX, SMX and CMI applications under Windows: Visual C++, C#, Visual Basic

If a CCX or SMX application is supposed to work with WinAC RTX in real-time, an IntervalZero SDK (from IntervalZero Inc.) that matches the version of the real-time kernel used by WinAC RTX is required.

For ease of understanding and a quick start in an ODK application, the creation of CCX and SMX applications is supported by a wizard. Some programming examples are also included in the delivery kit.

PC-based Automation

PC-based Controller

SIMATIC WinAC ODK

Function (continued)

Custom Code Extension Interface (CCX)

Applications that use the CCX interface can run both in Windows and in the IntervalZero RTX context, which means that, in principle, there are no restrictions with regard to the language elements used when programming this application.

CCX applications are executed as DLLs under Windows or real-time DLLs under Ardence RTX.

The application programmer is supported by a wizard when creating the following application types and functions:

- Synchronous start of the ODK application:
The code is executed as part of the PLC code.
- Asynchronous start:
The code is started in parallel to the PLC and is executed in the background.
- Continuous process:
The ODK application runs parallel to the PLC and alerts the PLC program by calling up an alarm OB.

Special system function blocks are available at the PLC end for starting the CCX application and starting its functions.

Shared Memory Extension Interface (SMX)

WinAC RTX provides a Shared Memory area which can be accessed as required by both the PLC application program and the SMX application. This type of coupling allows for very efficient exchange of data and a far-reaching uncoupling of the PLC version from the SMX application which is also accessing data.

From the viewpoint of WinAC RTX, the Shared Memory is located in the I/O address area with 4 KB each of input and output. Access is possible using load/transfer commands. Access functions are available at the SMX application end.

Just as for the CCX interface, a wizard supports the creation of SMX applications.

Some typical applications for the SMX interface are:

- data archiving
- fast data coupling to software for optimizing production
- simple, fast data interface to operating software with Visual Basic or C#

Controller Management Interface (CMI)

The CMI allows the integration of the WinAC CPU panel functionality into a PC application. The following panel functions can be carried out by the PC application (examples):

- Starting and shutting down the controller.
- Operating the (RUN/STOP) key-operated switch.
- Status LED display.
- Loading user programs.

This allows for flexible integration of WinAC into the overall application:

- Starting and stopping the controller in relation to other applications, e. g. defining the start sequence when starting up the PC.
- Automatic reload of updated PLC user programs ("machine update" by OEM).

Distribution of the WinAC ODK application

WinAC ODK is only needed for the development of applications (development license). No additional licenses are required by WinAC for applications created using ODK (runtime licenses).

At the WinAC Software PLC or Slot PLC, such an application is integrated with the usual SIMATIC PLC programming languages.

- The PLC programmer can also use these applications without having higher-level programming languages expertise. For the PLC programmer, the ODK application looks like a function of the PLC.
- To make it easier for the PLC programmer to use the application, a STEP 7 library can be created, which provides simple FC/FB calls for handling the ODK application.

PC-based Automation

PC-based Controller

SIMATIC WinAC ODK

Technical specifications

| | |
|---|--|
| | 6ES7 806-1CC03-0BA0 |
| Product type designation | SIMATIC WinAC ODK V4.2 |
| Hardware requirements | |
| Hardware required | PC with color monitor, keyboard, mouse or pointing device for Windows |
| Required memory on hard disk, min. | 30 Mbyte |
| Main memory, min. | 512 Mbyte |
| Processor | Intel Pentium 800 MHz |
| Operating systems | |
| Windows XP | Yes; Professional, SP2 and SP3 |
| Configuration | |
| Open Development interfaces | |
| • CCX (Custom Code Extension) | Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008 |
| • CMI (Controller Management Interface) | Yes; WinAC RTX 2005 SP2 (V4.3) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual C# .net 2003, 2005, 2008 |
| • SMX (Shared Memory Extension) | Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008 |
| Dimensions and weight | |
| • Weight, approx. | 200 g |

Ordering data

Order No.

SIMATIC WinAC ODK V4.2

for integration of C/C++ code in WinAC PLCs, executable under Windows XP SP2 or SP3; CD-ROM with electronic documentation

Single license

B **6ES7 806-1CC03-0BA0**

B: Subject to export regulations: AL: N and ECCN: EAR99S

More information

Brochures

Information material for downloading can be found on the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

Embedded Controller

Embedded Controller

Overview



An embedded PC or an embedded device is combined with automation software (e. g. Software PLC, HMI system) to form a turnkey system.

Windows Embedded Standard or Windows Embedded Compact is used as the operating system.

SIMATIC Embedded Automation comprises:

- Control
- Technology
- Visualization
- Data processing
- Communication
- Fail-safe

on a common embedded PC platform.

S7-mEC

SIMATIC S7-mEC is a modular controller in S7-300 design with powerful embedded PC technology. The embedded controller combines the advantages of the tried and tested modular S7 controller with PC technology in one new device.

SIMATIC S7-mEC RTX is characterized by:

- maximum ruggedness without fan or hard disk
- modular expansion options, e. g. central expansion with S7-300 I/O or PC interfaces
- commissioning, as for S7-300, by automation specialists
- SIMATIC WinAC RTX or alternatively WinAC RTX F preinstalled as a software PLC.

SIMATIC IPC427C bundles

The SIMATIC IPC427C-RTX bundles are ready-to-use, combined embedded PCs with the following SIMATIC software options:

- SIMATIC WinAC RTX
- SIMATIC WinAC RTX F
- SIMATIC WinCC flexible
- SIMATIC WinCC flexible with WinAC RTX

The combination unites the openness of PC-based controllers with the ruggedness of a conventional PLC: Flexible software and high-performance, scalable hardware in an open, compact unit.

An automation system is thus available to users with which strict real-time automation tasks and superior visualization tasks can be handled on a compact and rugged platform. This platform also offers versatility and efficient integration in the overall task. This includes close interlinking with data processing and logistic systems as well as interfacing with technology tasks such as motion control or vision systems.

Windows XP Embedded is used as the operating system.

SIMATIC HMI IPC 477C bundles

As in the case of SIMATIC IPC427C, the SIMATIC HMI IPC477C can also be ordered with SIMATIC software installed and ready to use:

- SIMATIC WinCC flexible
- SIMATIC WinCC flexible with WinAC RTX
- SIMATIC WinAC RTX
- SIMATIC WinAC RTX F

The panels are available in 12", 15" and 19" front versions, alternatively with touch or key functionality. With their compact structure, the Panel PCs are the ideal combination of controller and HMI functionality on a single platform and also offer the openness of a PC-based system.

Multi Panels MP 177, MP 277 and MP 377 with WinAC MP

- Multi Panels (MP) are – like Operator Panels – used for machine operation and monitoring on-site.
- Additional Windows CE applications (Software PLC and Sm@rt options) can be installed to expand their functional scope.
- The SIMATIC Multi Panels combine the ruggedness of Operator Panels with the flexibility of PCs, on the basis of Windows CE.
- With the SIMATIC Multi Panels, the contents of the message buffer are retained with the panel switched off, without the need for a battery.

Overview (continued)*Decision aid for the use of embedded systems*

| Customer benefits | Modular Control | Embedded Automation | | | PC-based Automation |
|--|-----------------|----------------------|--------------------------------------|------------------------------|--|
| | SIMATIC S7 | Multi Panel (MP) | S7-modular Embedded Controller (mEC) | IPC427C, HMI IPC477C bundles | on SIMATIC PC |
| Design | | | | | |
| Ruggedness | • • | • • | • | • | • (depends on hardware configuration) |
| Type of construction | Modular | Compact | Modular | Compact | Depending on the type of construction |
| Spare parts availability (beyond date of discontinuation) | 10 years | 10 years | 5 years | 5 years | 5 years |
| Performance | | | | | |
| Fast restart after power failure | • | - | - | - | - |
| Hard real-time | • • | • | • • | • • | • • |
| Fast program processing | • | • | • • | • • | Up to • • • • (depending on processor) |
| Safety Integrated | • | o (only subordinate) | • • (option) | • • (option) | • • |
| I/O interfacing | | | | | |
| Central/distributed | • • / • • | - / • | • / • • | o / • • | - / • • |
| User know-how | | | | | |
| Preconfigured, turnkey | • | • | • | • | - |
| Previous knowledge | | | | | |
| PLC | • • • | • • | • • | • | • |
| PC | - | - | • | • • | • • • |
| HMI | - | o | o | o | • • |
| Openness | | | | | |
| Openness • Integration of C++ programs • Further processing of data using external programs via OPC on a hardware platform | - | - | • | • | • |
| Modularization with distributed intelligence (CBA) | • | - | • | • | • |
| Integration of PLC and HMI on one hardware platform | - | • | • | • | • |

- Applies
- o Applies under certain conditions
- Does not apply

More information*Brochures*

Information material for downloading can be found on the Internet:

www.siemens.com/simatic/printmaterial

PC-based Automation

Embedded Controller

EC31

Overview



- Get off to a fast start in automation solutions with embedded PC platforms.
 - Ready-to-use SIMATIC WinAC RTX or WinAC RTX F preinstalled on EC31
 - Prepared for use in a SIMATIC environment with PROFINET and Industrial Ethernet
 - Commissioning by specialist automation personnel as with the S7-300
 - Configuring and programming with SIMATIC STEP 7 over Industrial Ethernet
 - Optional visualization
- Modular expansion capability:
 - Central expansion with
 - S7-300 I/O (SM modules of S7-300)
 - Expansion modules for additional PC interfaces, e. g. DVI-I, USB, Gigabit Ethernet networks and memory card slots, as well as PCI-104
- Rugged operation
 - Hard-disk-free operation based on flash disk and Windows Embedded Standard
 - Fan-free operation
- Flexibility of a PC-based automation environment
 - Free memory space on flash disk can be used for other PC applications
 - Use of WinAC ODK with SIMATIC WinAC RTX and WinAC RTX F (read-only in safety-related program part)
 - Connection option for USB devices
 - Memory capacity expandable using multimedia card
- Data retentivity for WinAC RTX and RTX F without uninterruptible power supply (UPS)

Application

The EC31-RTX combines the advantages of PC-based control solutions with those of the conventional PLC world: It offers the flexibility for integrating various tasks of an automation solution on a single hardware platform. The fanless and diskless design of the EC31 allows the use of the solution directly at the machine in harsh environments. Using the integrated Ethernet and PROFINET interfaces, the system can be integrated into existing automation environments with little effort.

The S7-mEC is the preferred platform if the following criteria for automation solutions must be fulfilled:

- Modular use, expandable
- "Headless operation" – without integrated display:
 - Operation with remote screen using the SIMATIC Thin Client
- Integration of different tasks such as control, visualization, technology functions, or data processing in one hardware unit
- Use of application-specific hardware and software
- Use at machine level
- Safety functions up to SIL 3 according to IEC 61508/62061 or according to EN ISO 13849-1 up to PL e with WinAC RTX F

Design

The S7-mEC automation system can comprise the following components:

- EC31 controller in the following order versions:
 - EC31 with Software Development Kit (SDK)
 - EC31-RTX
 - EC31-RTX F
 - EC31-HMI/RTX
- S7-300 signal modules
- Extension modules for the central rack with additional PC interfaces:
 - EM PC:
The extension module for additional DVI-I, USB, Gigabit Ethernet interfaces, serial interfaces and memory card slots.
 - EM PCI-104:
The extension module for holding up to 3 PC cards in the PCI-104 Standard.

The hardware of the EC31 features:

- 1.2 GHz Intel CoreDuo processor
- 1 GB RAM, 4 GB flash disk
- integrated PROFINET interface (2 ports)
- integrated Ethernet interface (1 port)
- 2 x USB
- 1 x multimedia card slot
- Memory for retentive data, 512 KB without UPS (256 KB are supported for EC31 with SDK)
- Windows Embedded Standard 2009

EC31-RTX features the following additional software:

- SIMATIC WinAC RTX 2010
- SIMATIC SOFTNET-S7 Lean incl. SIMATIC NET OPC Server

EC31-RTX F also has the following software:

- SIMATIC WinAC RTX F 2010

EC31-HMI/RTX also features:

- WinCC flexible 2008 RT visualization system

Optional

- SIMATIC WinAC Open Development Kit (ODK):
 - For integrating C/C++ code in SIMATIC WinAC RTX.
 - For integrating external software (technology programs) or PC components (e. g. scanners, PC cards).

Mode of operation

The SIMATIC WinAC RTX handles the actual control task and execution of the user program. It coordinates the necessary input and output of process values through the lower-level PROFINET fieldbus system and provides the process values for visualization and data processing tasks.

The distributed I/O connection is made via PROFINET, for which the integrated interface (2 ports, switched) of the EC31 is used. By using the IO modules of the S7-300 (SM modules), the IO can also be connected centrally and, if necessary, extended as in the case of the S7-300. If required, additional PC interfaces are available via the extension modules.

Function

- Control:
For the optimum control of processes with WinAC RTX, several processing levels are available:
 - Cyclic program processing
 - Interrupt processing
 - Time and date-controlled processing
- Functional safety with WinAC RTX F for EC31-RTX F:
The functional safety is implemented by means of targeted safety functions in the software. Safety functions are implemented with S7 Distributed Safety, to place the plant in a safe state or to hold it in a safe state. The safety functions are mainly included in the following components:
 - in the safety-related user program (safety program) in WinLC RTX F
 - in the fail-safe inputs and outputs (F I/O).
The F I/O ensures reliable processing of the field information (emergency stop pushbutton, light barriers, motor control). It features all the hardware and software components required for reliable processing, according to the required safety class. The user only programs the user safety functions. The safety functions for the process can be implemented with a user safety function or a system-internal fault reaction function. If the F system is unable to execute the actual user safety function, it will execute the fault response function: e. g. deactivation of the associated outputs and, if appropriate, F-CPU in STOP.
- Retentivity:
The controller can back up 512 KB of retentive data on an integrated, non-volatile memory, without the need for a UPS. Total retentivity of all process values of SIMATIC WinAC RTX can be achieved with a generally available UPS.
- Access to process values:
The SIMATIC NET OPC server supplied with EC31-RTX permits open access to all process values. Visualization systems or data processing systems can be linked to SIMATIC WinAC RTX via this interface.
- Communication:
The Windows Automation Center (WinAC) is programmed with SIMATIC STEP 7 via the integrated Industrial Ethernet interface. The SIMATIC NET SOFTNET Lean communication package is pre-installed for this purpose.
- Use of other software:
The customer can install supporting software products. Windows Embedded Standard is designed so that typical add-on packages can be installed.

PC-based Automation

Embedded Controller

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Technical specifications

| | 6ES7 677-1DD10-0BA0 | 6ES7 677-1DD10-0BB0 | 6ES7 677-1FD00-0FB0 | 6ES7 677-1DD10-0BF0 | 6ES7 677-1DD10-0BG0 | 6ES7 677-1DD10-0BH0 |
|---------------------------------|---|--|--|--|--|--|
| Product type designation | SIMATIC S7-mEC, EC31 | S7-mEC, EC31-RTX | S7-mEC, EC31-RTX F | S7-mEC, EC31-HMI/RTX 128PT | S7-mEC, EC31-HMI/RTX 512PT | S7-mEC, EC31-HMI/RTX 2048PT |
| Product version | | | | | | |
| Hardware product version | 01 | 01 | 04 | 01 | 01 | 01 |
| Firmware version | V2.0 | V2.0 | V1.3 | V2.0 | V2.0 | V2.0 |
| PC configuration | | | | | | |
| Computer platform | SIMATIC S7 modular embedded controller | SIMATIC S7 modular embedded controller | SIMATIC S7 modular embedded controller | SIMATIC S7 modular embedded controller | SIMATIC S7 modular embedded controller | SIMATIC S7 modular embedded controller |
| Processor selection | Intel Core Duo 1.2 GHz | Intel Core Duo 1.2 GHz | Intel Core Duo 1.2 GHz | Intel Core Duo 1.2 GHz | Intel Core Duo 1.2 GHz | Intel Core Duo 1.2 GHz |
| Main memory | 1 GB RAM | 1 GB RAM | 1 GB RAM | 1 GB RAM | 1 GB RAM | 1 GB RAM |
| Flash Disk | 4 GB | 4 GB | 2 GB | 4 GB | 4 GB | 4 GB |
| Operating systems | Windows Embedded Standard 2009 | Windows Embedded Standard 2009 | Windows XP embedded SP2 FP2007 | Windows Embedded Standard 2009 | Windows Embedded Standard 2009 | Windows Embedded Standard 2009 |
| Installed software | | | | | | |
| • Visualization | | | | WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options | WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options | WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options |
| • Control | | SIMATIC WinAC RTX 2010 Yes | SIMATIC WinAC RTX F 2009 Yes | SIMATIC WinAC RTX 2010 Yes | SIMATIC WinAC RTX 2010 Yes | SIMATIC WinAC RTX 2010 Yes |
| • Communication | | | | | | |
| Power losses | | | | | | |
| Power loss, typ. | 34 W | 34 W | 34 W | 34 W | 34 W | 34 W |
| Memory | | | | | | |
| Memory type | 256 KB non-volatile memory for retentive data | 512 KB non-volatile memory for retentive data | 512 KB non-volatile memory for retentive data | 512 KB non-volatile memory for retentive data | 512 KB non-volatile memory for retentive data | 512 KB non-volatile memory for retentive data |
| CPU-blocks | | | | | | |
| DB | | | | | | |
| • Number, max. | | Max. code size and max. data size: 4 MB each 64 Kibyte | Max. code size and max. data size: 4 MB each 64 Kibyte | Max. code size and max. data size: 4 MB each 64 Kibyte | Max. code size and max. data size: 4 MB each 64 Kibyte | Max. code size and max. data size: 4 MB each 64 Kibyte |
| • Size, max. | | | | | | |

Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|---|---|--|--|---|---|--|
| CPU-blocks (continued) | | | | | | |
| FB | | | | | | |
| • Number, max. | | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each |
| • Size, max. | | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte |
| FC | | | | | | |
| • Number, max. | | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each | Max. code size and max. data size: 4 MB each |
| • Size, max. | | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte |
| OB | | | | | | |
| • Size, max. | | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte | 64 Kibyte |
| • Number of startup OBs | | 2; OB 100, 102 | 2; OB 100, 102 | 2; OB 100, 102 | 2; OB 100, 102 | 2; OB 100, 102 |
| • Number of asynchronous error OBs | | 7; OB 80, 82-85, 86, 88 | 7; OB 80, 82-85, 86, 88 | 7; OB 80, 82-85, 86, 88 | 7; OB 80, 82-85, 86, 88 | 7; OB 80, 82-85, 86, 88 |
| • Number of synchronous error OBs | | 2; OB 121, 122 | 2; OB 121, 122 | 2; OB 121, 122 | 2; OB 121, 122 | 2; OB 121, 122 |
| Nesting depth | | | | | | |
| • per priority class | | 24 | 24 | 24 | 24 | 24 |
| • additional within an error OB | | 24 | 24 | 24 | 24 | 24 |
| CPU processing times | | | | | | |
| for bit operations, min. | | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. |
| for fixed point arithmetic, min. | | 0.003 µs; typ. | 0.003 µs; typ. | 0.003 µs; typ. | 0.003 µs; typ. | 0.003 µs; typ. |
| for floating point arithmetic, min. | | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. | 0.004 µs; typ. |
| Counters, timers and their retentivity | | | | | | |
| S7 counter | | | | | | |
| • Number | | 2 048 | 2 048 | 2 048 | 2 048 | 2 048 |
| • Retentivity | | | | | | |
| - can be set | | Yes | Yes | Yes | Yes | Yes |
| - lower limit | | 0 | 0 | 0 | 0 | 0 |
| - upper limit | | 2 047 | 2 047 | 2 047 | 2 047 | 2 047 |
| - preset | | 8 | 8 | 8 | 8 | 8 |
| • Counting range | | | | | | |
| - can be set | | Yes | Yes | Yes | Yes | Yes |
| - lower limit | | 0 | 0 | 0 | 0 | 0 |
| - upper limit | | 999 | 999 | 999 | 999 | 999 |

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Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|---|---|---|---|---|---|--|
| Counters, timers and their retentivity (continued) | | | | | | |
| IEC counter | | | | | | |
| • present | | Yes | Yes | Yes | Yes | Yes |
| • Type | | SFB | SFB | SFB | SFB | SFB |
| S7 times | | | | | | |
| • Number | | 2 048 | 2 048 | 2 048 | 2 048 | 2 048 |
| • Retentivity | | | | | | |
| - can be set | | Yes | Yes | Yes | Yes | Yes |
| - lower limit | | 0 | 0 | 0 | 0 | 0 |
| - upper limit | | 2 047 | 2 047 | 2 047 | 2 047 | 2 047 |
| • Time range | | | | | | |
| - lower limit | | 10 ms | 10 ms | 10 ms | 10 ms | 10 ms |
| - upper limit | | 9 990 s | 9 990 s | 9 990 s | 9 990 s | 9 990 s |
| IEC timer | | | | | | |
| • present | | Yes | Yes | Yes | Yes | Yes |
| • Type | | SFB | SFB | SFB | SFB | SFB |
| Data areas and their retentivity | | | | | | |
| retentive data area, total | | 512 KB | 512 KB | 512 KB | 512 KB | 512 KB |
| Flag | | | | | | |
| • Number, max. | | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte |
| • Retentivity preset | | MB 0 to MB 15 | MB 0 to MB 15 | MB 0 to MB 15 | MB 0 to MB 15 | MB 0 to MB 15 |
| • Number of clock memories | | 8 | 8 | 8 | 8 | 8 |
| Address area | | | | | | |
| I/O address area | | | | | | |
| • Inputs | | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte |
| • Outputs | | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte |
| • of which, distributed | | | | | | |
| - Inputs | | 8 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte |
| - Outputs | | 8 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte |
| Process image | | | | | | |
| • Inputs, adjustable | | 16 Kibyte | 16 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte |
| • Outputs, adjustable | | 16 Kibyte | 16 Kibyte | 8 Kibyte | 8 Kibyte | 8 Kibyte |
| • Inputs, default | | 512 byte | 512 byte | 512 byte | 512 byte | 512 byte |
| • Outputs, default | | 512 byte | 512 byte | 512 byte | 512 byte | 512 byte |
| Subprocess images | | | | | | |
| • Number of subprocess images, max. | | 15 | 15 | 15 | 15 | 15 |
| Digital channels | | | | | | |
| • Inputs | | 128 000 | 128 000 | 128 000 | 128 000 | 128 000 |
| • Outputs | | 128 000 | 128 000 | 128 000 | 128 000 | 128 000 |
| Analog channels | | | | | | |
| • Inputs | | 8 000 | 8 000 | 8 000 | 8 000 | 8 000 |
| • Outputs | | 8 000 | 8 000 | 8 000 | 8 000 | 8 000 |

Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|---|---|---|---|---|---|---|
| Time of day | | | | | | |
| Clock | | | | | | |
| • Hardware clock (real-time clock) | | Yes; Resolution: 1 s | Yes; Resolution: 1 s | Yes; Resolution: 1 s | Yes; Resolution: 1 s | Yes; Resolution: 1 s |
| Clock synchroni- zation | | | | | | |
| • supported | | Yes | Yes | Yes | Yes | Yes |
| • to PC-CP, slave | | Yes | Yes | Yes | Yes | Yes |
| • on Ethernet via NTP | | Yes | Yes | Yes | Yes | Yes |
| Interfaces | | | | | | |
| Industrial Ethernet | | | | | | |
| • Industrial Ethernet interface | X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s | X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s | | X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s | X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s | X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s |
| 1st interface | | | | | | |
| Type of interface | | PROFINET | PROFINET | PROFINET | PROFINET | PROFINET |
| Physics | | 2x RJ45 | 2x RJ45 | 2x RJ45 | 2x RJ45 | 2x RJ45 |
| automatic detection of transmission speed | | Yes | Yes | Yes | Yes | Yes |
| Autonegotiation | | Yes | Yes | Yes | Yes | Yes |
| Autocrossing | | Yes | Yes | Yes | Yes | Yes |
| Number of connection resources | | 32 | 32 | 32 | 32 | 32 |
| Functionality | | | | | | |
| • MPI | | | No | | | |
| • DP master | | | No | | | |
| • DP slave | | | No | | | |
| • PROFINET IO Device | | No | No | No | No | No |
| • PROFINET IO Controller | | Yes | Yes | Yes | Yes | Yes |
| • PROFINET CBA | | Yes | Yes | Yes | Yes | Yes |
| • Point-to-point connection | | | No | | | |
| PROFINET IO Controller | | | | | | |
| • Services | | | | | | |
| - PG/OP communication | | Yes | Yes | Yes | Yes | Yes |
| - S7 routing | | Yes | Yes | Yes | Yes | Yes |
| - S7 communication | | Yes | Yes | Yes | Yes | Yes |
| - Isochronous mode | | Yes | No | Yes | Yes | Yes |
| • Number of connectable IO devices, max. | | 256 | 256 | 256 | 256 | 256 |
| • Max. number of connectable IO devices for RT | | 256 | | 256 | 256 | 256 |
| - of which in line, max. | | 256 | | 256 | 256 | 256 |
| • Number of IO devices with IRT and the option "high flexibility" | | 256 | 64 | 256 | 256 | 256 |
| - of which in line, max. | | 61 | | 61 | 61 | 61 |

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Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|---|---|---|---|---|---|---|
| PROFINET IO Controller | | | | | | |
| • Number of IO Devices with IRT and the option "high performance", max. | | 256 | | 256 | 256 | 256 |
| - of which in line, max. | | 64 | | 64 | 64 | 64 |
| • IRT, supported | | Yes | Yes | Yes | Yes | Yes |
| • Prioritized startup supported | | Yes | Yes | Yes | Yes | Yes |
| - Number of IO Devices, max. | | 32 | 32 | 32 | 32 | 32 |
| • Activation/deactivation of IO Devices | | Yes | Yes | Yes | Yes | Yes |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. | | 8 | 8 | 8 | 8 | 8 |
| • IO Devices changing during operation (partner ports), supported | | Yes | Yes | Yes | Yes | Yes |
| - Max. number of IO devices per tool | | 8 | 8 | 8 | 8 | 8 |
| • Device replacement without swap medium | | Yes | | Yes | Yes | Yes |
| • Send cycles | | Adjustable: 250 µs, 500 µs and 1 ms | Adjustable: 250 µs, 500 µs and 1 ms | Adjustable: 250 µs, 500 µs and 1 ms | Adjustable: 250 µs, 500 µs and 1 ms | Adjustable: 250 µs, 500 µs and 1 ms |
| • Updating times | | 250 µs - 128 ms (at signal cycle 250 µs); 500µs - 256 ms (at signal cycle 500 µs); 1 ms - 512 ms (at signal cycle 1 ms) | 250 µs - 128 ms (at signal cycle 250 µs); 500µs - 256 ms (at signal cycle 500 µs); 1 ms - 512 ms (at signal cycle 1 ms) | 250 µs - 128 ms (at signal cycle 250 µs); 500µs - 256 ms (at signal cycle 500 µs); 1 ms - 512 ms (at signal cycle 1 ms) | 250 µs - 128 ms (at signal cycle 250 µs); 500µs - 256 ms (at signal cycle 500 µs); 1 ms - 512 ms (at signal cycle 1 ms) | 250 µs - 128 ms (at signal cycle 250 µs); 500µs - 256 ms (at signal cycle 500 µs); 1 ms - 512 ms (at signal cycle 1 ms) |
| • Address area | | | | | | |
| - Inputs, max. | | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte |
| - Outputs, max. | | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte | 16 Kibyte |
| • User data per address area, max. | | 2 Kibyte | 2 Kibyte | 2 Kibyte | 2 Kibyte | 2 Kibyte |
| - User data consistency, max. | | 256 byte | 256 byte | 256 byte | 256 byte | 256 byte |
| Open IE communication | | | | | | |
| • Open IE communication, supported | | Yes | Yes | Yes | Yes | Yes |
| • Number of connections, max. | | 32 | 32 | 32 | 32 | 32 |
| • Local port numbers used at the system end | | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 | 0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |

Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|--|---|---|---|---|---|--|
| PROFINET functions | | | | | | |
| • Detection of accessible nodes, supported | | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP |
| • Assignment of the IP address, supported | | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP |
| • Assignment of the device name, supported | | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP | Yes; DCP |
| • Topology recognition, supported | | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP |
| • Extended network diagnostics with Standard MIB II, supported | | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP |
| 2nd interface | | | | | | |
| Type of interface | | Integrated Ethernet interface | Integrated Ethernet interface | Integrated Ethernet interface | Integrated Ethernet interface | Integrated Ethernet interface |
| Physics | | Ethernet RJ45 | Ethernet RJ45 | Ethernet RJ45 | Ethernet RJ45 | Ethernet RJ45 |
| automatic detection of transmission speed | | Yes | Yes | Yes | Yes | Yes |
| Autonegotiation | | Yes | Yes | Yes | Yes | Yes |
| Autocrossing | | No | No | No | No | No |
| Number of connection resources | | 32 | 32 | 32 | 32 | 32 |
| Functionality | | | | | | |
| • PROFINET IO Controller | | No | No | No | No | No |
| • PROFINET IO Device | | No | No | No | No | No |
| • PROFINET CBA | | No | No | No | No | No |
| PROFINET functions | | | | | | |
| • Detection of accessible nodes, supported | | Yes; DCP | | Yes; DCP | Yes; DCP | Yes; DCP |
| • Assignment of the IP address, supported | | Yes; DCP | | Yes; DCP | Yes; DCP | Yes; DCP |
| • Assignment of the device name, supported | | Yes; DCP | | Yes; DCP | Yes; DCP | Yes; DCP |
| • Topology recognition, supported | | Yes; LLDP, LLDP MIB, SNMP | | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP | Yes; LLDP, LLDP MIB, SNMP |
| • Extended network diagnostics with Standard MIB II, supported | | Yes; Standard MIB II, SNMP | | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP | Yes; Standard MIB II, SNMP |

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Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|--|---|--|--|--|--|--|
| Communication functions | | | | | | |
| PG/OP communication | | Yes | Yes | Yes | Yes | Yes |
| Global data communication | | | | | | |
| • supported | | No | No | No | No | No |
| S7 basic communication | | | | | | |
| • supported | | No | No | No | No | No |
| S7 communication | | | | | | |
| • supported | | Yes | Yes | Yes | Yes | Yes |
| • as server | | Yes | Yes | Yes | Yes | Yes |
| • as client | | Yes | Yes | Yes | Yes | Yes |
| Open IE communication | | | | | | |
| • TCP/IP | | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 |
| - Number of connections, max. | | 32 Kibyte | 8 192 byte | 32 Kibyte | 32 Kibyte | 32 Kibyte |
| - Data length, max. | | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | No | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 |
| • ISO-on-TCP (RFC1006) | | 32 Kibyte | Yes; Via integrated PROFINET interface and loadable FBs 32 | 32 Kibyte | 32 Kibyte | 32 Kibyte |
| - Number of connections, max. | | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 | Yes; Via integrated PROFINET interface (X1) and loadable FBs 32 |
| - Data length, max. | | 1 472 byte | 1 472 byte | 1 472 byte | 1 472 byte | 1 472 byte |
| • UDP | | | | | | |
| - Number of connections, max. | | | | | | |
| - Data length, max. | | | | | | |
| Number of connections | | | | | | |
| • overall | | 64 | 64 | 64 | 64 | 64 |
| S7 message functions | | | | | | |
| Number of login stations for message functions, max. | | 62; The alarm functions cannot currently be used for central bus modules | 62; The alarm functions cannot currently be used for central bus modules | 62; The alarm functions cannot currently be used for central bus modules | 62; The alarm functions cannot currently be used for central bus modules | 62; The alarm functions cannot currently be used for central bus modules |
| Process diagnostic messages | | Yes; Alarm_S | Yes; Alarm_S | Yes; Alarm_S | Yes; Alarm_S | Yes; Alarm_S |

Technical specifications (continued)

| Product type designation | 6ES7 677-1DD10-0BA0 SIMATIC S7-mEC, EC31 | 6ES7 677-1DD10-0BB0 S7-mEC, EC31-RTX | 6ES7 677-1FD00-0FB0 S7-mEC, EC31-RTX F | 6ES7 677-1DD10-0BF0 S7-mEC, EC31-HMI/RTX 128PT | 6ES7 677-1DD10-0BG0 S7-mEC, EC31-HMI/RTX 512PT | 6ES7 677-1DD10-0BH0 S7-mEC, EC31-HMI/RTX 2048PT |
|---|---|---|--|---|---|--|
| Test commissioning functions | | | | | | |
| Status/control • Status/control variable | | Yes | Yes | Yes | Yes | Yes |
| Forcing • Forcing | | No | No | No | No | No |
| Diagnostic buffer • present | | Yes | Yes | Yes | Yes | Yes |
| Ambient conditions | | | | | | |
| Operating temperature | | | | | | |
| • Min. | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C |
| • max. | 50 °C | 50 °C | 50 °C | 50 °C | 50 °C | 50 °C |
| Configuration | | | | | | |
| Configuration software • STEP 7 | | Yes; As of V5.5 + HW update/iMap V3.0 SP1 | Yes; STEP7 V5.4 SP5 or higher + HSP135 as basic requirement for the HSP178 for WinAC RTX F 2009 on Embedded Controller / iMap V3.0 SP1 | Yes; As of V5.5 + HW update/iMap V3.0 SP1 | Yes; As of V5.5 + HW update/iMap V3.0 SP1 | Yes; As of V5.5 + HW update/iMap V3.0 SP1 |
| Programming | | | | | | |
| • Programming language | | | | | | |
| - LAD | | Yes | Yes | Yes | Yes | Yes |
| - FBD | | Yes | Yes | Yes | Yes | Yes |
| - STL | | Yes | Yes | Yes | Yes | Yes |
| - SCL | | Yes | Yes | Yes | Yes | Yes |
| - CFC | | Yes | Yes | Yes | Yes | Yes |
| - GRAPH | | Yes | Yes | Yes | Yes | Yes |
| - HiGraph® | | Yes | Yes | Yes | Yes | Yes |
| Dimensions and weight | | | | | | |
| Dimensions | | | | | | |
| • Width | 160 mm | 160 mm | 160 mm | 160 mm | 160 mm | 160 mm |
| • Height | 125 mm | 125 mm | 125 mm | 125 mm | 125 mm | 125 mm |
| • Depth | 115 mm | 115 mm | 115 mm | 115 mm | 115 mm | 115 mm |

PC-based Automation

Embedded Controller

EC31

Ordering data

Order No.

SIMATIC S7-modular Embedded Controller

EC31

E

6ES7 677-1DD10-0BA0

Intel CoreDuo 1.2 GHz processor
Memory expansion:
1 GB RAM, 4 GB Flash Disk;
interfaces:
1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 slot for multimedia card;
Software:
Windows Embedded Standard
preinstalled, Software Development Kit (SDK) for creating C/C++ applications with accesses to central I/O modules

EC31-RTX

E

6ES7 677-1DD10-0BB0

Intel CoreDuo 1.2 GHz processor
Memory expansion:
1 GB RAM, 4 GB Flash Disk;
interfaces:
1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 slot for multimedia card;
Software:
Windows Embedded Standard
and WinAC RTX 2010 preinstalled

EC31-RTX F

E

6ES7 677-1FD10-0FB0

Intel CoreDuo 1.2 GHz processor
Memory expansion:
1 GB RAM, 4 GB Flash Disk;
interfaces:
1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 slot for multimedia card;
Software:
Windows Embedded Standard
and WinAC RTX F 2010 preinstalled

EC31-HMI/RTX

Intel CoreDuo 1.2 GHz processor
Memory expansion:
1 GB RAM, 4 GB Flash Disk;
interfaces:
1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 slot for multimedia card;
Software:
Windows Embedded Standard,
WinAC RTX 2010,
SIMATIC SOFTNET-S7/V7.0 Lean
preinstalled

• With WinCC flexible 2008 RT 128 PT

E

6ES7 677-1DD10-0BF0

• With WinCC flexible 2008 RT 512 PT

E

6ES7 677-1DD10-0BG0

• With WinCC flexible 2008 RT 2048 PT

E

6ES7 677-1DD10-0BH0

A: Subject to export regulations: AL: N and ECCN: EAR99H

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

Order No.

Accessories

EM PCI-104 expansion module

A

6ES7 677-1DD40-1AA0

For fitting up to 3 additional
PCI-104 cards

EM PC expansion module

A

6ES7 677-1DD50-2AA0

Additional connection options:
2 USB interfaces,
1 Gigabit Ethernet interface,
1 serial interface,
1 slot for CF card,
1 slot for SD card/
Micro Memory Card

PC-based Automation

Embedded Controller

SIPLUS S7-modular embedded controller

Overview



- Get off to a fast start in automation solutions with embedded PC platforms.
 - Ready-to-use SIMATIC WinAC RTX or WinAC RTX F preinstalled on EC31
 - Prepared for use in a SIMATIC environment with PROFINET and Industrial Ethernet
 - Commissioning by specialist automation personnel as with S7-300
 - Configuring and programming with SIMATIC STEP 7 over Industrial Ethernet
 - Optional visualization
- Modular expansion capability:
 - Central expansion with
 - S7-300 I/O (SM modules of S7-300)
 - Expansion modules for additional PC interfaces, e. g. DVI-I, USB, Gigabit Ethernet networking and memory card slots, as well as PCI-104
- Rugged operation
 - Disk-free operation based on flash disk and Windows XP embedded
 - Fan-free operation
- Flexibility of a PC-based automation environment
 - Free memory space on flash disk can be used for other PC applications
 - Use of WinAC ODK with SIMATIC WinAC RTX and WinAC RTX F (read-only in safety-related program part)
 - Connection option for USB devices
 - Memory capacity expandable using multimedia card
- Data retentivity for WinAC RTX and RTX F without uninterruptible power supply (UPS)

Technical specifications

| | SIPLUS S7-modular Embedded Controller EC31 |
|---------------------------|---|
| Order No. | 6AG1 677-1DD00-4BA0 |
| Order No. based on | 6ES7 677-1DD00-0BA0 |
| Ambient temperature range | 0 ... +50 °C |
| Conformal Coating | Coating of the printed circuit boards and the electronic components |
| Technical specifications | The technical data of the standard product applies except for the ambient conditions. |

| | SIPLUS S7 modular embedded controller EC31-RTX |
|---------------------------|---|
| Order No. | 6AG1 677-1DD00-4BB0 |
| Order No. based on | 6ES7 677-1DD00-0BB0 |
| Ambient temperature range | 0 ... +50 °C |
| Conformal coating | Coating of the printed circuit boards and the electronic components |
| Technical specifications | The technical data of the standard product applies except for the ambient conditions. |

Ambient conditions

| | |
|--|---|
| Relative humidity | 5 ... 100% Condensation permissible |
| Air pressure (depending on the highest positive temperature range specified) | 1080 ... 795 hPa (-1000 ... +2000m) see ambient temperature range 795 ... 658 hPa (+2000 ... +3500m) derating 10 K 658 ... 540 hPa (+3500 ... +5000m) derating 20 K |

Ordering data

Order No.

SIPLUS S7 modular embedded controller

EC31

E

6AG1 677-1DD00-4BA0

(media exposure)

Intel CoreDuo 1.2 GHz processor

Memory expansion:

1 GB RAM, 4 GB flash disk;

Interfaces:

1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 multimedia card slot;

Software:

Windows Embedded Standard
pre-installed, Software Development
Kit (SDK) for creating
C/C++ applications with access
to central I/O modules

EC31-RTX

E

6AG1 677-1DD00-4BB0

(media exposure)

Intel CoreDuo 1.2 GHz processor

Memory expansion:

1 GB RAM, 4 GB flash disk;

Interfaces:

1 Industrial Ethernet port,
2 PROFINET ports, 2 USB ports,
1 multimedia card slot;

Software:

Windows Embedded Standard
and WinAC RTX 2010 preinstalled
Development Kit (SDK) for
creating C/C++ applications with
access to central I/O modules

Accessories

see SIMATIC S7-modular
Embedded Controller

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

Embedded Controller

Expansion modules

Overview



- Expansion modules for SIMATIC S7-modular Embedded Controller EC31
 - EM PCI-104 for additionally accommodating of up to 3 PCI-104 cards
 - EM PC with additional PC interfaces and slots for memory media

Application

A SIMATIC S7-modular Embedded Controller EC31 can be expanded centrally with the EM PCI-104 and EM PC expansion modules. Additional DVI-I, USB, Gigabit Ethernet and serial interfaces are available, as well as memory card slots and connections for PCI-104 cards. This ensures low-overhead integration into existing automation environments.

Design

The expansion modules are connected directly to the EC31. They offer the following connection/plug-in options:

EM PCI-104

- Up to 3 PCI-104 cards can be inserted

EM PC

- 2 USB interfaces
- 1 Gigabit Ethernet interface
- 1 serial interface
- 1 slot for CF card
- 1 slot for SD card/Micro Memory Card

Technical specifications

| Product type designation | 6ES7 677-1DD40-1AA0 EM PCI-104 | 6ES7 677-1DD50-2AA0 EM PC |
|--|---|--|
| Product version Hardware product version | 01 | 01 |
| Input current from expansion bus | 100 mA | 580 mA |
| Power losses Power loss, typ. | 2.4 W; Without inserted PCI-104 cards | 9 W |
| Power loss, max. | | 14 W |
| Interfaces serial interface | | 1x V.24 (RS232) |
| Industrial Ethernet • Industrial Ethernet interface | | Onboard, 10/100/1000 Mbit, RJ45 |
| Ambient conditions Operating temperature • Min. • max. | 0 °C 50 °C | 0 °C 50 °C |
| Dimensions and weight Dimensions • Width • Height • Depth | 120 mm; Without bus connector Extension-Bus 125 mm; Without external voltage connecting terminal 115 mm | 80 mm; Without bus connector Extension-Bus 125 mm 115 mm |

PC-based Automation

Embedded Controller

Expansion modules

| Ordering data | Order No. |
|---|----------------------------|
| EM PCI-104 expansion module A For fitting up to 3 additional PCI-104 cards | 6ES7 677-1DD40-1AA0 |
| EM PC expansion module A Additional connection options: 2 USB interfaces, 1 Gigabit Ethernet interface, 1 serial interface, 1 slot for CF card, 1 slot for SD card/ Micro Memory Card | 6ES7 677-1DD50-2AA0 |

A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation

Embedded bundles/Software Packages

Embedded bundles/Software packages

Overview

The **Embedded Bundles** for PC-based automation are based on rugged, fan-free SIMATIC IPCs. They are pre-installed, configured, and ready-to-use with the SIMATIC WinAC RTX (F) software controller and/or the SIMATIC WinCC/WinCC flexible visualization software.

Software Packages with WinCC flexible, WinCC or WinAC RTX (F) together with the corresponding SIMATIC IPC.

The following are available:

- SIMATIC IPC packages with WinCC flexible
- SIMATIC IPC packages with WinCC
- SIMATIC IPC packages with WinCC RT Advanced and WinCC RT Professional
- SIMATIC IPC packages with WinAC RTX (F).

A Software Package can only be supplied if the same number of SIMATIC industrial PCs is ordered together with the software. It cannot be ordered subsequently.

More information

You can find more information on the Internet at:

www.automation.siemens.com/mcms/pc-based-automation/en/embedded-bundles

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC227D bundles

Overview



- A quick start in automation solutions with embedded PC platforms
 - SIMATIC WinAC RTX or SIMATIC WinAC RTX F preinstalled on SIMATIC IPC227D and ready for use
 - PROFINET RT and Industrial Ethernet pre-configured for use in a SIMATIC environment
 - Optional WinCC RT Advanced for visualization tasks in parallel with SIMATIC WinAC RTX
 - Configuration and programming with SIMATIC STEP 7 via Industrial Ethernet or PROFINET
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F.
- Rugged operation
 - Operation without a hard disk, based on CompactFlash Card (CF Card) or Solid-State Drive and Windows Embedded Standard 2009
 - Fan-free operation
 - 128 KB of retentive data for WinAC RTX, also without uninterruptible power supply (UPS)
- Flexibility of a PC-based automation environment
 - Use of WinAC ODK with SIMATIC WinAC RTX or SIMATIC WinAC RTX F (read-only for fail-safe program section)
 - Connection option for USB devices, flat panel monitor or screen
 - PCIe cards can be plugged in

Application

The SIMATIC IPC227D bundles combine the advantages of the PC-based controller solutions with those of the classical PLC world: They offer the flexibility for integrating different tasks of an automation solution on one hardware platform. The diskless and fanless design of the IPC227D enable the solution to be used directly at the machine in a harsh environment. Using the PROFINET interface, the system can be integrated with minimal outlay in existing automation landscapes (SIMATIC world, Siemens drive systems).

The SIMATIC IPC227D bundles are the preferred platform when the following criteria are to be fulfilled for the automation solution:

- Compact, "headless" operation
- For use with remote screen
- Integration of different tasks such as simple control, visualization, technology functions, or data processing in one hardware unit
- Use of application-specific hardware and software
- Use at the machine level
- Safety functions up to SIL 3 according to IEC 61508/62061 or according to EN ISO 13849-1 up to PL e with WinAC RTX F

Function

Controlling:

- For the optimum control of processes with WinAC RTX, several processing levels are available:
 - Cyclic program processing
 - Interrupt processing
 - Time and date-controlled processing
- The controller can save up to 128 KB of retentive data on an optional, non-volatile memory without the need for an uninterruptible power supply (UPS).
- Total retentivity of all process values of SIMATIC WinAC RTX can be achieved with a generally available UPS

Functional safety with WinAC RTX F:

The functional safety is implemented by means of targeted safety functions in the software. Safety functions are implemented with the S7 Distributed Safety system, to place the plant in a safe state or to hold it in a safe state. The safety functions are mainly contained within the following components:

- in the safety-related user program (safety program) in WinLC RTX F
- in the fail-safe inputs and outputs (F-I/O)

The F I/O ensures safety-related processing of the field information (emergency stop pushbutton, light barriers, motor pre-control). It features all hardware and software components required for reliable processing, according to the required safety class. The user only programs the user safety functions. The safety functions for the process can be implemented with a user safety function or a system-internal fault reaction function. If the F system is unable to perform the actual user safety function in the event of a fault, it performs instead the fault response function, e. g. the associated outputs are switched off and the F CPU enters the STOP state.

Visualization:

- SIMATIC WinCC RT Advanced can also be ordered as a pre-installed, ready-to-use option. WinCC RT Advanced offers powerful functions for visualizing the processes at the machine.
- A permanent message memory (PMB) is available on an additional partition.

Open access to process values:

- The SIMATIC NET OPC server (versions with WinAC RTX) supplied with the SIMATIC IPC227D bundles provides open access to all process values. Any visualization systems or data processing systems can be linked to SIMATIC WinAC RTX via this interface.

Communication:

- Programming of WinAC RTX with SIMATIC STEP 7 and transfer of the WinCC RT Advanced project is performed via the integrated Industrial Ethernet interface. The communication package SIMATIC NET SOFTNET S7 Lean is installed for this purpose.

Use of other software:

- The customer can install supporting software products. Windows Embedded Standard 2009 is designed the way typical add-on packages can be installed.

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC227D bundles

Ordering data

Order No.

Order No.

Configuration

SIMATIC IPC227D

Interfaces: 2 x Gbit LAN (RJ45),
1 x serial COM1), 4 x USB

Processors / memory expansion / retentivity

- Atom E660 (1.3 GHz),
2 GByte RAM
- Atom E660 (1.3 GHz),
2 GByte RAM, retentivity
- Atom E640 (1.0 GHz),
1 GByte RAM
- Atom E640 (1.0 GHz),
1 GByte RAM, retentivity
- Atom E620 (600 MHz),
512 MByte RAM
- Atom E620 (600 MHz),
512 MByte RAM, retentivity

Drives

- Without drive, with CF slot
- 250 GByte HDD SATA
- 50 GByte Solid-State Drive SATA
(SLC)
- 2 GByte SIMATIC PC
CompactFlash
- 4 GByte SIMATIC PC
CompactFlash
- 8 GByte SIMATIC PC
CompactFlash

COM interface

- COM1: RS232
- COM1: RS485
- COM1: CAN

On request

Configuration

SIMATIC IPC227D

Operating system

- Without operating system
- WES 2009 preinstalled
(CF from 2 GB/SSD/HD)
- XP-Prof. MUI preinstalled on
SSD / HD
- WES 7 preinstalled
(CF from 4 GB/SSD/HD)
- Windows 7 MUI preinstalled on
SSD / HD

Software bundles

- Without RTX/HMI software
- RTX: WinAC RTX 2010
- RTX-F: WinAC RTX F 2010
- HMI: WinCC RT Advanced
128 PT
- HMI: WinCC RT Advanced
512 PT
- HMI: WinCC RT Advanced
2048 PT
- HMI: WinCC RT Advanced
4096 PT
- HMI/RTX: RT 128 PT
- HMI/RTX: RT 512 PT
- HMI/RTX: RT 2048 PT
- HMI/RTX: RT 4096 PT

Device versions

- Basis
- PCIe (1 slot)
- COM (COM2-4: RS232)
- IO (4 x dig. inputs/outputs each)

Mounting accessories

- Standard mounting rail
- Wall mounting
- Portrait mounting
- Side mounting

On request

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information on "Embedded Bundles/Packages for industrial PCs".

More information

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

Start-up

Before the control or visualization application is complete, simply perform the following steps:

- Optional: Installation and setup of other software on the device
- Transfer of engineering projects from STEP 7 or WinCC Advanced/ WinCC Professional
- Backup of the installed software and protection of the flash-based mass memory by switching on the Enhance Write filter

Replacement devices

For the in-store versions, repaired replacement devices are available extremely quickly ex stock. Preferred versions offer the following options:

- Only for IPCs with replaceable CompactFlash Card (supplied without mass storage)

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC427C bundles

Overview



- Get off to a quick start in automation solutions with embedded PC platforms.
 - SIMATIC WinAC RTX or SIMATIC WinAC RTX F preinstalled on SIMATIC IPC427C and ready for use
 - PROFINET, PROFIBUS and Industrial Ethernet prepared for use in a SIMATIC environment
 - Optional WinCC flexible for visualization tasks in parallel with SIMATIC WinAC RTX.
 - Configuration and programming with SIMATIC STEP 7 via Industrial Ethernet, PROFINET or PROFIBUS
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F.
- Rugged operation
 - Operation without a hard disk, based on CompactFlash Card (CF Card) or Solid State Drive and Windows Embedded Standard
 - Fan-free operation
 - 128 KB of retentive data for WinAC RTX, also without uninterruptible power supply (UPS)
- Flexibility of a PC-based automation environment
 - Free memory space on CF Card can be used for other PC applications
 - Use of WinAC ODK with SIMATIC WinAC RTX or SIMATIC WinAC RTX F (read-only for fail-safe program section)
 - Connection option for USB devices, flat panel monitor or screen
 - PCI 104 cards can be plugged in
- High-performance service concept
 - Replacement spare parts for preferred types available ex stock
- New hardware basis SIMATIC IPC427C
- Cost-effective versions with PROFINET, based on the standard Ethernet interface
- Current product versions of the pre-installed software:
 - SIMATIC WinAC RTX 2010 or SIMATIC WinAC RTX F 2010
 - SIMATIC WinCC flexible 2008 SP2
 - SIMATIC NET Edition 2008

Application

The SIMATIC IPC427C bundles combine the advantages of the PC-based controller solutions with those of the classical PLC world: They offer the flexibility for integrating different tasks of an automation solution on one hardware platform. The diskless and fanless design of the IPC427C enable the solution to be used directly at the machine in a harsh environment. Using the PROFINET and PROFIBUS interfaces, the system can be integrated with minimal outlay in existing automation landscapes (SIMATIC world, Siemens drive systems).

The SIMATIC IPC427C bundles are the preferred platform when the following criteria must be fulfilled for the automation solution:

- Ultra-compact, "headless" operation
- For use with remote screen
- Integration of different tasks such as control, visualization, technology functions or data processing in one hardware unit
- Use of application-specific hardware and software
- Use at machine level
- Safety functions up to SIL 3 according to IEC 61508/62061 or according to EN ISO 13849-1 up to PL e with WinAC RTX F

Function

Controlling:

- For the optimum control of processes with WinAC RTX, several processing levels are available:
 - Cyclic program processing
 - Interrupt processing
 - Time and date-controlled processing
- The controller can save up to 128 KB of retentive data on an integrated, non-volatile memory, without the need for a UPS. The complete retentivity of all process values of SIMATIC WinAC RTX can be achieved with a generally available UPS.

Functional safety with WinAC RTX F:

- The functional safety is implemented by means of targeted safety functions in the software. Safety functions are implemented with the S7 Distributed Safety system, to place the plant in a safe state or to hold it in a safe state. The safety functions are mainly contained within the following components:
 - In the safety-related user program (safety program) in WinLC RTX F
 - In the fail-safe inputs and outputs (F I/O).
- The F I/O ensures safety-related processing of the field information (emergency stop pushbutton, light barriers, motor pre-control) It features all the hardware and software components required for reliable processing, according to the required safety class. The user only programs the user safety functions. The safety functions for the process can be implemented with a user safety function or a system-internal fault reaction function. If the F system is unable to perform the actual user safety function in the event of a fault, it performs instead the fault response function, e.g. the associated outputs are switched off and the F CPU enters the STOP state.

Visualization:

- SIMATIC WinCC RT Advanced can also be ordered as a pre-installed, ready-to-use option. WinCC RT Advanced offers powerful functions for visualizing the processes at the machine.
- A permanent message memory (PMB) is available on an additional partition.

Open access to process values:

- SIMATIC NET OPC server supplied with the SIMATIC IPC427C bundles (versions with WinAC RTX) provides open access to all process values. Any visualization systems or data processing systems can be linked to SIMATIC WinAC RTX via this interface.

Communication:

- Programming of WinAC RTX with SIMATIC STEP 7 and transfer of the WinCC flexible project are performed via the integrated Industrial Ethernet interface. The communication package SIMATIC NET SOFTNET S7 Lean is installed for this purpose. The S7 program can alternatively be downloaded to WinAC RTX via the PROFIBUS DP interface.

Use of other software:

- The customer can install supporting software products. Windows XP Embedded is designed the way typical add-on packages can be installed.

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC427C bundles

Ordering data

Order No.

Order No.

SIMATIC IPC427C bundles

Bundles with SIMATIC WinAC RTX 2010 (F) and WinCC flexible 2008

(Windows Embedded Standard 2009 operating system)

SIMATIC IPC427C with pre-installed software

E 6ES7 675 - 1 D ■ ■ 0 - ■ ■ ■ 0

Processor

- Celeron M, 1.2 GHz, 2x PROFINET (IE) ¹⁾ A
- Celeron M, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS ¹⁾ B
- Core2 Solo, 1.2 GHz, 2x PROFINET (IE) ¹⁾ E
- Core2 Solo, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS ¹⁾ F
- Core2 Solo, 1.2 GHz, 1x PROFINET (IE), PROFINET (RT/IRT) 3 ports G
- Core2 Duo, 1.2 GHz, 2x PROFINET (IE) ¹⁾ J
- Core2 Duo, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS ¹⁾ K
- Core2 Duo, 1.2 GHz, 1x PROFINET (IE), PROFINET (RT/IRT) 3 ports L

Work memory

- 1 GB RAM 2
- 2 GB RAM ¹⁾ 3
- 4 GB RAM 4

Mass storage, internal

- Without (can only be ordered with externally accessible mass storage) ¹⁾ 0
- 80 GB HDD SATA, additionally with externally accessible CF 1
- 32 GB Solid State Disk SATA, Windows Embedded 2009 and software pre-installed 2
- 4 GB internal CompactFlash, Windows Embedded 2009 and software pre-installed ¹⁾ 6
- 8 GB internal CompactFlash, Windows Embedded 2009 and software pre-installed ¹⁾ 7

Configuration (continued)

SIMATIC IPC427C with pre-installed software

E 6ES7 675 - 1 D ■ ■ 0 - ■ ■ ■ 0

Externally accessible mass storage

- Without (can only be ordered with internal mass storage) ¹⁾ A
- 4 GB CompactFlash, Windows Embedded 2009 and software pre-installed ¹⁾ D
- 8 GB CompactFlash, Windows Embedded 2009 and software pre-installed ¹⁾ E

Software configurations ¹⁾

- WinAC RTX B
- WinCC flexible RT 128 PT C
- WinCC flexible RT 512 PT D
- WinCC flexible RT 2048 PT E
- WinCC flexible RT 4096 PT F
- WinAC RTX, WinCC flexible RT 128 PT K
- WinAC RTX, WinCC flexible RT 512 PT L
- WinAC RTX, WinCC flexible RT 2048 PT M
- WinAC RTX, WinCC flexible RT 4096 PT N
- WinAC RTX F P
- WinAC RTX F, WinCC flexible RT 128 PT R
- WinAC RTX F, WinCC flexible RT 512 PT S
- WinAC RTX F, WinCC flexible RT 2048 PT T
- WinAC RTX F, WinCC flexible RT 4096 PT U

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

¹⁾ Replacement hardware devices available in exchange

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC427C bundles

| Ordering data | Order No. | Order No. |
|--|------------------------------|--|
| Delivery versions (from stock) | | Accessories |
| Replacement hardware units available in exchange | | CP 5603 Microbox Package A 6GK1 560-3AU00 |
| SIMATIC IPC427C bundle with WinAC RTX 2010 | | Package for using the PROFIBUS CP 5603 in Microbox PCs; comprising a CP 5603 module and a Microbox expansion rack |
| Core2 Solo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash | E 6ES7 675-1DF30-0DB0 | CP 1604 Microbox Package 6GK1 160-4AU00 |
| Core2 Solo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash | E 6ES7 675-1DK30-0DB0 | Package for using the PROFINET CP 1604 in Microbox PCs; comprising CP 1604, connection board, power supply and expansion rack for Microbox PC; implemented with Development Kit DK-16xx PN IO; NCM P |
| Core2 Solo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 8 GB CompactFlash | E 6ES7 675-1DK30-0EP0 | Expansion kit PC/104 6AG4 070-0BA00-0XA0 |
| SIMATIC IPC427C bundle with WinAC RTX 2010 and WinCC flexible 2008 512 PT | | Expansion rack incl. mounting hardware; 6 items |
| Core2 Solo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash | E 6ES7 675-1DK30-0DL0 | CompactFlash Cards |
| Bundles with WinCC | | 4 GB A 6ES7 648-2BF02-0XG0 |
| ("Built to order" with delivery time of max. 14 business days, for hardware only repairs are possible) | | 8 GB A 6ES7 648-2BF02-0XH0 |
| IPC427C with WinCC RT, V7.0 SP2, incl. Update 1 | 6ES7 675-1D..0-.B.0 | SIMATIC PC keyboard |
| Fan-free, 4 x USB 2.0 (500 mA), 1 x COM (RS 232), 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), Windows Embedded 2009 pre-installed, SIMATIC WinCC V7.0 SP2 incl. Update 1 Runtime pre-installed | | German/international, USB connection 6ES7 648-0CB00-0YA0 |
| Client configurations E 6ES7 675-1DA20-6AX0 | | German/international, USB connection, with 4-way USB HUB A 6ES7 648-0CD00-0YA0 |
| Processor Celeron M 1.2 GHz, 1 GB SDRAM-DDR3, 4 GB CF Card, runtime license 128 PT | | SIMATIC PC USB mouse A 6ES7 790-0AA01-0XA0 |
| Client and single-user station configurations | | Optical, 3 buttons, with PS/2 adapter |
| Processor Core2 Solo 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF Card, runtime license 128 PT | E 6ES7 675-1DE30-7AX0 | SIMATIC IPC USB FlashDrive A 6ES7 648-0DC50-0AA0 |
| Processor Core2 Solo 1.2 GHz, PROFIBUS DP, 2 GB SDRAM-DDR3, 8 GB CF Card, runtime license 128 PT | E 6ES7 675-1DF30-7AX0 | 8 GB (SLC), USB 2.0, incl. SIMATIC IPC BIOS manager, bootable, metal housing |
| Single-user station configurations | 6ES7 675-1DK40-.A.0 | SIMATIC IPC Service USB FlashDrive B 6AV7 672-8JD01-0AA0 |
| Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3 | | 8 GB (SLC), USB 2.0, incl. SIMATIC IPC Image & Partition Creator and SIMATIC IPC BIOS manager (pre-installed), bootable, metal enclosure |
| • 8 GB CF Card | 6ES7 675-1DK40-7A.0 | Portrait assembly kit A 6ES7 648-1AA20-0YB0 |
| • 32 GB SSD | 6ES7 675-1DK40-2A.0 | Interfaces to the front |
| • Runtime license 128 PT | 6ES7 675-1DK40-.AX0 | |
| • Runtime license 2048 PT | 6ES7 675-1DK40-.AW0 | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

Embedded Box PC bundles

SIMATIC IPC427C bundles

More information

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

Commissioning

Before the control or visualization application is complete, simply perform the following steps:

- Optional: Install and setup additional hardware on the device (e. g. an additional SIMATIC CP 5603 PROFIBUS interface)
- Optional: Installation and setup of other software on the device
- Transfer of the engineering projects from STEP 7 or WinCC flexible
- Transfer of the supplied license keys for SIMATIC software
- Backup of the installed software and protection of the flash-based mass memory by switching on the Enhance Write filter

Replacement devices

For the preferred versions, repaired replacement devices are available extremely quickly ex stock. Preferred versions offer the following options:

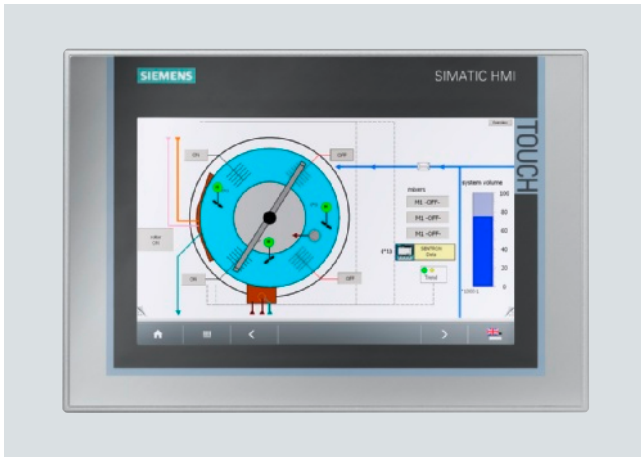
- All processor versions with PROFINET(IE) or PROFIBUS option
- 2 GB RAM
- Exclusively for replaceable CompactFlash memory (supplied without mass memory)
- All software configurations

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC277D bundles

Overview



SIMATIC HMI IPC277D for implementing simple visualization and control tasks

- High degree of flexibility when selecting rugged widescreen fronts from 7" to 12" for more freely configurable display area
- High resolution, large viewing angle and up to 100% dimmable backlighting for brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash and SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory for battery-free operation
- Ready-to-run embedded bundles with visualization or/and control software

The following front installation versions are available:

- 7" Touch
- 9" Touch
- 12" Touch
- All fronts in widescreen design

Benefits

SIMATIC HMI IPC277D

- Rugged, industry-standard 7" / 9" / 12" widescreen displays (Touch)
 - High resolution, 16 million colors, large viewing angle, dimmable from 0 to 100% (this also optimizes the power consumption)
 - Integrated front concept (Panel PC, Comfort Panels)
 - Fanless at up to 50 °C ambient temperature

High-performance data processing at low power consumption

- Intel Atom technology of the Power-Optimized family E6xx
- Wake-on-LAN for remote-controlled switching between stand-by and active state
- Support of Sleep States/SpeedStep -> dynamic power adaptation depending on the required computing performance
- Intel VT-x technology for virtualization

High degree of industrial functionality and flexibility for implementing the embedded solution

- Flexible memory concepts: CompactFlash or Solid-State Drive
- 2 Gbit Ethernet (teaming-capable); PROFINET with RT functionality (via Standard Ethernet)
- 3 high-speed USB 2.0 ports
- 1 RS232
- Ready-to-run embedded bundles with WinAC RTX2010 and/or WinCC RT Advanced (optional)
- 512 KB retentive memory (MRAM), of which 128 KB can be written to within the buffer time (optional)

High system availability in order to reduce the risk of potential failures and maintenance costs

- Maintenance-free since there are no rotating parts (fans, HDD)
- Battery-free operation even if retentive memory option is selected (with time-of-day synchronization via network)
- Comprehensive self-diagnostics by means of pre-installed local diagnostics software SIMATIC IPC DiagBase

High investment security in order to reduce engineering costs

- Long-term availability: Service and support period of 8 - 10 years after market launch

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC277D bundles

Application

The SIMATIC HMI IPC277D is a particularly compact and energy-efficient Nanopanel PC with integrated touch displays with 7-inch screen diagonal or larger. The heart of the SIMATIC HMI IPC277D are high-performance Intel Atom processors of the latest generation. The Nanopanel PCs are designed for maintenance-free 24-hour continuous operation and even meet high temperature, vibration, shock and EMC requirements:

- Simple visualization and control tasks in areas such as mechanical engineering, plant construction, building automation, transportation systems, or power transmission.
- Acquisition, further processing, and visualization of data
- All machine-level applications created in C/C++ or with WinAC/WinCC RT advanced that require rugged, compact IPCs
- Additional new applications such as shipbuilding, storage and logistics

The application spectrum ranges from automation computers fully integrated in TIA with WinAC, for example, to C/C++-based automation solutions with customer-specific operating systems. For software products that require Windows XP Professional, we offer Windows XP Professional multi language pre-installed on a Solid-State Drive.

The SIMATIC HMI IPC277D can be ordered in conjunction with WinCC RT Advanced and/or with WinAC RTX 2010 at an attractive price as ready-to-use bundle.

Function

Visualization

- SIMATIC WinCC RT Advanced can also be ordered as an option, preinstalled and ready-to-use. WinCC RT Advanced offers Powerful methods of visualizing the processes in the machine.
- A permanent message buffer (PMB) is available on an additional partition.

Controlling

- Cyclic program processing
- Interrupt processing
- Time and date-controlled processing
- The controller can save up to 128 KB of retentive data on one integrated, non-volatile memory without the need for an uninterruptible power supply (UPS).
- Total retentivity of all process values of SIMATIC WinAC RTX can be achieved with a generally available UPS.

Functional safety with WinAC RTX F

- The functional safety is implemented by means of targeted safety functions in the software. Safety functions are implemented with the S7 Distributed Safety system, to place the plant in a safe state or to hold it in a safe state. The safety functions are mainly contained within the following components:
 - In the safety-related user program (safety program) in WinLC RTX F
 - In the fail-safe inputs and outputs (F I/O).
- The F I/O ensures safety-related processing of the field information (emergency stop pushbutton, light barriers, motor pre-control). It features all the hardware and software components required for reliable processing, according to the required safety class. The user only programs the user safety functions. The safety functions for the process can be implemented with a user safety function or a system-internal fault reaction function. If the F system is unable to perform the actual user safety function in the event of a fault, it performs instead the fault response function, e.g. the associated outputs are switched off and the F CPU enters the STOP state.

Open access to process values

- SIMATIC NET OPC server supplied with the SIMATIC IPC427C bundles (versions with WinAC RTX) provides open access to all process values. Any visualization systems or data processing systems can be linked to SIMATIC WinAC RTX via this interface.

Communication:

Programming of WinAC RTX with SIMATIC STEP 7 and transfer of the WinCC RT V11 Advanced project is performed via the integrated Industrial Ethernet interface. The communication package SIMATIC NET SOFTNET S7 Lean is installed for this purpose.

Use of other software:

The customer can install supporting software products. Windows XP Embedded is designed so that typical add-on packages can be installed.

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC277D bundles

| Ordering data | Order No. | Order No. |
|--|-------------------|--|
| Configuration SIMATIC HMI IPC277D Interfaces: 2 x Gbit LAN (RJ45), 1 x serial (COM1), 3 x USB <u>Operating unit</u> <ul style="list-style-type: none"> • Touch 7" TFT • Touch 9" TFT • Touch 12" TFT • Touch 15" TFT, front USB interface • Touch 19" TFT, front USB interface <u>Processors / memory expansion / retentivity</u> <ul style="list-style-type: none"> • Atom E660 (1.3 GHz), 2 GByte RAM • Atom E660 (1.3 GHz), 2 GByte RAM, retentivity • Atom E640 (1.0 GHz), 1 GByte RAM • Atom E640 (1.0 GHz), 1 GByte RAM, retentivity <u>Drives</u> <ul style="list-style-type: none"> • Without drive, with CF slot • 2 GByte SIMATIC PC CompactFlash • 4 GByte SIMATIC PC CompactFlash • 8 GByte SIMATIC PC CompactFlash • 50 GByte Solid-State Drive SATA (SLC) <u>Operating system</u> <ul style="list-style-type: none"> • Without operating system • WES 2009 preinstalled (CF from 2 GByte/SSD) • XP-Prof. MUI preinstalled on SSD • WES 7 vorinstalliert (CF from 4 GByte /SSD) • Windows 7 MUI preinstalled on SSD <u>Software bundles</u> <ul style="list-style-type: none"> • Without RTX/HMI software • RTX: WinAC RTX 2010 • RTX-F: WinAC RTX F 2010 • HMI: WinCC RT Advanced 128 PT • HMI: WinCC RT Advanced 512 PT • HMI: WinCC RT Advanced 2048 PT • HMI: WinCC RT Advanced 4096 PT • HMI/RTX: RT 128 PT • HMI/RTX: RT 512 PT • HMI/RTX: RT 2048 PT • HMI/RTX: RT 4096 PT | On request | Accessories Touch pen Captive pen for operation of the touch devices, mounting of the support on the control cabinet or direct on the PRO unit A: Subject to export regulations: AL: N and ECCN: EAR99H <u>Note:</u> Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage. More information under "Embedded Bundles/Packages for industrial PCs". <u>Please be sure to note:</u> The HMI IPC277D with bundle SW is delivered as standard with an inserted CF card. The licenses are located on the supplied USB flash drive. |
| | | 6AV7 672-1JB00-0AA0 |

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC277D bundles

More information

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

Commissioning

Before the control or visualization application is complete, simply perform the following steps:

- Optional: Install and setup additional hardware on the device
- Transfer of the engineering projects from STEP 7 or WinCC Advanced/WinCC Professional
- Transfer of the supplied license keys for SIMATIC software
- Backup of the installed software and protection of the flashbased mass memory by switching on the Enhance Write filter

Replacement devices

For the preferred versions, repaired replacement devices are available extremely quickly ex stock. Preferred versions offer the following options:

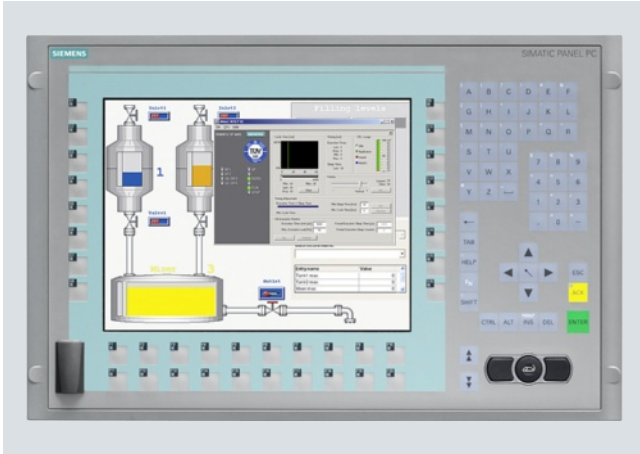
- Exclusively for IPCs with replaceable CompactFlash memory (supplied without mass memory)

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

Overview



Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation

- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Battery-backed retentive memory onboard
- Compact design (only 61–69 mm installation depth for 12"–19")
- High investment protection
- Fast integration capability

The following versions are available:

- Built-in versions
 - 12" and 15" TFT Touch
 - 12" and 15" TFT Key
 - 19" Touch
- Support arm versions
 - PRO 15" and 19" Touch
 Fully-enclosed device to IP65 degree of protection for mounting on a support arm/stand.

Benefits

- Excellent industrial compatibility due to rugged construction, even when subjected to extreme vibration and shock
- High degree of investment protection thanks to assured availability of spare parts (for a period of 5 years following the end of active marketing)
- High degree of continuity of components for long-lasting machine concepts without new engineering overhead
- Savings in time and costs due to service-friendly device design:
 - USB 2.0 ports on the front and rear for simple and fast connection of additional hardware components
- High degree of industrial functionality thanks to integrated PROFIBUS DP/MPI and PROFINET (IE, RT/IRT) interfaces
- Maintenance-free due to lack of rotating components (fan and hard disk)
- Minimization of downtimes thanks to high system availability
 - Efficient self-diagnostics (DiagBase and SIMATIC IPC DiagMonitor)
 - High reliability and security of an embedded platform
- An integrated component of Totally Integrated Automation (TIA):
 - Increase in productivity, minimization of engineering overhead, reduction in lifecycle costs
- Supply of turnkey complete solutions (software already installed and preconfigured) for visualization and automation in combination with WinCC flexible and WinAC RTX.

Application

The SIMATIC HMI IPC477C is designed for use direct at the machine, where the focus is on the combination of ruggedness and maximum reliability (safety of an embedded platform), and where the openness of a PC is also required (e. g. module expansion and connection of I/O devices such as printers, keyboards, etc.).

Due to the minimal mounting depth, it can also be used in confined spaces.

The PC is used both in manufacturing automation and process automation, installed in control cabinets and consoles, 19" cabinets/racks, and as PRO version direct on swivel arms (booms).

A SIMATIC Panel PC is the ideal platform for PC-based automation:

- PC-based visualization, on-site at the machine with SIMATIC WinCC flexible
- PC-based Control with SIMATIC WinAC RTX
- SIMATIC WinCC Web client for Web-based solutions with WinCC/Web Navigator
- SIMATIC WinCC Standard Client and single-user solution

Siemens offers the complete modular system of perfectly coordinated automation components.

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

Design

The HMI IPC477C is a compact device comprising an operator control unit with integrated computer unit.

Standard components of the computer unit:

- Rugged metal enclosure, resistant to vibration and shock, with high electromagnetic compatibility
- Processors:
 - Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Intel Core2 Duo 1.2 GHz
- Main memory basic configuration:
 - 1.2 or 4 GB (DDR3)
 - Battery-backed retentive memory 2 MB
- CompactFlash Drive (internal) with pre-installed Windows XP embedded operating system (Image) and optional software or Solid State Disk (SSD) with Windows XP embedded or Windows XP Professional (MUI)
- Graphics onboard (VGA analog, 1280 x 1024)
- Interfaces:
 - 2 x PROFINET (IE) onboard (10/100/1000 Mbit/s)
 - Optional PROFIBUS DP/MPI onboard, CP 5611-compatible, isolated
 - Optional PROFINET (RT/IRT) onboard, CP 1616-compatible, 3 ports
 - 5 x USB 2.0 port, 500 mA (1 x on front)
 - 1 x COM1 (RS232)
 - 1 x DVI-I (for connecting a second display unit)
- Free slots for expansions:
 - 1 x CompactFlash slot (externally accessible)
- Power supply: 24 V DC

Components of the operator control unit:

The operator control units are available in the following versions:

12" Key

- 12" TFT color display, 800 x 600 pixels (SVGA)
- Membrane keyboard with international PC character set and 36 additional function keys, as well as integrated mouse
- USB interface

12" Touch

- 12" TFT color display, 800 x 600 pixels (SVGA)
- Resistive analog touch screen
- USB interface

15" Key

- 15" TFT color display, 1024 x 768 pixels (XGA)
- Membrane keyboard with international PC character set and 36 additional function keys, as well as integrated mouse
- USB interface

15" Touch

- 15" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen
- USB interface

19" Touch

- 19" TFT color display, 1280 x 1024 (SXGA)
- Resistive analog touch screen
- USB interface

PRO 15" Touch

- Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand
- 15" TFT color display, 1024 x 768 pixels (XGA)
- Resistive analog touch screen

PRO 19" Touch

- Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand
- 19" TFT color display, 1280 x 1024 pixels (SXGA)
- Resistive analog touch screen

The built-in devices are equipped with an USB 2.0 interface at the front for connecting external I/O devices such as a mouse or keyboard and fulfill the requirements of degree of protection IP65 and NEMA 4.

Expansion components (accessories)

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnosis of PC problems
- Comprehensive monitoring of temperature, watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)
- Network-wide monitoring via SNMP and OPC interface possible

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data back-up of the contents of bulk storage (CF cards, hard disks)
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for adaptation of mass storage partitioning.

3.5" USB disk drive

The USB disk drive is provided for fast exchange of user data (e. g. recipes) or files. The drive must not be used as a cyclic archiving drive. The front-panel installation and degree of protection IP54 permit data exchange from the front without opening the control cabinet door.

The device is connected via the USB interface of the Panel PC. The power is also supplied over the USB interface. A USB cable of 1 m length is included in the scope of supply. The disk drive corresponds to the USB 1.1 standard. 3.5" high density disks can be used (1.44 MB).

Operation of the USB disk drive on SIMATIC Panel PCs:

- Windows XP: possible without separate driver
- The driver is included in the scope of supply of the operating system

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

Design (continued)

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC PC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged

SIMATIC IPC Service USB FlashDrive

- Mobile memory medium for backing up/restoring mass memories
- Pre-installed Image & Partition Creator V3.0 and BIOS manager
- Ultra-compact and rugged

Industrial USB Hub 4

- Industry-standard USB 2.0 hub, front IP65
- Installation in control cabinet door or on DIN rail
- Inspection window and LEDs for each of the four interfaces

Note:

You can find more information under "Expansion components".

Function

- DiagBase: Integrated, parameterizable monitoring functions (program execution/watchdog, internal enclosure temperature, DIAG bit for CF cards similar to S.M.A.R.T for hard disks)
- Expanded diagnostics/messages via Ethernet, e-mail, text message and for direct transfer to SIMATIC software via OPC (optionally via SIMATIC IPC DiagMonitor)

Integration

Integrated interfaces:

- Ethernet

The integrated PROFINET interfaces (10/100/1000 Mbit/s) can be used for IT communication and for exchanging data with programmable controllers such as SIMATIC S7 (with the "SOFTNET S7" software packages).

Available options: PROFINET (IRT) with 3 ports instead of an PROFINET (IE).

- PROFIBUS onboard (option)

The floating PROFIBUS interface (12 Mbit/s) can be used for connecting distributed field devices or for coupling to SIMATIC S7 (with software packages "SOFTNET for PROFIBUS").

- Other interfaces

For connecting additional I/O devices, 5 USB (Universal Serial Bus) interfaces and one serial interface are available.

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

Technical specifications

| | 6AV7 884.. | 6AV7 883..PRO |
|--|---|---|
| General features | | |
| Processors | Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Core2 Duo 1.2 GHz | Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Core2 Duo 1.2 GHz |
| Memory type | DDR3-RAM | DDR3-RAM |
| Main memory | 1 GB, 2 GB or 4 GB | 1 GB, 2 GB or 4 GB |
| Free slots | 1 x CF card slot (externally accessible) | 1 x CF card slot (externally accessible) |
| Operating system | Windows Embedded Standard 2009 (ENG/GER) or Windows XP Professional multi language | Windows Embedded Standard 2009 (ENG/GER) or Windows XP Professional multi language |
| Additional OS information | Language: ENG/GER | Language: ENG/GER |
| SIMATIC Software | Optionally with preinstalled bundle software SIMATIC WinCC flexible and/or WinAC RTX 2 SIMATIC WinAC RTX F SIMATIC WinCC as web client or single-user station | Optionally with preinstalled bundle software SIMATIC WinCC flexible 2 S and/or WinAC RTX SIMATIC WinAC RTX F SIMATIC WinCC as web client or single-user station |
| Drives | | |
| Disk drive | Optionally via external USB floppy disk drive | Optionally via external USB floppy disk drive |
| Optical drives | Possible as external drive via USB | Possible as external drive via USB |
| Hard drive/mass storage | CompactFlash drive with 2, 4 or 8 GB and/or SSD (Solid State Drive) with 32 GB | CompactFlash drive with 2, 4 or 8 GB and/or SSD (Solid State Drive) with 32 GB |
| Interfaces | | |
| Graphic interface | DVI-I for additional display unit: Color depth 32 bits | DVI-I for additional display unit: Color depth 32 bits |
| Connection for keyboard/mouse | USB / USB | USB / USB |
| Serial interface | COM1: 1 x V.24 (RS232) | COM1: 1 x V.24 (RS232) |
| PROFIBUS/MPI | Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP 5611-compatible, not upgradeable | Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP 5611-compatible, not upgradeable |
| PROFINET (RT/IRT) | Optional: 3 x RJ45, CP 1616-compatible; not upgradeable | Optional: 3 x RJ45, CP 1616-compatible; not upgradeable |
| USB | 1 x on front, 4 x on rear, USB 2.0 (500 mA) | 1 x on front, 4 x on rear, USB 2.0 (500 mA) |
| PROFINET (IE), Ethernet | onboard, 2 x 10/100/1000 Mbit (RJ45 with/without PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFINET), no plug-in card required | onboard, 2 x 10/100/1000 Mbit (RJ45 with/without PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFINET), no plug-in card required |
| Multimedia | No | No |
| Supply voltage | | |
| Supply voltage | 24 V DC | 24 V DC |
| Monitoring functions | | |
| Temperature | Yes | Yes |
| Watchdog | Yes | Yes |
| Diagbit (similar to S.M.A.R.T.) | Yes (for CF cards and SSD) | Yes (for CF cards and SSD) |
| Status LEDs | Yes (on rear) | Yes |
| Front side according to EN 60529 | IP65 (on the front) according to EN 60529 and NEMA4 | IP65 all around according to EN 60529 and NEMA4 |
| Ambient conditions | | |
| Vibration load during operation | Tested in accordance with IEC 60068-2-6: 10 - 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s ² (1 g) | Tested in accordance with IEC 60068-2-6: 10 - 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s ² (1 g) |
| Shock load during operation | Tested in accordance with IEC 60068-2-7: 50 m/s ² (5 g), 30 ms, 100 shocks | Tested in accordance with IEC 60068-2-7: 50 m/s ² (5 g), 30 ms, 100 shocks |
| Relative humidity | Tested in accordance with IEC 60068-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation) | Tested in accordance with IEC 60068-78, IEC 60068-2-30: 5% to 80% at 25 °C (no condensation) |
| Maximum permissible installation angle +/- | 30° over vertical | 45° over vertical |
| Ambient temperature during operation | 0 °C ... +50 °C in maximum configuration; no fan | 15": 0 °C ... +45 °C in maximum configuration; no fan 19": 0 °C ... +40 °C in maximum configuration; no fan |
| Certifications & standards | | |
| Approvals | CE, cULus(508), Marine | CE, cULus(508) |
| EMC | CE, 55022A, EN 61000-6-4, EN 61000-6-2 | CE, 55022A, EN 61000-6-4, EN 61000-6-2 |

Technical specifications (continued)

| | 6AV7 884-0 | 6AV7 884-1 | 6AV7 884-2 | 6AV7 884-3 | 6AV7 884-5 | 6AV7 883-6 (PRO) | 6AV7 883-7 (PRO) |
|---|---|---|---|---|---|---|---|
| Front panel | 12" TFT Touch | 12" TFT Key | 15" TFT Touch | 15" TFT Key | 19" TFT Touch | 15" TFT Touch | 19" TFT Touch |
| Display | | | | | | | |
| Resolution (W x H in pixels) | 800 x 600 | 800 x 600 | 1024 x 768 | 1024 x 768 | 1280 x 1024 | 1024 x 768 | 1280 x 1024 |
| MTBF of backlighting (at 25 °C) | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent | 50000 h at 24 h continuous operation, temperature-dependent |
| Type of operation | | | | | | | |
| Function keys | No | 36 | No | 36 | No | No | No |
| Alphanumeric keyboard | No | Yes | No | Yes | No | No | No |
| Touch screen (analog/resistive) | Yes | No | Yes | No | Yes | Yes | Yes |
| Mouse on front | No | Yes | No | Yes | No | No | No |
| Design | | | | | | | |
| Centralized configuration | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Distributed configuration | No | No | No | No | No | No | No |
| Dimensions | | | | | | | |
| Mounting dimensions in centralized configuration (W x H x D, without optical drive) in mm | 368 x 290 x 61 | 450 x 290 x 61 | 450 x 290 x 64 | 450 x 321 x 59 | 450 x 380 x 71 | 400 x 310 x 98 | 483 x 400 x 115 |
| Operator control unit (W x H) in mm | 400 x 310 (7 HU) | 483 x 310 (19", 7 HU) | 483 x 310 (19", 7 HU) | 483 x 355 (19", 8 HU) | 483 x 400 (19", 9 HU) | 483 x 400 (19", 9 HU) | 483 x 400 (19", 9 HU) |
| Weight | 6.1 kg | 6.6 kg | 7.0 kg | 6.6 kg | 7.2 kg | 7.4 kg | 10.9 kg |
| General features | | | | | | | |
| Accessories | Touch protective membranes | Insertable strips for keyboard | Touch protective membranes | Insertable strips for keyboard | Touch protective membranes | Touch protective membranes | Touch protective membranes |
| Power loss in maximum configuration | 24 V DC: max. 45 W | 24 V DC: max. 45 W | 24 V DC: max. 55 W | 24 V DC: max. 55 W | 24 V DC: max. 60 W | 24 V DC: max. 55 W | 24 V DC: max. 55 W |

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

Ordering data

Order No.

Bundles with WinAC RTX 2010 and WinCC flexible 2008 SP2

(Built-to-order version, delivery time max. 15 business days and with identified repair, if not preferred type)

Configuration

SIMATIC HMI IPC477C PRO

E 6AV7 883 - A - - - - 0

Embedded and fan-free with fully enclosed IP65 enclosure
4 x USB (500 mA), 24 V DC power supply with On/Off switch

SIMATIC HMI IPC477C

E 6AV7 884 - A - - - - 0

Fan-free
5 x USB 2.0 (500 mA), one of which on the front
1 x COM (RS232)
24 V DC power supply with On/Off switch

Front Panels

- 12" TFT Touch ¹⁾ 0
- 12" TFT Key 1
- 15" TFT Touch ¹⁾ 2
- 15" TFT Key 3
- 19" TFT Touch ¹⁾ 4
- 15" TFT Touch (IP65 enclosure; PRO) 5
- 19" TFT Touch (IP65 enclosure; PRO) 6
- 19" TFT Touch (IP65 enclosure; PRO) 7

Processors and fieldbus

- Celeron M 1.2 GHz, 2 x PROFINET (IE) ¹⁾ A
- Celeron M1 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 ¹⁾ B
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE) ¹⁾ D
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 ¹⁾ E
- Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports) ¹⁾ F
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE) ¹⁾ G
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 ¹⁾ H
- Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports) ¹⁾ J

Main memory (DDR3 RAM), 1 bank

- 1 GB 1
- 2 GB ¹⁾ 2
- 4 GB 3

Order No.

Bundles with WinAC RTX 2010 and WinCC flexible 2008 SP2

(Built-to-order version, delivery time max. 15 business days and with identified repair, if not preferred type)

Configuration (continued)

SIMATIC HMI IPC477C

E 6AV7 884 - A - - - - 0

Second mass storage (installed and formatted)

- Without ¹⁾ 0
- CompactFlash 2 GB (only with Windows Embedded Standard 2009) ¹⁾ 2
- CompactFlash 4 GB ¹⁾ 3
- CompactFlash 8 GB ¹⁾ 4
- SSD (Solid State Drive) min. 32 GB 6

Mass storage (installed, Windows Embedded Standard 2009 (Eng/Ger) preinstalled, optionally with SIMATIC software)

- CompactFlash 2 GB ¹⁾ 2
- CompactFlash 4 GB ¹⁾ 3
- CompactFlash 8 GB ¹⁾ 4
- SSD (Solid State Drive) min. 32 GB 6

Operating system

- Windows Embedded 2009, pre-installed ¹⁾ B A
- Windows XP Professional Multi Language, only with SSD; without SIMATIC software D A

Software packages, only with CF 4 GB or higher ¹⁾

- with operating system and RTX WinAC RTX 2010 pre-installed and configured B B
- with operating system and HMI WinCC flexible 2008 SP2 RT (incl. archives/recipes) pre-installed and configured
 - Number of tags 128 PT B C
 - Number of tags 512 PT B D
 - Number of tags 2048 PT B E
 - Number of tags 4096 PT B F
- with operating system and HMI/RTX WinCC flexible 2008 SP2 RT (incl. archives/recipes) and WinAC RTX 2010 pre-installed and configured
 - Number of tags 128 PT B K
 - Number of tags 512 PT B L
 - Number of tags 2048 PT B M
 - Number of tags 4096 PT B N
- with operating system and RTX F WinAC RTX 2010 pre-installed and configured B P
- with operating system and HMI/RTX F WinCC flexible 2008 SP2 RT (incl. archives/recipes) and WinAC RTX F 2010 pre-installed and configured
 - Number of tags 128 PT B R
 - Number of tags 512 PT B S
 - Number of tags 2048 PT B T
 - Number of tags 4096 PT B U

¹⁾ Preferred versions with repaired replacement device from warehouse

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

Embedded Panel PC bundles

SIMATIC HMI IPC477C bundles

| Ordering data | | Order No. | | Order No. | |
|--|--|-------------------------------|--|---|--|
| Bundles with WinCC V7.0 SP2, incl. Update 1 | | | | Accessories | |
| ("Built to order" with delivery time of max. 14 business days, for hardware only repairs are possible) | | | | Protective film for Panel PCs 477/577/677 | |
| Configuration | | | | For protecting the touch screen against dirt/scratches | |
| SIMATIC HMI IPC477C | | E 6AV7 88 4 - A - 0 - B 0 | | • for 12" Touch | |
| Fan-free | | | | • for 15" Touch (not for PRO) | |
| 4 x USB 2.0 on rear, 1 x USB 2.0 on front, 1 x COM (RS232), 2 x 10/100/1000 Mbit/s Ethernet (RJ45); software pre-installed on CF/SSD: | | | | • for 19" Touch | |
| Windows Embedded Standard, SIMATIC WinCC V7.0 SP1 | | | | Labeling membranes for Panel PCs 477/577/677 | |
| SIMATIC HMI IPC477C PRO | | E 6AV7 88 3 - A - 0 - B 0 | | For labeling soft keys and function keys, blank, supplied in sets of 10 | |
| Fan-free, 4 x USB 2.0 (500 mA), 1 x USB 2.0 on front (not on PRO), 1 x COM (RS 232), 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), Windows Embedded 2009 pre-installed SIMATIC WinCC V7.0 SP2 incl. Update 1 Runtime pre-installed | | | | Touch pen | |
| Front Panel | | | | A 6AV7 672-1JB00-0AA0 | |
| • 15" TFT Touch | | 6AV7 88 4 2 | | Expansion components | |
| • 19" TFT Touch | | 6AV7 88 4 5 | | SIMATIC IPC DiagMonitor V4.2 | |
| • 15" TFT Touch PRO | | 6AV7 88 3 6 | | B 6ES7 648-6CA04-2YX0 | |
| • 19" TFT Touch PRO | | 6AV7 88 3 7 | | Software tool for monitoring SIMATIC PCs, incl. manual, on CD-ROM (German/English) | |
| Client configurations | | | | SIMATIC IPC Image & Partition Creator V3.1 | |
| Processor Celeron M 1.2 GHz, 1 GB DDR3 RAM, 4 GB CF Card, runtime license 128 PT | | E 6AV7 88 - A A 1 0 - 3 B X 0 | | D 6ES7 648-6AA03-1YA0 | |
| Client and single-user station configurations | | | | Software tool for preventive data backup and hard disk partitioning for SIMATIC PCs, incl. manual on CD-ROM (German, English) | |
| Processor Core2 Solo 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF Card, runtime license 128 PT | | E 6AV7 88 - A D 2 0 - 4 B X 0 | | SIMATIC IPC USB FlashDrive | |
| Processor Core2 Solo 1.2 GHz, PROFIBUS DP, 2 GB SDRAM-DDR3, 8 GB CF Card, runtime license 128 PT | | E 6AV7 88 - A E 2 0 - 4 B X 0 | | A 6ES7 648-0DC50-0AA0 | |
| Single-user station configurations | | | | SIMATIC IPC Service USB FlashDrive | |
| Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3 | | E 6AV7 88 - A H 3 0 - B 0 | | B 6AV7 672-8JD01-0AA0 | |
| • 8 GB CF Card | | E 6AV7 88 - A H 3 0 - 4 B 0 | | 8 GB, USB 2.0, metal enclosure, bootable | |
| • 32 GB SSD | | E 6AV7 88 - A H 3 0 - 6 B 0 | | With: BIOS Manager, Image & Partition Creator pre-installed, incl. CD | |
| • Runtime license 128 PT | | E 6AV7 88 - A H 3 0 - B X 0 | | USB disk drive 3.5" | |
| • Runtime license 2048 PT | | E 6AV7 88 - A H 3 0 - B W 0 | | A 6FC5 235-0AA05-1AA2 | |
| | | | | with 1 m connecting cable | |
| | | | | Industrial USB Hub 4 | |
| | | | | A 6AV6 671-3AH00-0AX0 | |
| | | | | 4 x USB 2.0, IP65 for control cabinet door or DIN rail | |
| | | | | CompactFlash Card | |
| | | | | • 2 GB | |
| | | | | A 6ES7 648-2BF02-0XF0 | |
| | | | | • 4 GB | |
| | | | | A 6ES7 648-2BF02-0XG0 | |
| | | | | • 8 GB | |
| | | | | A 6ES7 648-2BF02-0XH0 | |

1) Preferred versions with repaired replacement device from warehouse

Note:

Other ready-to-use SIMATIC HMI IPC477C can be found under HMI IPC477C.

Further complete turnkey solutions (software pre-installed and configured) based on the Microbox PC can be found under SIMATIC PC based Control.

A: Subject to export regulations: AL: N and ECCN: EAR99H

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 9I999 and ECCN: 5D002ENCU

Please be sure to note:

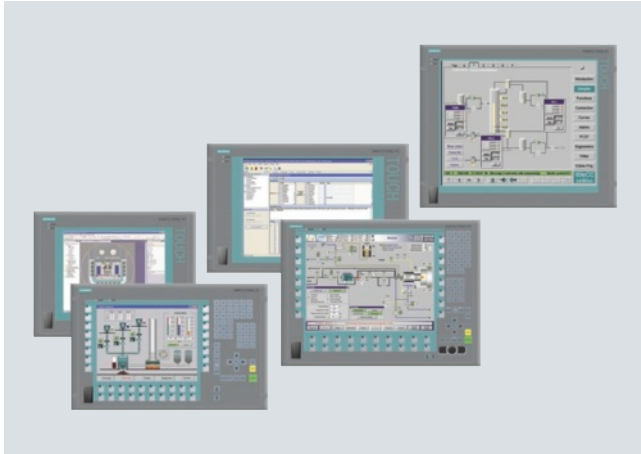
The HMI IPC477C is delivered as standard with an inserted CF card. The licenses are located on the supplied USB flash drive.

PC-based Automation

Software packages

Software packages

Overview



SIMATIC IPC and S7-mEC with SIMATIC WinCC flexible

- SIMATIC IPC packages with WinCC flexible are an innovative solution for simple visualization tasks directly at the machine in the field of operator control and monitoring.
- This package can only be supplied if a SIMATIC IPC or S7-mEC (same quantity) is ordered together with the WinCC flexible Runtime software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (HMI IPC477C (PRO) and IPC427C) and the Embedded Controller S7-mEC, there are turn-key solutions (bundles), i.e. the runtime software is already preinstalled.

SIMATIC IPC with SIMATIC WinCC

- The SIMATIC IPC packages with WinCC make it easy to order all the components required for an OCM solution on the basis of a Panel PC.
- This package can only be supplied if a SIMATIC IPC or S7-mEC (same quantity) is ordered together with the WinCC flexible Runtime software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (HMI IPC477C (PRO) and IPC427C) and the Embedded Controller S7-mEC, there are turn-key solutions (bundles), i.e. the runtime software is already preinstalled.

SIMATIC IPC with SIMATIC WinAC RTX (F)

- The SIMATIC IPC packages with WinAC RTX make it easy to order all the components required for a control solution on the basis of an industrial PC.
- This package can only be supplied if a SIMATIC Industrial PC (same quantity) is ordered together with the WinAC RTX Runtime software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (HMI IPC477C (PRO) and IPC427C) and the Embedded Controller S7-mEC, there are turn-key solutions (bundles), i.e. the runtime software is already preinstalled.

Benefits

- Easy to order
- Cost savings in contrast to ordering components individually
- Optimally tuned hardware for the SIMATIC HMI software
- System-tested solution

Design

SIMATIC IPC and S7-mEC with SIMATIC WinCC flexible

The order configurator gives you a free choice of how the SIMATIC Industrial PC hardware is configured – depending on individual requirements for display and system performance.

Customers must install the desired WinCC flexible Runtime software and the communication hardware and software themselves. The WinCC flexible Runtime software is supplied with the devices. The package also contains the runtime options for WinCC flexible /Archives and WinCC flexible /Recipes.

Runtime licenses are required for WinCC flexible Runtime. One of the offered licenses can be selected depending on the number of Power Tags required.

The term PowerTags is used exclusively to describe process variables that have a process link to the controller.

Variables without process link, constant limit values of variables, and messages are also available for additional system performance.

SIMATIC IPC with SIMATIC WinCC

The order configurator gives you a free choice of how the SIMATIC Industrial PC hardware is configured – depending on individual requirements for display and system performance. It is only necessary in this case to comply with the minimum requirements that WinCC places on the basic hardware.

Minimum configuration:

- Processor: Pentium III 933 MHz or Celeron 650 MHz or higher
- 12" or 15" display (at least 600 x 800 pixels resolution)
- Main memory expansion min. 512 MB
- Min. 10 GB with CD-ROM
- Windows 2000 Multilanguage or Windows XP Professional multi language

For process communication, you can choose between the on-board, CP 5611-compatible PROFIBUS interface or the powerful modules CP 1613 for Industrial Ethernet and CP 5613 for PROFIBUS.

From the configurator for the WinCC package, another order item can be selected that then contains the relevant WinCC software package and the communication module.

Both order items are delivered together. Customers must install the communication hardware and the WinCC software themselves.

Runtime licenses are required for WinCC Runtime. One of the offered licenses can be selected depending on the number of Power Tags required.

The term Power Tags is used exclusively to describe process variables that have a process link to the controller. Variables without process link, constant limit values of variables, and messages are also available for additional system performance.

| Ordering data | Order No. | Order No. |
|---|--|---|
| Configuration | | |
| SIMATIC WinCC flexible package ^{1) 3)} (incl. archives and recipes) WinCC flexible 2008 Runtime <ul style="list-style-type: none"> • 128 Power Tags • 512 Power Tags • 2048 Power Tags • 4096 Power Tags | D 6AV6 623 - 2 A 0 0 - 0 A A 0 B D F G | SIMATIC WinAC RTX (F) package <ul style="list-style-type: none"> • SIMATIC WinAC RTX^{2) 3)} B 6ES7 671-0RC08-6YA0 • SIMATIC WinAC RTX F^{2) 3)} B 6ES7 671-1RC08-6YA0 |
| SIMATIC WinCC package ²⁾ WinCC V6.2 SP3 Runtime ²⁾ <ul style="list-style-type: none"> • 128 Power Tags • 256 Power Tags • 1024 Power Tags • 8192 Power Tags • 65536 Power Tags | 6AV6 382 - 2 A 0 6 - 2 A X 0 C D E H F | Ready-to-use Panel PC 477B as a WinCC Standard Client WinCC V7.0 is already installed and set up on the 4 GB Compact-Flash Card as a standard client. The Panel PC 477B has a 24 V DC power supply and has 2x Ethernet 1 Gbit/s, 4x USB 2.0, 1x COM1 (RS232). Available solutions: <ul style="list-style-type: none"> • 15" Touch, Celeron 1.0 GHz processor with 1 GB main memory 6ES7 676-3RA20-0DS0 • 15" Touch, Pentium M 1.4 GHz processor with 2 GB main memory E 6ES7 676-3GA30-0DS0 • 19" Touch, Celeron 1.0 GHz processor with 1 GB main memory E 6ES7 676-6DA20-0DS0 • 19" Touch, Pentium M 1.4 GHz processor with 2 GB main memory 6ES7 676-6GC30-0DS0 |
| SIMATIC WinCC package ²⁾ WinCC V7.0 SP2 Runtime ²⁾ <ul style="list-style-type: none"> • 128 Power Tags • 512 Power Tags • 2048 Power Tags • 8192 Power Tags • 65536 Power Tags | 6AV6 382 - 2 A 0 7 - 0 A X 0 C D E H F | |
| SIMATIC WinCC (TIA Portal) | | |
| WinCC Runtime Advanced Package ^{1) 3)} incl. Recipes + Logging <ul style="list-style-type: none"> • 128 Power Tags • 512 Power Tags • 2048 Power Tags • 4096 Power Tags | 6AV2 114 - 2 A 0 0 - 0 A A 0 B D F H | |
| SIMATIC WinCC Runtime Professional Package ^{1) 3)} <ul style="list-style-type: none"> • 128 Power Tags • 512 Power Tags • 2048 Power Tags • 4096 Power Tags • 8192 Power Tags • 65536 Power Tags | 6AV2 115 - 2 A 0 0 - 0 A A 0 B D F H K M | |

¹⁾ Only if ordered together with a SIMATIC IPC or S7-mEC

²⁾ Only if ordered together with a SIMATIC IPC

³⁾ The current version will always be supplied

Note:

For ordering data for Panel PCs and accessories, see configurators in "SIMATIC Panel PCs".
Other ready-to-use SIMATIC IPC427C can be found in the Box PCs chapter under IPC427C bundles.

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

More information

Further information can be found on the Internet at:

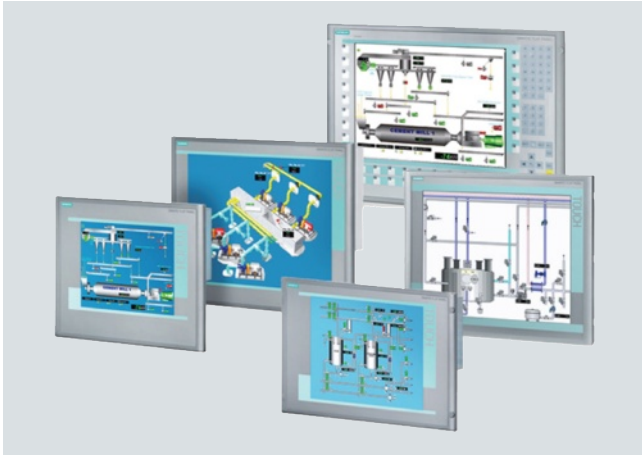
www.automation.siemens.com/simatic-hmi

PC-based Automation

Industrial Monitors and Thin Clients

SIMATIC Flat Panels

Overview



The Flat Panels are rugged industry-standard LCD monitors.

- Installation:
 - They are equally suited to installation in the machine, in control cabinets, consoles and booms or in 19" racks.
 - As a device with all-round IP65 protection for mounting on a supporting arm/stand
- Type of operator control:
 - Simple display devices without operator functionality
 - Optional devices with touch control
 - Rear connection of I/O devices (optional)

Benefits

- Rugged industrial design:
 - High shock and vibration resistance as well as extremely high electromagnetic compatibility make for a fail-safe and long-lasting design
 - Enclosure front in degree of protection IP65/NEMA4, resistant against dust and humidity
 - Enclosure version complete in degree of protection IP65 for mounting on supporting arm
 - Scratch-resistant, anti-glare mineral glass screen, providing high mechanical protection against pressure and scratching
 - Meets CE standard "Industry"
- Variety of versions
- No X-rays
- Lower energy requirement
- Fatigue-proof operation:
 - Wide reading angle of up to 170° horizontal and vertical
 - Sharp and high-contrast graphic display
 - No flickering, uniform brightness
 - Automatic display adjustment (Auto Adjust)
- Configuration using on-screen display (OSD)
- Small space requirement and low weight
- Long service life

Application

The Flat Panels are used wherever the PC computing unit and the operator/display unit must be installed remotely from one another for technical or application-related reasons. SIMATIC Flat Panels are suitable for direct connection to any PC, in particular, however, for use with the SIMATIC Box PC or SIMATIC Rack PC.

Design

- Rugged aluminum front
- TFT display in following sizes:
 - 12" / 800 x 600 pixels
 - 15" / 1024 x 768 pixels
 - 17" / 1280 x 1024 pixels
 - 19" / 1280 x 1024 pixels
- 256K up to 16 million colors
- Anti-glare and hardened mineral glass screen
- Basic display or touch screen option
- 24 V DC power supply, additional option with 100-240 V AC (50/60Hz)
- Can be located up to 5 m from the computing unit

The following are included in the scope of supply of the built-in units:

- 24 V connection plug
- Power supply cable (Europe) for version with AC power pack (power supply cables for other countries can be ordered as an accessory)
- VGA connection cable 1.8 m (other cable lengths and DVI cable available separately as accessories)
- USB Touch connection cables for Touch devices (other cable lengths available separately as accessories)
- Latch fastener
- Operating instructions, 2 languages (German and English)
- CD-ROM with hardware drivers and documentation

The following are included in the scope of supply of the PRO devices:

- 24 V connection plug
- Power supply cable (Europe) (power supply cables for other countries can be ordered as an accessory)
- Operating instructions, 2 languages (German and English)
- CD-ROM with hardware drivers and documentation

Special functions of extended versions

- Can be located up to 30 m from the computing unit
- Two rear USB interfaces
- Dimmable backlit display
- Combined AC and DC power supply
- EX22 approval for 17" and 19" devices
- Marine approvals

Flat Panel PRO 15"/19" Touch devices

- For mounting on a support arm or stand
- IP65 all-round, enclosure type 4x
- 15"/19" Touch display
- Rugged aluminum enclosure
- 24 V DC power supply and 100-240 V AC (50/60 Hz) combined
- Two internal USB interfaces, one of which can be equipped with the accessory "USB service interface"
- Can be located up to 30 m from the computing unit
- Device can be adapted from above or below
- Direct connection to support arm systems from well-known manufacturers (e. g. Rittal, Bernstein, Rose, Rolec)
- Supports the internationally established standard VESA 75 / VESA 100 for adjustable mounting

PC-based Automation

Industrial Monitors and Thin Clients

SIMATIC Flat Panels

Technical specifications

| Flat Panel | 12" | 15" | 17" | 19" |
|---|---|---|---|---|
| Supply voltage | | | | |
| Supply voltage | 24 V DC, additional option 100-240 V AC | 24 V DC, additional option 100-240 V AC | 24 V DC, additional option 100/240 V AC | 24 V DC, additional option 100/240 V AC |
| Permissible frequency range | 47 - 63 Hz | 47 - 63 Hz | 47 - 63 Hz | 47 - 63 Hz |
| Power consumption, max. | 25 VA | 35 VA | 55 VA | 55 VA |
| General features | | | | |
| Anti-glare and hardened mineral glass screen | Yes | Yes | Yes | Yes |
| Line side switch | No | No | No | No |
| Can be separate from the computer | Optional up to 30 m | Optional up to 30 m | Optional up to 30 m | Optional up to 30 m |
| Display | | | | |
| On-screen display (OSD) configuration | Yes | Yes | Yes | Yes |
| Display version | 12" TFT | 15" TFT | 17" TFT | 19" TFT |
| Visible area (HxV) in mm | 246 x 184.5 | 304 x 228 | 304 x 228 | 376 x 301 |
| Viewing angle | 140° x 120° | 140° x 120° (min) | 170° x 170° | 170° x 170° |
| Pixel pitch | 0.3075 mm x 0.3075 mm | 0.297 mm x 0.297 mm | 0.297 mm x 0.297 mm | 0.294 mm x 0.294 mm |
| Resolution (W x H in pixels) | 800 x 600 | 1024 x 768 | 1280 x 1024 | 1280 x 1024 |
| Refresh rate | 60 - 75 Hz | 60 - 75 Hz | 60 - 75 Hz | 60 - 75 Hz |
| Line frequency | 25 - 48 kHz | 46.7 - 62.5 kHz | 30 - 80 KHz | 30 - 80 KHz |
| Brightness/Contrast | > 350 cd/m ² / 450:1 | > 260cd/m ² / 350:1 | > 300cd/m ² / 300:1 | > 300cd/m ² / 300:1 |
| Number of colors | 262k | 16.7 million | 16.7 million | 16.7 million |
| MTBF backlit display (at 25 °C, 24 h continuous duty) | 50,000 h | 50,000 h | 50,000 h | 50,000 h |
| Type of operation | | | | |
| Touch screen | analog-resistive, optional | analog-resistive, optional | analog-resistive, optional | analog-resistive, optional |
| Connection for mouse/keyboard/barcode reader | Yes, at rear, optionally via USB | Yes, at rear, optionally via USB | Yes, at rear, optionally via USB | Yes, at rear, optionally via USB |
| Degree of protection | | | | |
| Front side according to EN 60529 | IP65 | IP65 | IP65 | IP65 |
| Rear side according to EN 60529 | IP20 | IP20 | IP20 | IP20 |
| Certifications & standards | | | | |
| Certification | cULus (UL 508), NEMA4 tested | cULus (UL 508), NEMA4 tested | cULus (UL 508), NEMA4 tested | cULus (UL 508), NEMA4 tested |
| EMC | CE EN 55011 class A | CE EN 55011 class A | CE EN 55011 class A | CE EN 55011 class A |
| Standards, approvals, certificates | | | | |
| CE marking | Yes | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes | Yes |
| CCC marking | Yes | Yes | Yes | Yes |
| Ambient conditions | | | | |
| Vibration load during operation | 1 g (10 m/s ²) | 1 g (10 m/s ²) | 1 g (10 m/s ²) | 1 g (10 m/s ²) |
| Shock loading during operation | 5 g (50 m/s ²) | 5 g (50 m/s ²) | 5 g (50 m/s ²) | 5 g (50 m/s ²) |

PC-based Automation

Industrial Monitors and Thin Clients

SIMATIC Flat Panels

Technical specifications (continued)

| Flat Panel | 12" | 15" | 17" | 19" |
|--|---|---|---|---|
| Temperature | | | | |
| Ambient temperature during operation | 5 to +50°C | 5 to +50°C | 5 to +45°C | 5 to +45 °C |
| Mounting | | | | |
| Rack mounting | No | No | No | No |
| Front mounting | Yes (IP65) | Yes (IP65) | Yes (IP65) | Yes (IP65) |
| Angle of inclination for desk mounting | -20°/+70° | -20°/+70° | -20°/+70° | -20°/+70° |
| Interfaces | | | | |
| Graphic interface | Standard VGA interface 15-pin Sub D / digital DVI-D interface | Standard VGA interface 15-pin Sub D / digital DVI-D interface | Standard VGA interface 15-pin Sub D / digital DVI-D interface | Standard VGA interface 15-pin Sub D / digital DVI-D interface |
| Interface for Touch | USB (V1.1) | USB (V1.1) | USB (V1.1) | USB (V1.1) |
| USB interface for touch screen | Optional | Optional | Optional | Optional |
| Dimensions | | | | |
| External dimensions (W x H x D) in mm | 400 x 310 x 61.5 | 483 x 310 x 54 | 483 x 400 x 56 | 483 x 400 x 56 |
| Installation cutout/device depth (W x H x D) in mm | 368 x 290 x 51 | 450 x 290 x 54 | 449 x 380 x 56 | 449 x 380 x 56 |
| Weight | | | | |
| Weight, approx. | 5 kg | 6.4 kg | 10.2 kg | 10.2 kg |

Ordering data

Order No.

Accessories

Cover foils

For protecting the touch screen
against dirt
and scratches
Pack with 10 units

- for 12" Touch
- for 15" Touch
- for 19" Touch

Mounting elements for Panel PC 57x/67x/Flat Panel

- For screw mounting, e. g. in
19" rack cabinet

Touch pen

- Undetachable pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit

Connection cables for Standard, Extended and PRO versions

- Video (VGA)
 - 3.0 m
 - 5.0 m
- Video (DVI-D)
 - 3.0 m
 - 5.0 m

- USB for optional touch screen
 - 3.0 m
 - 5.0 m

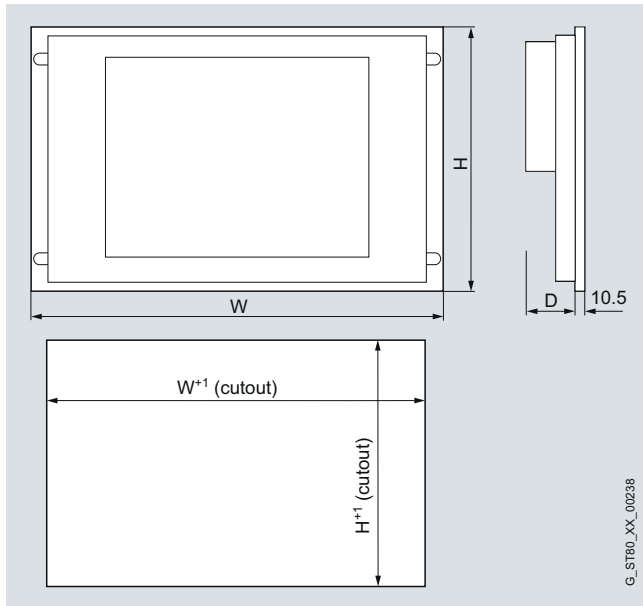
Connection cables for Extended and PRO versions

- Cable set 10 m (DVI-D, CAT5 cable(USB), USB transmitter module)
- Cable set 15 m (DVI-D, CAT5 cable(USB), USB transmitter module)
- Cable set 20 m (DVI-D, CAT5 cable(USB), USB transmitter module)
- Cable set 30 m (DVI-D, CAT5 cable(USB), USB transmitter module)

A: Subject to export regulations: AL: N and ECCN: EAR99H

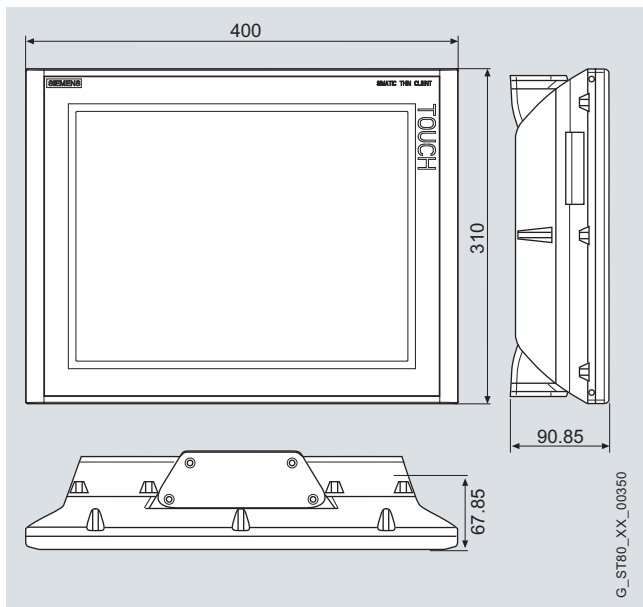
Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.

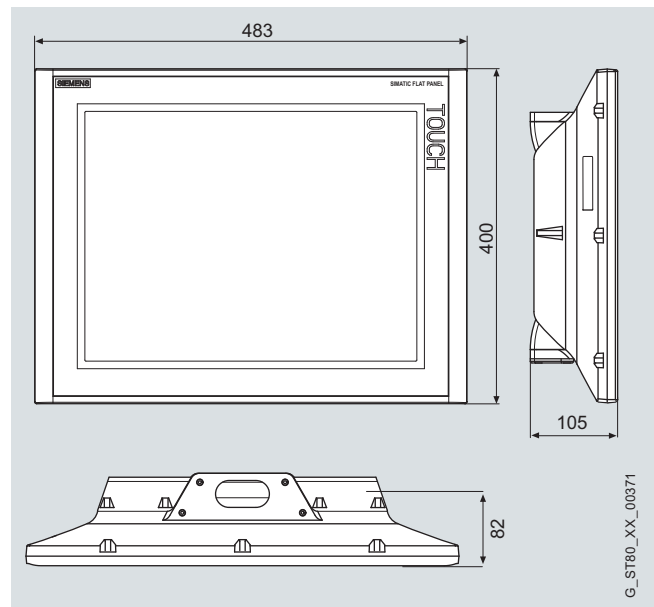


Installation cutout for Flat Panel

| Touch devices | Front dimensions | | Installation cutout | | |
|---------------|------------------|-----|---------------------|-----|----|
| | W | H | W+1 | H+1 | D |
| 12" | 400 | 310 | 368 | 290 | 51 |
| 15" | 483 | 310 | 450 | 290 | 55 |
| 17" | 483 | 400 | 450 | 380 | 57 |
| 19" | 483 | 400 | 450 | 380 | 57 |



Flat Panel PRO 15" Touch



Flat Panel PRO 19" Touch

More information

Additional information is available on the Internet at:

www.siemens.com/industrial-lcd

PC-based Automation

Industrial Monitors and Thin Clients

SCD monitors

Overview



- SCD monitors are LCD monitors in rugged industry design.

Built-in versions:

- Built-in units (for control cabinets, control desks, and booms)
- Desktop models only (19" display)

Type of operator control:

- Strictly display units (desktop models only)
- Panels with touch control

PC-based Automation

Industrial Monitors and Thin Clients

SCD desk monitors SCD 19101

Overview

The SCD 19101 D/DT monitors are LCD desktop monitors for use in industry.

Type of operator control:

- Simple display devices
- Panels with touch control

Benefits

- Rugged industrial design:
 - High shock and vibration resistance as well as extremely high electromagnetic compatibility ensure failure safety and a long service life
 - Mineral glass screen, i.e. high mechanical protection against pressures and scratching
 - Meets CE standard "Industry"
- No X-rays
- Low energy requirement
- Fatigue-proof operation:
 - Large reading angle
 - Sharp and high-contrast graphic display
 - No flickering, uniform brightness
 - Automatic display adjustment (Auto Adjust)
- Configuration using on-screen display (OSD)
- Minimal space requirement and low weight
- Long service life

Design

- Plastic enclosure
- 19" TFT display
- Anti-glare and hardened mineral glass screen
- Simple display, touch screen
- Line frequency 30-80 kHz
- Refresh frequency 50-72 Hz
- 100 -240 V AC power supply

Scope of delivery:

- Network connecting cable for AC power supply unit
- Connecting cables 1.8 m
- Operating instructions, 2 languages (German and English)
- CD-ROM with touch drivers

Technical specifications

| 19" monitors | SCD 19101-D/-DT |
|---|----------------------------------|
| General features | |
| Supply voltage | |
| • Supply voltage | 110/230 V AC |
| • Frequency/power consumption | 47 - 63 Hz/30 VA |
| • Line side switch | No |
| • Representation | Full screen |
| Display | |
| • Display version | 19" TFT |
| • Screen diagonals | 19" |
| • visible area (HxV) in mm | 359 x 287 |
| • Viewing angle | 170° x 170° |
| • Pixel pitch | 0.28 x 0.28 |
| • Optimum resolution (in pixels) | 1280 x 1024 |
| • Refresh rate | 30 - 100 Hz |
| • Line frequency | 50 - 97 KHz |
| • Brightness/contrast (typical) | 270 cd/m2/400:1 |
| • Number of colors | 16 million |
| • MTBF of backlit display (up to 50%, at 25 °C) | 50,000 h |
| Type of operation | |
| • Function keys | No |
| • Membrane keyboard & piezo mouse | No |
| • Touch screen | Optional |
| Degree of protection | |
| • Degree of protection according to EN 60529 | IP20 |
| Ambient conditions | |
| • Temperature | |
| - Ambient temperature during operation | 0 to +40°C |
| Interfaces | |
| • Interface design, analog video signal (VGA) | Yes |
| • PS/2 interfaces for keyboard & mouse | No |
| • Serial interface for touch screen | Optional/serial |
| Dimensions | |
| • External dimensions (W x H x D) in mm | 465 x 444 x 91 (stand depth 240) |
| • Installation cutout/depth (W x H x D) in mm | 465 x 444 x 91 (stand depth 240) |
| • Weight in kg | 7 |

Ordering data

Order No.

| | | |
|-------------------------------|---|-----------------------|
| 19" LCD monitors | A | 6GF6 220-1DA01 |
| SCD 19101-D, desktop model | | |
| 19" Touch LCD monitors | A | 6GF6 220-1DB01 |
| SCD 19101-DT, desktop model | | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

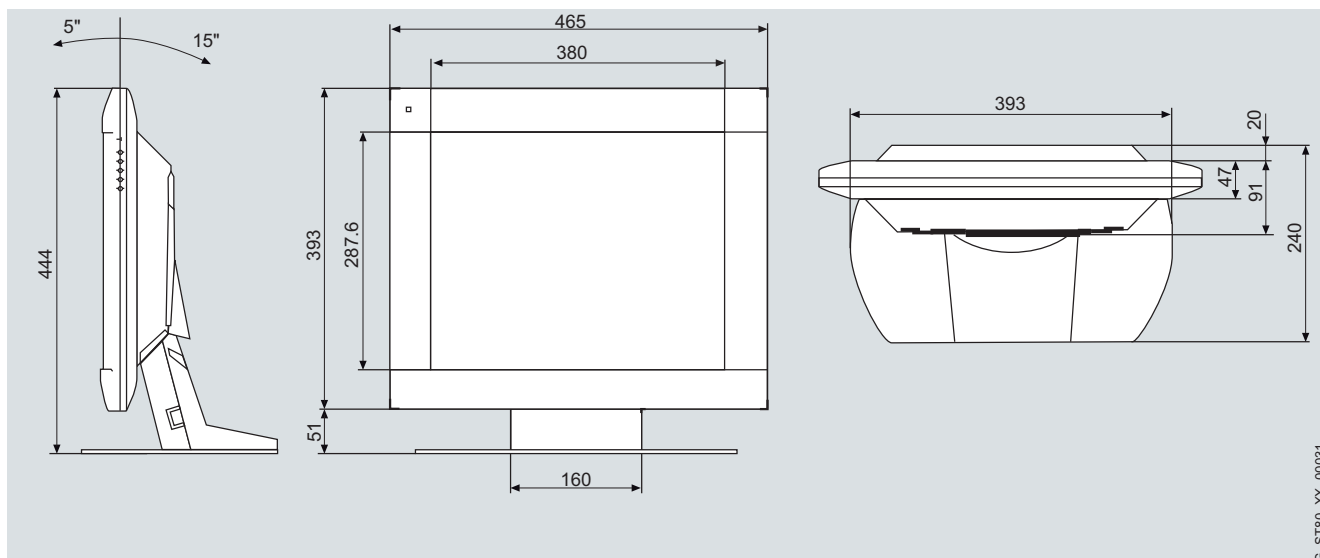
PC-based Automation

Industrial Monitors and Thin Clients

SCD desk monitors SCD 19101

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



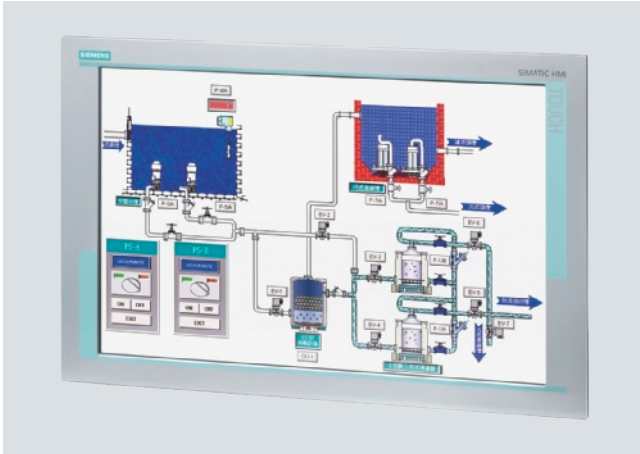
SCD 19101-D/DT

More information

Additional information is available on the Internet at:

www.siemens.com/industrial-lcd

Overview



The SIMATIC HMI SCD 1900 is a rugged, industry-standard PC monitor.

It is used as operator control unit in all types of industrial and standard PC. Standard interfaces permit a wide range of possible applications.

Built-in versions:

- Built-in devices (for control cabinets, control desks, and booms)
- 19" built-in devices (for 19" racks)

Type of operator control:

- Panels with touch control

Benefits

- Rugged industrial design:
 - high shock and vibration resistance as well as extremely high electromagnetic compatibility ensure failure safety and a long service life
 - enclosure with degree of protection IP65 at the front, resistant against dust and humidity
 - meets CE standard "Industry"
- No X-rays
- Low energy requirement
- Fatigue-proof operation:
 - large reading angle
 - sharp and high-contrast graphic display
 - no flickering, uniform brightness
 - automatic display adjustment (Auto Adjust)
- Configuration using on-screen display (OSD)
- Minimal space requirement and low weight
- Long service life

Design

- Rugged aluminum enclosure
- 19" TFT display in widescreen design
- Rugged analog-resistive touch screen
- 24 V DC, optionally with external 100 - 240 V AC power supply
- Can be located up to 5 m from the computing unit

Scope of delivery:

- Network connecting cable for AC power supply unit
- Connecting cables 1.8 m, 5 m, 10 m or 20 m
- Operating instructions, 2 languages (German and English)
- CD-ROM with touch drivers and SW tools

PC-based Automation

Industrial Monitors and Thin Clients

SCD monitors 1900

Technical specifications

| 19" widescreen monitors | SCD 1900 |
|--|---|
| General features | |
| Supply voltage | |
| • Supply voltage | 24 V DC, optional 100/240 V AC |
| Display | |
| • Display version | 19" TFT |
| • Screen diagonals | 19" wide |
| • Visible area (HxV) in mm | 359 x 287 |
| • Viewing angle | 85° x 80° |
| • Pixel pitch | 0.28 x 0.28 |
| • Optimum resolution (in pixels) | 1440 x 900 |
| • Refresh rate | 30 - 100 Hz |
| • Line frequency | 50 - 97 KHz |
| • Brightness/Contrast (typical) | 300 cd/m ² / 400:1 |
| • Number of colors | 16 million |
| • MTBF background illumination (up to 50%, at 25 °C) | 50,000 h |
| Type of operation | Touch screen |
| Degree of protection | |
| Degree of protection according to EN 60529 | |
| • At the front | IP65 |
| • At the rear | IP20 |
| Ambient conditions | |
| Ambient temperature during operation | 0 to +45 °C |
| Interfaces | |
| Video signal | |
| • Analog | VGA |
| • Digital | DVI-D |
| • Touch screen | USB |
| Dimensions | |
| • External dimensions (W x H x D) in mm | 483 x 310 x 67 (81 with AC power supply) |
| • Installation cutout/depth (W x H x D) in mm | 450 x 290 x 67 (81 with AC power supply) |
| Weight in kg | 10 |

Ordering data

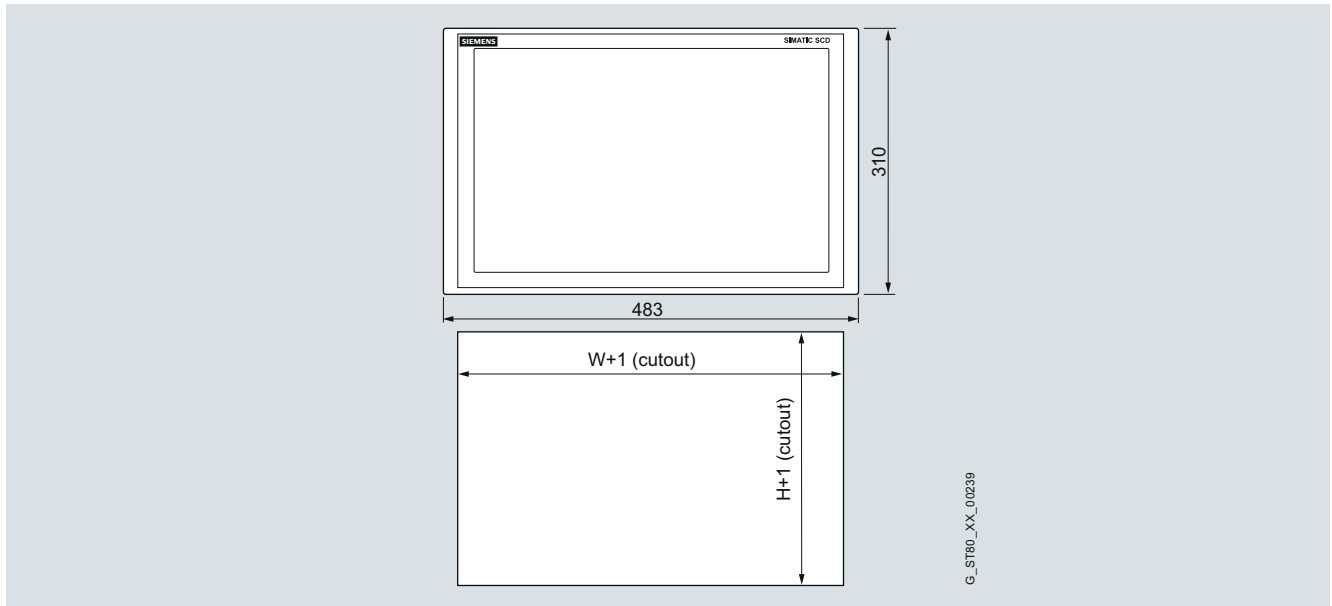
Order No.

| | | |
|---|---|----------------------------|
| SCD monitors 1900 | A | 6AV7 862-2TA00-1AA0 |
| Accessories | | |
| Cable for connection to the graphic interface of the PC | | |
| • VGA cable 3.0 m | | 6AV7 860-0AH30-0AA0 |
| • VGA cable 5.0 m | | 6AV7 860-0AH50-0AA0 |
| • DVI-D cable, 3.0 m | | 6AV7 860-0BH30-0AA0 |
| • DVI-D cable, 5.0 m | | 6AV7 860-0BH50-0AA0 |
| USB cable for connecting the touch screen | | |
| • 3.0 m | | 6AV7 860-0CH30-0AA0 |
| • 5.0 m | | 6AV7 860-0CH50-0AA0 |
| External power supply for SCD 1900 | A | 6AV7 860-2AD06-0AA0 |
| 100-230 V AC, 50-60 Hz; incl. mounting accessories for optional installation at the device. | | |

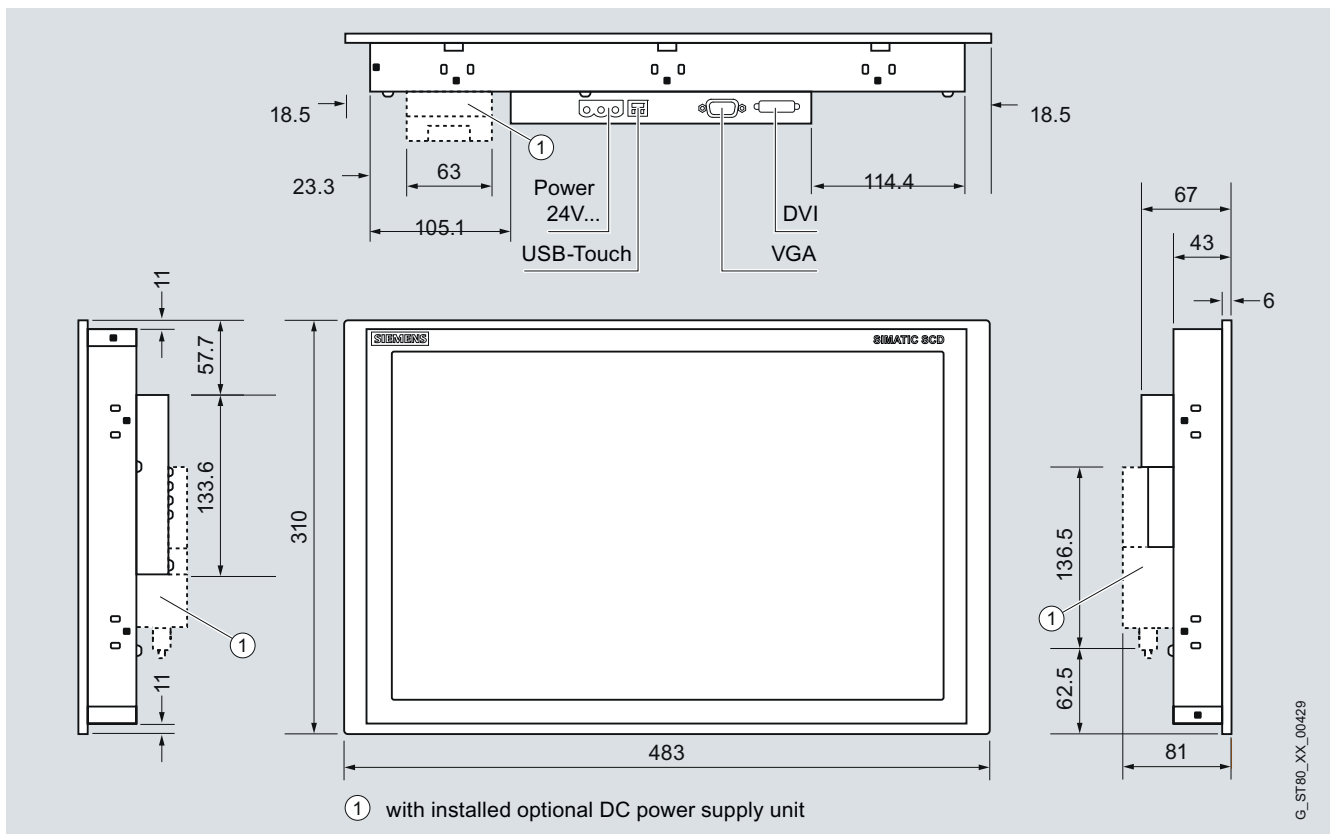
A: Subject to export regulations: AL: N and ECCN: EAR99H

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



SCD 1900



SCD 1900 with installed optional DC power supply unit

More information

Additional information is available on the Internet at:

www.siemens.com/industrial-lcd

PC-based Automation

Industrial Monitors and Thin Clients

SIMATIC Thin Client

Overview



SIMATIC Thin Clients are very economical operator panels which can be used flexibly in various distributed applications. They can be used as (additional) operator stations on a SIMATIC industrial PC or also on a SIMATIC Panel.

The following versions are available:

- The rack-mounting versions SIMATIC Thin Client 10" Touch and SIMATIC Thin Client 15" Touch
- The support arm version SIMATIC Thin Client PRO 15" Touch with a rugged and very compact aluminum enclosure which is completely IP65 protected

The SIMATIC HMI Thin Client Ex is available for hazardous areas. This device differs technically from the devices mentioned above.

Benefits

SIMATIC Thin Clients offer a wide range of possible applications, used as either a second operator station for plant visualization on a Multi Panel or as a classic "Client" which communicates with a server (e.g. Microbox 427C) via VNC.

Low-cost client/server architectures can be implemented with SIMATIC Thin Clients. A further advantage of SIMATIC Thin Clients: they communicate exclusively via Ethernet, thus permitting extremely simple coverage of even large distances to the server.

The possibility of using SCADA and Office functionalities (e. g. WinCC, SAP, MS-Excel) directly on-site on the machine supports the vertical integration of the data flow from host systems down to the machine level (e.g. warehouse utilization).

The SIMATIC Thin Client itself requires no installations, licenses or additional software.

The following protocols are supported:

- Sm@rtAccess for plant visualization with WinCC flexible
- RDP (Remote Desktop Protocol) for SCADA and office functions
- VNC (Virtual Network Computing) for remote operation of a PC
- As a Thin Client Unit on a SINUMERIK PCU/NCU
- Citrix ICA Client complex client/server architectures

Design

SIMATIC Thin Client is installation-compatible with Multi Panels MP 277 (10") and MP 377 (12" and 15").

The device has degree of protection IP54 (splash-proof), enclosure type 12 (indoor use only) and can be expanded with an options package to degree of protection IP65 (protected against water jets), enclosure type 4x/type 12 (indoor use only).

In addition, the SIMATIC Thin Client has the following features:

- Ethernet interface for operating on PROFINET- and Ethernet networks (with Auto-Cross-Over function for one-to-one connections between server and client via Ethernet cable)
- TFT screen with 64K colors
- Resolution:
 - 640 x 480 pixels (10")
 - 1024 x 768 pixels (15")
- A mouse and a keyboard can be operated on the USB interface as external input media. The USB interface supports the industrial USB Hub 4.
- Printer and storage media are controlled via the host device

Thin Clients support automatic parameterization via DHCP. As an alternative, you can also assign IP addresses manually.

Mode of operation

One or more SIMATIC Thin Clients are connected using Ethernet to a server (Multi Panel or PC). No local applications are executed on the devices themselves (apart from the integrated browser). All Thin Clients are provided with the faceplate by the server over the network, and display this faceplate without applications being installed on the Thin Client. Inputs on the Thin Client are transferred to the server and processed. Operation is carried out on the Thin Client as if one were working on the server itself. Operation is possible via Touch or with a keyboard or mouse connected to a USB port.

Function

Via the various protocols:

- Sm@rtAccess
- RDP (Remote Desktop Protocol)
- VNC (Virtual Network Computing)
- Citrix ICA
- SINUMERIK connection

the Thin Clients communicate with a server.

A Thin Client can access the SIMATIC WinCC flexible visualization software via Sm@rtAccess. The software is executed on a server: this can be an Operator Panel or an IPC. Two or more Thin Clients can be operated depending on the server's performance. The advantage: if the HMI project is changed, the modification need only be carried out once centrally on the server.

Low-cost and flexible structures can also be produced for SCADA applications using Thin Clients. For example, the Thin Client can communicate as an HMI client with the WinCC SCADA software via RDP. A completely new feature is that a SINUMERIK PCU/NCU can now also be operated from a SIMATIC Thin Client.

SIMATIC Thin Clients communicate with the classical "PC World" using standard network protocols such as RDP, VNC or Citrix. RDP is currently included in every Microsoft operating system and only needs to be activated. A Thin Client can access the desktop of the server via RDP and carry out remote operation. The use of VNC is also very popular. The main difference to RDP is that VNC displays a "cloned" desktop if two or more operator panels are connected.

Via RDP – and with a non-server operating system – only one operator panel can be active at a time and operate the server. In this case, all other stations display the log-in window. Citrix is frequently used with highly complex client/server architectures. The principle: The applications which can be accessed by the clients are defined on the server. The clients themselves can then connect to the applications enabled on the server.

Integration

Commissioning is very simple. Configuration can be carried out locally - directly on the device - or also through remote access from a PC over the Web. The SIMATIC Thin Client only needs an IP address and a host device that it can communicate with. It does not require any local software installations or configurations. There is thus no need to backup/restore or update the projects, and total cost of ownership are significantly reduced.

SIMATIC Thin Client can be operated in all systems in a PROFINET network or in Ethernet networks. As an alternative, a one-to-one connection with the host is also possible with an Ethernet cable. In this way, distances of 100 meters (with a switch, even greater distances are possible) can be bridged, which means a clear cost reduction compared with the standard remote operator fronts via USB/DVI cable.

PC-based Automation

Industrial Monitors and Thin Clients

SIMATIC Thin Client

Technical specifications

| Product type designation | 6AV6 646-0AA21-2AX0 10" Touch | 6AV6 646-0AB21-2AX0 15" Touch |
|---|---|---|
| Display | | |
| Size | 10.4" | 15.1" |
| Display type | TFT, 65536 colors | TFT, 65536 colors |
| Resolution (pixels) | | |
| • Resolution (WxH in pixel) | 640 x 480 | 1024 x 768 |
| Backlighting | | |
| • MTBF backlighting (at 25 °C) | about 50,000 hours | about 50,000 hours |
| Control elements | | |
| Control elements | Touch screen | Touch screen |
| Connection for mouse/keyboard/barcode reader | USB / USB | USB / USB |
| Touch operation | | |
| • Touch screen | analog, resistive | analog, resistive |
| Supply voltage | | |
| Input voltage | | |
| • permissible range | +19.2 V to +28.8 V DC | +19.2 V to +28.8 V DC |
| • Supply voltage | 24 V DC | 24 V DC |
| Processor | ARM, 266 MHz | ARM, 266 MHz |
| Memory | | |
| Type | Flash / RAM | Flash / RAM |
| Usable memory for user data | No info | No info |
| Interfaces | | |
| USB port | 1 x Ethernet (RJ45) | 1 x Ethernet (RJ45) |
| Industrial Ethernet | | |
| • Industrial Ethernet interface | 1 x Ethernet (RJ45) | 1 x Ethernet (RJ45) |
| Protocols | | |
| WEB characteristics | | |
| • HTTP | Yes | Yes |
| • HTML | Yes | Yes |
| • XML | Yes | Yes |
| • CSS | Yes | Yes |
| • Java Script | Yes | Yes |
| Protocols (terminal link) | | |
| • Sm@rtAccess | Yes | Yes |
| • RDP | Yes | Yes |
| EMC | | |
| Emission of radio interference acc. to EN 55 011 | | |
| • Emission of radio interferences acc. to EN 55 011 (limit class A) | Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas. | Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas. |
| Ambient conditions | | |
| Operating temperature | | |
| • Operation (vertical installation) | 0 °C to +50 °C | 0 °C to +50 °C |
| Storage/transport temperature | | |
| • Transport, storage | -20 °C to +60 °C | -20 °C to +60 °C |
| Relative humidity | | |
| • max. relative humidity | 85%; (Storage) | 85%; (Storage) |
| Maximum permissible angle of inclination without external ventilation | +/- 35 ° | +/- 35 ° |
| Degree and class of protection | | |
| Front | IP54, NEMA 12, (when installed) | IP54, NEMA 12, (when installed) |
| Rear | IP20 | IP20 |
| Standards, approvals, certificates | | |
| Certifications | CE, cULus, C-TICK, NEMA 12 (when installed: IP54, enclosure type 12; optional IP65, enclosure type 4X/type 12 (6AV6671-6AP00-0AX0)) | CE, cULus, C-TICK, NEMA 12 (when installed: IP54, enclosure type 12; optional IP65, enclosure type 4X/type 12 (6AV6671-6AP00-0AX0)) |
| Dimensions | | |
| • Front of enclosure (W x H) | 325 mm x 263 mm | 400 mm x 310 mm |
| • Mounting cutout/device depth (W x H) | 310 mm x 248 mm / 65 mm device depth | 368 mm x 290 mm / 65 mm device depth |
| Weight | 2.2 kg | 3.6 kg |

PC-based Automation Industrial Monitors and Thin Clients

SIMATIC Thin Client

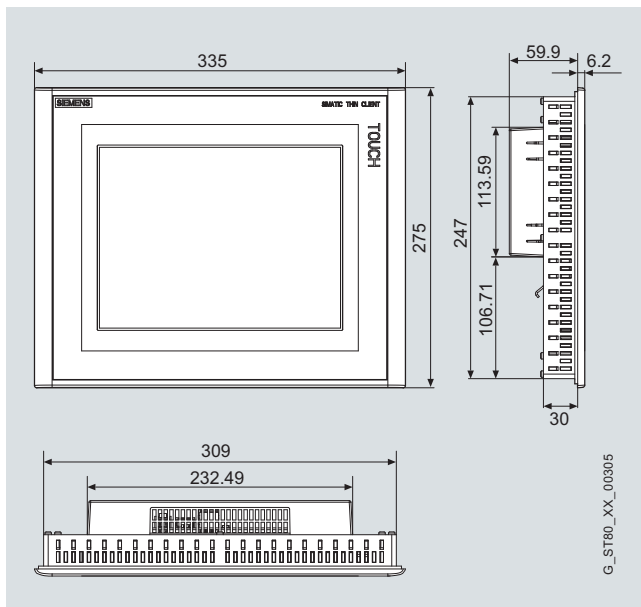
| Ordering data | | Order No. | Order No. | |
|---|---|----------------------------|--|----------------------------|
| SIMATIC Thin Client | | | Option packages | |
| • 10" Touch device | D | 6AV6 646-0AA21-2AX0 | IP65 set (upgrade from IP54 to IP65) | 6AV6 671-6AP00-0AX0 |
| • 15" Touch device | D | 6AV6 646-0AB21-2AX0 | Touch pen SIMATIC HMI Touch devices | 6AV7 672-1JB00-0AA0 |
| Starter packages | | | Cover membrane 10" (10 units per packing unit) | 6AV6 671-3DC00-0AX0 |
| SIMATIC Thin Client with Sm@rtAccess | | | Cover foils 15" | 6AV6 574-1AD00-4EX0 |
| (License to operate SmartAccess on the server) | | | Accessories | see HMI accessories |
| • Touch device 10" with Sm@rtAccess license (panels) | D | 6AV6 653-6AA01-2AA0 | | |
| • Touch device 15" with Sm@rtAccess license (panels) | D | 6AV6 653-6BA01-2AA0 | | |
| • Touch device 15"PRO with Sm@rtAccess license (panels) | D | 6AV6 653-6CA01-2AA0 | | |
| • Touch device 10" with Sm@rtAccess license for WinCC flexible 2008 Runtime | D | 6AV6 653-6DA01-2AA0 | | |
| • Touch device 15" with Sm@rtAccess license for WinCC flexible 2008 Runtime | D | 6AV6 653-6EA01-2AA0 | | |
| • Touch device 15" PRO with Sm@rtAccess license for WinCC flexible 2008 Runtime | D | 6AV6 653-6FA01-2AA0 | | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

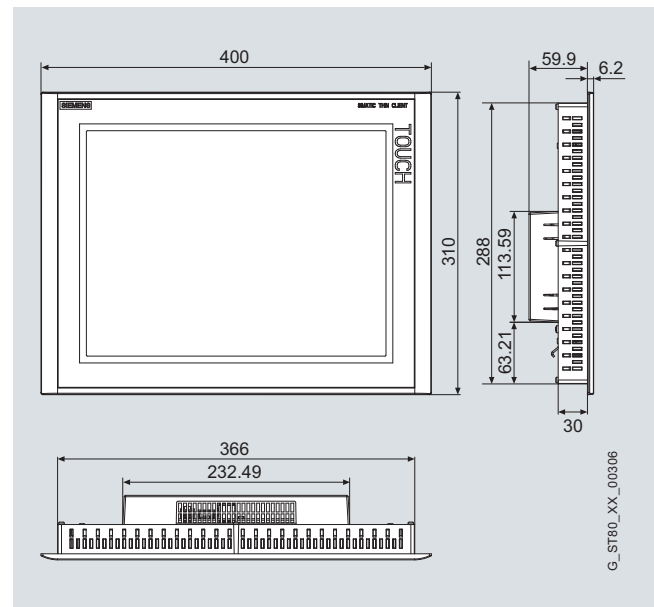
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Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.
Tolerance ± 1 mm.



SIMATIC Thin Client 10" Touch



SIMATIC Thin Client 15" Touch

More information

Additional information is available on the Internet at:

www.siemens.com/simatic-thin-client

PC-based Automation

RMOS3 real-time operating system

RMOS3 real-time operating system

Overview



SICOMP RMOS3

RMOS3 is a real-time and multitasking-capable operating system. In addition to real-time capability, which ensures fast response times, deterministic behavior is also an important feature. This guarantees response times within a short time interval.

Rugged operating systems guarantee reliable behavior even under exceptional circumstances. RMOS3 has been optimized for use in embedded applications. In harsh environments, the rugged memory cards or CompactFlash memories can be used instead of hard disks. In addition, RMOS3 is suitable for operation with or without an operator.

RMOS3 V3.50 Real-Time Operating System

With the RMOS3 V3.50, Intel Core i processors with up to 2 cores/4 threads are now also supported. The "Symmetric Multicore Processing" (SMP) mode makes it possible to implement complex applications that are simultaneously processed on multiple processor cores. RMOS3 V3.50 ensures that the cores are symmetrically utilized so that a performance increase of up to 100% can be achieved on the SIMATIC IPC with 2 processors.

The new RMOS3 real-time operating system is characterized by increased security thanks to memory protection, minimum interrupt response times and fast hard disk access. For SIMATIC IPCs, automation solutions based on C/C++ with demands for hard real time, deterministic response and high performance can now be created more easily, conveniently and with greater stability.

RMOS3-GNU V3.0

The RMOS3-GNU software package uses generally available Linux tools with which users can easily create real-time applications for RMOS3 on the SIMATIC IPC.

The GNU-based software tools for Windows XP/Vista/Windows 7 computers comprise the assemblers, C/C++ compilers, linkers and debuggers familiar in the Linux environment as well as the Eclipse development interface. The integrated cross debugger is useful for commissioning the customer application since the development and target system can be connected via TCP/IP. C/C++ header files and libraries are available for applications which use RMOS3 Version 3.30 or higher.

RMOS3-TCP/IP V3.0

The RMOS3-TCP/IP V3.0 software package offers the application developer a wide range of options for implementing TCP/UDP-based communication tasks running under the real-time operating system RMOS3, V3.40 or higher.

Apart from the usual UDP and TCP protocols for application development, the new version of RMOS3-TCP/IP not only provides Address Resolution Protocol (ARP), Multicast and ICMP services (Ping), but also client services for the DHCP (Dynamic Host Configuration Protocol), DNS (Domain Name System), NTP (Network Time Protocol) and SMTP (Simple Mail Transfer Protocol).

Together with the FTP programming interface and the Web server with process data connection, the programmer obtains numerous programming interfaces for even greater flexibility in communication.

RMOS3-GRAPHX V1.0

With the RMOS3-GRAPHX product, window-based, graphical user interfaces can be implemented with the RMOS3 real-time operating system Version V3.30 or higher.

Extensive graphical libraries increase the user-friendliness of the system and support cost savings due to centralization of the control and operation on a CPU.

With a Graphical User Interface (GUI), familiar from Windows, window displays can be implemented with the familiar command elements in the form of buttons, toolbars, scrollbars, selection lists and symbols as well as dialog boxes for prompts or inputs.

BSP SIMATIC IPC V3.1 for RMOS3

The Board Support package BSP-SIMATIC IPC V3.1 for RMOS3 is a software package for supporting all interfaces (e.g. PROFINET onboard) and other onboard functions (e.g. battery monitoring, watchdog) for the following industrial PCs: SIMATIC Microbox PC 427B, SIMATIC IPC427C, SIMATIC Box PC 627B, SIMATIC IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, SIMATIC IPC647C, SIMATIC Rack PC 847B and SIMATIC IPC847C.

PC-based Automation

RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Overview

RMOS3 is the real-time and multitasking-capable operating system from Siemens for implementing your automation solution with the programming languages C and C++. In mechanical engineering or in the manufacture of machine tools RMOS3 is used in test beds, packaging or printing machines where high response times in conjunction with open and closed-loop control tasks are required.

The new RMOS3 real-time operating system is characterized by increased security thanks to memory protection, minimum interrupt response times and fast hard disk access.

Furthermore, with the RMOS3 V3.50 version, Intel Core i processors with up to 2 cores/4 threads are now also supported. The "Symmetric Multicore Processing" (SMP) mode makes it possible to implement complex applications that are simultaneously processed on multiple processor cores. RMOS3 V3.50 ensures that the cores are symmetrically utilized so that a performance increase of up to 100% can be achieved on the SIMATIC IPC with 2 cores.

For SIMATIC IPC, automation solutions based on C/C++ with demands for hard real time, deterministic response and high performance can now be created more easily, conveniently and with greater stability.

RMOS3 has been optimized for use on PC platforms in embedded systems and fulfills industrial requirements with respect to:

- Real-time and multitasking capability
- Deterministic features
- Ruggedness
- Scalability/memory requirements
- Operation with or without an operator
- Modern development tools
- Quality assurance
- Warranty conditions
- Service & Support

Benefits

More performance through Symmetric Multicore Processing (SMP)

- Through the support of Core i processors, complex applications can be processed simultaneously on multiple cores of the processor
- The symmetric utilization of multiple cores through RMOS3 ensures a performance increase of up to 100% (combining SIMATIC IPC with two cores)
- The implementation of existing applications can be limited to one core if required: Effects such as deadlocks or CPU hopping can thus be avoided without changing the tried-and-trusted application.

Reliable execution of the programs ensures high availability of the system

- Memory protection for programs in FLAT memory module (GNU) through MMU (Memory Management Unit) for even greater reliability of execution for the user applications generated from RMOS3-GNU using the development tools
- Privilege level mechanisms for protection of the operating system code, operating system data and the operating system stacks from unauthorized access of user programs ensure reliable execution of the operating system
- Protected code areas for all applications implemented with paging mechanisms prevent unintentional, mutual overwriting of the program code, make program errors easier to find and reduce the time spent troubleshooting
- Stack overflow /underflow monitoring detects encroachment beyond the valid stack area for the application. Invalid memory accesses are prevented.
- Null-pointer detection prevents the use of uninitialized pointer variables
- Compatibility with existing programs (CAD-UL, GNU) thanks to starting in kernel mode

Greater industrial compatibility thanks to high-speed data access on a rugged system

- Resistant to viruses, due to the closed system
- UDMA hard disk driver for rapid back-up of large data volumes
- Support of High Precision Event Timers (HPET) for long-term accurate time output for logging time events
- Support for APIC interrupt controllers with up to 24 high-performance interrupts for optimized utilization of the interrupt resources and improved real-time properties of the overall system
- Task cycle times starting with 10 microseconds permit the fastest control cycles on a task level
- Support for interrupt sharing on the PCI bus for the use of PCI modules

Quick and easy start-up enhances user friendliness and serviceability

- Expanded configurable nucleus for the shortest start-up times on SIMATIC IPC
 - Configuration over RMOS.INI is 100% compatible to RMOS3 V3.40
 - Configurable, up to 2 GB RAM disk for backing up temporary data
 - Configurable APIC, UDMA and HPET support
- Output of additional messages in case of error permit a "post mortem" analysis at the developer's workstation without hindering production.
- 100% downward compatible operating system versions
- Revised integrated RMOS3 debugger and resource reporter for enhanced evaluation of equipment units

PC-based Automation

RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Application

Industrial automation with typical applications such as

- measurement and control technology,
- acquiring and processing data, signals or analog variables,
- positioning axes and calculating setpoint and actual values,
- and communicating with higher or lower level systems over widely distributed fieldbuses (TCP/IP, PROFINET IO, PROFIBUS DP, CAN),

requires that a process can respond to an event within a defined time, i.e. that the response to such an event can be accurately predicted and reproduced regardless of the current system load.

RMOS3 offers a comprehensive library of operating system calls and allows simple and fast implementation of your automation task in an object-oriented programming environment with the programming languages C and C++.

Typical applications for RMOS3 can be found in

Mechanical engineering applications

- Plastic processing machines
- Honing and deburring machines
- Riveting machines
- Screw machines
- Turning machines
- Ring bending rolls
- Mixers
- Labeling machines
- Presses
- Compressors
- Vacuum pumps

In factory automation:

- Wire production
- Cable configuration
- Printing works
- Corrugated cardboard production
- Packaging and production systems for the pharmaceutical, cosmetic and chemical industry

In semiconductor technology:

- Chip handler
- Chip tester
- Placement systems

In testing technology:

- Engine test stands
- Gear testbeds
- Exhaust testbeds
- Pressure testbeds
- Quality monitoring

PC-based Automation

RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Design

RMOS3 impresses customers with its industrial compatibility as an embedded operating system for maximum response times in closed-loop and open-loop control tasks and is the basis for high-performance customer solutions with SIMATIC IPC.

Due to the new properties of version V3.50, such as support of "Symmetric Multicore Processing" on Core i processors and long-term accurate time with the help of the HPET, its ruggedness, industrial compatibility and performance have been further enhanced. Memory protection for applications in the FLAT (GNU) memory module, APIC support for high-performance interrupt mode as well as UDMA support for faster access to mass memories are additional core elements of RMOS3.

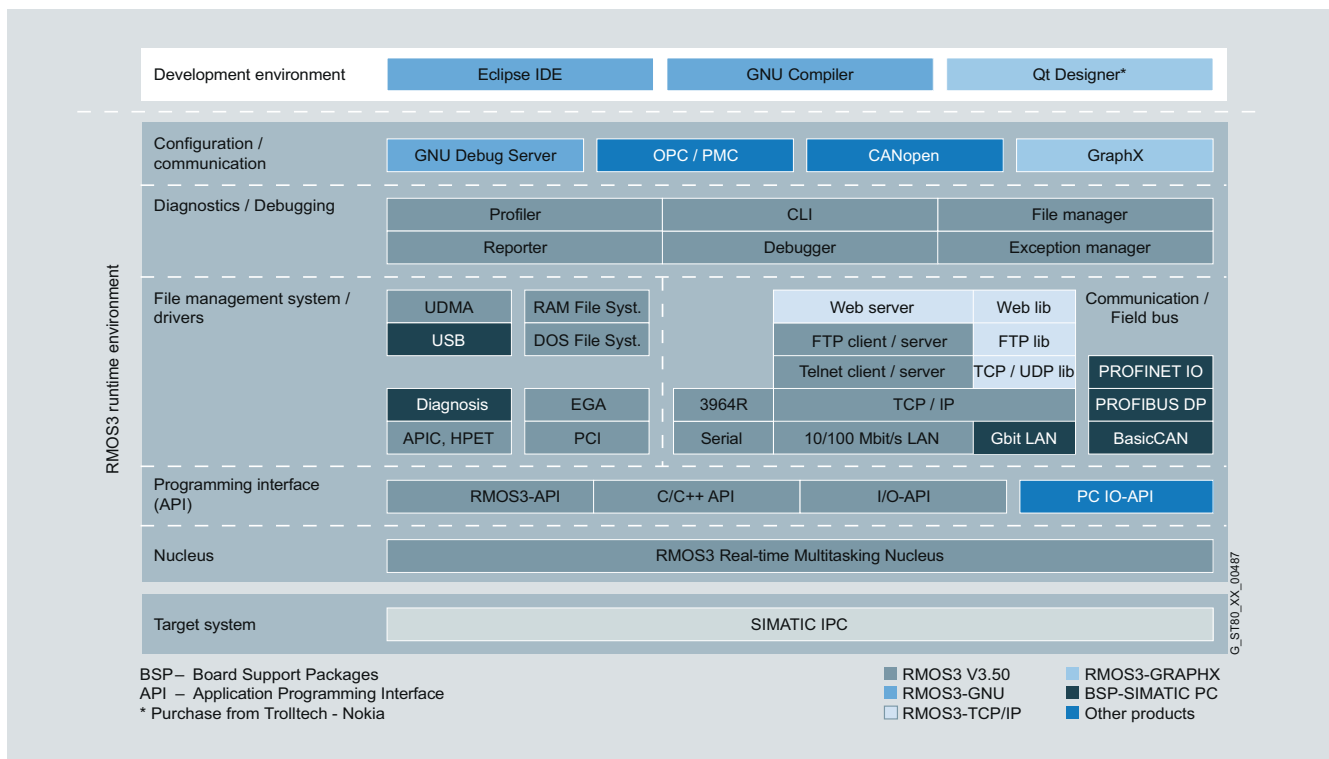
In combination with the widely used GNU development tools and the Eclipse development environment, the development of C/C++ based automation solutions is even more efficient.

The **configurable nucleus** that has been available since RMOS3 V3.50 is already preconfigured and can be installed immediately and completely adapted to the hardware and software requirements of your target system via an initialization file. The configurable nucleus supports the PCs from the SIMATIC IPC range and is optimally coordinated with the available additional functions and the hardware features.

With optional products and Board Support Packages (BSP) you can integrate additional functions and drivers into your application. The Board Support Package BSP-SIMATIC IPC V3.1 is the complete package for operating the following SIMATIC IPCs with RMOS3 V3.40 or higher:

- Microbox PC 427B and IPC 427C
- Box PC 627B and IPC627C
- Box PC 827B
- Rack PC 647B and IPC647C
- Rack PC 847B and IPC847C

The additional RMOS3-GNU software package is available for development and for testing applications for RMOS3. The new development platform is based on the GNU tool chain well-known and widely used in UNIX / Linux environments and contains all expansions necessary for developing RMOS3 applications. The Eclipse development interface and the integrated graphical cross debugger make it easier than ever to create applications for RMOS3.



Overview of the RMOS3 operating system structure

PC-based Automation

RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Function

Symmetric Multicore Processing (SMP) for maximum performance on Core i processors

RMOS3 V3.50 now also supports Core i processors with up to 2 cores/4 threads thanks to the new Symmetric Multicore Processing (SMP) mode. This mode makes it possible to implement complex applications that are simultaneously processed on multiple processor cores. RMOS3 V3.50 ensures that the cores are symmetrically utilized so that a performance increase of up to 100% can be achieved on the SIMATIC IPC with two cores. A second PC, e. g. for visualization, can be omitted without performance loss. Taking into account the compatibility of existing applications, it can also be specifically connected to one core if required. Additional commands allow the implementation of the entire application to be limited to one individual core in order to avoid effects such as deadlocks or CPU hopping without changing the tried-and-tested application.

Memory protection for high system availability

The memory protection functionality for RMOS3 offers even more reliability for execution of the user applications created from RMOS3-GNU V3.0 using the development tools.

The applications are started in a separate execution level through a privilege level mechanism and their memory accesses are managed by the operating system. The operating system code, data and stack are therefore protected from unauthorized access from user programs. This ensures reliable execution of the operating system.

"Paging" mechanisms also protect the code areas of internal and external applications. This ensures reliable execution of all parts of the application and, in the event of an error, rapid localization of the actual cause. Time-consuming troubleshooting can therefore be avoided.

This applies in particular to the new stack monitoring mechanism. It detects unauthorized exiting of the valid stack area. Unwanted memory accesses are therefore prevented.

Null-pointer detection prevents the use of uninitialized pointer variables. Every access to the lowest page of the memory is detected. A page fault exception supports rapid error localization.

More ruggedness and industrial suitability

High Precision Event Timers (HPET), which are available on all B devices of the SIMATIC IPC product range, enable a long-term accurate time output for logging time events under RMOS3 V3.50. In continuous operation (24/7), the deviations of the system time per week can be reduced to approx. 9 seconds, this means a 90% reduction compared to the standard timer.

A further reduction of the minimum task cycle times from 50 µs to 10 µs allows for even faster control cycles on a task level.

High level of user-friendliness and serviceability

For the "post mortem" analysis of defective applications, additional information on the crash site is issued. It can be used to localize the relevant area in the source code without having access to the defective system. This makes for fast troubleshooting without having to expend time and energy to reproduce the error or call a software specialist to the site. Troubleshooting does not interfere with production at the end customer and sporadic errors can be analyzed at the developer's office.

Temporary files can be temporarily stored with version V3.50 on a virtual hard drive (up to 2 GB). The limit of 32 MB no longer exists and performance of the RAM disk driver has been further increased. This means that large data volumes can be collected during production and, if needed, transmitted via FTP to higher-level stations for further analysis.

Additional expansions to the RMOS3 V3.50 user console permit complete directory trees to be rapidly deleted and applications with up to 64 arguments to be started.

For users and service personnel, the expanded, configurable RMOS3 nucleus for SIMATIC IPC offers greater convenience and shorter start-up times.

Apart from the already familiar additional functions of the nucleus, such as easy configuration using the initialization file (RMOS.INI) or user-friendly adjusting of serial and LAN interfaces, the following expansions are available:

- Scandisk functionality for testing the integrity of the mass memory on booting to protect against data loss.
- Configurable APIC support with the possibility of cascading additional interrupt controllers.
- Configurable UDMA support for fast access to mass storage.

A number of additional functions make it suitable for different hardware versions:

- Standardized access to CPU LEDs and temperature monitoring function
- Simple activation and parameterization of LAN interfaces
- Optional: Automatic configuration depending on CPU used

The configurable nucleus is optimally prepared for additional hardware features. This supports fast and reliable implementation for the customer's application:

- Battery-backed SRAM memory or SRAM disk as an optional drive for saving temporary data in the event of a network failure
- Interrupt sharing on the PCI bus

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RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Function (continued)

Moreover, the configurable nucleus offers the following functions:

- Project-specific designation of the kernel for fast identification of the automation system.
- Startup messages and exception/general protection messages are recorded in a LOG file for fast subsequent analysis of the system in the event of a fault.
- System flags for fast and reliable diagnosis of system states.

The configurable nucleus already contains TELNET and FTP services for easy and low-cost remote maintenance of the target system over TCP/IP. This allows debugging and software updates both during the development and production phase.

Additional functions for optimal use of the operating system resources:

- Fast cycle times which can be set to multiples of 10 microseconds. In this way, for example, control algorithms can be executed in a fast 10-microsecond cycle.
- With the ASCII editor, which includes a file manager, data and files and can be edited using a semi-graphical user interface.
- The file structure with its flexible and long file names is based on the Windows standard. This makes it easier to exchange files between RMOS3 and Windows applications.
- Additional tools determine memory assignment, record the system load, check the versions of integrated libraries and monitor the integrity of the data carrier.
- The scope of delivery includes revised PDF documentation in electronic form. Bookmarks for the individual chapters as well as linked references permit quick access to the description.

Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development environment as of RMOS3 V3.40
- RMOS3-GNU as of V2.1, compiler and development interface
- Board support packages (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC 427B/IPC427C
- SIMATIC Box PC 627B/827B, IPC627C
- SIMATIC Rack PC 647B/847B, IPC647C, IPC847C

Required software components:

- RMOS3 V3.50 runtime environment (RMOS nucleus and service programs)
- Board support packages (optional, module-specific drivers)

Product structure, listed acc. to development and runtime licenses

| Product name | Description |
|--|--|
| RMOS3 V3.50 EL RMOS3 V3.50 EL Update | Single license for RMOS3 development environment incl. a RMOS3 runtime license comprising <ul style="list-style-type: none"> • Sources and libraries for application creation • RMOS3 runtime environment incl. loadable programs and TCP/IP stack and 10/100 Mbit/s LAN drivers • Configurable RMOS3 Nucleus for the Use on SIMATIC IPCs • Examples and documentation |
| RMOS3-GNU V3.0 EL RMOS3-GNU V3.0 EL Update | Single license for the GNU development tools incl. <ul style="list-style-type: none"> • Compiler, linker, debugger and Eclipse IDE • Special RMOS3 libraries for application creation • Example projects and documentation |
| BSP-SIMATIC IPC V3.1 EL ¹⁾ BSP-SIMATIC IPC V3.1 EL Update ¹⁾ | <ul style="list-style-type: none"> • Single license for Microbox PC 427B/IPC427C/Box PC 627B/827B, IPC627C, Rack PC 647B/847B, IPC647C, IPC847C incl. a runtime license for BSP (no RMOS3 V3.50 runtime license): • Configurable nucleus • Driver for USB, LAN, PROFINET IO, PROFIBUS DP, BasicCAN • GNU example projects and documentation |
| RMOS3-TCP/IP V3.0 EL ¹⁾ incl. German documentation RMOS3-TCP/IP V3.0 EL Update ¹⁾ | Master license for TCP/IP communication <ul style="list-style-type: none"> • Application development with socket interface • Programming interface for FTP |
| RMOS3-PC IO V2.0 | Free download as programming example with programming interface for access to PC I/O modules |

¹⁾ Optional board support packages (BSP)

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RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

Technical specifications (continued)

Product structure – Runtime licenses

| Product name | Description |
|--|--|
| RMOS3 V3.50 RT | Single RMOS3 V3.50 runtime license |
| RMOS3-TCP/IP V3.x RT ¹⁾ | <ul style="list-style-type: none"> • Single RMOS3 TCP/IP runtime license • Required for application programs with socket interface |
| RMOS3-CANopen168 ¹⁾ | Single runtime license with software package when the CPCI-COM168 module is used in networks with CANopen |
| BSP-SIMATIC IPC RT V3.x ¹⁾ | Single runtime license for BSP |

¹⁾ Optional board support packages (BSP)

Supported boot media

- Disk
- Hard disk
- IDE flash disk
- LAN (on request)

Available drivers for RMOS3 V3.50

The drivers described below are currently available for RMOS3 V3.50

| | |
|----------------------------------|---|
| Keyboard | <ul style="list-style-type: none"> • PS2 keyboard • USB keyboard ¹⁾ |
| Serial, parallel | <ul style="list-style-type: none"> • Universal I/O driver (BYT driver) for character-oriented I/O devices • COM driver for 3964(R) protocol Transmission mode and baud rate configurable |
| Graphics | <ul style="list-style-type: none"> • EGA (text mode) • Semi-graphical interface (function library on request) • RMOS3-GRAPHX (graphics library for pixel graphics window displays) ¹⁾ |
| Ethernet | 10/100/1000 Mbit/s LAN driver: <ul style="list-style-type: none"> • Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647C, IPC647C, Rack PC 847B, IPC847C • Filter functionality, configurable transfer rates and transfer modes |
| USB ¹⁾ | <ul style="list-style-type: none"> • Optional USB driver for USB 1.1 protocol and USB 2.0 protocol • Support for keyboard, mouse, hub memory stick and CD-ROM (on request) |
| PROFINET IO | <ul style="list-style-type: none"> • Module driver for operating the CP 1616-compatible PROFINET components (CP 1616, CP 1604, SIMATIC IPC with PROFINET onboard) • Supports the ERTEC 400 controller, RT and IRT, IO Controller and/or IO Device |
| PROFIBUS DP ¹⁾ | <ul style="list-style-type: none"> • Module driver and programming interface for SIMATIC PC with PROFIBUS onboard, CP 5611 compatible, DPV0 master and/or slave |
| CAN ¹⁾ | <ul style="list-style-type: none"> • BasicCAN driver for connection to CAN bus • Supports the SJA1000 CAN controller on SIMATIC Microbox PC 427B / IPC427C |

¹⁾ Optional board support packages (BSP)

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RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

| Ordering data | | Order No. | Order No. | |
|--|---|----------------------------|---|------------------------------|
| RMOS3 V3.50 EL | B | 6AR1 405-0EA00-1AA4 | SICOMP RMOS3-TCP/IP V3.x Runtime license | B 6AR1 403-0BN3 |
| Single license for RMOS3 development environment incl. a RMOS3 runtime license | | | Runtime license for TCP/IP software V3.0 or higher for use with RMOS3 V3.40 or higher | |
| RMOS3 V3.50 EL Update | B | 6AR1 405-0EA50-1AA4 | RMOS3-GRAPHX V1.0 EL | D 6AR1403-0BG00-1AA0 |
| Update from V3.40 to V3.50. Single license for RMOS3 development environment incl. a RMOS3 runtime license | | | Master license for graphics library for the creation of window-oriented interfaces of RMOS3 Version 3.30 and higher | |
| RMOS3 V3.50 RT | B | 6AR1 403-0DA3 | BSP-SIMATIC IPC V3.1 EL for RMOS3 | D 6AR1 403-0BC00-1CA1 |
| Single RMOS3 V3.50 runtime license | | | Board Support Package for SIMATIC Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C for use under the SICOMP RMOS3 operating system V3.40 and higher, development package, single license, runtime license, CD-ROM, incl. description in German in PDF format, runtime license RMOS3 V3.40 and higher not included | |
| Accessories | | | BSP-SIMATIC IPC V3.1 EL Update | D 6AR1 403-0BC50-1CA1 |
| RMOS3-GNU V3.0 EL | B | 6AR1 405-0BA00-1CA0 | Update from BSP-SIMATIC IPC V3.0 to BSP-SIMATIC IPC V3.1 | |
| Single license for the GNU development tools incl. compiler, linker, debugger and Eclipse IDE, special RMOS3 libraries for creating applications, project examples and documentation | | | BSP SIMATIC IPC V3.x RT | D 6AR1 403-0CC3 |
| SICOMP RMOS3-GNU V3.0 EL update | B | 6AR1 405-0BA50-1CA0 | Runtime license for Board Support Package for SIMATIC Microbox PC 427B, IPC427C | |
| Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format | | | SIMATIC Box PC 627 B, IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, IPC647C, SIMATIC Rack PC 847B, IPC847C for use under the operating system SICOMP RMOS3, V3.40 and higher. | |
| SICOMP RMOS3-TCP/IP V3.0 EL | B | 6AR1 403-0AN00-1BA0 | Runtime license RMOS3, V3.40 and higher not included. | |
| Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | | | | |
| SICOMP RMOS3-TCP/IP V3.0 EL, update from V2.3 to V3.0 | B | 6AR1 403-0AN50-1BA0 | | |
| Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | | | | |

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

RMOS3 real-time operating system

RMOS3-GNU V3.0

Overview

RMOS3-GNU V3.0 is a software package that supports development and testing of applications for the real-time operating system RMOS3 (Version 3.40 and higher).

It builds on a GNU-based tool chain that is well-known and widely implemented in the Linux environment and contains the expansions required for RMOS3.

RMOS3-GNU V3.0 replaces the existing RMOS3-GNU V2.x product. An update from RMOS3-GNU V2.x to Version V3.0 is available.

RMOS3-GNU V3.0 contains the following new functions:

- Up-to-date versions of the GNU tool chain, e. g. C/C++ compiler V3.4.1
- Updated versions of Eclipse V3.4 and CDT plug-in V5.0.
- New Eclipse "terminal" plug-in for remote operation of the target system
- New Eclipse "profiling" plug-in for determining the system load and the task activity on the target system
- Extended Eclipse "remote launcher" plug-in for testing the applications on Privilege Level 0 or alternatively on Privilege Level 1

Benefits

Higher productivity on creating applications thanks to the following improvements:

- Shorter development times are achieved thanks to the GNU tools tested and released for RMOS3 with the C/C++ compilers of version V3.4.1 suitable for multicore applications. Internal compiler optimization layers reduce the compilation time by up to 80%, i.e. a 300 KB file can now be created in 15 s instead of 80 s under RMOS3-GNU V2.1. This provides an enormous potential for improvement of large projects with several Mbyte of data.
- Various code optimizations of the C/C++ compiler also ensure an increase in performance of up to 30% in the execution of programs. Improved code analysis during compilation means, for example, that constants are no longer calculated during runtime and simple program loops are calculated beforehand during compilation.
- The new versions of the Eclipse IDE V3.4 with the CDT plug-in V5.0 provide improved search functions, indexes and navigation as well as a revised editor complete with new highlight functions for variables: This makes execution of complex software much easier.
- New RMOS3 plug-ins for the Eclipse IDE support the developer with analyzing target systems: The terminal plug-in for remote operation and the profiling plug-in for easy measuring of the system load and the task activity on the target system.
- The improved remote launcher plug-in enables applications to be debugged alternatively in Privilege level PL0 or PL3.
- The improved debug interface between the development system and target system supports faster build-up for the debug link, improved multi-task debugging and premature termination of the debugging process.

High degree of investment protection:

- RMOS3-GNU will be available long-term thanks to version updating and management through Siemens.
- High quality thanks to intensive testing of the GNU tools for RMOS3 (Version 3.40 and higher)

High degree of flexibility and expendability for the Eclipse development environment thanks to the numerous downloadable plug-ins.

Application

RMOS3-GNU is the new development platform for RMOS3 in order to create and test your automation solution. The Eclipse graphical development interface offers software developers a modern development environment which includes an integrated, graphical cross debugger.

PC-based Automation

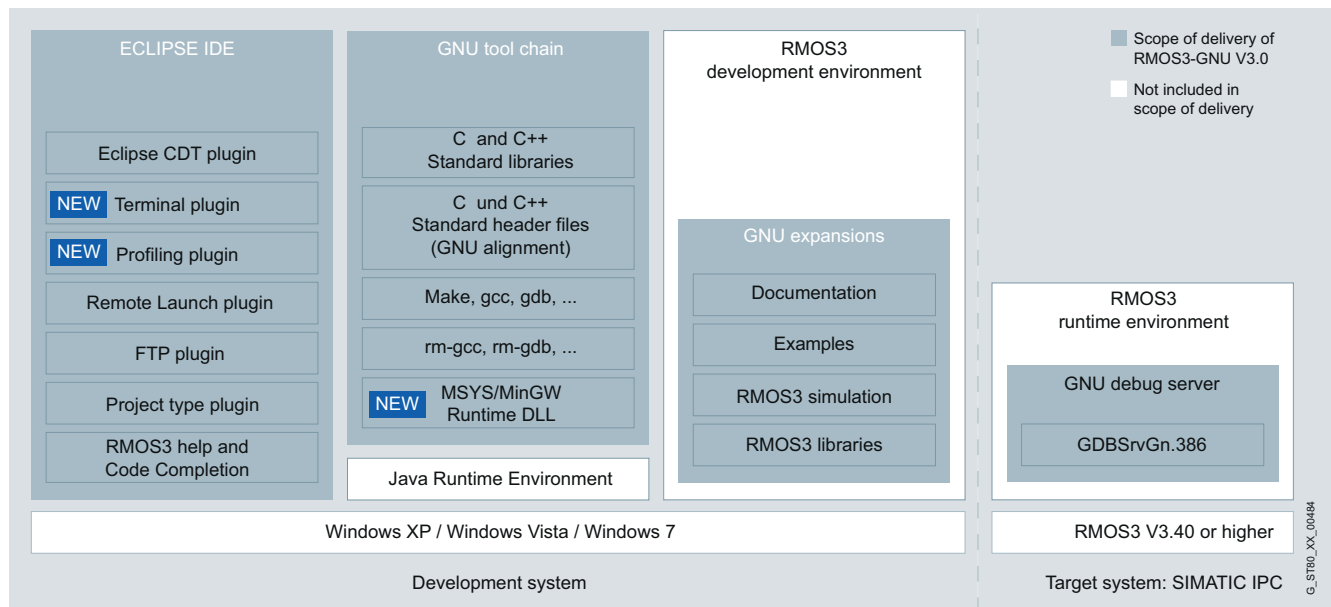
RMOS3 real-time operating system

RMOS3-GNU V3.0

Design

The RMOS3-GNU development package comprises the following components:

- GNU tool chain (comprising a compiler for C/C++, make-tool, assembler, linker and debugger)
- Integrated development environment Eclipse (including CDT plug-in for creating C/C++ programs) with the following RMOS3-specific expansions:
 - Simulation environment for RMOS3 applications
 - Project type plug-ins for RMOS3 applications and RMOS3 libraries
 - Integrated RMOS3 online help and code completion
 - FTP plug-in for file transfer to the target system
 - Remote launcher plug-in for easy debugging on the target system
 - Terminal plug-in for remote operation of the target system
 - Profiling plug-in for determining the system load and the task activities on the target system
- GNU debug server for RMOS3
- Adaptation layer MSYS/MinGW for implementing the GNU tool chain, originally developed for UNIX, with Windows systems
- Programming and operating manual in PDF form, in German



Updated versions of the GNU tools released for use with RMOS3:

| GNU tools | RMOS3-GNU V1.0 | RMOS3-GNU V2.0 | RMOS3-GNU V2.1 | RMOS3-GNU V3.0 |
|-----------------------|----------------|----------------|----------------|----------------|
| C-/ C++ compiler | V3.3.1 | V3.4.3 | V3.4.3 | V4.3.0 |
| GNU debugger | V5.3 | V6.3 | V6.3 | V6.8 |
| GNU debug server | V1.0.3 | V1.2.5 | V1.3.9 | V1.4.1 |
| Binutil ¹⁾ | V2.14 | V2.14 | V2.14 | V2.18 |
| Eclipse IDE | V2.1.1 | V3.0.1 | V3.2.1 | V3.4.1 |
| Eclipse CDT plug-in | V1.2.0 | V2.1.1 | V3.1.1 | V5.0.1 |
| Cygwin | V1.5.5-1 | V1.5.12-1 | V1.5.12-1 | - |
| MinGW/MSYS | - | - | - | V5.1.4/V1.0.10 |

¹⁾ Assembler rm-as, linker rm-ld, object dump rm-objdump, archiver rm-ar.exe, striptool rm-strip, index creator for archiver rm-ranlib, display symbol rm-nm

PC-based Automation

RMOS3 real-time operating system

RMOS3-GNU V3.0

Function

RMOS3-GNU V3.0 is a further development of the new development platform for RMOS3 based on the GNU development tools and the integrated graphical development environment Eclipse. Apart from support for the current versions of Eclipse and CDT, the following functions are offered in combination with RMOS3:

Terminal plug-in (new)

The terminal plug-in creates a view in the Eclipse IDE that makes it possible to operate on one or more target systems via TELNET. This view is available during program development as well as during the debug phase. The view can assign a suitable, freely selectable name for easier identification of the respective target system.

In addition to operating the RMOS3 system, the developer is also able to watch the messages from the RMOS3 applications, without the need to switch to other Telnet programs.

Profiling plug-in (new)

The profiling plug-in allows the user to investigate the load distribution and the task activity on the target system. The plug-in comprises the two views "Load Distribution" and "Task Activity".

Load Distribution

The "Load Distribution" view shows the percentage loading on the individual processor cores, as well as the percentage loading of the overall system per task, during one measurement.

The loading on the CPU with one or two processor cores is shown in the left-hand part of the view with the help of bars. There is one bar per processor core for "Task" load, "S-State" interrupt load and "Idle Time". On the right-hand side, the load distribution for all tasks is shown in tabular form. The display can be sorted according to a column, by clicking the column header.

The developer can use the "Load Distribution" display to gain an overview of the loading of the overall system and can sort the tasks to discover large consumers of computing time.

Task Activity

The "Task Activity" view displays the individual RMOS3 calls with a time stamp and the interrupts that are performed during a measurement.

To analyze specific results, the data can be sorted, filtered and saved after measuring. The developer therefore has a convenient tool for analyzing the timing of events on the target system.

RMOS3 simulation

RMOS3 simulation allows RMOS3 programs to be pretested on the development PC with Windows using Eclipse. You can, therefore, work independently of the target hardware and start developing your automation solution early, and implement and test hardware-independent parts of your application.

Remote launcher plug-in (extended)

The remote launcher configuration can be used to transfer a generated application to the target system at the click of a button and to start it. **Outputs from the program that is integrated in the Eclipse IDE are then displayed in the console.**

The remote launcher also allows an application to be debugged on the target system both in Privilege Level 0 and in Privilege Level 3 without the need to manually transfer the application to the target system and start the debug server.

FTP plug-in

The FTP plug-in included in the delivery package enables the created application to be downloaded from the Eclipse IDE to the target system. Switchover to additional FTP clients is no longer necessary. Downloading is performed at the click of a button.

RMOS3 project type

The project plug-in "Executable (GNU on RMOS)" as well as "Static Library (GNU on RMOS)" makes it easy to create new projects in the Eclipse IDE by presetting parameters. When the project is created, the required configuration "Release", "Debug" and/or "Simulation" can be selected. All the necessary compiler, linker and debugger settings have already been made and you can start creating and testing the program immediately.

Code completion

Code completion is offered in Eclipse IDE for the RMOS, CRUN and CLI functions. This support can be extended by reinstalling additional RMOS3 products (e. g. BSP SIMATIC IPC V3.0, RMOS3 TCP/IP V2.3).

To use code completion, you simply type the first characters of the required function and press "CTRL+SPACE". A selection box is then displayed containing a list of all functions that start with these letters. The type of return parameter and the parameters complete with their data are also displayed.

When you select a function, it will be inserted at the current cursor position. The cursor waits at the first parameter or void function behind the closing bracket. For functions with several parameters, use the "TAB" button to jump from one parameter to the next.

Error messages from the compiler caused by typing mistakes can therefore be prevented and the expected parameter types can be immediately recognized, so there is no need to refer to the documentation.

Function (continued)

RMOS3 help function

A help function is also available in German for the RMOS3 calls, the CRUN calls and the CLI calls. This support can be extended by reinstalling additional RMOS3 products (e. g. BSP SIMATIC IPC V3.0, RMOS3 TCP/IP V2.3).

You open the help either via the Help menu of Eclipse or by pressing the "F1" key after positioning the cursor on the required function call. You receive a detailed description of the call with additional links to related function calls that is similar to the description of function calls in the RMOS3 reference manuals.

Debugger

The debugger integrated into Eclipse offers convenient functions for testing your application in simulation mode on your development computer and via the Ethernet coupling to the RMOS3 target system.

The connection to the RMOS3 target system is built up via the GNU debug server which can be used under RMOS3 V3.40 as well as under RMOS3 V3.50:

- Quick and easy starting of the GNU debug server:
The GNU debug server on the RMOS3 target system can also be started without specifying the IP address and port number. The IP address of the RMOS3 computer on which the GDB server is started is used here as the IP address. The default port number used is 8200.
- Debugging of executing applications:
It is possible at any time to connect the main task of the application as well as the child tasks created by the main task using the option "Attach" and to debug them. There is no need for time-consuming adjustment of the behavior of the application under the control of the debugger.
- Source code display for general protection errors:
It is also possible to connect to an application in which an exception has occurred. After connecting to the GNU debug server, the destination in the source text is then shown in which an exception has occurred.

Technical specifications

System requirements: Development system

- Windows XP, Windows Vista, or Windows 7
- Java Runtime Environment, Version 1.5 and higher (only necessary when using Eclipse IDE)
- RMOS3 development environment RMOS3 Version 3.40 (incl. software fix RMOS3 V3.40.02) or RMOS3 V3.50 (incl. software fix RMOS3 V3.50.04)

System requirements: Target system

- RMOS3 version 3.40.02 and higher or version 3.50.04 (configurable nucleus V3.30.06 R01)

Licenses

The GNU-based tool chain is subject to the GNU GENERAL PUBLIC LICENSE (GPL) or the GNU LESSER GENERAL PUBLIC LICENSE (LGPL). Please read the licensing rules supplied with the product.

PC-based Automation

RMOS3 real-time operating system

RMOS3-GNU V3.0

| Ordering data | Order No. | Order No. |
|---|----------------------------|--|
| SICOMP RMOS3-GNU V3.0 EL B Single license for the GNU development tools incl. compiler, linker, debugger and Eclipse IDE, special RMOS3 libraries for creating applications, project examples and documentation | 6AR1 405-0BA00-1CA0 | SICOMP RMOS3-TCP/IP V3.x Runtime license B Runtime license for TCP/IP software V3.0 or higher for use with RMOS3 V3.40 or higher |
| SICOMP RMOS3-GNU V3.0 EL update B Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format | 6AR1 405-0BA50-1CA0 | RMOS3-GRAPHX V1.0 EL D Master license for graphics library for the creation of window-oriented interfaces of RMOS3 Version 3.30 and higher |
| Accessories SICOMP RMOS3 V3.50 EL B Development package, single license, CD-ROM, including description in German in PDF format | 6AR1 405-0EA00-1AA4 | BSP-SIMATIC IPC V3.1 EL D Board Support Package for SIMATIC Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C for use under the SICOMP RMOS3 operating system V3.40 and higher, development package, single license, runtime license, CD-ROM, incl. description in German in PDF format, runtime license RMOS3 V3.40 and higher not included. |
| SICOMP RMOS3 V3.50 EL update B Update V3.40 to V3.50, development package, single license, runtime license, CD-ROM, including description in German in PDF format | 6AR1 405-0EA50-1AA4 | BSP-SIMATIC IPC V3.1 EL Update D Update from BSP-SIMATIC IPC V3.0 to BSP-SIMATIC IPC V3.1. |
| SICOMP RMOS3 V3.50 RT B Runtime license for SICOMP RMOS3 operating system V3.50 | 6AR1 403-0DA3 | BSP SIMATIC IPC V3.x RT D Runtime license for Board Support Package for SIMATIC Microbox PC 427B, IPC427C, SIMATIC Box PC 627B, IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, IPC647C, SIMATIC Rack PC 847B, IPC847C for use under the operating system SICOMP RMOS3, V3.40 and higher. Runtime license RMOS3, V3.40 and higher not included. |
| SICOMP RMOS3-TCP/IP V3.0 EL B Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | 6AR1 403-0AN00-1BA0 | |
| SICOMP RMOS3-TCP/IP V3.0 EL, update from V2.3 to V3.0 B Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | 6AR1 403-0AN50-1BA0 | |

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

RMOS3 real-time operating system

RMOS3-TCP/IP V3.0

Overview

The RMOS3-TCP/IP V3.0 software package provides libraries for the quick and easy generation of TCP/IP, FTP and Web applications. In addition, the software package offers FTP and Telnet services for the exchange of files and for the remote maintenance of the RMOS3 system. New additions are the DHCP, DNS, NTP and SMTP services for even greater flexibility in communication.

Standardized interface to existing systems with different operating systems (e. g. Windows 7 / XP, QNX, VxWorks, LINUX).

Benefits

Quick and easy generation of TCP/IP, FTP and Web applications

- Enhanced performance due to optimized TCP/IP stack.
- DHCP, DNS, NTP and SMTP for even greater flexibility during integration into existing network structures.
- Web server for central access to distributed/remote automation solutions, the visualization of process data in a browser and for the operation of headless systems (e. g. for commissioning and maintenance purposes).

- Standardized interface to existing systems with different operating systems (e. g. Windows 7 / XP, QNX, VxWorks, LINUX).
- Easy creation and simulation of the application using prepared GNU example projects.
- Total integration of the software packages into the new development landscape RMOS3-GNU V2.1 or higher (Online Help, Code Completion, Simulation).

Application

The RMOS3-TCP/IP V3.0 software package offers the application developer a wide range of options for implementing TCP/UDP-based communication tasks running under the real-time operating system RMOS3, V3.40 or higher.

Apart from the usual UDP and TCP protocols for application development, the new version of RMOS3-TCP/IP not only provides Address Resolution Protocol (ARP), Multicast and ICMP services (Ping), but also client services for the DHCP

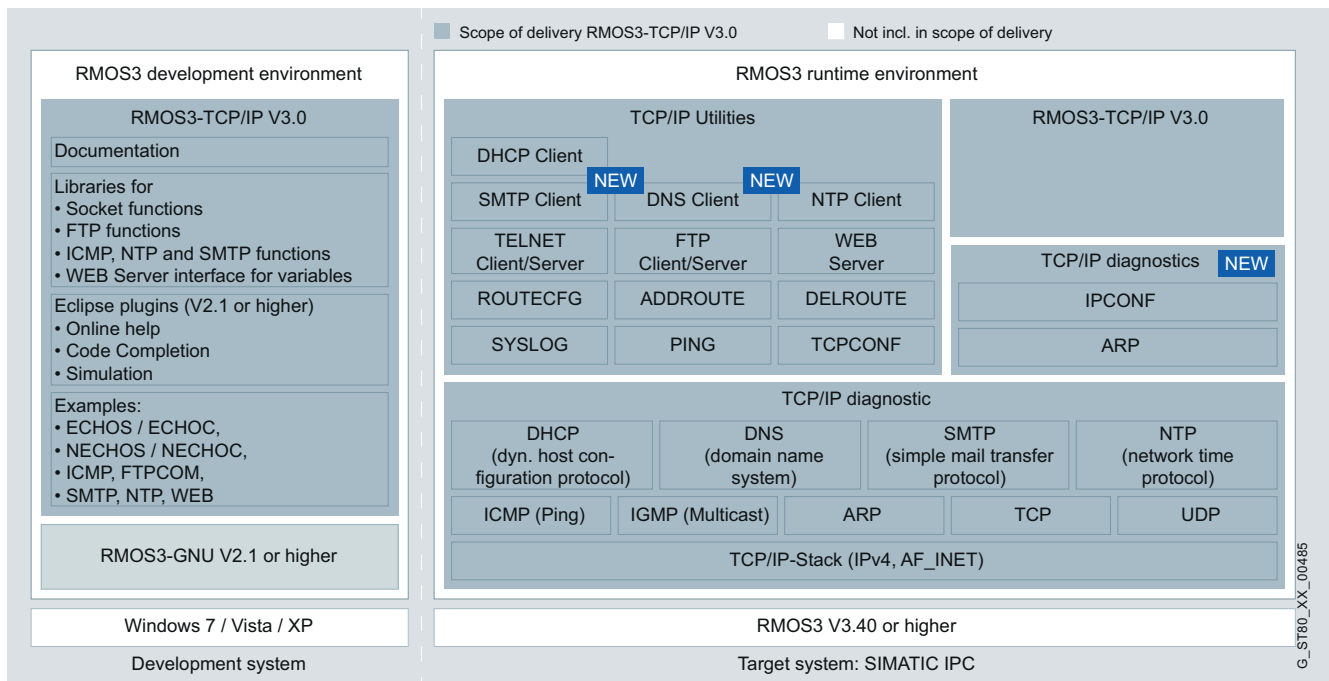
(Dynamic Host Configuration Protocol), DNS (Domain Name System), NTP (Network Time Protocol) and SMTP (Simple Mail Transfer Protocol).

Together with the FTP programming interface and the Web server with process data connection, the programmer obtains numerous programming interfaces for even greater flexibility in communication.

Design

Content of the RMOS3-TCP/IP V3.0 software package

An overview of the components provided by RMOS3-TCP/IP V3.0 is shown in the following product structure:



RMOS3-TCP/IP V3.0 replaces Version V2.3. An update to Version V3.0 is available.

PC-based Automation

RMOS3 real-time operating system

RMOS3-TCP/IP V3.0

Function

The RMOS3-TCP/IP V3.0 software package contains a completely newly adapted TCP/IP protocol stack (TCPIP.DRV V3.0) with a data transmission time 30% less than that of RMOS3-TCP/IP V2.3.

RMOS3-TCP/IP V3.0 provides new communication services for the communication with higher-level server applications:

DHCP client features

The dynamic host configuration protocol (DHCP) allows the automatic configuration of IP addresses and subnet masks in a network. With the aid of a DHCP server, it is possible to integrate a computer (client) into an existing network without having to configure it manually. The complexity of administering the address configurations is reduced by the central administration of the IP addresses by means of a network server. Only the automatic reference of the IP address has to be set on the client. When starting the computer on the network, the client can obtain the IP address, the network mask, the gateway, the DNS server, etc. from the DHCP server.

Advantage:

This avoids collisions with manually set IP addresses that have accidentally been duplicated in a network, thus saving the consequential time-consuming troubleshooting.

DNS client features

The Domain Name System (DNS) is a distributed database for the central administration of the name space on the Internet. It compiles IP addresses into names (domains) or names into IP addresses, so that the computers and services can be addressed by means of user-friendly names.

Advantage:

When an IP address is dynamically assigned by means of DHCP, a specific PC can be addressed using a memorable, machine-level working name, thereby simplifying remote maintenance via the Web server.

NTP client features

The Network Time Protocol (NTP) is used for synchronizing the time between different computers in the network. The network time is queried by an NTP server, which ideally is synchronized using atomic clocks. A coordinated universal time (UTC) is then transmitted.

Advantages of automatic synchronization by means of NTP:

Automatic setting of the computer clock - even if there are several computers in a network. By avoiding the use of CMOS batteries, completely maintenance-free SIMATIC IPC solutions can be implemented, e. g. with the IPC427C.

SMTP client features

The SMTP protocol is used for sending e-mails to an SMTP server. The protocol is used predominantly for feeding and forwarding e-mails.

Advantage:

By means of a prepared function call, the machine can send the service engineer an e-mail without delay to notify him of any pending events.

Web server features

The version of the Web server already available under RMOS3 has been updated for use with RMOS3-TCP/IP V3.0. The Web server (V1.1) permits the display of HTML pages, uploading/downloading of files and access to the process data of user applications under RMOS3.

Suitable library functions for exchanging data over the web server with RMOS3 applications are available to support this access.

Advantages:

With the aid of the Web server, the user obtains

- central access to distributed/remote automation solutions based on SIMATIC IPC with RMOS3
- the visualization of process data in a browser
- the operation of headless systems (e. g. for commissioning and maintenance purposes)

For the remote maintenance of the SIMATIC IPC, the customer is given a Web server with HTML pages that can be adapted on an application-specific basis, into which the access to process tags can also be integrated.

Application programming features

For the application programming, plug-ins are again available for the Eclipse development environment (RMOS3-GNU V2.1 or higher):

- **Online help:**
Integration of the socket function calls into the online help of the Eclipse-IDE for high-speed access to the function description.
- **Code-completion:**
The extended code completion is also available for the socket functions and supports the developer when creating the source codes by completing the socket calls that are entered.
- **Simulation:**
The simulation of socket calls maps RMOS socket calls to Windows socket calls and thus facilitates a rough pre-testing of the RMOS3 application while it is still on the development system.

Prepared sample applications for RMOS3-GNU V2.1 or higher support the programmer when implementing the communication interface via the TCP protocol in blocking or non-blocking mode. For checking the node accessibility via Ethernet, a PING-example is offered and can simply be integrated into the application.

An application example is used for explaining the interface of the FTP function block library in order to implement an FTP client under RMOS3. Further examples describe the dispatch of e-mails via SMTP and the clock synchronization by means of NTP.

Function (continued)

Characteristics of TCP diagnostics

The following new supplementary programs are offered for the diagnosis of the TCP/IP stack:

- IPCONF for output of the configuration of the Ethernet controller (IP address, subnetwork mask and standard gateway) integrated in the TCP/IP stack. This permits a quick overview of the current Ethernet configuration in the system.
- ARP for configuration of the address resolution protocol (ARP) table of the TCP/IP stacks : Display of all communication partners that have already communicated with the local system. This enables, for example, duplicated IP addresses to be detected.

Further TCP utilities

TCP utilities such as FTP, FTPD, TELNET and TELNETD permit the exchange of files and the remote maintenance of the RMOS3 system via the LAN interface. Additional programs ensure accessibility via gateways/routers (e. g. the ROUTECFG program) and are used for the quick testing of the connection (PING).

Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development environment from RMOS3 V3.40
- RMOS3-GNU as of V2.1, compiler and development interface
- Board support packages (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC Microbox PC 427B/ IPC427C
- SIMATIC Box PC 627B/IPC627C
- SIMATIC Box PC 827B
- SIMATIC Rack PC 647B/IPC647C
- SIMATIC Rack PC 847B/IPC847C

Required software components:

- RMOS3 V3.40 or higher runtime environment (RMOS nucleus and service programs)
- Board support packages (optional, module-specific drivers)

PC-based Automation

RMOS3 real-time operating system

RMOS3-TCP/IP V3.0

| Ordering data | | Order No. | | Order No. |
|---|---|----------------------------|--|------------------------------|
| SICOMP RMOS3-TCP/IP V3.0 EL | B | 6AR1 403-0AN00-1BA0 | RMOS3-GRAPHX V1.0 EL | D 6AR1 403-0BG00-1AA0 |
| Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | | | Master license for graphic library for the creation of window-oriented interfaces of RMOS3 Version 3.30 and higher | |
| SICOMP RMOS3-TCP/IP V3.0 EL, update from V2.3 to V3.0 | B | 6AR1 403-0AN50-1BA0 | BSP-SIMATIC IPC V3.1 EL | D 6AR1 403-0BC00-1CA1 |
| Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format | | | Board Support Package for SIMATIC Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C for use under the SICOMP RMOS3 operating system V3.40 and higher, development package, single license, runtime license, CD-ROM, incl. description in German in PDF format, runtime license RMOS3 V3.40 and higher not included. | |
| SICOMP RMOS3-TCP/IP V3.x Runtime license | B | 6AR1 403-0BN3 | BSP-SIMATIC IPC V3.1 EL Update | D 6AR1 403-0BC50-1CA1 |
| Runtime license for TCP/IP software V3.0 or higher for use with RMOS3 V3.40 or higher | | | Update from BSP-SIMATIC IPC V3.0 to BSP-SIMATIC IPC V3.1. | |
| Accessories | | | BSP SIMATIC IPC V3.x RT | D 6AR1 403-0CC3 |
| SICOMP RMOS3 V3.50 EL | B | 6AR1 405-0EA00-1AA4 | Runtime license for Board Support Package for SIMATIC Microbox PC 427B, IPC427C, SIMATIC Box PC 627B, IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, IPC647C, SIMATIC Rack PC 847B, IPC847C for use under the operating system SICOMP RMOS3, V3.40 and higher. Runtime license RMOS3, V3.40 and higher not included. | |
| Development package, single license, CD-ROM, including description in German in PDF format | | | | |
| SICOMP RMOS3 V3.50 EL update | B | 6AR1 405-0EA50-1AA4 | | |
| Update V3.40 to V3.50, development package, single license, runtime license, CD-ROM, including description in German in PDF format | | | | |
| SICOMP RMOS3 V3.50 RT | B | 6AR1 403-0DA3 | | |
| Runtime license for SICOMP RMOS3 operating system V3.50 | | | | |
| SICOMP RMOS3-GNU V3.0 EL | B | 6AR1 405-0BA00-1CA0 | | |
| Development package, single license, CD-ROM, including description in German in PDF format | | | | |
| SICOMP RMOS3-GNU V3.0 EL update | B | 6AR1 405-0BA50-1CA0 | | |
| Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format | | | | |

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

RMOS3 real-time operating system

RMOS3-GRAPHX V1.0

Overview

RMOS3-GRAPHX V1.0 provides you with a comprehensive graphic package which enables you to expand your C/C++ based automation solution under SICOMP RMOS3 with a user-friendly graphic interface for operator control and monitoring.

Use of the Qt-based graphic library of the Norwegian company Trolltech-Nokia (www.gt.nokia.com) allows window-based inter-

faces to be created with a "look and feel" and input facilities comparable to Windows. Real-time characteristics are maintained within the multi-tasking RMOS3 operating system environment.

In combination with the widely used development tools GNU, Eclipse and the Qt Designer from Trolltech-Nokia, convenient development tools are available to you for creating your real-time applications on approved SIMATIC IPC hardware.

Benefits

- Reduction of hardware costs thanks to visualization and controlling on a single PC
- Reduction of engineering costs through a wide range of prefabricated control and display elements and existing Qt-based graphic interfaces that can be re-used.
- No training costs for operating staff necessary; same "look and feel" as under Windows

Application

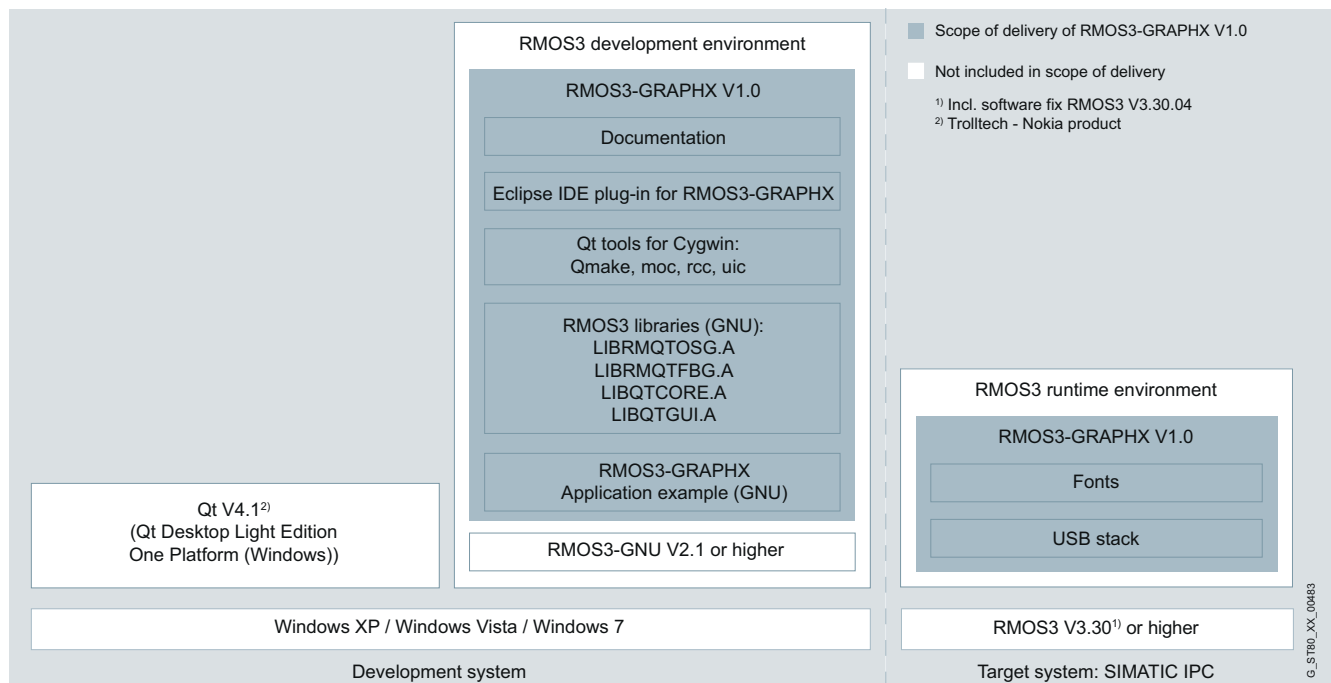
RMOS3 stands for industrial capability when being used as embedded operating system and enables extremely high response times with open-loop and closed-loop control tasks.

The RMOS3-GRAPHX V1.0 graphic package is used for the design of graphic interfaces for RMOS3. It eliminates the need for a second PC for visualization since both operator inputs and control tasks can be carried out on the automation computer.

Design

RMOS3-GRAPHX contains all the necessary libraries and development programs (Qt tool for Cygwin) to implement customer-specific, window-oriented graphical user interfaces with the development environment RMOS3-GNU and the Qt Designer from Trolltech-Nokia. Since numerous prefabricated control and

display elements are available, as generally known under Windows, the development time can be reduced to a minimum.



For RMOS3-GNU V3.0 or higher, an update for RMOS3-GraphX V1.1 is offered via Customer Support: www.siemens.com/automation/support-request.

For creating the graphic interface the "Qt Designer" from Trolltech-Nokia is required. This is an integrated part of the "Qt Desktop Light Edition" product for Windows and can be purchased directly from Trolltech-Nokia (www.gt.nokia.com).

PC-based Automation

RMOS3 real-time operating system

RMOS3-GRAPHX V1.0

Function

User and service friendliness

- Same API (Application Programming Interface) as for desktop version Qt V4.1 for Windows, Unix, Linux, Mac OS X and embedded Linux
- Comprehensive function library for embedding prefabricated control elements, such as text browsers, tables, menus
- Integration of graphic interface as a task in the multitasking environment of RMOS3 to increase the reusability of existing applications
- Use of the standard software Qt Designer from Trolltech-Nokia
- RMOS3-GraphX plug-in into the Eclipse development environment for efficient creation of graphic interfaces

Industrial compatibility

- No negative effect on response times and deterministic response thanks to real-time graphics library

Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development environment RMOS3 V3.40 or higher or RMOS3 V3.30 including software fix RMOS3 V3.30.04
- RMOS3-GNU from V2.1, compiler and development interface
- For RMOS3-GNU V3.0 or higher, an update for RMOS3-GraphX V1.1 is offered via Customer Support: www.siemens.com/automation/support-request
- RMOS3-GRAPHX V1.0, graphic package for creation of graphic interfaces for RMOS3
- Update RMOS3-GraphX V1.1 in connection with RMOS3-GNU V3.0 or higher is available via Customer Support: www.siemens.com/automation/support-request
- Qt Desktop Light Edition for Windows from Trolltech-Nokia (www.qt.nokia.com)

Optional:

- Board support packages (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC IPC

Required software components:

- RMOS3 V3.40 or higher runtime environment (RMOS nucleus and service programs)
- RMOS3-GRAPHX V1.0 runtime license (graphics support, USB driver)

Optional:

- Board support packages (optional, module-specific drivers)

PC-based Automation

RMOS3 real-time operating system

RMOS3-GRAPHX V1.0

| Ordering data | | Order No. | | Order No. |
|---|---|---|--|------------------------------|
| RMOS3-GRAPHX V1.0 EL Master license for graphics library for creation of window-oriented interfaces of RMOS3 Version 3.30 and higher | D | 6AR1403-0BG00-1AA0 | BSP-SIMATIC IPC V3.1 EL Board Support Package for SIMATIC Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C for use under the SICOMP RMOS3 operating system V3.40 and higher, development package, single license, runtime license, CD-ROM, incl. description in German in PDF format, runtime license RMOS3 V3.40 and higher not included. | D 6AR1 403-0BC00-1CA1 |
| Qt Desktop Light Edition, Single Platform Windows development package Qt Desktop Light Edition V4.1.4 for Windows, incl. Qt Designer | | obtainable from Trolltech-Nokia, www.qt.nokia.com | | |
| Accessories | | | | |
| SICOMP RMOS3 V3.50 EL Development package, single license, CD-ROM, including description in German in PDF format | B | 6AR1 405-0EA00-1AA4 | BSP-SIMATIC IPC V3.1 EL Update Update from BSP-SIMATIC IPC V3.0 to BSP-SIMATIC IPC V3.1. | D 6AR1403-0BC50-1CA1 |
| SICOMP RMOS3 V3.50 EL update Update V3.40 to V3.50, development package, single license, runtime license, CD-ROM, including description in German in PDF format | B | 6AR1 405-0EA50-1AA4 | BSP SIMATIC IPC V3.x RT Runtime license for Board Support Package for SIMATIC Microbox PC 427B, IPC427C, SIMATIC Box PC 627B, IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, IPC647C, SIMATIC Rack PC 847B, IPC847C for use under the operating system SICOMP RMOS3, V3.40 and higher. Runtime license RMOS3, V3.40 and higher not included. | D 6AR1403-0CC3 |
| SICOMP RMOS3 V3.50 RT Runtime license for SICOMP RMOS3 operating system V3.50 | B | 6AR1 403-0DA3 | | |
| SICOMP RMOS3-GNU V3.0 EL Single license for the GNU development tools incl. compiler, linker, debugger and Eclipse IDE, special RMOS3 libraries for creating applications, project examples and documentation | B | 6AR1 405-0BA00-1CA0 | | |
| SICOMP RMOS3-GNU V3.0 EL update Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format | B | 6AR1 405-0BA50-1CA0 | | |

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

RMOS3 real-time operating system

BSP SIMATIC IPC V3.1 for RMOS3

Overview

The BSP SIMATIC IPC V3.1 now also supports the SIMATIC IPCs of the C generation. The SIMATIC IPC627C, IPC647C and IPC847C are new additions. In addition to a new Gigabit Ethernet driver and a new USB 2.0 stack, up to 4 processor cores can be used in symmetrical multiprocessing mode. Furthermore, the PROFINET onboard functionalities, PROFIBUS, CAN, and hardware-level functions are available on the SIMATIC IPC under the real-time operating system RMOS3 V3.40 and higher. For creating applications with the PROFINET, PROFIBUS, CAN and hardware-level functions, an online help and code completion is offered for the Eclipse development environment (RMOS3-GNU V2.1 or higher).

The BSP SIMATIC IPC V3.1 now supports the following rugged SIMATIC PCs and SIMATIC IPCs provided with long-term availability:

- Microbox PC 427B and IPC427C
- Box PC 627B and IPC627C
- Box PC 827B
- Rack 647B and IPC647C
- Rack PC 847B and IPC847C

The BSP SIMATIC IPC V3.1 replaces the existing BSP SIMATIC IPC V3.0 Board Support Package. An upgrade to BSP SIMATIC IPC V3.1 is available.

Benefits

Industry-standard

- PROFINET onboard for the high-performance, cyclic and isochronous transmission of user data via Industrial Ethernet
- Detailed monitoring functions (battery, temperature, fan, watchdog, and S.M.A.R.T.) to avoid system downtimes
- Configurable transmission rates and modes on the Gigabit-Ethernet interface for optimum integration into the communication network

Flexible

- RMOS3 nucleus can be flexibly adapted to the requirements of the automation solution
- Optimally matched to SIMATIC PC and SIMATIC IPC

User-friendly

- Effective programming through integration of the PROFINET, PROFIBUS, CAN and monitoring functions into the code completion and online help of the GNU development environment Eclipse
- Drastic reduction in commissioning times through configurable nucleus
- Complete package incl. PROFINET, PROFIBUS, USB, Ethernet and CAN drivers
- 100% downward compatible operating system versions
- Free support
- No additional software downloads necessary

Application

The Board Support Package BSP-SIMATIC IPC V3.1 for RMOS3 supports application programmers during the implementation of real-time applications, e.g. for control of printing machines, chip handlers and test setups. Through the provision of all drivers for the onboard interfaces of the SIMATIC IPCs (Ethernet, USB, PROFINET, PROFIBUS, CAN) and the programming interfaces required for PROFINET, PROFIBUS, BasisCAN and hardware functions, the SIMATIC IPCs can be optimally integrated into the control infrastructure.

PC-based Automation

RMOS3 real-time operating system

BSP SIMATIC IPC V3.1 for RMOS3

Design

The configurable nucleus has been expanded for support of the new SIMATIC IPCs of the C generation and downloads, as far as necessary, the drivers for the onboard interfaces USB 2.0, Gigabit Ethernet, PROFINET IO, PROFIBUS DP, CAN bus, and diagnostics drivers for hardware-level functions.

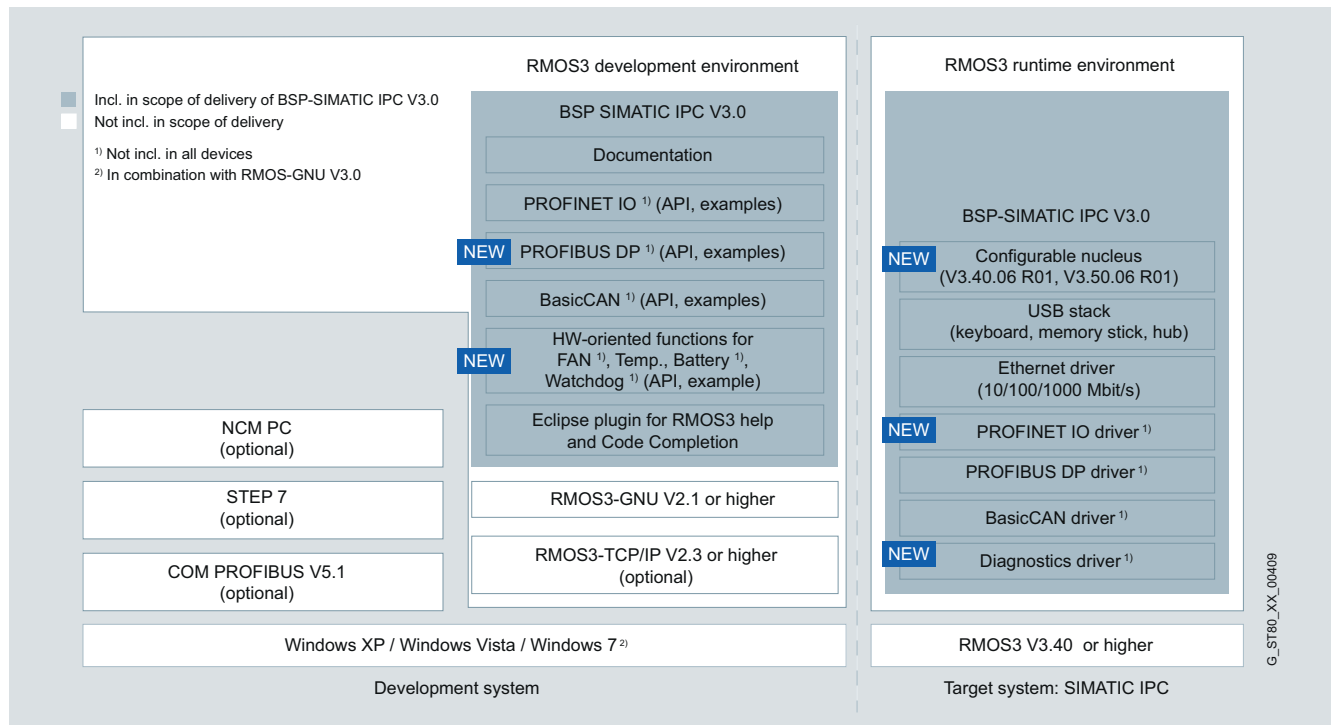
The PROFINET onboard interfaces of the SIMATIC IPCs offer diverse options for the integration of real-time solutions with SIMATIC IPC into PROFINET networks. PROFINET RT (Real-Time) and PROFINET IRT (Isochronous Real-Time) are supported in the operating modes IRT with high flexibility or IRT with high performance with cycle times up to 250 µs and jitter accuracy <1 µs.

The configurable nucleus additionally allows the use of following functions:

- Up to two CompactFlash cards, SIMATIC CF cards also with S.M.A.R.T. monitoring
- A battery-backed SRAM of up to 2 MB for retentive data
- Control of freely programmable user LEDs
- Expanded diagnostic functions for battery monitoring, temperature monitoring, and fan monitoring
- Functions for using the watchdog
- Operating hours counter
- HD monitoring with S.M.A.R.T.

For using the development environment Eclipse from the development package RMOS3-GNU (V2.1 and higher), the C/C++ programmer is provided with all functions of the programming interfaces for PROFINET, PROFIBUS, CAN Bus and hardware diagnostics in the form of an online help and code completion.

The PROFINET function interface is identical here to the calls described in the programming manual of the SIMATIC NET CP16xx "SIMATIC NET IO-Base User Programming Interface".



PC-based Automation

RMOS3 real-time operating system

BSP SIMATIC IPC V3.1 for RMOS3

Function

All necessary interface drivers are already included in the BSP

- Complete package incl. USB, Ethernet, PROFINET, PROFIBUS, CAN, and hardware diagnostic drivers
- The SIMATIC IPC is ready to use as soon as the RMOS3 runtime environment has been installed
- No additional software downloads necessary

Configurable nucleus

- Immediately executable RMOS3 nucleus in which all static and dynamic driver interfaces as well as a number of other hardware options are supported and diagnostic functions are integrated. The settings required for the target hardware are implemented exclusively by means of the RMOS.INI configuration file. The user no longer has to generate the RMOS nucleus.
- Support of specific properties of the SIMATIC IPCs
 - Storage media recognition up to 4 GB RAM
 - Up to 2 MB battery-backed SRAM for retentive data (as independent drive or for direct access)
 - Temperature monitoring function for the processor, power supply, enclosure, and memory
 - Fan monitoring function for enclosure fan, power supply fan, hard disk fan
 - Battery monitoring function
 - Support of up to 2 CompactFlash cards
 - Determination of S.M.A.R.T. status information of the hard disk, the solid-state drive or the SIMATIC CF card
 - 7-segment display
 - User LEDs
 - Implementation of an operating hours counter for monitoring the service intervals of the SIMATIC IPCs
- RMOS3 nucleus maintained and system-tested by Siemens
- No need for familiarization with generating the nucleus, so development can be started sooner
- Uniform user interfaces extending beyond the CPU platforms for greater ease of use compared to the standard nucleus

USB interface

- Support for USB memory sticks, USB keyboards, USB hubs and USB mice, now also with USB 2.0

Ethernet interface

- Support for all 10/100/1000 Mbit/s Ethernet interfaces of the SIMATIC IPCs
- Configurable transmission modes of the Gigabit LAN driver (autonegotiate / full-duplex / half-duplex)
- Transmission rate of the Gigabit LAN driver can be set (10, 100 or 1000 Mbit/s)
- Ethernet driver with connectable filter functionality: Filtering of all network packages that load the system; only ARP, ICMP, TCP packages and optional UDP packages are accepted

PROFINET interface

- Operation of the SIMATIC IPC as PROFINET IO Controller or PROFINET IO Device via the PROFINET onboard interface or an SIMATIC NET CP16xx add-on card
- Support for real-time communication (RT) and isochronous real-time communication (IRT) in the operating modes IRT with high performance and IRT with high flexibility
- Access functions are compatible with the PROFINET functions described in the "Programming Manual SIMATIC NET IO-Base User Programming Interface".
- The PROFINET IO functions are provided for RMOS3 in the form of a GNU library
- As a matter of principle, the SIMATIC IPCs are configured for PROFINET using the NCM PC configuration software from Version V5.4 SP4 or STEP7 from Version 5.4 SP4 (neither included in the scope of supply of the BSP SIMATIC IPC V3.1)
- The RMOS3 PROFINET IO stack is released for the PROFINET onboard interfaces of the SIMATIC IPC or the SIMATIC NET CP16xx with the firmware of version 2.3.2 or version V2.3.1. The firmware versions 2.3.1 and 2.3.2 are included in the scope of supply of the BSP SIMATIC IPC V3.1

PROFIBUS interface

- Operation of the SIMATIC IPCs in the modes of master, slave and combination (parallel operation as master and slave) including diagnostics
- User programming interface for GNU
- Transmission rate 9.6 kbps to 12 Mbps
- Configuring software for PROFIBUS (not included in BSP): COM PROFIBUS or STEP7 (when SIMATIC IPC is used as a slave, operated on a master configured using STEP7)
- Interrupts, master Class 2, S7 functions, FDL as well as DPV1 and DPV2 are not supported

CAN bus interface

- Operation of the Microbox PC 427B and IPC 427C with BasicCAN interface
- User programming interface for GNU

PC-based Automation

RMOS3 real-time operating system

BSP SIMATIC IPC V3.1 for RMOS3

Function (continued)

Hardware-based functions, diagnostic functions and monitoring functions

- Interrupt sharing on the PCI bus is generally activated for reliable connection of PCI cards
- Extended temperature monitoring function for targeted intervention in the automation process when a specified limit temperature is exceeded. The temperature of the CPU, the power supply, the enclosure, the memory, and the main board can be determined depending on the sensors supported by the SIMATIC IPCs.
- Fan monitoring function (Box PC 627B, Box PC 827B, Rack PC 647B, Rack PC 847B, IPC627C, IPC647C and IPC847C) for checking the speed of the enclosure fans (front and back), the power supply fans, and the hard disk fans. If the speed is too low, targeted intervention in the automation process is possible and the "FAN" LED (Rack PC 847B, Rack PC 647B, IPC647C and IPC847C) can be lit.
- Battery monitoring function (Microbox PC 427B, Box PC 627B, Box PC 827B, Rack PC 647B, Rack PC 847B, IPC427C, IPC627C, IPC647C and IPC847C) for checking the charging condition of the CMOS battery and signaling when replacement is necessary
- Watchdog function (Microbox PC 427B, Box PC 627B, Box PC 827B, Rack PC 647B, Rack PC 847B, IPC427C, IPC627C, IPC647C and IPC847C) for detecting program crashes
- Interface to user LEDs from multiple CPUs (Rack PC 647B, Rack PC 847B, IPC647C and IPC847C: 3x red, Box PC 627B, Box PC 827B and IPC627C: 2x red/green, Microbox PC 427B and IPC427C: 1x yellow/red and 1x yellow/green) for the visualization of status signals
- Access to 2-digit, 7-segment display (Box PC 627B, Box PC 827B, IPC627C) for power-up display and outputs from applications for diagnostic purposes

Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7
- Required software components:
- RMOS3 development environment as of RMOS3 V3.40
 - RMOS3-GNU as of V2.1, compiler and development interface
 - Board support packages (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC Microbox PC 427B/ IPC427C
- SIMATIC Box PC 627B and IPC627C
- SIMATIC Box PC 827B
- SIMATIC Rack 647B and IPC647C
- SIMATIC Rack PC 847B and IPC847C

Required software components:

- RMOS3 V3.40 or higher runtime environment (RMOS nucleus and service programs)
- Board support packages (optional, module-specific drivers)

PC-based Automation

RMOS3 real-time operating system

BSP SIMATIC IPC V3.1 for RMOS3

Ordering data

Order No.

Order No.

BSP-SIMATIC IPC V3.1 EL

D

6AR1 403-0BC00-1CA1

Board Support Package for SIMATIC Microbox PC 427B, IPC427C, Box PC 627B, IPC627C, Box PC 827B, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C for use under the SICOMP RMOS3 operating system V3.40 and higher, development package, single license, runtime license, CD-ROM, incl. description in German in PDF format, runtime license RMOS3 V3.40 and higher not included.

BSP-SIMATIC IPC V3.1 EL Update

D

6AR1403-0BC50-1CA1

Update from BSP-SIMATIC IPC V3.0 to BSP-SIMATIC IPC V3.1.

BSP SIMATIC IPC V3.x RT

D

6AR1403-0CC3

Runtime license for Board Support Package for SIMATIC Microbox PC 427B, IPC427C, SIMATIC Box PC 627B, IPC627C, SIMATIC Box PC 827B, SIMATIC Rack PC 647B, IPC647C, SIMATIC Rack PC 847B, IPC847C for use under the operating system SICOMP RMOS3, V3.40 and higher. Runtime license RMOS3, V3.40 and higher not included.

Accessories

SICOMP RMOS3 V3.50 EL

B

6AR1 405-0EA00-1AA4

Development package, single license, CD-ROM, including description in German in PDF format

SICOMP RMOS3 V3.50 EL update

B

6AR1 405-0EA50-1AA4

Update V3.40 to V3.50, development package, single license, runtime license, CD-ROM, including description in German in PDF format

SICOMP RMOS3 V3.50 RT

B

6AR1 403-0DA3

Runtime license for SICOMP RMOS3 operating system V3.50

SICOMP RMOS3-GNU V3.0 EL

B

6AR1 405-0BA00-1CA0

Development package, single license, CD-ROM, including description in German in PDF format

SICOMP RMOS3-GNU V3.0 EL update

B

6AR1 405-0BA50-1CA0

Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format

SICOMP RMOS3-TCP/IP V3.0 EL

B

6AR1 403-0AN00-1BA0

Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format

SICOMP RMOS3-TCP/IP V3.0 EL, update from V2.3 to V3.0

B

6AR1 403-0AN50-1BA0

Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format

SICOMP RMOS3-TCP/IP V3.x Runtime license

B

6AR1 403-0BN3

Runtime license for TCP/IP software V3.0 or higher for use with RMOS3 V3.40 or higher

RMOS3-GRAPHX V1.0 EL

D

6AR1403-0BG00-1AA0

Master license for graphic library for the creation of window-oriented interfaces of RMOS3 Version 3.30 and higher

B: Subject to export regulations: AL: N and ECCN: EAR99S

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Expansion components and accessories

Expansion components/accessories

Overview

SIMATIC PCs offer users a wide range of designs and systems which perfectly match industrial applications and fulfill the high requirements in terms of ruggedness.

These include e. g.:

- Wide temperature of use up to 55 °C
- High resistance to vibration/shock
- Rugged housing design
- Special degrees of protection up to IP65, NEMA 4
- High electromagnetic compatibility (EMC)
- UL, CE industry certification
- Integrated industrial power supplies (NAMUR)
- Easy-to-service design for rapid replacement of faulty components

Increased system availability

A graded concept is available for effective early detection of potential failures and minimization of actual downtimes. This consists of hardware and software expansion options specially developed for SIMATIC PCs with which the system availability can be individually increased depending on the safety requirements.

The use pays off:

Because the safety is significantly increased by components such as a second hard disk for additional data backup or the DiagMonitor for permanent self-diagnostics. The system availability options thus make a contribution to the significant minimization of the total costs (TCO) of the installation according to the motto: "Small effort, large effect".

The following components are available:

Hard disks options

- Solid state drive (SSD)
- Second hard disk:
The safety of the data stored on the hard disk is a cornerstone for system availability.
 - Simple and fast data backup of complete installation and user data in combination with the SIMATIC IPC Image Creator.
 - Following a faulty software installation or in the case of a hard disk defect, the system can be immediately put back into operation by booting the back-up disk.
 - Fast download of the last saved hard disk image to the working disk.

Two hard disks are optionally available in a user-friendly swap frame for the Rack PC to permit fast and easy data backup.

SIMATIC IPC CompactFlash

The application of PCs in industrial areas requires rugged systems to prevent or minimize production downtimes. SIMATIC IPCs have been developed precisely for this purpose. One way of improving the industrial suitability and system availability of SIMATIC IPCs even further is to use SIMATIC PC CompactFlash cards instead of hard disk drives. These are system-tested with SIMATIC IPCs.

SIMATIC PC CompactFlash is a hardware option that can be ordered via the relevant SIMATIC IPC configurator or separately as an accessory.

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC IPC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged
- Pre-installed SIMATIC IPC BIOS Manager V3.1

SIMATIC IPC Service USB FlashDrive

The SIMATIC IPC Service USB FlashDrive is the ideal tool for maintenance as well as saving and restoring of data. With the pre-installed SIMATIC IPC Image & Partition Creator V3.1 and SIMATIC IPC BIOS Manager V3.1, the FlashDrive is immediately ready for use.

SINUMERIK 3.5" floppy disk drive, USB 1.1

The USB floppy disk drive is provided for fast exchange of user data (e. g. recipes) or files. The drive must not be used as a cyclic archiving drive. The front-panel installation and degree of protection IP54 permit data exchange from the front without opening the control cabinet door.

Central I/O expansion PC IO

The PC IO expansion comprises:

- basic module with encoder/counter functionality, PCI104 interface to the host system, and communication interfaces to the I/O modules
- digital and analog I/O modules that are managed by the basic module
- mechanical installation components.

PC-based Automation

Expansion components and accessories

Expansion components/accessories

Overview (continued)

Industrial USB Hub 4

- The Industrial USB Hub 4 is essentially used as a USB hub for the connection of I/O devices to Multi Panels and Panel PCs with an integrated USB interface
- USB I/O devices can be connected to the panel and operated via the USB Hub 4 without opening the cabinet door
- The Industrial Hub 4, in contrast to commercially available USB hubs, can be used in harsh industrial environments (IP65)

SIMATIC Panel PC Remote Kit

- Separation of computer unit and operator control unit
- At a maximum distance of up to 30 m
- Pure hardware solution, no need to install additional software
- Maintaining the full Panel PC front functionality

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data backup of hard disk contents
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for editing the hard disk partitioning

SIMATIC IPC DiagMonitor

- PC diagnostics/alarm software for early detection and diagnostics of PC problems
- Comprehensive monitoring of temperature, fans, hard disks (SMART, RAID, CF card, SSD), watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)

SIMATIC IPC Remote Manager

Efficient remote maintenance and management of SIMATIC IPCs.

With the SIMATIC IPC Remote Manager you can use functions of the Intel Active Management Technology (Intel AMT) for SIMATIC IPCs. Intel AMT is used for remote management of PCs.

SIMATIC IPC BIOS Manager

The SIMATIC IPC BIOS Manager is a software tool with which CMOS data from the BIOS configuration of a SIMATIC IPC can be edited. The tool is obtained by downloading it from the Internet using the Automation Value Card from Customer Support.

ADDM Data Management

With ADDM, you are completely in control of the SIMATIC and SINUMERIK controllers – around the clock and with any program version. This tool, indispensable in modern production systems, allows user-friendly backup, comparison and management of control data.

DC-UPS uninterruptible power supplies

The uninterruptible DC power supply with battery modules consists of DC UPS modules.

The maintenance-free SITOP UPS500 with capacitors as energy stores are especially suitable for use at high ambient temperatures. A further advantage of these high-capacity double-layer capacitors are their shorter charging times.

For flexible use, there is the SITOP UPS500S - 15 A basic unit in 2.5 kW and 5 kW versions. Up to 3 SITOP UPS501S expansion modules of 5 kW each can be connected in parallel to extend the backup times. The SITOP UPS500P IP65 version has capacitors for 5 or 10 kW and supplies up to 7 A output current.

Input and output devices

The SIMATIC IPC accessories encompass various input devices.

PC-based Automation

Expansion components and accessories

SIMATIC IPC CompactFlash

Overview

Rugged systems are required when using PCs in industrial environments to minimize production standstill times. SIMATIC IPCs are specially designed for this purpose. One possibility for enhancing the industrial compatibility and system availability of the SIMATIC IPC is to use SIMATIC IPC CompactFlash instead of hard disk drives. These have been system-tested with the respective SIMATIC IPC.

SIMATIC IPC CompactFlash can be ordered as a hardware option through SIMATIC IPC Configurator or as an accessory. Depending on the application, cards are available with a storage capacity of 256 MB and 2 to 8 GB.

Benefits

Reduced costs through high industrial functionality

- High system availability because no mechanical parts subject to wear are used
- High degree of industrial compatibility because of high resistance to vibration/shock and high temperatures
- Minimization of time and effort for customer through qualification and system test by SIMATIC IPC
- Integrating the CompactFlash diagnosis has enabled a further increase in system availability

Ordering data

Order No.

SIMATIC IPC CompactFlash

| | | |
|--------|---|----------------------------|
| 256 MB | A | 6ES7 648-2BF02-0XC0 |
| 2 GB | A | 6ES7 648-2BF02-0XF0 |
| 4 GB | A | 6ES7 648-2BF02-0XG0 |
| 8 GB | A | 6ES7 648-2BF02-0XH0 |

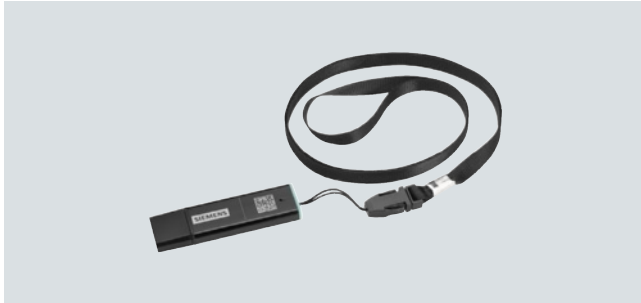
A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation

Expansion components and accessories

SIMATIC IPC (Service) USB FlashDrive

Overview



The SIMATIC IPC USB FlashDrive is the ideal mobile storage medium for industrial applications. Thanks to the rugged and ultra-compact construction in a metal enclosure, fast data transfer (USB 2.0) and the high memory capacity of 8 GB, the USB FlashDrive is ideally suited for use in industrial applications. It replaces diskettes, CD and DVD read/write media as data memory. Thanks to its high access speed, it is also ideal for tools that are not to be installed on the computer ("portable apps"). In addition, it can be set up ready to boot using SIMATIC PC BIOS-Manager. There is an option of expanding the USB FlashDrive set up in this way into a "tool stick" using SIMATIC IPC Image & Partition Creator.

The SIMATIC IPC SERVICE USB FlashDrive is the perfect tool for backup and restoring. With the pre-installed SIMATIC IPC Image & Partition Creator V3.1, it is immediately ready to use.

Benefits

Ultra-compact, rugged and industry-standard

- SLC-Flash technology for maximum data security and performance
- High level of electromagnetic compatibility according to CE Industry when operated with SIMATIC IPC
- Especially suitable for use in industrial environments thanks to the metal enclosure
- Two USB FlashDrives can be inserted one above the other/ side by side

High degree of investment protection

- System tested with SIMATIC IPC/PG (hardware and software)
- Can be used to transfer Automation License Keys (requirement: Automation License Manager, V2.x and higher)

Added value

USB FlashDrive

- SIMATIC IPC BIOS-Manager (DOS and Windows version) included in scope of supply

Service USB FlashDrive

- SIMATIC IPC Image & Partition Creator and SIMATIC IPC BIOS-Manager V3.1 (Win PE) already preinstalled.

Application

The SIMATIC IPC USB FlashDrive is a fast and simple method of saving your data (e. g. recipes, configuration data, etc.) and transporting it easily from one place to another; it can also be used as starting medium for SIMATIC IPC BIOS-Manager and SIMATIC IPC Image & Partition Creator. In addition, it is ideal as a storage medium for transportable applications ("portable apps").

Function

Functional highlights/outstanding technical features

- Rugged metal enclosure, ultra-compact design (dimensions: 59.1 x 16.7 x 7 mm) and high electromagnetic compatibility in accordance with CE Industry make the stick particularly suitable for industrial use.
- High memory capacity of 8 GB
- SLC-Flash technology for maximum data security and performance
- High data transmission rate (USB 2.0 interface)
- Bootable with operating system (WinPE) and the auxiliary tool SIMATIC IPC BIOS Manager
- Perfect as boot medium for SIMATIC IPC Image & Partition Creator
- Immediately ready to use – "Plug & Play", no driver necessary (Windows 2000 or higher)
- Status LED for indicating the operating state and data transmission
- System-tested with SIMATIC IPC/PG
- For functions of the SIMATIC IPC Image & Partition Creator, see page 5/271

Recommended operating systems:

Windows 2000/XP/Vista/Windows 7/Windows Server 2003/2008

Technical specifications

| SIMATIC IPC USB FlashDrive SIMATIC IPC Service USB FlashDrive | |
|--|--|
| Supported operating systems | Windows 2000/XP/Vista/ Windows 7/Windows Server 2003/ 2008 |
| Capacity | 8 GB |
| Approvals | CE Industry |
| Temperature | |
| • During operation | +5 ... +55 °C |
| • Storage | -40 ... +70 °C |
| Device dimensions (L x W x H) in mm | 59.1 x 16.7 x 7 |
| Weight, approx. | 12 g |

Ordering data

Order No.

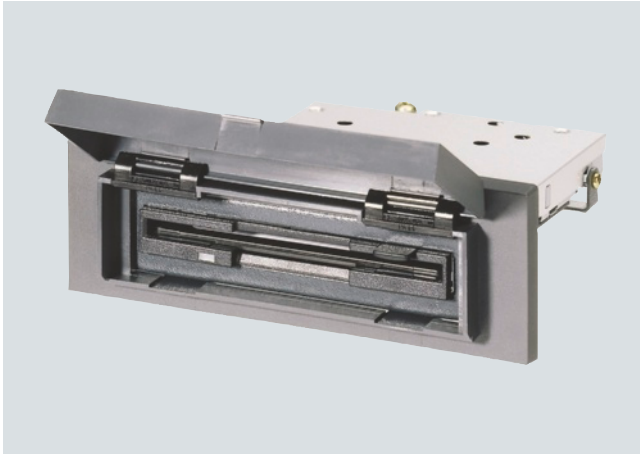
| | |
|--|----------------------------|
| SIMATIC IPC USB FlashDrive | 6ES7 648-0DC50-0AA0 |
| 8 GB (SLC), USB 2.0, metal enclosure, boot capability, for SIMATIC IPC: Rack PC, Box PC, Panel PC and for SIMATIC PG | |
| SIMATIC IPC Service USB FlashDrive | 6AV7 672-8JD01-0AA0 |
| 8 GB (SLC), USB 2.0, metal enclosure, boot capability, SIMATIC IPC Image & Partition Creator V3.1 and SIMATIC IPC BIOS-Manager V3.0 (Win PE) already installed, including CD | |

PC-based Automation

Expansion components and accessories

SINUMERIK 3.5" floppy disk drive, USB 1.1

Overview



The SINUMERIK 3.5" floppy disk drive, USB 1.1 is suitable for archiving user data and can be installed in front panels. The connection is made via the USB interface.

Function

The SINUMERIK 3.5" floppy disk drive, USB 1.1 is designed for the transfer of user data. Installation in front panels makes it possible to transfer data without opening the control cabinet door. High density (1.2/1.44 MB) 3.5" floppy disks can be used for storing user data.

Integration

The SINUMERIK floppy disk drive, USB 1.1 is suitable for connecting to:

- SINUMERIK PCU 50.3
- SINUMERIK TCU
- SIMATIC Panel PC 67x/87x/477/577 with Windows 2000/XP
- SIMOTION P350 with Windows XP Professional

Technical specifications

| | |
|---|--|
| | 6FC5235-0AA05-1AA2 SINUMERIK 3.5" floppy disk drive, USB 1.1 |
| Input voltage | 5.25 V DC |
| Power consumption, max. | 2.5 W |
| Degree of protection according to EN 60529 (IEC 60529) | • Front IP54 • Rear IP20 |
| Humidity rating based on EN 60721-3-3 | Class 3K5 condensation and icing excluded. Low air temperature 0 °C (32 °F). |
| Relative humidity | |
| • Storage | 5 ... 90% |
| • Transport | 5 ... 90% |
| • Operation | 20 ... 80% |
| Ambient temperature | |
| • Storage | -20 ... +60 °C (-4 ... +140 °F) |
| • Transport | -20 ... +60 °C (-4 ... +140 °F) |
| • Operation | 4 ... 50 °C (39.2 ... 122 °F) |
| Distance to PCU/TCU | 5 m (16.4 ft) |
| Dimensions | |
| • Width | 145 mm (5.71 in) |
| • Height | 50 mm (1.97 in) |
| • Depth | 161 mm (6.34 in) |
| Weight, approx. | 0.32 kg (0.71 lb) |
| Approvals, according to | CE, cULus |

Ordering data

SINUMERIK 3.5" floppy disk drive, USB 1.1

Incl. connecting cable
Length: 1 m (3.28 ft)

Order No.

6FC5 235-0AA05-1AA2

A: Subject to export regulations: AL: N and ECCN: EAR99H

More information

Note for SIMATIC Panel PCs

The USB floppy disk drive is approved for the Windows 2000/XP operating systems. The appropriate drivers for the floppy disk drive are supplied with the operating system software.

PC-based Automation

Expansion components and accessories

PC I/O

Overview



The PC I/O expansion extends the rugged use of the SIMATIC HMI IPC427C at the machine level.

You can find further information under industrial PC -> SIMATIC PC -> SIMATIC Box PC.

The I/O expansion enables and supplements the use of the SIMATIC HMI IPC427C with:

- extremely compact dimensions (262 mm wide, 134 mm high, depth from 47 mm)
- high system availability (rugged and maintenance-free, since without rotating parts, for example)
- maximum flexibility.

The PC I/O expansion comprises:

- base module with encoder/counter functionality, PCI104 interface to the HOST system and communication interfaces to the I/O modules
- digital and analog I/O modules that are managed by the basic module
- mechanical installation components.

A selection guide with material list for your requirements can be found at:

www.siemens.com/simatic-pc/pc-io-selection

| Module | Description |
|---|--|
| PC I/O Base 400 (base module) | <ul style="list-style-type: none"> • PCI104 interface to host • 4 encoder inputs, can also be used as counters if required • 4 digital inputs • Management of encoder inputs and associated counters and up to four I/O modules over separate communication interfaces • Power supply distribution for 4 encoders |
| PC I/O MOD Digital 010 (digital I/O module 0) | <ul style="list-style-type: none"> • 24 binary 24 V inputs • 16 binary 24 V outputs |
| PC I/O MOD Analog 020 (analog I/O module 0) | <ul style="list-style-type: none"> • 8 analog inputs, 12 bits, 0 to 5 V, 0 to 10 V \pm 5 V, \pm10 V • 8 analog outputs, 16 bits, \pm10 V • 4 Pt100 connections, 2-wire |
| PC I/O KIT 040 (encoder expansion rack) | For expanding a SIMATIC Microbox PC 420/427B/IPC427C. Connection unit for: <ul style="list-style-type: none"> • 4 encoder inputs • 4 digital inputs • Encoder voltage supply |
| PC I/O KIT 030 (I/O expansion rack) | For expanding a SIMATIC Microbox PC 420/427B/IPC427C. Expansion rack to hold <ul style="list-style-type: none"> • max. 2 I/O modules in the Microbox PC 42x system |

Benefits

Reduction in standstill times thanks to high system availability

- Monitoring and diagnostic functions (watchdog, heart beat, short-circuit monitoring, temperature monitoring, broken cable)
- Maintenance-free operation because a fan is not necessary
- Service-friendly hardware configuration (easy expansion, direct plug-in system for easy installation)
- High interference immunity (isolated digital I/Os)

Cost reductions through high investment security

- High product continuity through long-term secure functionality in hardware and software
- Modules developed and manufactured by Siemens
- Guaranteed spare-parts availability of the components (5 years)

Reduced costs through high industrial functionality

- High degree of industrial compatibility thanks to rugged construction (solid metal expansion rack, Base 400 permanently screwed to I/O modules) even under extreme vibration and shock loading, at high temperatures and with high electromagnetic interference
- High degree of flexibility with selection and expansion of components (inputs and outputs are scalable in terms of type and number)
- Compact, resource-saving construction (four I/O modules or up to 160 24 V I/Os can be operated on one PCI load)
- Support is available for different operating systems, such as RMOS3, Windows XP Professional, Windows XP embedded
- High performance for fast signal processing in real-time applications

Cost minimization through time savings

- Delivery of fully assembled, turn-key systems
- Program examples for support with creating applications
- Quick assembly due to integrated terminals with direct plug-in connection system

PC-based Automation

Expansion components and accessories

PC I/O

Application

The SIMATIC HMI IPC427C with central I/O expansion provides mechanical engineers, plant engineers, and switch cabinet manufacturers with a high performance, compact PC platform for application at the machine or in the process, and applications in the industrial environment for:

- measuring and controlling of process and machine data (e. g. automated washing systems, robot controls).

The application spectrum of HMI IPC427C with a central I/O expansion ranges from C/C++-based automation solutions with the well-proven SICOMP RMOS3 operating system with real-time and multi-function capability to applications based on Windows XP.

The PC IO central I/O expansion has CE certification for use in the industrial sector as well as in residential and commercial areas and small businesses when implemented in the Microbox PC 420/427B/IPC427C. In addition to industrial applications, it can also be used in building services automation or in facilities open to the public.

Design

- The Base 400 is directly plugged into the PC104 slot of the HMI IPC427C; any required encoders or counters are routed externally through the Kit 040 (encoder expansion rack).
- Up to two I/O modules are screwed into the Kit 030 and both are attached to the HMI IPC427C enclosure; flat ribbon cable provides the electrical connection to Base 400. The I/O can be connected through direct connectors.
- Flexible central expansion under the following boundary conditions supports the use of up to 320 24 V digital I/Os in one HMI IPC427C:
 - Up to three PCI104 modules can be used in the HMI IPC427C
 - Expandable with up to four expansion frames
 - Up to four I/O modules can be operated on one Base 400
 - Up to two PC IO Mod Analog 020 can be operated on one Base 400.

Technical specifications

Electrical data

Supply voltages and current consumption

| Parameters | Value |
|---|--|
| Power supply to base module | Via PCI-104 interface: 3.3 V DC and 5 V DC |
| Encoder supply voltage infeed | 24 V DC |
| Current consumption of encoder inputs and counters | 0.3 A per encoder |
| Power supply to digital I/O module 0 | 24 V DC |
| Current consumption of digital I/O module 0, max. approx. | 4 A |
| Power supply to analog I/O module 0 | 5 V DC from Base 400 |
| Current consumption of analog I/O module 0, max. approx. | |

Counters and encoder inputs

| Parameters | Value |
|---|--|
| Number of counters or encoder inputs on the base module | 4 |
| Input signal from encoder | RS 422 |
| Counting depth | 32 bits |
| Encoder input counting frequency | ≤ 2 MHz |
| Sampling time for timer or pulse-width measurement | 1 MHz or 4 MHz |
| Gate time for frequency measurement | Adjustable in the following stages: 8 µs, 32 µs, 128 µs, 512 µs, 2048 µs, 8192 µs, 16384 µs, 32768 µs, 131072 µs, 262144 µs, 524288 µs, 1048576 µs, 2097152 µs, 4194304 µs, 8388608 µs, 16777216 µs |
| Isolation | No |
| Protected against polarity reversal | No |

PC-based Automation

Expansion components and accessories

PC I/O

Technical specifications (continued)

Digital inputs on base module

Base module: Digital inputs

| Parameters | Value |
|---|--------------|
| Number of digital inputs | 4 |
| Cable length (without lightning protection element) | max. 30 m |
| Input voltage | 24 V DC |
| Input current | Approx. 2 mA |
| Time constant of input filter | 0.01 ms |
| Isolation | No |

Digital I/O module 0: Digital inputs

| Parameters | Value |
|--|----------------------------|
| Number of digital inputs | 24 |
| Cable length (without lightning protection element) | max. 30 m |
| Input voltage | 24 V DC |
| Input current | Approx. 2 mA |
| Time constant of input filter | |
| • Inputs 0 ... 7 | 0.1 ms |
| • Inputs 8 ... 23 | 1 ms |
| • Inputs 8 and 9 also designed as high-speed inputs (parallel to 1 ms path) | 0.01 ms |
| Isolation | Yes |
| For communication between the base module and the inputs of digital I/O module 0 | |
| Isolation test voltage | 500 V DC |
| Between the individual inputs/outputs of digital I/O module 0 | No, one electrical circuit |

Digital I/O module 0: Digital outputs

| Parameters | Value |
|---|---|
| Number of outputs | 16, Organized in 4 output groups |
| Cable length (without lightning protection element) | max. 30 m |
| Output voltage | 24 V DC |
| Output current | |
| • Per output group | 1 A max. |
| • Total per digital I/O module 0 | 4 A max. |
| Switching rate | ≤ 2 kHz |
| Switching type | Current sourcing |
| Output delay | |
| Internal transmission delay | 16 μs |
| Register output to driver output (load-dependent): | |
| • 0 → 1 signal | max. 30 μs |
| • 1 → 0 signal (with a digital input connected) | max. 130 μs |
| Isolation | Yes |
| For communication between the base module and the outputs of digital I/O module 0 | |
| Isolation test voltage | 500 V DC |
| Between the individual inputs/outputs of digital I/O module 0 | No, one electrical circuit |
| Short-circuit protection of the output drivers | Threshold on Typ. 9 A max. 11 A electronically pulsing In order to comply with UL requirements, the user must limit the input current to 4 A. Use NEC Class 2 current source |
| Excess temperature shutdown | Above 150 °C |
| Overvoltage protection | Typ. 47 V max. 52 V |
| Status after POWER ON and after RESET | High resistance |

Technical specifications (continued)

Analog I/O module

Analog I/O module 0: Analog inputs

| Parameters | Value |
|--|--|
| Number of analog inputs | 8 |
| Shielded cable length | max. 30 m |
| Voltage ranges | 0 ... 5 V 0 ... 10 V ±5 V ±10 V |
| Permissible input voltage against analog ground | max. 15 V, continuous |
| Impedance | > 10 kOhms |
| Input type | Single-ended |
| Resolution | 12 bits (including sign) |
| Repeatability | 10 bits (including sign) |
| Input filters | No |
| Conversion time | max. 200 µs per channel |
| Configuration cycle time for analog-to-digital conversion: | Without Pt100 With Pt100 |
| • With one analog input | 50 ... 100 µs 50 ... 200 µs |
| • With 4 analog inputs | 200 ... 400 µs 200 ... 500 µs |
| • With 8 analog inputs | 400 ... 800 µs 400 ... 1000 µs |
| Isolation | No |

Analog I/O module: Pt100 inputs

| Parameters | Value |
|---------------------------------|---|
| Number of external Pt100 inputs | 4 |
| Type | Two-wire measurement |
| Dynamic response | The mean value is constantly available and is updated approximately every 6 ms. |
| Isolation | No |

Analog I/O module 0: Analog outputs

| Parameters | Value |
|---|--------------------------|
| Number of analog outputs | 8 |
| Type | Single-ended |
| Shielded cable length | max. 30 m |
| Voltage range | ±10 V |
| Load current | 2 mA max. |
| Resolution | 16 bits (including sign) |
| Accuracy | 0.5% |
| Conversion time | max. 200 µs per channel |
| Output value after POWER ON and after RESET | 0 V |
| Configuration cycle time for digital-to-analog conversion ¹⁾ : | |
| • With one analog input | 100 ... 200 µs |
| • With 4 analog inputs | 400 ... 800 µs |
| • With 8 analog inputs | 800 ... 1600 µs |
| Short-circuit protection | No |
| Isolation | No |

¹⁾ The times also depend on the software response time (interrupt response time or polling times).

PC-based Automation

Expansion components and accessories

PC I/O

Technical specifications (continued)

| Environmental requirements for installation in Microbox PC 42x | | | | | |
|--|--|---|--------------|-----------------|-------------|
| Degree of protection to EN 60529 (front/rear) | IP20 | | | | |
| Protection class | Protection class I acc. to VDE 0106 Part 1 (IEC 536) | | | | |
| Vibration load during operation | <u>Devices without hard disk:</u> | | | | |
| | Frequency | Acceleration | Displacement | Cycles per axis | Octaves/min |
| | 10 to 58 Hz | - | 0.075 mm | 10 | 1 |
| | 58 to 200 Hz | 9.8 m/s ² | - | 10 | 1 |
| | acc. to IEC 60068-2-6, test Fc | | | | |
| | <u>Devices with hard disk: Wall mounting</u> | | | | |
| | Frequency | Acceleration | Displacement | Cycles per axis | Octaves/min |
| | 10 to 58 Hz | 0.035 mm | | 10 | 1 |
| | 58 to 200 Hz | 4.9 m/s ² | | 10 | 1 |
| | Standard rail: No mechanical excitation permitted | | | | |
| Shock loading during operation | <u>Devices without hard disk:</u> | | | | |
| | Acceleration | Shock duration | | | |
| | 150 m/s ² | 11 ms | | | |
| | acc. to IEC 60068-2-27, test Ea | | | | |
| | 3 in both pos. and neg. direction per axis, half-sine | | | | |
| | <u>Devices with hard disk: Wall mounting:</u> | | | | |
| | Acceleration | Shock duration | | | |
| | 50 m/s ² | 30 ms | | | |
| | Standard rail: No mechanical excitation permitted | | | | |
| | Electromagnetic compatibility (EMC) • Emitted interference • Immunity to conducted interference on the supply lines • Immunity to conducted interference on the unshielded supply lines • Immunity to conducted interference on the shielded supply lines • Immunity to static discharge • Immunity to radio frequency interference • Immunity to high-frequency current feed | EN 55022 Class B In order to comply with Class B, a 230 V AC power supply unit must be used which meets the requirements of EN 55022 Class B (e. g. "SITOP modular 5 A", type No.: 6EP1333-3BA00). | | | |
| • ±2 kV (IEC 61000-4-4, Burst) • ±1 kV (IEC 61000-4-5, symm. surge, length > 30 m) with lightning protection element (e. g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402) • ±2 kV (IEC 61000-4-5, unsymm. surge, length > 30 m) with lightning protection element (e. g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402) | | | | | |
| • ±2 kV (IEC 61000-4-4, burst) • ±1 kV (IEC 61000-4-5, symm. surge, length > 30 m) with lightning protection element (e. g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402) • ±2 kV (IEC 61000-4-5, unsymm. surge) Length > 30 m) with lightning protection element (e. g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402) | | | | | |
| • ±2 kV (IEC 61000-4-4, burst) • ±1 kV (IEC 61000-4-5, surge symm., length > 30 m) • ±2 kV (IEC 61000-4-5, surge unsymm., length > 30 m) | | | | | |
| • ±6 kV, contact discharge (IEC 61000-4-2) • ±8 kV, air discharge (IEC 61000-4-2) | | | | | |
| • 10 V/m 80% AM; 80 MHz to 1 GHz (IEC 61000-4-3); • 10 V/m 80% AM; 1.4 GHz to 2 GHz (IEC 61000-4-3) • 10 V 80% AM, 9 kHz to 80 MHz (IEC 61000-4-6) | | | | | |
| • 0 to 50 °C with Flash drive (horizontal; preferred mounting position) • 0 to 45 °C with Flash drive (vertical) • 5 to 40 °C with hard disk (horizontal and vertical) | | | | | |
| -20 °C ... +60 °C | | | | | |
| 30 °C/85% (IEC 60068-2-78, Test Cab) | | | | | |

PC-based Automation

Expansion components and accessories

PC I/O

Technical specifications (continued)

Environmental requirements for installation in Microbox PC 42x

| | |
|-------------------------------|---|
| Approvals | |
| Safety regulations | IEC/EN 60950-1 |
| CE marking | <ul style="list-style-type: none"> • EC Directive 89/336/EEC (EMC Directive) • Use in industry: • Applications in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> - Emitted interference: EN 61000-6-4 - Noise immunity: EN 61000-6-2 • Applications in residential areas, business and trade environments as well as in workshops: <ul style="list-style-type: none"> - Emitted interference: EN 61000-6-3 - Noise immunity: EN 61000-6-1 |
| Dimensions and weights | |
| Equipment dimensions (in mm) | <ul style="list-style-type: none"> • Width x height: 262 x 134 • Depth of basic unit: 47 • Depth of basic unit above rail: 52 • Additional depth per encoder expansion rack (Kit 040): 17 • Additional depth per I/O expansion rack (Kit 030): 22 |

| Ordering data | Order No. | Ordering data | Order No. |
|--|----------------------------|---|----------------------------|
| PC IO Base 400 A PCI104 module for connecting up to 4 PC IO MOD xxx 010/020, with 4 encoder interfaces and 4 DI incl. fixing accessories (base module with fixing accessories) | 6ES7 648-2CE20-0AA0 | PC IO KIT 030 I/O module expansion rack for Microbox PC 420/427B/IPC427C for installing up to 2 I/O modules, including fixing accessories and a cover plate | 6ES7 648-1AA20-0XF0 |
| PC IO MOD Digital 010 A Digital I/O module with 24 DI and 16 DO, incl. connecting cable to PC IO Base 400 and mating connector | 6ES7 648-2CE40-0BA0 | PC IO KIT 040 Encoder expansion rack for Microbox PC 420/427B/IPC427C for contacting the encoder interfaces and DIs of the PC IO Base 400, including fixing accessories | 6ES7 648-1AA20-0XE0 |
| PC IO MOD Analog 020 A Analog I/O module with 8AI, 8 AO and 4 PT100, incl. connecting cable to PC IO Base 400, mating connector and shield clamp | 6ES7 648-2CE40-0CA0 | | |

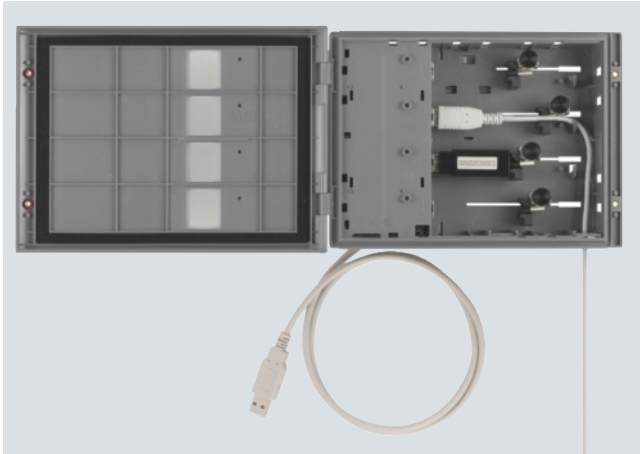
A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation

Expansion components and accessories

Industrial USB Hub 4

Overview



Industrial USB Hub 4, open

- The Industrial USB Hub 4 is used as a USB hub for the connection of I/O devices to Multi Panels, Panel PCs and standard PCs.
- The industrial USB Hub 4 with IP65 degree of protection on the front (Service Kit required) can be mounted in a control cabinet. This simplifies the use of USB I/O in harsh industrial environments.
- USB I/O can be connected to the panel and operated via the Industrial USB Hub 4 without opening the cabinet door. The interfaces are also accessible from the rear even in the control cabinet.

Design

Use of the Industrial USB Hub 4

- permits the simultaneous connection of as many as four I/O devices such as USB stick, mouse, keyboard, printer or barcode reader to the panel.
- increases the availability of the system to be operated. The cabinet door no longer has to be opened in order to connect to the I/O. The unit can be operated from the Panel PC and the Multi Panel without interruption.

In addition, the Industrial USB Hub4 has the following features:

- Inspection window for each interface
- Vibration-proof restraint of connected USB cables and USB sticks
- One LED per interface for checking the data traffic
- Sufficient interior space for easy insertion and removal of connections
- Facility for attachment to a DIN rail
- Voltage connection for 24 V DC

Integration

The Industrial USB Hub 4 is suitable for connection to:

- Multi Panels
- SIMATIC IPC
- Standard PC

Recommended operating systems:

Windows CE/2000/XP/XP embedded

PC-based Automation

Expansion components and accessories

Industrial USB Hub 4

| Technical specifications | | Ordering data | Order No. |
|---------------------------------------|---|--|--|
| Product type designation | 6AV6 671-3AH00-0AX0 Industrial USB Hub 4 | Industrial USB Hub 4 | 6AV6 671-3AH00-0AX0 |
| Supply voltage | | 4 x USB 2.0, IP65, for control cabinet door or standard rail, usable with MP 177/MP 277/MP 377, Panel PCs, HMI IPCs and standard PCs | |
| Supply voltage | 24 V DC | | |
| permissible range | +20.4 V to +28.8 V DC | | |
| Ambient conditions | | Service pack for Industrial USB Hub 4 | see HMI accessories service packets (incl. IP65 expansion) |
| max. relative humidity | 90% | | |
| Temperature | | | |
| • Operation (vertical installation) | 0 °C to +50 °C | | |
| • Transport, storage | -20 °C to +60 °C | | |
| Degree of protection | | | |
| IP65 at front | Yes | | |
| IP20 rear | Yes | | |
| Certifications & standards | | | |
| Certifications | CE | | |
| Interfaces | | | |
| Number of USB interfaces | 4; 500 mA each, e. g. mouse, keyboard, printer, USB stick | | |
| General information | | | |
| belongs to product/product range | MP 277, Panel PC | | |
| Dimensions | | | |
| External dimensions (W x H x D) in mm | 212 x 156 x 50 | | |
| Dimensions and weight | | | |
| Weight | | | |
| • Weight | 0.5 kg | | |

A: Subject to export regulations: AL: N and ECCN: EAR99H

More information

Note for SIMATIC Panel PCs

The Industrial USB Hub 4 is approved for the Windows CE/2000/XP operating systems. The appropriate drivers are supplied with the operating system software.

PC-based Automation

Expansion components and accessories

SIMATIC Panel PC Remote Kit

Overview



The Remote Kit makes it possible to separate the Panel PC 677B operator control unit from the computer unit and install them up to 30 m apart.

Benefits

- Maintaining the Panel PC front functionality
 - Status LEDs (temperature/power)
 - LEDs on the keys, Piezo mouse
 - USB 2.0 on front (up to 5 m), USB 1.1 (up to 30 m)
 - Dimmable backlit display
 - Programmable keyboard controller
 - Direct control key module option available and mountable
- Makes an ultra-compact operator control unit possible
- Suitable for subsequent modification/upgrade by the customer
- Can be used for all SIMATIC Panel PCs 677B
- Pure hardware solution and, therefore, independent of the operating system
- Remote front with the option of AC or DC power supply
- Operator control unit can be located up to 30 m away from the computer unit
- Two additional USB ports on rear, USB 2.0: up to 5 m high-speed, up to 30 m full-speed

Application

The Panel PC Remote Kit is designed for use exclusively with a Panel PC 677B. The Remote Kit can only be operated using the cables included in the scope of delivery.

Design

The Remote Kit consists of the following components:

- Remote module (mounted on the rear of the operator control unit)
- Video connecting cable (industrial grade DVI-D cable)
- USB connecting cable (up to 5 m with a standard USB cable; at 5 m and longer, the USB signal is transmitted via a CAT6 cable with external amplification)
- Mechanical components (for mounting the computer unit inside a control cabinet, console or machine)

PC-based Automation

Expansion components and accessories

SIMATIC Panel PC Remote Kit

| Technical specifications | | Ordering data | | Order No. |
|---|--|--|---|----------------------------|
| SIMATIC Panel PC Remote Kit | | SIMATIC Panel PC Remote Kit | | |
| Design | Subsequent installation on the Panel PC 677B operator control unit | 24 V DC, 5 m | A | 6AV7 671-1EA00-5AA1 |
| | | 24 V DC, 10 m | A | 6AV7 671-1EA01-0AA1 |
| | | 24 V DC, 15 m | A | 6AV7 671-1EA01-5AA1 |
| | | 24 V DC, 20 m | A | 6AV7 671-1EA02-0AA1 |
| | | 24 V DC, 30 m | A | 6AV7 671-1EA03-0AA1 |
| Supported operator control units | All Panel PC 677B operator control units: • 12" Touch/Key • 15" Touch/Key • 17" Touch • 19" Touch | 100/240 V AC, 5 m | A | 6AV7 671-1EA10-5AA1 |
| | | 100/240 V AC, 10 m | A | 6AV7 671-1EA11-0AA1 |
| | | 100/240 V AC, 15 m | A | 6AV7 671-1EA11-5AA1 |
| | | 100/240 V AC, 20 m | A | 6AV7 671-1EA12-0AA1 |
| | | 100/240 V AC, 30 m | A | 6AV7 671-1EA13-0AA1 |
| Cable sets | • 5 m • 10 m • 15 m • 20 m • 30 m | Accessories | | |
| | | Power supply cable | | |
| Front panel functionality | As centralized installation with the following constraint in respect of USB functionality: • Distance 5 m: USB 2.0, and only one external 2.0 Hub • Distance > 5 m: USB 1.1, and only one external 1.1 Hub | Europe: GER/FR/NL/ENG/B/A/SP/FIN ¹⁾ | | 6ES7 900-1AA00-0XA0 |
| | | United Kingdom | | 6ES7 900-1BA00-0XA0 |
| | | Switzerland | | 6ES7 900-1CA00-0XA0 |
| | | USA | | 6ES7 900-1DA00-0XA0 |
| External ports | 2 additional USB ports on the remote module (on the rear of the remote operator control unit) | Italy | | 6ES7 900-1EA00-0XA0 |
| | | China | | 6ES7 900-1FA00-0XA0 |
| Power supply | 24 V DC; 20.4 ... 28.8 V DC or 110 ... 240 V AC; 50/60 Hz | Sub-components of the Remote Kit | | |
| Approvals | CE, cULus (UL 508) | (only available individually as spare parts) | | |
| Scope of supply | • Remote module • Cable set • Mounting accessories for the PC 677B computer unit • European power supply cable (with the AC option) | 24 V DC remote module with fixing accessories | A | 6AV7 671-1EX01-0AD0 |
| | | 110/240 V AC remote module with fixing accessories | A | 6AV7 671-1EX01-0BD0 |
| | | USB amplifier/CAT6 converter | | 6AV7 671-1EX02-0AB0 |
| | | 5 m cable set (DVI, USB standard cable) | | 6AV7 671-1EX10-5AA0 |
| | | 10 m cable set (DVI, Cat 6 cable) | | 6AV7 671-1EX11-0AA0 |
| | | 15 m cable set (DVI, Cat 6 cable) A | | 6AV7 671-1EX11-5AA0 |
| | | 20 m cable set (DVI, Cat 6 cable) | | 6AV7 671-1EX12-0AA0 |
| | | 30 m cable set (DVI, Cat 6 cable) | | 6AV7 671-1EX13-0AA0 |

A: Subject to export regulations: AL: N and ECCN: EAR99H

¹⁾ A European power supply cable is included in the scope of delivery of the AC (100-240 V) version of the Remote Kit.

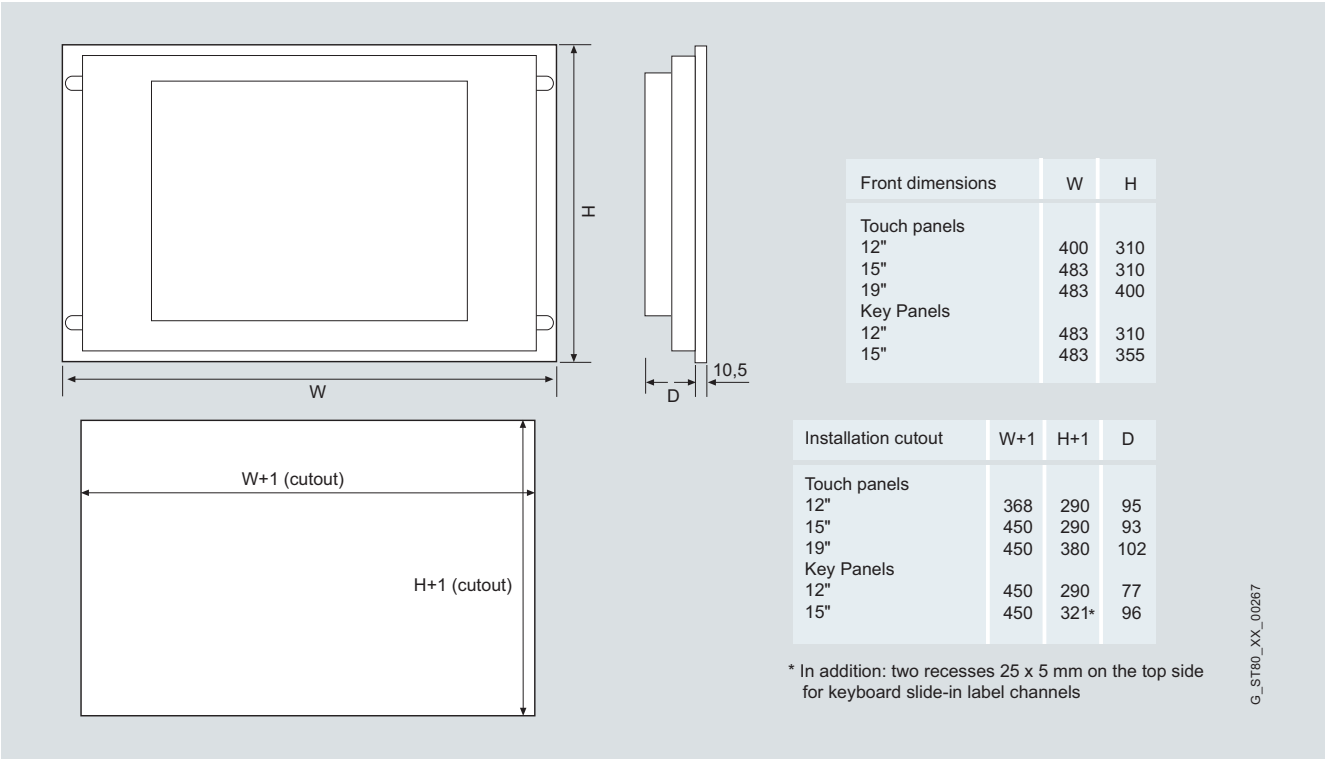
PC-based Automation

Expansion components and accessories

SIMATIC Panel PC Remote Kit

Dimensional drawings

All specifications in mm. Panel cutout see technical specifications.



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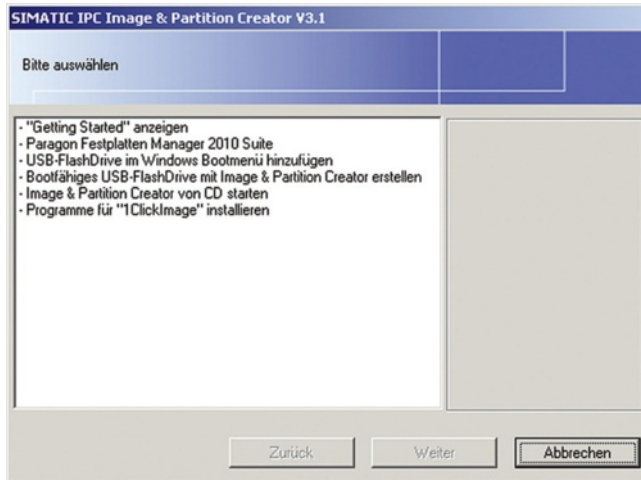
SIMATIC Panel PC Remote Kit

PC-based Automation

Expansion components and accessories

SIMATIC IPC Image & Partition Creator

Overview



SIMATIC IPC Image & Partition Creator V3.1 is the software tool for easy, preventive back-up and restoring of hard disk contents (images of individual partitions or complete hard disks). This software can be ordered through the Configurator for the SIMATIC IPCs, or separately with a single license.

- Can run on all SIMATIC IPCs, regardless of the computer configuration
- Direct starting from the CD possible (no installation required in that case)
- Complete backup by means of a mouse double-click with "1ClickImage" (must be installed in this case)
- Menu-driven creation of a bootable USB flash drive as an alternative start medium from which Image & Partition Creator can then be started.
- Independent of the operating system thanks to ability to start from the bootable Image & Partition Creator CD or bootable USB flash drive with Image & Partition Creator

Benefits

Data security and hard disk management with very little overhead

- Hard disk partitions can be modified without loss of data and without the need for reinstallation
- Hard disk contents can be saved quickly, accurate to a bit, and securely
- No changes to the target system to be processed (when starting directly from the CD or USB FlashDrive with Image & Partition Creator)
- Reliable deletion of confidential data
- Can be used with any SIMATIC IPC hardware, independent of the respective IPC configuration (even devices with CompactFlash cards and solid-state drive)

Cost reduction due to considerably reduced downtimes in the event of an error

- Following replacement of a hard disk, SIMATIC IPCs are ready for operation again in just a few minutes
- Software failures due to application errors, operator errors or computer viruses can be rectified in a matter of minutes

Application

SIMATIC IPC Image & Partition Creator should be used on all SIMATIC IPCs/HMI IPCs for subsequent adjustment of existing hard disk partitioning and for all data backups if there is no central backup solution via LAN.

PC-based Automation

Expansion components and accessories

SIMATIC IPC Image & Partition Creator

Function

SIMATIC IPC Image & Partition Creator V3.1 continues to offer the functionality its users valued in the past:

- High-speed and accurate backup and restoring of hard disk contents. This restoration requires considerably less time compared to a reinstallation.
- Simple duplication of existing software installations to other devices with the same equipment and same use (cloning). This enables a quick complete replacement of equipment in the event of servicing
- Automatic driver support for the latest SIMATIC IPCs
- Complete backup by means of a mouse double-click with "1ClickImage" after one-time configuration of backup path
- Menu-driven creation of a bootable USB flash drive with Image & Partition Creator as an alternative start medium (instead of CD)
- Menu-driven creation of an entry for the USB flash drive in the Windows boot menu for easy booting from the USB flash drive
- Time-controlled backup: The start of a previously configured complete backup via the imaging software or Windows Task Planner enables regular, unsupervised backups at any time.

Functions for changing hard disk partitions:

- Enlarge and reduce existing system and data partitions without any loss of data
- Create new partitions or delete existing ones
- Convert the file system (e.g. FAT32 to NTFS)
- Simple setup of multiple-boot systems. Installation of a boot manager

SIMATIC IPC Image & Partition Creator V3.1 offers the following new functions:

- Direct start (without installation) from the Windows autostart menu
- System backups even during operation
- Backup of files and folders
- Menu-driven creation of a protected "backup container"
- Irrevocable deletion of data
- Support of virtual drives

With the above-named functions, the existing installation should continue to function without restrictions (except in the case of deletions).

System requirements:

Hardware:

- SIMATIC PCs of the B generation
- SIMATIC IPCs of the C generation
- SIMATIC Field PG M2 / M3
- SINUMERIK PCU50.3
- SIMOTION P350-3 / 350-5

Software:

- Operating system for installation: Windows XP, Windows Vista, Windows 2003/ 2008 Server, Windows 7

Compatibility:

- SIMATIC IPC Image & Partition Creator V3.x is not image-compatible with previous versions.

| Ordering data | Order No. |
|---|--|
| SIMATIC IPC Image & Partition CreatorV3.1 | Can be ordered using the SIMATIC IPC Configurator |
| SIMATIC IPC Image & Partition Creator V3.1 D | 6ES7 648-6AA03-1YA0 |
| Software tool for very easy preventive data backup and efficient partition management on SIMATIC IPCs | |

D: Subject to export regulations: AL: N and ECCN: 5D992

Note:

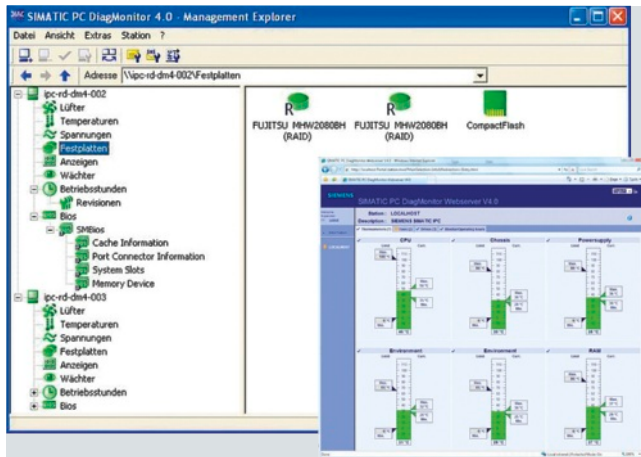
SIMATIC Image & Partition Creator is also available together with the SIMATIC IPC BIOS Manager preinstalled with the SIMATIC IPC Service USB FlashDrive.

PC-based Automation

Expansion components and accessories

SIMATIC IPC DiagMonitor

Overview



SIMATIC IPC DiagMonitor: Intelligent and comprehensive diagnostics for the SIMATIC IPC – local and remote.

The SIMATIC IPC DiagMonitor software for monitoring and remote signaling detects possible hardware and software faults at an early stage. It monitors, signals and visualizes the operating statuses of the SIMATIC IPC both locally and remotely.

DiagMonitor V4.2 can run on the following SIMATIC IPCs:

- Microbox PC 427B
- Box PC 627B/827B
- Rack PC IL 43 / 547B / 647B / 847B
- Panel PC 477B/577B/677B
- IPC427C / IPC627C
- IPC547C / IPC647C / IPC847C
- HMI IPC477C / HMI IPC477C PRO / HMI IPC577C / HMI IPC677C

The software can be ordered as:

- Individual product from stock (e. g. for server applications on third-party PCs or immediate integration in new systems) or
- Option ordered according to the SIMATIC IPC configurator (Internet, Mall).

(DiagMonitor V3.1 is used with SIMATIC Microbox PC 420/427B, Box PC 627/627B, Rack PC IL 43/840/847B, Panel PC 477/477B/677/677B/877 and can be ordered directly via the PC configurator or as an individual product.)

Benefits

Investment security thanks to increased system availability

- Diagnostics and signaling functions for PC temperature, fan, hard disks (RAID, SMART, CompactFlash Card, SSD), operating system status (watchdog)
- Runtime meter for preventive maintenance
- Integrated log function, comprehensive text messages, online help English/German
- Worldwide diagnostics via Internet thanks to integrated web server function

Reduced costs thanks to minimization of downtimes

- Fast fault signaling thanks to communication by means of e-mails and text messages
- Fast response thanks to communication in the application through OPC (client) and SNMP

PC-based Automation

Expansion components and accessories

SIMATIC IPC DiagMonitor

Function

SIMATIC IPC DiagMonitor monitors, signals, and communicates with a central server, acts in the event of an alarm, and logs the system states of the SIMATIC IPCs.

It monitors

- processor and internal device temperatures
- fans
- operating system status by means of "watchdog"
- function of the hard drive or RAID system using the S.M.A.R.T. diagnostic bytes
- new generation of the SIMATIC IPC CompactFlash Card with diagnostic capability

It signals

- accumulated operating hours for controlling service intervals
- each alarm and logs it
- overshoot/undershoot of permissible operating temperature
- program interruption following a watchdog timeout
- hard drive problems

It communicates

- locally with an OPC client
- locally via DLL or SNMP with a central server
- remotely over LAN, e-mail, text messages
- via diagnostic LEDs and 7-segment displays on the device
- worldwide over the Internet through a web server

It acts in the event of an alarm

- by starting customer applications
- through predefined applications (e. g. restart)

It logs

- all alarms and operations automatically in a log file
- measured data (temperature, fan) over the operating period

It visualizes

- recorded measuring data (with trend analysis)

It synchronizes

- system time over LAN (e. g. maintenance-free operation without CMOS battery)

Furthermore, customers have the option of creating their own applications via a programming interface.

As a useful enhancement when purchasing SIMATIC IPC DiagMonitor, the user also receives the [SIMATIC PC web business card](#) for free. The web business card is a component of the diagnostic software and provides information about the SIMATIC IPC via the web server. The following is displayed:

- Device data, e. g. product designation, BIOS version, mainboard number
- System status

System requirements:

Executable with:

- Microsoft Windows 2000 Professional
- Microsoft Windows XP Professional
- Microsoft Windows XP Embedded (SIMATIC PC configuration)
- Microsoft Windows Vista Ultimate (32 bit)
- Microsoft Windows 2003 Server Edition (32 bit)
- Microsoft Windows 2008 Server Edition (32 bit)
- Microsoft Windows Embedded Standard 2009 (SIMATIC IPC configuration)
- Microsoft Windows 7 Ultimate (32 bit)

Ordering data

Order No.

SIMATIC IPC DiagMonitor V4.2

**Can be ordered using the
SIMATIC IPC Configurator**

SIMATIC IPC DiagMonitor V4.2

Software tool for monitoring the SIMATIC IPC, incl. manual on CD-ROM (English, German), single license

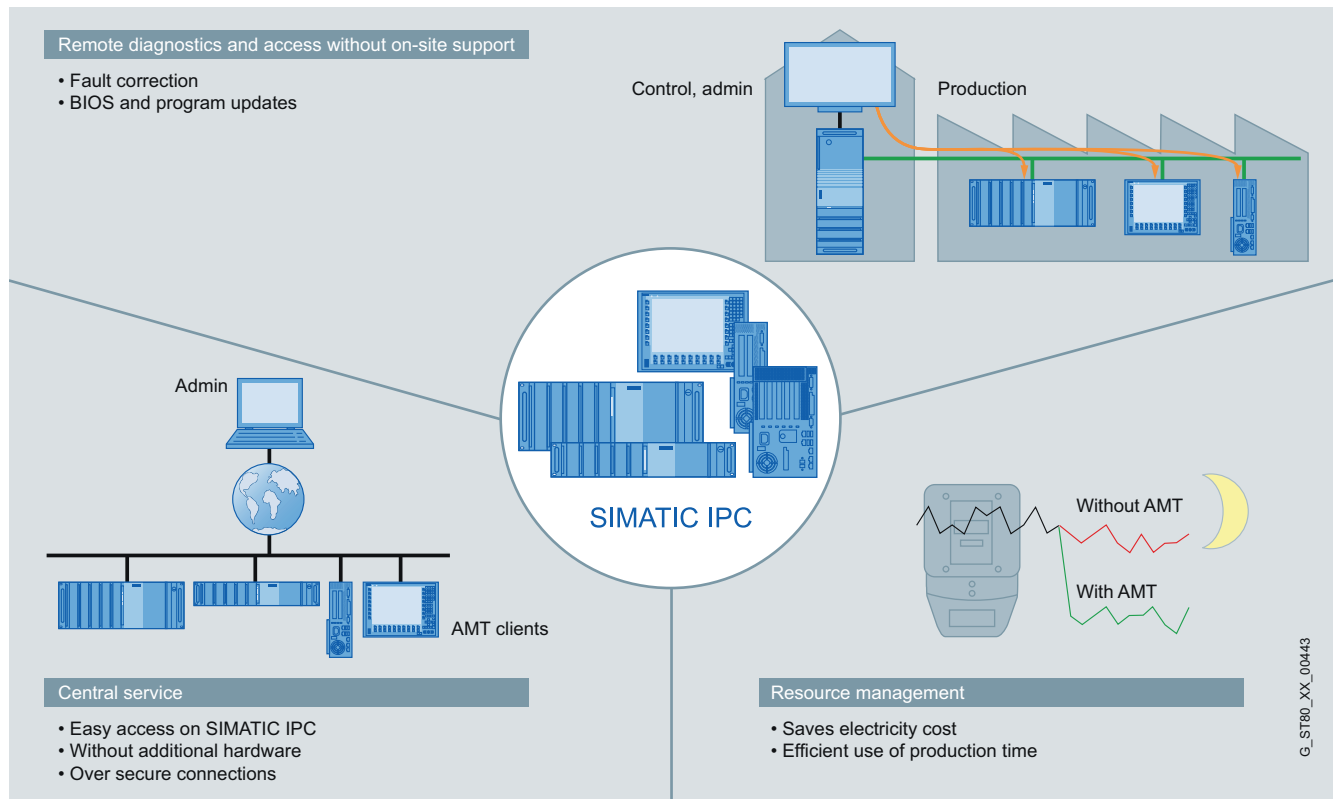
6ES7 648-6CA04-2YX0

PC-based Automation

Expansion components and accessories

SIMATIC IPC Remote Manager

Overview



SIMATIC IPC Remote Manager

Efficient remote maintenance and management of SIMATIC IPCs.

With the SIMATIC IPC Remote Manager you can use functions of the Intel active management technology (Intel AMT) for SIMATIC IPCs. Intel AMT is used for remote management of PCs.

Intel AMT offers a range of functions, such as:

- Remote reboot
- IDE redirection
- Keyboard video mouse redirection
- Power on / off / reset, and
- an integrated Web server.

Benefits

Central service

- Simple remote access to AMT clients
- Without additional hardware
- Via secure connections

Remote diagnostics and access without on-site presence

- Troubleshooting
- BIOS and program updates

Resource management

- Saving of electricity costs
- Efficient use of production time

PC-based Automation

Expansion components and accessories

SIMATIC IPC Remote Manager

Function

SIMATIC IPC Remote Management

Keyboard Video Mouse Redirection (KVM)

This can be used to divert the keyboard video mouse signal of a remote computer to or from an IT computer via a remote connection so that an administrator can access and operate the computer without additional hardware.

Remote Power Control

This allows SIMATIC IPCs with Intel AMT functions to be switched off and on via remote access, for maintenance purposes, for example. If the operating system of the AMT computer is no longer operable, you can thus still perform a reset or restart. With this function, even the electricity costs of a company can be reduced e. g. by specifically shutting down computers left running by employees at night or at the weekend.

Disk Redirection (IDE-R)

The AMT client can read data from an ISO image existing on the admin computer and start programs, e. g. to carry out BIOS and software updates.

Remote reboot

This can be used to reboot the PC by remote access from the hard disk, CD or a network drive, e. g. following a program update.

Web server

In addition, the Web server integrated in the AMT computer can be accessed using a Web browser (e. g. Internet Explorer). Here, you can scan hardware and system information, and actions such as power on / off / reset can be performed.

System requirements

Hardware requirements for SIMATIC IPC Remote Manager:

- All SIMATIC PCs of the "B" generation
- All SIMATIC IPCs of the "C" generation
- SIMATIC Field PG M2 / M3

Operating system requirements for SIMATIC IPC Remote Manager:

- Microsoft Windows XP Professional SP3
- Microsoft Windows Vista Ultimate SP2
- Microsoft Windows Embedded Standard 2009
- Microsoft Windows Embedded Standard 2007
- Microsoft Windows 7 Ultimate
- Microsoft Windows 2003 R2 Server Edition
- Microsoft Windows 2008 Server Edition

Operating instructions / restrictions:

| SIMATIC | Device | AMT client | Admin computer |
|--------------------|------------------|--|--|
| Rack PC | IPC647C | Processors: Intel Core i5 or Core i7 BIOS version: V15.01.05 and later | <ul style="list-style-type: none"> • With any operating system and Web browser • With Windows operating systems and SIMATIC IPC Remote Manager |
| | IPC847C | | |
| | IPC547C | No | |
| Box PC | IPC627C | Processors: Core i7 BIOS version: V15.02.05 and later | |
| | IPC827C | | |
| Panel PC | HMI IPC677C | Processors: Core i7 BIOS version: V15.02.05 and later | |
| | HMI IPC577C | No | |
| | HMI IPC477C | No | |
| Microbox PC | IPC427C | No | |
| Field PG | Field PG M2 / M3 | No | |

- The SIMATIC IPC Remote Manager is offered exclusively with English menus.
- AMT functions are only integrated in the Intel Core i5 and Core i7 processors of the SIMATIC IPC847C, IPC627C, IPC647C, IPC827C and HMI IPC677C devices. With a Core i3 CPU, iAMT is not possible. A Field PG does not have integrated AMT functionality either.

Ordering data

Order No.

SIMATIC IPC Remote Manager V1.0

Software tool for remote maintenance and management of SIMATIC IPC, incl. manual on CD-ROM (English, German), single license

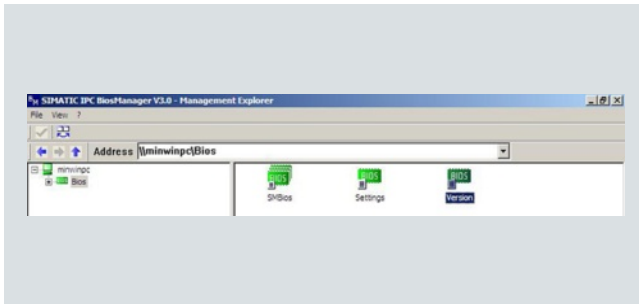
6ES7 648-6EA01-0YA0

PC-based Automation

Expansion components and accessories

SIMATIC IPC BIOS Manager

Overview



The SIMATIC IPC BIOS Manager V3.1 (WinPE) is a software tool for the management and processing of SIMATIC IPC BIOS data. The tool is obtained by downloading it from the Service & Support web pages of Industry Automation & Drive Technologies using the Automation Value Card.

<http://support.automation.siemens.com/WW/view/en/44443161>

Benefits

Productivity increase due to efficient and user-friendly BIOS data management

- CMOS data duplicated by means of reading out, saving in a file, writing to the CMOS
- CMOS data saved for documentation and restore purposes
- Reading out and saving an inventory number in the SMBIOS
- Saving the BIOS image and installing on PCs that are identical in construction
- Execution of a BIOS update

Application

Wherever SIMATIC IPCs are used in industry, they are extended with modules and software and the BIOS settings (CMOS data) are correspondingly modified. In this environment, the SIMATIC IPC BIOS Manager can be used as:

Production tool

For the fast configuration of identical CMOS data

- Reading of CMOS data from the BIOS
- Saving the CMOS data to a file with the addition of user-specific text
- Writing the saved CMOS data to the BIOS

Service/quality tool

- Fast, easy storage of PC system data for QM requirements
- Forwarding the CMOS data to an end user
- Uncomplicated on-site restoration of CMOS

Function

The SIMATIC IPC BIOS Manager V3.1 offers the following functions:

- Management of the BIOS settings (CMOS data) of SIMATIC IPCs:
 - Read-out from the BIOS
 - Save in a file
 - Import from a file
 - Save in the BIOS
- Display the SMBIOS data of SIMATIC IPCs
- Execute BIOS update and backup of BIOS image

System requirements:

The requirements for the use of the SIMATIC IPC BIOS Manager V3.1 are:

- SIMATIC IPC/PG as hardware platform
- Windows PE boot medium, e. g. restore or recovery CD/DVD ("C" device generation or higher)
Alternative: SIMATIC IPC Image & Partition Creator V3.0 (start from CD) or USB FlashDrive created by it with Image & Partition Creator (boot from USB FlashDrive)

Ordering data

Order No.

SIMATIC IPC BIOS Manager

Software tool for the management and processing of SIMATIC IPC BIOS data

as download via customer support

<http://support.automation.siemens.com/WW/view/en/44443161>

Note:

SIMATIC IPC BIOS Manager is also available together with the SIMATIC IPC USB FlashDrive and IPC Service USB FlashDrive.

PC-based Automation

Expansion components and accessories

ADDM - Data Management

Overview



With ADDM, you are completely in control of the SIMATIC and SINUMERIK controls – around the clock and with any program version. This tool is indispensable in a modern production area and ensures user-friendly backup, comparison and management of control data.

Benefits

- **Absolute clarity in data management**
With ADDM, everything executes on a uniform user interface - all types and formats of CNC, PLC and configuration data right through to CNC software. The tool offers unambiguous access authorizations and intuitive handling. The directory structure is always in line with the physical production layout, even complex systems can be understood at a glance.
- **Secure and flexible management of distributed control concepts**
ADDM can be flexibly used for every client/server and online storage system as well as for stand-alone machines. This means: Central data storage with maximum fault tolerance and availability as well as efficient archiving of all machine data.
Thus: Fast feedback of the required version, if required. Checked, controlled, and documented archiving when several persons are working in parallel.
- **Minimize downtimes**
You can rely on ADDM every time. Even when control components have to be replaced, for example. ADDM makes all the data available again immediately. With one click, without time-consuming reparameterization and configuration, whether for individual programs or complete hard disk partitions, you will have the right data in the right place.

Function

Controls fully mastered - across all program versions

Backup can be time-driven, fully-automatic or manual. The data are available at all times and can be used for fast, simple disaster recovery in the event of a fault.

System-active checking

If, for example, data changes become obvious in an online-offline comparison, automatic backup can take place and/or the change can be notified by e-mail.

Hot version backups

The required version can be called up immediately from up to 99 backups (regardless of archive versions).

Total transparency and overview

The practice-oriented structure is ideal not only for highly-complex control systems but also for non-networked single machines – with a uniform user interface for all data types and formats. Checked, controlled and documented archiving when several persons are working in parallel.

Totally Integrated Automation (TIA)

ADDM has a unique way of managing your data uniformly in production.

Optimum availability

Reliable backup of all system and configuring data, including documentation and circuit diagrams, can be carried out manually or automatically with time control – for made-to-measure distributed control concepts.

Easy to handle

No programming knowledge required – so no need for special training courses. With the use of communication modules, data can also be exchanged conveniently with controls via the MPI/PROFIBUS interface on TCP/IP.

Contiguous archiving

The machine data are fully versioned and archived and can be copied back at any time. This also includes the documentation.

Operator-free data backup using the ADDM Agent

Data backup of SINUMERIK controls can be time-driven or manual, without installing a user interface, using the ADDM Agent. The backup, load and compare functions can be performed remotely using the ADDM Client.

PC-based Automation

Expansion components and accessories

ADDM - Data Management

| Integration | | Ordering data | Order No. |
|---|---|--|----------------------------|
| Examples of components that are supported: | | ADDM | |
| S5 | 90U, 95U, 100U through AS511; 115U, 130W, 130WB, 135U, 155U through AS511 or SINEC H1 | Software package Languages: English, German | |
| S7 | S7-300, S7-400, WIN AC, WIN AC RTX | ADDM Single User | |
| C7 | C7-623, C7-626, C7-633, C7-634, C7-635 OP Mono, C7-635 TP B Mono | For PC/PG with Windows XP | |
| NCU | SINUMERIK 840D powerline/840Di/810D powerline PLC data through S7 CPU | • Single license with CD-ROM of current software version | 6BQ3 030-1AA30-3AD0 |
| MCU | MCU 172A, PLC data through S7 CPU | • Trial license with CD-ROM of current software version | 6BQ3 030-1AA70-3AD0 |
| PCIN | PHG, OP 030, MMC 100, MMC 100.2 | • Single user upgrade | 6BQ3 030-1AB13-3AD0 |
| HMI DOS | DOS package for OP 031 | ADDM Client | |
| CPs | CP342-5, CP343-1, CP443-1, CP443-5 | For PC/PG with Windows XP | |
| OPs | OP7, OP15, OP17, OP27, OP37, OP 170B, OP 120, OP 270 | • Single license without data carrier | 6BQ3 030-1AA20-1AC0 |
| MPs | MP270, MP370 | • Single license with CD-ROM of current software version | 6BQ3 030-1AA10-0AD0 |
| TDs/TPs | TD17, TP27, TP37, TP 170A, TP 170B, TP 270, TP 170 Micro, TP 170 Color | • Client upgrade from V5.x to V6.2 on CD-ROM | 6BQ3 030-1AB11-3AD0 |
| Serial | V.24 interface (RS 232 C) | ADDM Server | |
| Drives | SIMODRIVE 611 universal HRS/universal E HRS/digital via NCU, SIMODRIVE POSMO A/CD/CA/SI | For server PC with Windows XP and Windows 2003 Server | |
| Path | Directory/file | • Single license with CD-ROM of current software version | 6BQ3 030-1AA00-3AD0 |
| HD | Complete hard disks or hard disk partitions | • Server upgrade from V5.x to V6.2 on CD-ROM | 6BQ3 030-1AB10-3AD0 |
| | | ADDM Agent | |
| | | For SINUMERIK PCU with HMI-Advanced | |
| | | • Single license without data carrier | 6BQ3 030-1AA00-1AB0 |
| | | • Single license with CD-ROM of current software version | 6BQ3 030-4AA00-0AD0 |
| | | • Agent upgrade from V1.x to V1.3 on CD-ROM | 6BQ3 030-1AB12-3AD0 |

D: Subject to export regulations: AL: N and ECCN: 5D992

More information




Additional information is available on the Internet at:
www.siemens.com/addm

PC-based Automation

Expansion components and accessories

DC UPS uninterruptible power supplies

Overview

| Backup module | SITOP DC UPS module | SITOP UPS500 |
|--|---|---|
| <p>Expansion module with electrolyte capacitors for bridging temporary power failures. Can be combined with SITOP modular.</p> <p>Selection criteria:</p> <ul style="list-style-type: none"> Low-cost protection against power failures for max. 3 seconds Supports the power supply unit when there is a temporary increased power demand High load current up to 40 A  | <p>DC UPS module with maintenance-free lead-gel batteries for energy storage. Bridging of power failures even for hours.</p> <p>Selection criteria:</p> <ul style="list-style-type: none"> The 24 V power supply is maintained for a long time, e.g. in order to continue processes. High load current up to 40 A  | <p>DC UPS with high-capacity double-layer capacitors. Bridging of power failures for several minutes.</p> <p>Selection criteria:</p> <ul style="list-style-type: none"> Backup data and closing of applications within minutes. Absolutely maintenance-free High ambient temperatures up to 60°C No ventilation is required since no gas is emitted For distributed applications without control cabinet  |

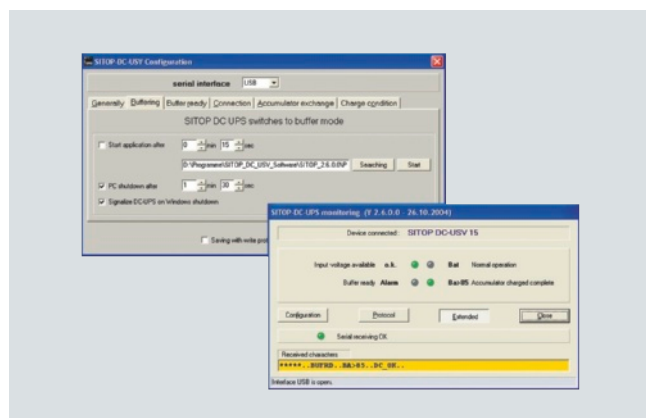
G_ST80_XX_00486

The uninterruptible power supply DC with battery modules consists of DC UPS modules with 6 A, 15 A, or 40 A output current and the battery modules 1.2 Ah, 3.2 Ah, 7 Ah and 12 Ah (contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiber-glass mat) and 2.5 Ah (contains high-purity lead-acid "high-temperature batteries").

The maintenance-free SITOP UPS500 with capacitors as energy storage units is especially well suited for use at high ambient temperatures. Another advantage of these high-capacity double-layer capacitors is the shorter charge times.

For flexible use, there is the SITOP UPS500S - 15 A basic unit in 2.5 kW and 5 kW versions. A maximum of 3 SITOP UPS501S expansion modules with 5 kW can be connected in parallel to increase the buffer times. The IP65 version SITOP UPS500P disposes of capacitors for 5 or 10 kW and provides up to 7 A of output current.

DC UPS software



SITOP DC UPS V3 software monitoring and configuration window

The uninterruptible power supplies DC are optionally available with USB interface or serial interface. All relevant messages about the status of the uninterruptible power supply DC can be transferred to a PC (e. g. SIMATIC IPC) via this interface.

SITOP DC UPS software provides the user with a software tool that is extremely easy to operate and can be used to further process the signals sent from the uninterruptible power supply DC on the PC. In monitoring mode, the statuses of the uninterruptible power supply DC are visualized on the PC.

Secure shutdown on power failure and automatic restart of the PC are supported. It is also possible to freely define responses to the different operating states of the uninterruptible power supply DC, permitting extremely flexible integration into a wide variety of applications.

The software runs under the operating systems Windows 2000, Windows XP and Windows Vista. It is available as freeware on the SITOP homepage and can be downloaded free of charge.

www.siemens.com/sitop

PC-based Automation

Expansion components and accessories

DC UPS with battery modules

Overview

By combining a DC UPS module with at least one 24 V battery module and a SITOP power supply unit, longer power failures can be bridged without any interruption.

The combination is used for example in machine-tool building, in the textile industry, on all types of production lines and filling plants, and in conjunction with 24 V industrial PCs. This prevents the negative effects which often result from power failures.

DC UPS modules: 6 A, 15 A, 40 A

Battery modules:

- 1.2 Ah
(contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 3.2 Ah
(contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 7 Ah
(contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 12 Ah
(contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 2.5 Ah
(contains "high-temperature battery" type pure lead)

Selection table for battery modules and mains buffering times

| Load current | Battery module 1.2 Ah (6EP1935-6MC01) | Battery module 3.2 Ah (6EP1935-6MD11) | Battery module 7 Ah (6EP1935-6ME21) | Battery module 12 Ah (6EP1935-6MF01) | Battery module 2.5 Ah (6EP1935-6MD31) |
|--------------|---|---|--|--|---|
| 1 A | 30 min | 2.5 h | 6 h | 11 h | 2 h |
| 2 A | 11 min | 45 min | 2.5 h | 5 h | 45 min |
| 3 A | 4 min | 25 min | 1.5 h | 3 h | 30 min |
| 4 A | 2 min | 20 min | 45 min | 2 h | 20 min |
| 6 A | 1 min | 10 min | 30 min | 1 h | 13 min |
| 8 A | - | 4 min | 20 min | 40 min | 9 min |
| 10 A | - | 1.5 min | 15 min | 30 min | 7 min |
| 12 A | - | 1 min | 10 min | 25 min | 5.5 min |
| 14 A | - | 50 s | 8 min | 20 min | 4.5 min |
| 16 A | - | 40 s | 6 min | 15 min | 4 min |
| 20 A | - | - | 2 min | 11 min | - |

Important information for selecting the battery capacity:

- When the mains buffering times were determined, the discharge period of new or non-aged, completely charged battery modules with a battery temperature of not less than +25 °C up to the failure of the battery voltage at 21 V was used as a basis (with voltage drops in the DC UPS, approx. 20.4 V DC remains for the loads).

Aging of the batteries reduces the available battery capacity until the end of service life to typically around 50% of the original capacity value when new (1.2 Ah or 3.2 Ah or 7 Ah, etc.) and the internal resistance increases. When the message "Battery charge > 85%" appears, only around 50% x 85% = approx. 43% of the originally available capacity can be assumed at the end of the battery service life.

At battery temperatures below +25 °C, the available capacity is further reduced by approx. 30% at +5 °C battery temperature to approx. 70% of approx. 43%, leaving only approx. 30% of the original capacity available.

Accordingly, a significantly greater battery capacity must be selected when configuring the system: A drop to approx. 50% is compensated for by selecting 1/approx. 0.5 = approx. double the battery capacity (than required according to the table for the relevant load current and the relevant buffering time). Available capacity of approx. 43% is compensated for by selecting 1/approx. 0.43 = approx. 2.33 times the battery capacity. Available capacity of approx. 30% is compensated for by selecting 1/approx. 0.3 = approx. 3.33 times the battery capacity.

PC-based Automation

Expansion components and accessories

DC UPS with battery modules

Overview (continued)

Recommendation:

- Instead of installing double the battery capacity to cope with battery aging, regular battery replacement midway through the expected service life (reduction of capacity to approx. 50%) can be more advisable for the following reasons: Until halfway (or slightly more than halfway) through the expected battery life the capacity does not fall below 100%; if regularly replaced after half the expected life, only the single (instead of double) battery capacity is to be installed with regard to aging (→ neutral price with regard to battery module costs, but only half the space requirements).

Replacement after half the battery life in particular eliminates the considerable range of variation of the residual capacity at the end of the battery life which is not defined in greater detail by battery manufacturers (after the full period, many batteries are above and many others are below the average 50% residual capacity, i.e. even if double the capacity is installed, the influence of aging at the end of the battery life is not reliably compensated, but only typically) → when replacing after half the expected life the projected bridging time is adhered to with considerably greater reliability.

In the case of batteries that are stored in cool conditions (not above +25°C) and for no longer than 4 months, the following life expectancy, very dependent on the battery temperature, is to be assumed:

| Battery temperature | Drop to approx. 50% of residual capacity | Recommendation: Replace (at 100% of residual capacity) all | Alternative recommendation |
|---------------------|--|--|--|
| +20 °C | 4 years | 2 years | |
| +30 °C | 2 years | 1 year | |
| +40 °C | 1 year | 0.5 years | Install double capacity and replace 1 x per year |

In normal cases (installation in the coolest location in the control cabinet at approx. +30 °C), the battery should be replaced with single installed battery capacity in accordance with the selection table after 1 year of operation!

- On the DC UPS module 40 A, at least 2 battery modules of 7 Ah or higher must be connected in parallel for output currents > 30 A. When connecting battery modules in parallel, you must ensure identical capacity and aging.
- After a power failure, and at the end of the selected buffering time, the battery module is disconnected electronically from the loads as soon as the 24 V input voltage returns either automatically or by opening the On/Off control circuit, and quickly recharged with the charge current of the relevant DC UPS module (with $I-U$ charge characteristic: initially constant current I for fast charging, and changeover to constant voltage U to maintain the charge when the battery is almost full).

PC-based Automation

Expansion components and accessories

DC UPS module 6 A
DC UPS module 15 A

Overview SITOP Power DC UPS module 6 A



- Compact design, only 50 mm wide
- Simple DIN rail mounting
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85%")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics.
- Optionally with serial or USB interface.
SW tool available for download from www.siemens.com/sitop
Executes under Windows NT4.0, Windows 2000 and Windows XP.

Overview SITOP Power DC UPS module 15 A



- Compact design, only 50 mm wide
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85%")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics.
- Optionally with serial or USB interface.
SW tool available for download from www.siemens.com/sitop
Executes under Windows NT4.0, Windows 2000 and Windows XP.

Ordering data

Order No.

SITOP power DC UPS module 6 A

- With serial interface
- With USB interface

6EP1 931-2DC21

6EP1 931-2DC31

6EP1 931-2DC42

Ordering data

Order No.

SITOP power DC UPS module 15 A

- With serial interface
- With USB interface

6EP1 931-2EC21

6EP1 931-2EC31

6EP1 931-2EC42

SIPLUS PS DC UPS module 15 A

Uninterruptible power supplies without interface;
Input: 24 V DC/16 A
Output: 24 V DC/15 A
Ambient temperature range: -25 ... +60 °C
Coating of the printed circuit boards and the electronic components

L 6AG1 931-2EC21-2AA0

L: Subject to export regulations: AL: 91999 and ECCN: N

PC-based Automation

Expansion components and accessories

DC UPS module 40 A

Battery module 24 V/1.2 Ah

Overview SITOP Power DC UPS module 40 A



- Compact design, only 102 mm wide
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85%")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics
- Optionally with USB interface.
SW tool available for download from www.siemens.com/sitop
Executes under Windows NT4.0, Windows 2000 and Windows XP.

Ordering data

Order No.

SITOP power DC UPS module 40 A
6EP1 931-2FC21

- With USB interface

6EP1 931-2FC42
SIPLUS PS DC UPS module 40 A
6AG1 931-2FC21-7AA0

Uninterruptible power supplies without interface;
Input: 24 V DC/43 A
Output: 24 V DC/40 A
Ambient temperature range: -25 ... +60 °C
Coating of the printed circuit boards and the electronic components

Overview SITOP Power Battery module 24 V/1.2 Ah



- Battery module for DC UPS module 6 A
- Contains two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber
- Completely prewired with battery retainer and terminals
- Low self-discharge rate of approximately 3% per month (at +20 °C)

Ordering data

Order No.

SITOP power, battery module 24 V/1.2 Ah
A 6EP1 935-6MC01

For DC UPS module 6 A

A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation
Expansion components and accessories

Battery module 24 V/2.5 Ah
Battery module 24 V/3.2 Ah

Overview SITOP Power Battery module 24 V/2.5 Ah



- High-temperature battery module for DC UPS module 6 A and 15 A
- Contains two maintenance-free, closed pure lead-acid batteries (from the same lot), which are installed in a holder and connected in series
- Completely prewired with battery retainer and terminals
- Low self-discharge rate of approximately 3% per month (at +20 °C)

| Ordering data | Order No. |
|---|----------------|
| Battery module SITOP power, 24 V/2.5 Ah | 6EP1 935-6MD31 |
| For DC UPS module 15 A | |

Overview SITOP Power Battery module 24 V/3.2 Ah



- Battery module for DC UPS module 6 A and 15 A
- Contains two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber
 - Complete with battery retainer and terminals
 - Low self-discharge rate of approximately 3% per month (at +20 °C)

| Ordering data | Order No. |
|---|----------------|
| SITOP power, battery module 24 V/3.2 Ah | 6EP1 935-6MD11 |
| for DC UPS module 15 A | |

PC-based Automation

Expansion components and accessories

Battery module 24 V/7 Ah
Battery module 24 V/12 Ah

Overview SITOP Power Battery module 24 V/7 Ah



- Battery module for DC UPS module 6 A, 15 A and DC UPS module 40 A (for > 30 to 40 A, 2 units are required in parallel)
- Contains two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber
- Completely pre-wired with terminals and battery retainer
- Low self-discharge rate of approximately 3% per month (at +20 °C)

Ordering data

**SITOP power,
battery module 24 V/7 Ah**

for DC UPS module 6 A, 15 A and
40 A

Order No.

6EP1 935-6ME21

Overview SITOP Power Battery module 24 V/12 Ah



- Battery module for DC UPS module 6 A, 15 A and DC UPS module 40 A (for > 30 to 40 A, 2 units are required in parallel)
- Contains two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber
- Completely pre-wired with terminals and battery retainer
- Low self-discharge rate of approximately 3% per month (at +20 °C)

Ordering data

**SITOP power,
battery module 24 V/12 Ah**

for DC UPS module 6 A, 15 A and
40 A

Order No.

6EP1 935-6MF01

PC-based Automation

Expansion components and accessories

DC UPS with capacitors

Overview

Uninterruptible power supplies normally store the electrical energy in lead-acid batteries. Temperatures such as those prevalent in control cabinets considerably shorten the service life of the battery, however, and the batteries must be replaced on a regular basis – annually at an ambient temperature of 40 °C, for example. The innovative SITOP UPS500, however, is based on absolutely maintenance-free capacitors with a long service life. Even at temperatures of 50 °C they still have more than 80% of their capacity after 8 years. This means that the energy storage unit does not need to be replaced. Because the capacitors do not emit any gas, the control cabinet does not have to be ventilated.

Another advantage is the significantly shorter charging times of the double-layer capacitors, which ensure that the buffer is ready very quickly after loss of power.

The IP65 version SITOP UPS500P has capacitors for 5 or 10 kW and supplies up to 7 A output current. The oblong metal enclosure is also suitable for installing on support arm systems.

Selection table SITOP UPS500 (optional with SITOP UPS501S expansion module) and mains buffering times

| Buffering and charging times | | | | | | | | | | |
|-----------------------------------|-----------------------|-------|----------|----------|----------|----------|----------|----------|---------|-------|
| SITOP UPS500S/501S configurations | | | | | | | | | UPS500P | |
| Basic unit | 2.5 kW | 5 kW | 2.5 kW | 5 kW | 2.5 kW | 5 kW | 2.5 kW | 5 kW | 5 kW | 10 kW |
| Expansion modules | - | - | 1 × 5 kW | 1 × 5 kW | 2 × 5 kW | 2 × 5 kW | 3 × 5 kW | 3 × 5 kW | - | - |
| Total energy | 2.5 kW | 5 kW | 7.5 kW | 10 kW | 12.5 kW | 15 kW | 17.5 kW | 20 kW | 5 kW | 10 kW |
| Load current | Buffer times | | | | | | | | | |
| 0.5 A | 134 s | 236 s | 390 s | 478 s | 632 s | 748 s | 851 s | 1007 s | 284 s | 647 s |
| 0.8 A | 90 s | 167 s | 266 s | 346 s | 440 s | 527 s | 580 s | 706 s | 190 s | 435 s |
| 1 A | 75 s | 138 s | 219 s | 296 s | 365 s | 414 s | 490 s | 572 s | 153 s | 351 s |
| 2 A | 38 s | 76 s | 122 s | 156 s | 203 s | 230 s | 265 s | 306 s | 80 s | 152 s |
| 3 A | 26 s | 52 s | 82 s | 106 s | 136 s | 159 s | 186 s | 213 s | 53 s | 108 s |
| 4 A | 19 s | 39 s | 61 s | 81 s | 101 s | 120 s | 139 s | 160 s | 40 s | 84 s |
| 5 A | 15 s | 31 s | 49 s | 65 s | 81 s | 95 s | 111 s | 130 s | 30 s | 68 s |
| 6 A | 12 s | 26 s | 40 s | 55 s | 67 s | 80 s | 94 s | 106 s | 25 s | 57 s |
| 7 A | 10 s | 21 s | 34 s | 47 s | 58 s | 69 s | 81 s | 82 s | 21 s | 49 s |
| 8 A | 8 s | 18 s | 29 s | 40 s | 50 s | 59 s | 69 s | 79 s | - | - |
| 10 A | 6 s | 15 s | 23 s | 32 s | 39 s | 47 s | 54 s | 62 s | - | - |
| 12 A | 4 s | 12 s | 19 s | 26 s | 32 s | 38 s | 44 s | 52 s | - | - |
| 15 A | 3 s | 9 s | 14 s | 20 s | 25 s | 30 s | 35 s | 40 s | - | - |
| Charging current | Charging times | | | | | | | | | |
| 2 A | 54 s | 120 s | 158 s | 223 s | 263 s | 318 s | 355 s | 417 s | 130 s | 360 s |
| 1 A | 110 s | 205 s | 311 s | 425 s | 503 s | 625 s | 695 s | 816 s | - | - |

Important information for selecting the energy storage units:

When the mains buffering times were determined, the discharge period of new or non-aged, completely charged capacitors was used as a basis. At a continuous ambient temperature of +50 °C, a loss of capacity of approx. 20% must be considered after a service life of 8 years.

PC-based Automation

Expansion components and accessories

SITOP UPS500S

Overview



Basic device 15 A, SITOP UPS500S

- Compact design, only 120 mm wide
- Two versions with integrated energy storage units: 2.5 kW or 5 kW
- Can be expanded easily using a user-friendly plug-in system with the expansion module 5 kW
- Absolutely uninterruptible bridging of power failures, as soon as the DC UPS input voltage falls below the value set by the DIP switches
- High level of safety and availability through monitoring of operational readiness, and monitoring of the capacitor charge (message "> 85% charged")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics
- With USB interface



Maintenance-free power supply in the form of a combination of a basic module and an expansion module

SITOP UPS501S expansion module

- Additional energy storage (5 kW)
- Up to 3 expansion modules can be connected to a SITOP UPS500S to extend the buffer times
- Compact design, only 70 mm wide
- Can be easily connected to SITOP UPS500S via a user-friendly plug-in system
- Complete with balancing and safety circuits
- Can be snapped onto standard mounting rail EN 60715 35x7.5/15
- Dimensions (W x H x D) in mm: approx. 70 x 125 x 125
- Weight: approx. 0.7 kg

Ordering data

SITOP UPS500S

- DC UPS basic device 15 A with
- 2.5 kW
 - 5 kW

Order No.

6EP1 933-2EC41
6EP1 933-2EC51

SITOP UPS501S

Expansion module 5 kW for connecting to the basic device

Connector set consisting of connector for input and output and an assembled USB cable (2 m in length)

Order No.

6EP1 935-5PG01
6EP1 975-2ES00

Overview



The SIMATIC PC accessories include various input and output devices, keyboards and printers.

- printers and
- keyboards.

PC-based Automation

Expansion components and accessories

T 2240/9

Overview



The T 2240/9 is a rugged 9-needle printer for the medium performance range and is suitable for continuous use in rough industrial environments.

The strength of the T 2240/9 is its versatility. The T 2240/9 is a cost-effective printer for professional use.

Benefits

- Economically priced form printer with 9-needle printing head
- Printing volume up to 14,000 pages/month
- Printing speed up to 500 characters/second
- Flexible paper input by optional linear tractor
- High impact for up to 6 drafts (1 + 5)
- 22 barcodes, OCR-A and OCR-B
- Particularly compact for small space requirements

Ordering data

Order No.

Standard configuration

T 2240/9

9 pins, DIN A4 (power supply is not switchable: for operation with 230 V only)

6GF6 520-1LL

Accessories

Interfaces

- RS 232C
- RS 232/TTY

6GF6 520-2HA

6GF6 520-2LA

More information

Information on possible uses, technical details, other printer products and additional components from the company DASCOT Europe GmbH can be found on the Internet at www.dascom.com or is available from:

DASCOT Europe GmbH
Mr. Wolfgang Wagner
Tel.: +49 (0)7121 9943 097
Fax: +49 (0)7121 9943 098
E-Mail: wwagner@dascom.com
Website: www.dascom.com

PC-based Automation

Expansion components and accessories

T 2240/24

Overview

The T 2240/24 is a rugged 24-needle printer for the medium performance range (14,000 pages/month) and is suitable for continuous use in rough industrial environments.

The strength of the T 2240/24 is its versatility. The T 2240/24 is a cost-effective printer for professional use.

Benefits

- Low-cost form printer with 24-pin print head
- Print volumes up to 14,000 pages/month
- Print speed up to 440 characters per second
- Flexible paper input via optional push tractor
- 22 barcodes, OCR-A and OCR-B
- Especially compact design with small footprint

Ordering data

Order No.

Standard configuration

T 2240/24

24 pins, DIN A4 (power supply is not switchable: for operation with 230 V only)

6GF6 520-1LM

Accessories

Interfaces

- RS 232C
- RS 232/TTY

6GF6 520-2HA

6GF6 520-2LA

More information

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Website: www.dascom.com

PC-based Automation

Expansion components and accessories

T 2340/24

Overview

The T 2340/24 is a rugged 24-needle printer for paper size DIN A3 diagonal. It is designed for the medium performance range (14,000 pages/month) and is suitable for continuous use in rough industrial environments.

The strength of the T 2340/24 is its versatility. The T 2340/24 is a cost-effective printer for professional use.

Benefits

- Economically priced form printer with 24-needle printing head
- Printing volume up to 14,000 pages/month
- Printing speed up to 440 characters/second
- Flexible paper input by continuous tractor and manual single sheet feed
- Optional, automatic front feed
- 22 barcodes, OCR-A and OCR-B
- Particularly compact for small space requirements

Ordering data

Order No.

Standard configuration

T 2340/24

24 pins, DIN A3 transverse
(power supply is not switchable:
for operation with 230 V only)

6GF6 520-1LN

Accessories

Interfaces

- RS 232C
- RS 232/TTY

6GF6 520-2HA

6GF6 520-2LA

More information

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Website: www.dascom.com

PC-based Automation

Expansion components and accessories

2150

Overview



The 2150 is a multifunctional 24-pin printer for paper sizes up to DIN A4. It is designed for high performance (up to 26,000 pages per month), and is suitable for continuous use under harsh industrial conditions.

Ordering data

Order No.

Standard configuration

2150

24 pins, DIN A4 (switchable
power supply: 110 V/230 V)

A

6GF6 520-1LD

Accessories

Interfaces

- RS 232/TTY
- Ethernet (10/100 Mbit/s)

A

6GF6 520-2LB**6GF6 520-2LC**

A: Subject to export regulations: AL: N and ECCN: EAR99H

More information

Information on possible uses, technical details, other printer products and additional components from the company DASCOT Europe GmbH can be found on the Internet at www.dascom.com or is available from:

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Website: www.dascom.com

PC-based Automation

Expansion components and accessories

2250

Overview

The 2250 is a multifunctional 24-pin printer for paper sizes up to DIN A3 diagonal. It is designed for high performance (up to 26,000 pages per month), and is suitable for continuous use under harsh industrial conditions.

Benefits

- Multifunctional needle printer for various applications
- Printing volume up to 26,000 pages/month
- Printing speed up to 650 characters/second
- Flexible paper input by linear tractor and single sheet feed
- Extensive automatic functions for unsupervised printing jobs
- Rugged design
- For processing paper in sizes up to DIN A3 diagonal

Ordering data

Order No.

Standard configuration

2250

24 pins, DIN A3 in landscape format (switchable power supply: 110 V/230 V)

6GF6 520-1LE

Accessories

Interfaces

- RS 232/TTY
- Ethernet (10/100 Mbit/s) A

6GF6 520-2LB**6GF6 520-2LC**

A: Subject to export regulations: AL: N and ECCN: EAR99H

More information

Information on possible uses, technical details, other printer products and additional components from the company DASCOS Europe GmbH can be found on the Internet at www.dascom.com or is available from:

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E-Mail: wwagner@dascom.com
Website: www.dascom.com

PC-based Automation

Expansion components and accessories

SIMATIC PC keyboard

Overview



The original SIMATIC PC keyboard is the ideal input medium for your SIMATIC PC. It combines the convenience of an office keyboard with the ruggedness of an industrial device. The SIMATIC PC keyboard is available with a USB connection and German/international layout. It is optionally available with an integrated USB hub for 4 other USB devices.

Technical specifications

| SIMATIC PC keyboard | | |
|------------------------------|-------------------------------------|--|
| Description | SIMATIC PC keyboard | SIMATIC PC keyboard, 4 USB hubs, ger/int |
| Layout | MF2, 105 keys, German/international | MF2, 105 keys, German/international |
| Dimensions (L x W x H) in mm | 470 x 195 x 44 | 458 x 195 x 42 |
| Weight, approx. | 1400 g | 1140 g |
| Connecting cable | Length 1.75 m, USB plug | Length 1.75 m, USB plug |
| Temperature | | |
| • During operation | 0 ... +50 °C | 0 ... +50 °C |
| • Storage | -20 ... +60 °C | -20 ... +60 °C |
| Current consumption | - | max. 500 mA |
| Current delivery | - | max. 100 mA per downstream port |
| Transmission rate | - | Up to 12 Mbit/s |
| Approvals | FCC, cURus, GS, CE, c-tick, GOST-R | FCC, cURus, GS, CE, c-tick, GOST-R, VCCI |

Ordering data

SIMATIC PC keyboard
German/international, USB
connection incl. USB-PS2
adapter

Order No.

6ES7 648-0CB00-0YA0

SIMATIC PC keyboard, 4x USB A
German/international, USB
connection

Order No.

6ES7 648-0CD00-0YA0

A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation

Expansion components and accessories

IP65 membrane keyboard, desktop version

Overview



The desktop version of the IP65 membrane keyboard is ideal for use in industrial areas in which a high degree of protection (IP65) is required. The keyboard is equipped with a touchpad.

Benefits

- Jet-proof
- Rugged front due to reinforced front membrane (150 µm) made of resistant polyester
- Integrated touchpad
- UL/CSA listed

Ordering data

Order No.

Standard configuration

IP65 membrane keyboard, desktop version with touchpad ¹⁾

With PS/2 connector

- German keyboard layout
- International keyboard layout

6GF6 710-2AC

6GF6 710-2BC

A: Subject to export regulations: AL: N and ECCN: EAR99H

¹⁾ Available soon with USB plug

PC-based Automation

Expansion components and accessories

IP65 membrane keyboard, 19" built-in version

Overview



The built-in version of the IP65 membrane keyboard is ideal for use in industrial areas in which a high degree of protection (IP65 at the front, IP54 at the rear) is required. The keyboard is specially designed for installation in 19" cabinets.

Benefits

- Jet-proof
- Extra-reinforced front membrane (180 µm) made of resistant polyester
- Touchpad or trackball (IP65 version)
- UL/CSA listed

Ordering data

Order No.

Standard configuration

IP65 membrane keyboard, 19" built-in version

For installation in 19" cabinets

- With touchpad
 - German keyboard layout
 - International keyboard layout
- With trackball
 - German keyboard layout
 - International keyboard layout

6GF6 710-3AE

6GF6 710-3BE

6GF6 710-3BF

6GF6 710-3BG

PC-based Automation

Expansion components and accessories

19" slide-in keyboard PS/2 with trackball

Overview



With its compact design and integrated trackball the new draw-out keyboard is suitable in particular for industrial applications with limited space. This can be, for example, cubicles or mobile systems.

The draw-out keyboard is supplied in combination with a drawer.

Benefits

- Jet-proof
- Small space requirement
- High reliability
- Integrated trackball
- Flat design

Ordering data

Order No.

Standard configuration

19" draw-out keyboard with trackball

- | | | |
|----------------------------|---|---------------------|
| • German key layout | A | 6GF6 710-3BJ |
| • International key layout | A | 6GF6 710-3BK |

A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation

Expansion components and accessories

SIMATIC PC mouse

Overview



Benefits

- Minimized overhead through safe and reliable operation with SIMATIC PC/PG

Ordering data

Order No.

SIMATIC PC mouse

Optical wheel mouse,
USB interface,
incl. PS/2 adapter

6ES7 790-0AA01-0XA0

Even with the mouse we offer you more than the standard:
Optical wheel mouse for use with USB or PS/2 interface.

- Interfaces: USB and PS/2 (via adapter)
- Operating systems: Microsoft Windows XP, 2000, ME, 98, Windows NT4
- Connection cable: Length 1.83 m, USB plug
- Approvals corresponding to office environment:
 - FCC Declaration of Conformity (USA)
 - UL and cUL Notice of Approval (USA and Canada)
 - ICES-003 report on file (Canada)
 - TÜV-GS Certificate (Germany)
 - CE Declaration of Conformity
 - Safety and EMC (EU)
 - GOST Certificate (Russia)
 - VCCI Certificate (Japan)
 - ACA/MED Declaration of Conformity (Australia and New Zealand)
 - BSMI Certificate (Taiwan)
 - MIC Certificate (Korea)
 - NOM Certificates (Mexico)
 - CB Scheme Certificate (International)
 - WHQL (International) ID: 866988

PC-based Automation

Expansion components and accessories

Operating channel extensions (active)

Overview



If the distance between computer and operator panel is greater than 2 m, you will require an operating channel extension (BKV). The BKV is an active operating channel extension for use in harsh industrial environments. It is available in the following lengths:

- BKV 2520: 20 m
- BKV 2550: 50 m

Note:

Every operating channel extension has PS/2 ports for mouse and keyboard. An additional video cable of corresponding length is required for the monitor.

Application

The operator communication channel extensions are for mouse and keyboards and can be used in the industrial sector.

Design

- PS/2 ports for mouse and keyboard
- Length: 20 m or 50 m

Ordering data

Order No.

Standard configuration

BKV active, operating channel extension active

PS/2 ports

BKV 2520

- 20 m long

BKV 2550

- 50 m long

6GF6 980-0KC

6GF6 980-0KE

PC-based Automation

Expansion components and accessories

MASTERGUARD power supply

Overview

MASTERGUARD UPS

- The A-19 and EI-19 series of Masterguard offer effective online protection against all kinds of power supply disturbances
- Genuine online operating principle, i.e. complete disconnection of the load from the irregularities of the line power supply
- 19" compact modules
- Simple operation and functional indication of operating states and load stages

MASTERGUARD UPS Series A-19/EI-19

- Permanent double-converter technology evens out any irregularity in the power supply and offers totally uninterrupted protection
- Easily configurable for use in 19" cabinets thanks to battery expansions and universal slide rail units
- With a height of just 2 HU for the A-19 series and 3 HU for the EI-19 series and with power-regulated fan and functional display, these units are ideal where space is limited.
- For communication, a choice can be made between serial and USB interface and, in addition, a network connection of the UPS can be set up by means of an SNMP plug-in card for the communication slot.

Standard configuration

MASTERGUARD UPS Series A-19

- A700-19
Output: 700 VA; integrated battery: 6 min.
- A1000-19
Output: 1000 VA; integrated battery: 7 min.
- A2000-19
Output: 2000 VA
- A3000-19
Output: 3000 A

Battery pack for MASTERGUARD Series A-19

- BPA 1000-19
for UPS A1000-19 (max. 2 BP)
- BPA 3000-19
for UPS A2000-19 (max. 5 BP) and UPS A3000-19 (max. 5 BP)

Accessories

Slide rail unit 2 HU 330-580 mm

Slide rail unit 2 HU 575-855 mm

Standard configuration

MASTERGUARD UPS Series EI-19

- EI-19
Output: 6000 VA

Battery pack for MASTERGUARD Series EI-19

- BPEI-19

Accessories

Slide rail unit 3 HU 330-580 mm

Slide rail unit 3 HU 575-855 mm

ManageUPS SNMP adapter card

MopUPS shutdown software

- for Intel operating systems (Windows, Linux, Solaris for Intel)
- for Risc operating systems (Solaris SPARC, HP-UX, AIX)

More information

www.masterguard.de

Sales contact:

MASTERGUARD GmbH

Mr. Willi Brinkmann

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Fax: +49 (0)9131 6300 271

E-mail: willi.brinkmann@masterguard.de

Information hotline: +49 (0)180-532 37 51

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E-mail: alexander.zink@masterguard.de

Support line: +49 (0)180-522 10 96

PC-based Automation

Communication – Industrial Ethernet

Connection options to SIMATIC IPCs

Overview

The operating systems listed in the table refer exclusively to the communication products specified! Please refer to the

description of the relevant IPC for the operating system that is available and has been released for that IPC.

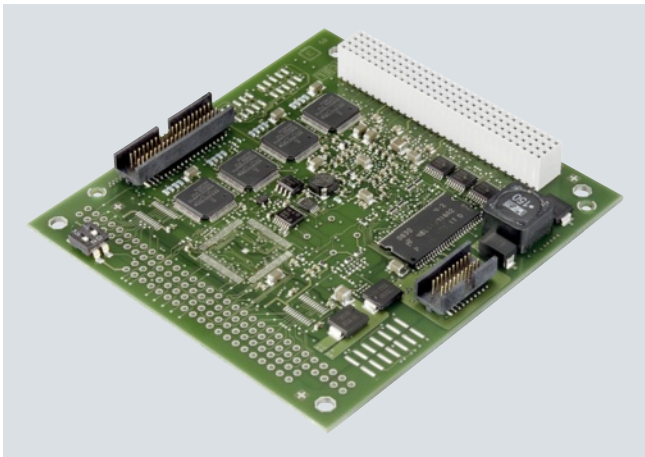
| CPs and software for Industrial Ethernet | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|--|---|-----------------|-----------------|-------------------|---|-----------------|---|-------------------------------------|-------------------|-------------------|---|
| CP 1613 A2 (PCI 32 Bit) | HARDNET-IE S7 (S7-1613) | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| | HARDNET-IE S7 REDCONNECT ³⁾ | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ○ ^{4/5)} | ● | - | ● | - | ○ ^{4/5)} | ○ ^{4/5)} | - |
| | S7 OPC Redundancy for Industrial Ethernet | - | ● | - | - | - | - | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| CP 1623 (PCIe x1) | HARDNET-IE S7 (S7-1613) | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ○ ⁵⁾ | ● | - | ● | - | ○ ⁵⁾ | ○ ⁵⁾ | - |
| | HARDNET-IE S7 REDCONNECT ³⁾ | ● | ● | ● | ● | ● | ● | - | - | ○ ⁵⁾ | ○ ⁵⁾ | ○ ^{4/5)} | ● | - | ● | - | ○ ^{4/5)} | ○ ^{4/5)} | - |
| | S7 OPC Redundancy for Industrial Ethernet | - | ● | - | - | - | - | - | - | ● | ● | ● | ● | - | ● | - | ○ ⁵⁾ | ● | - |
| CP 1628 (PCIe x1) | HARDNET-IE S7 (S7-1613) | ● | ● | - | - | - | - | - | - | ● | ● | ○ ⁵⁾ | ● | - | ● | - | ○ ⁵⁾ | ○ ⁵⁾ | - |
| | HARDNET-IE S7 REDCONNECT ³⁾ | ● | ● | - | - | - | - | - | - | ○ ⁵⁾ | ○ ⁵⁾ | ○ ^{4/5)} | ● | - | ● | - | ○ ^{4/5)} | ○ ^{4/5)} | - |
| | S7 OPC Redundancy for Industrial Ethernet | - | ● | - | - | - | - | - | - | ● | ● | ● | ● | - | ● | - | ○ ⁵⁾ | ● | - |
| CP 1612 A2 (PCI 32 Bit) | SOFTNET-IE S7 | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| | SOFTNET-IE S7 Lean | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| | SOFTNET-IE PG | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| | S7 OPC Redundancy for Industrial Ethernet | - | ● | - | - | - | - | - | - | ● | ● | ● | ● | - | ● | - | ● | ● | - |
| SIMATIC PG/PC with integral Ethernet interface | SOFTNET-IE S7 | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | SOFTNET-IE S7 Lean | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | SOFTNET-IE PG | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | S7 OPC Redundancy for Industrial Ethernet | - | ● | - | - | - | - | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| CPs and software for PROFINET | | | | | | | | | | | | | | | | | | | |
| CP 1616 ¹⁾ (PCI 32 Bit) | HARDNET PN IO DK (DK-16xx PN IO) ¹⁾ | ● | - | - | - | ● | - | ○ | - | ○ | ○ | ○ | ○ | - | ○ | - | ○ | ○ | - |
| CP 1604 ¹⁾ (PCI-104) | HARDNET PN IO DK (DK-16xx PN IO) ¹⁾ | ● | - | - | - | ● | - | ○ | - | - | - | - | - | ○ ²⁾ | ○ | ○ ²⁾ | - | - | - |
| SIMATIC PG/PC with integral Ethernet interface | SOFTNET PN IO | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | | | | | | | | | | | | | | |
| 1) Use of these CPs requires porting of the Development Kit DK-16xx PN IO to the relevant operating system environment. You can order the DK-16xx PN IO at www.siemens.com/simatic-net/dk16xx on the Internet. It contains sample software for Linux Suse 12 and Windows XP Professional. For IRT operation an exclusive interrupt is necessary; this is not available in all slots. The additional use of CP 1616/CP 1604 is not approved for SIMATIC Industrial PC versions and integrated PROFINET interface. | | | | | | | | Notes | | | | | | | | ● suitable | | | |
| 2) possible with restrictions, if necessary, depending on memory expansion and processor capacity | | | | | | | | - Please always note the supplementary conditions for the specified SIMATIC NET products that you can view on the Internet pages shown below. | | | | | | | | - not suitable | | | |
| 3) requires at least 2 PCI or 2 PCIe slots (4-way redundancy requires 4 free PCI or 4 PCIe slots!); hybrid configurations with CP 1613 A2 (PCI) and CP 1623 (PCIe) are possible, depending on PC expansion | | | | | | | | - for further details on XP embedded, see http://support.automation.siemens.com/WW/view/de/21661049 | | | | | | | | ○ suitable under certain conditions | | | |
| 4) without 4-way redundancy as there are only 2 slots | | | | | | | | - further details on system requirements and operating environments can be found in the Readme file of the communication products on the SIMATIC NET PC Software V8.1 CD | | | | | | | | | | | |
| 5) depending on the slots of the selected PC version | | | | | | | | - Updates and supplements to the catalog entries, as well as the above tables can be viewed at http://www.siemens.com/simatic-net/ik-info | | | | | | | | | | | |

G_IK10_XX_10225

G_ILK10_XX_10225

Connection options of Industrial Ethernet CPs to PG/PC/IPC

Overview



- PCI-104 module for connecting PCI-104 systems to PROFINET IO
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integrated 4-port real-time switch
- Communication services:
 - PROFINET IO controller and/or PROFINET IO device
 - Support of IRT in motion control applications
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are included in delivery of module

| ISO | TCP/ UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|-------------|----|-----|-----|-------|-------|----|
| | ● | ● | ● | | | | |

PC-based Automation

Communication – Industrial Ethernet

CP 1604

Ordering data

CP 1604 communication processor

PCI-104 card (32-bit) with ASIC ERTEC 400 for connecting PCI-104 systems to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO-Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional; other operating systems by means of DK-16xx PN IO Development Kit German/English

Order No.

6GK1 160-4AA00

CP 1604 Microbox Package

Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion racks for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC

6GK1 160-4AU00

Accessories

Connection board for CP 1604 A

Connection board for CP 1604 with four RJ45 sockets incl. connecting cable

6GK1 160-4AC00

Power supply for CP 1604

Redundant power supply for CP 1604 for operating the integrated 4-port switch of the CP 1604 with the PC-104 system switched off; includes connecting cable

6GK1 160-4AP00

DK-16xx PN IO development kit

Software development kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and IO device in source code for transfer to other PC-based operating systems; including executable example code for SUSE Linux 10, Windows XP Professional and Windows 7

see
www.siemens.com/simatic-net/dk16xx

IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0.5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1 870-3QE50
6XV1 870-3QH10
6XV1 870-3QH20
6XV1 870-3QH60
6XV1 870-3QN10

SCALANCE X204IRT

Managed Industrial Ethernet switches; isochronous real time, LED diagnostics, error signaling contact with SET button, redundant power supply 4 x 10/100 Mbit/s RJ45 ports

6GK5 204-0BA00-2BA3

A: Subject to export regulations: AL: N and ECCN: EAR99H

Overview



| ISO | TCP/ UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|-------------|----|-----|-----|-------|-------|----|
| | ● | ● | ● | | | | |

- PCI module for connecting PCs and SIMATIC PGs/PCs to PROFINET IO (Universal keyed 3.3 V and 5 V; 33 MHz/66 MHz; 32-bit, runs in 64-bit PCI-X systems)
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integrated 4-port real-time switch
- Communication services:
 - PROFINET IO controller and/or PROFINET IO device
 - Support of IRT in motion control applications
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are part of the scope of delivery of the module

Ordering data

Order No.

CP 1616 communication processor

PCI Card (32 bit; 3.3/5 V universal keyed) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-Port-Real-Time-Switch (RJ45); incl. IO Base Software for PROFINET IO Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; other operating systems via Development Kit DK-16xx PN IO German/English

6GK1 161-6AA01

Accessories

DK-16xx PN IO development kit

Software development kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and IO device in source code for transfer to other PC-based operating systems; including executable example code for SUSE Linux 10, Windows XP Professional and Windows 7

see
www.siemens.com/simatic-net/dk16xx

IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0.5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1 870-3QE50
6XV1 870-3QH10
6XV1 870-3QH20
6XV1 870-3QH60
6XV1 870-3QN10

SCALANCE X204IRT

Managed Industrial Ethernet switches; isochronous real time, LED diagnostics, error signaling contact with SET button, redundant power supply 4 x 10/100 Mbit/s RJ45 ports

6GK5 204-0BA00-2BA3

PC-based Automation

Communication – Industrial Ethernet

CP 1612 A2

Overview



- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V Universal Key) for the connection of PG/PC to Industrial Ethernet
- 1 x 10/100/1000 Mbit/s RJ45 port, electrical
- Automatic data transmission rate detection (10/100/1000 Mbit/s), with autosensing and autocrossover function
- Communication services via
 - PROFINET
 - ISO or TCP/IP transport protocol
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE)
- Designed for use in industrial environments
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software.

| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | ● | ● | | ● | ● | ● | ● |

| Ordering data | Order No. | Order No. |
|---|----------------------------|--|
| CP 1612 A2 communication processor PCI card (32 bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100/1000 Mbit/s) with RJ45 interface, incl. driver for 32-bit Windows XP Professional SP2/3, 2003 R2 Server SP2, Vista Business/Ultimate SP1, Windows 2008 Server; German/English | 6GK1 161-2AA01 | SOFTNET-IE S7 V8.1 Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, licence key on USB flash drive, class A |
| SOFTNET Security Client V4 Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S in bridge mode; Single License for 1 installation, runtime software (German/English), configuring tool (German/English) and electronic manual on CD-ROM (German/English/French/Italian/Spanish) for 32-bit Windows, XP Professional + SP1, SP2, SP3, Windows Vista Ultimate/Business | 6GK1 704-1VW04-0AA0 | SOFTNET-IE PG V8.1 Software for PG/OP communication, runtime software, software and electronic manual on CD-ROM, licence key on USB flash drive, class A |
| SOFTNET PN IO Software for PROFINET IO Controller with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, | see page 5/314 | IE TP Cord RJ45/RJ45 TP cable 4 x 2 with 2 RJ45 connectors <ul style="list-style-type: none">• 0.5 m• 1 m• 2 m• 6 m• 10 m |
| | | 6XV1 870-3QE50 6XV1 870-3QH10 6XV1 870-3QH20 6XV1 870-3QH60 6XV1 870-3QN10 |

B: Subject to export regulations: AL: N and ECCN: EAR99S

PC-based Automation

Communication – Industrial Ethernet

CP 1613 A2

Overview



| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | ● | | | ● | ● | ● | ● |

- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V universal key) with microprocessor for connection of PG/PC to Industrial Ethernet with 10/100 Mbit/s Autosensing/Autonegotiation
- Communication services using
 - Open IE communication via TCP/IP and UDP)
 - ISO transport protocol
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE)
- 15-pole ITP connection
- RJ45 connection
- Time synchronization
- ISO and TCP/IP transport protocol onboard
- SNMP-supported diagnostics
- The appropriate OPC server and configuration tools are included in the respective scope of supply of the communication software

Ordering data

Order No.

CP 1613 A2 communication processor

PCI card (32-bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100 Mbit/s) with ITP and RJ45 connection over HARDNET-IE S7/ S7-1613 and S7-REDCONNECT, operating system support see software SIMATIC NET

6GK1 161-3AA01

HARDNET-IE S7 V8.1

Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 1613/CP 1613 A2/CP 1623/CP 1628

6GK1 716-1CB08-1AA0

S7-1613 Edition 2008 (V7.1)

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

- Single license for 1 installation

6GK1 716-1CB71-3AA0

Software Update Service

for 1 year, with automatic extension; requirement: Current software version

6GK1 716-1CB00-3AL0

Upgrade

- from Edition 2006 or higher to S7-1613 Edition 2008 or V8.1
- from V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or V8.1

6GK1 716-1CB00-3AE0

6GK1 716-1CB00-3AE1

IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0.5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1 870-3QE50

6XV1 870-3QH10

6XV1 870-3QH20

6XV1 870-3QH60

6XV1 870-3QN10

D: Subject to export regulations: AL: N and ECCN: 5D992

Overview



| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | ● | | | ● | ● | ● | ● |

- PCI Express Card (PCIe x1) with an internal microprocessor for connection of PG/PC to Industrial Ethernet
- 10/100/1000 Mbit/s (Autosensing/Autocrossover/Autonegotiation)
- Integrated 2-port switch (2 x RJ45 connection)
- Communications services via
 - Open IE communication (TCP/IP and UDP)
 - ISO transport protocol
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE)
- Time synchronization
- ISO and TCP/IP transport protocol on board
- SNMP-supported diagnostics
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software.

Ordering data

Order No.

CP 1623 communication processor

PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s) with 2 port switch (RJ45) connection via HARDNET-IE S7/S7-1613 and S7-REDCONNECT, operating system support see SIMATIC NET Software

6GK1 162-3AA00

HARDNET-IE S7 for Industrial Ethernet

Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 1613/CP 1613 A2/CP 1623/CP 1628

6GK1 716-1CB08-1AA0

S7-1613 Edition 2008 (V7.1)

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

- Single license for 1 installation

6GK1 716-1CB71-3AA0

Software Update Service

for 1 year, with automatic extension; Prerequisite: Current software version

6GK1 716-1CB00-3AL0

Upgrade

- from Edition 2006 or higher to S7-1613 Edition 2008 or V8.1
- from V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or V8.1

6GK1 716-1CB00-3AE0

6GK1 716-1CB00-3AE1

IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0.5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1 870-3QE50

6XV1 870-3QH10

6XV1 870-3QH20

6XV1 870-3QH60

6XV1 870-3QN10

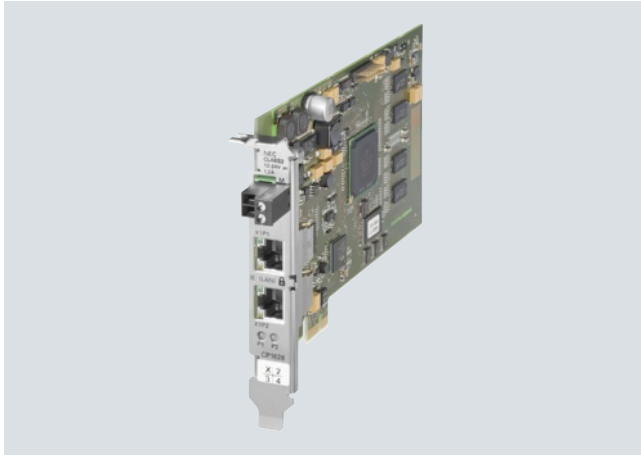
D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Communication – Industrial Ethernet

CP 1628

Overview



| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | ● | | | ● | ● | ● | ● |

- PCI Express Card (PCIe x1) with an internal microprocessor for connection of PG/PC to Industrial Ethernet
- 10/100/1000 Mbit/s (Autosensing/Autocrossover/Autonegotiation)
- Integrated 2-port switch (2 x RJ45 connection)
- Integrated security mechanisms (e.g. Firewall, VPN)
- Communication services via
 - Open IE communication (TCP/IP and UDP)
 - ISO transport protocol
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE)
- Time synchronization
- ISO and TCP/IP transport protocol on board
- Integration into network management systems through the support of SNMP (V1/V3)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 1628 communication processor

PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) and integrated security (firewall, VPN) via S7-1613 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software

H **6GK1 162-8AA00**

HARDNET-IE S7 for Industrial Ethernet

Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A, for CP 1613/CP 1613 A2/CP 1623/CP 1628;

6GK1 716-1CB08-1AA0

S7-1613 Edition 2008

for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

- Single license for one installation D

6GK1 716-1CB71-3AA0

Software Update Service

for 1 year with automatic extension; Prerequisite: Current software version

D **6GK1 716-1CB00-3AL0**

Upgrade

- from Edition 2006 or higher, to S7-1613 Edition 2008 or V8.1 D
- from V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or V8.1 D

6GK1 716-1CB00-3AE0

6GK1 716-1CB00-3AE1

IE TP Cord RJ45/RJ45

TP cable 4 x 2 with 2 RJ45 connectors

- 0.5 m
- 1 m
- 2 m
- 6 m
- 10 m

6XV1 870-3QE50
6XV1 870-3QH10
6XV1 870-3QH20
6XV1 870-3QH60
6XV1 870-3QN10

SNMP OPC server

including MIP compiler, single license for 1 installation of runtime software; software and electronic manual on CD-ROM; licence key on USB stick, class A

see page 5/321

SNMP OPC server Power Pack

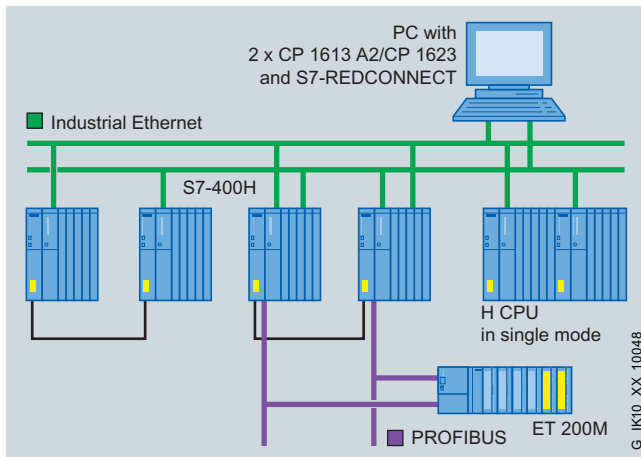
For expansion of SNMP OPC server Basic on SNMP OPC server Extended

see page 5/321

D: Subject to export regulations: AL: N and ECCN: 5D992

H: Subject to export regulations: AL: 91999 and ECCN: EAR99H

Overview



System configuration S7-REDCONNECT

| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | | | | ● | ● | ● | |

- For connecting PCs over redundant Industrial Ethernet to the SIMATIC S7-400H
- Protected from communication failures arising from a fault in the double bus or in redundant rings
- For redundantly configured Industrial Ethernet
- Can also be implemented in non-redundant networks
- No additional programming overhead for the PC and in H systems
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software
- Enhanced redundancy over 4-way communication (STEP 7 V5.1 + SP4 and higher)

PC-based Automation

Communication – Industrial Ethernet

HARDNET IE S7-REDCONNECT

Ordering data

Order No.

Order No.

S7-REDCONNECT

Software for fail-safe S7 communication via redundant networks, incl. S7 OPC server, HARDNET-IE S7, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A;

S7-REDCONNECT V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German

- Single license for 1 installation D **6GK1 716-0HB08-1AA0**

S7-REDCONNECT Edition 2008 (V7.1)

for 32 bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

- Single license for 1 installation D **6GK1 716-0HB71-3AA0**

Software Update Service

- Software Update Service for 1 year, with automatic extension; requirement: Current software version

Upgrade

- from Edition 2006 to S7-REDCONNECT Edition 2008 or V8.1 D **6GK1 716-0HB00-3AE0**
- from V6.0, V6.1, V6.2 or V6.3 to S7-REDCONNECT Edition 2008 or V8.1 D **6GK1 716-0HB00-3AE1**

Power Pack S7-REDCONNECT

For expansion from HARDNET IE S7 to S7-REDCONNECT, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A;

HARDNET-IE S7-REDCONNECT Power Pack V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2;
English/German;

6GK1 716-0HB08-1AC0

Power Pack S7-REDCONNECT Edition 2008 (V7.1)

for 32 bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

CP 1613 A2 communication processor **6GK1 161-3AA01**

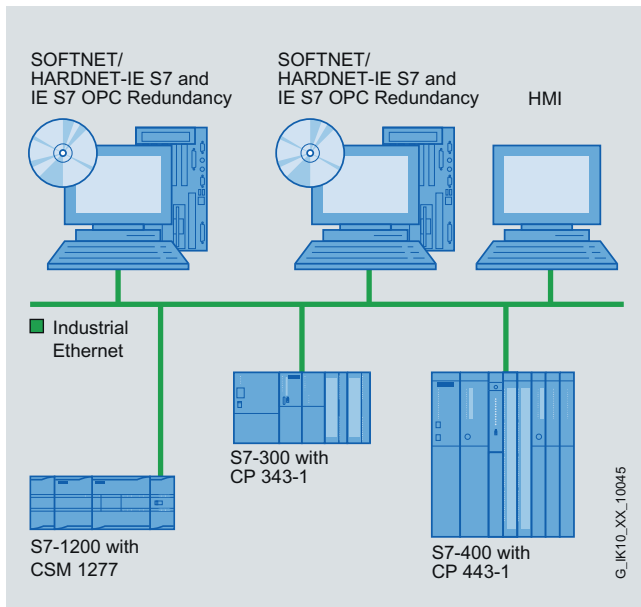
CP 1623 communication processor **6GK1 162-3AA00**

CP 1628 communication processor H **6GK1 162-8AA00**

D: Subject to export regulations: AL: N and ECCN: 5D992

H: Subject to export regulations: AL: 91999 and ECCN: EAR99H

Overview



System configuration SOFTNET for Industrial Ethernet

| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| ● | ● | | | ● | ● | ● | |

- For coupling PG/PCs/workstations to automation systems
- Communication services:
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE)
- Can be used with
 - Layer 2 Ethernet card (PCI/PCle)
 - Integrated Industrial Ethernet interface, e. g. CP 1612 A2
 - Modem (Remote Access Service RAS)
- Complete protocol stack as a software package
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software

PC-based Automation

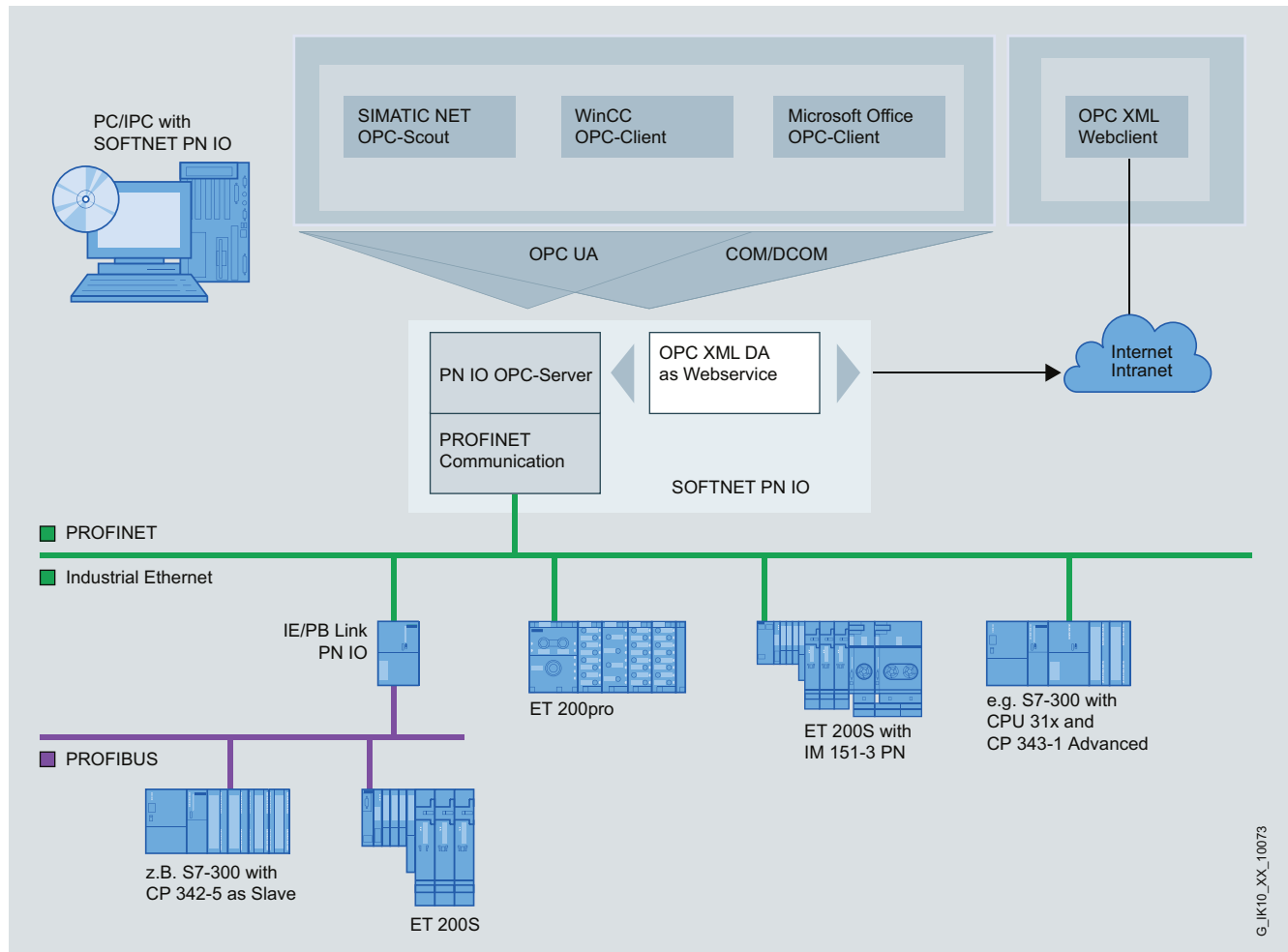
Communication – Industrial Ethernet

SOFTNET for Industrial Ethernet

| Ordering data | Order No. | Order No. |
|---|--|---|
| SOFTNET S7 for Industrial Ethernet Software for S7 and open communication, incl. OPC server, PG/OP communication, and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A SOFTNET-IE S7 V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 server R2; English/German up to 64 connections • Single license for 1 installation D | 6GK1 704-1CW08-1AA0 | SOFTNET-PG for Industrial Ethernet Software for PG/OP communication, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A SOFTNET-IE PG V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2; English/GermanEnglish/German • Single license for 1 installation D |
| SOFTNET-S7 Edition 2008 (V7.1) for Industrial Ethernet for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German up to 64 connections • Single license for 1 installation D | 6GK1 704-1CW71-3AA0 | SOFTNET-PG Edition 2008 (V7.1) for Industrial Ethernet for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D |
| Software Update Service D • Software Update Service for 1 year, with automatic extension; requirement: Current software version | 6GK1 704-1CW00-3AL0 | Software Update D • Software Update Service for 1 year, with automatic extension; requirement: Current software version |
| Upgrade • from Edition 2006 or higher to Edition 2008 or V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 D | 6GK1 704-1CW00-3AE0 6GK1 704-1CW00-3AE1 | Upgrade • from Edition 2006 or higher to Edition 2008 or V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 D |
| SOFTNET-IE S7 Lean Edition V8.1 up to 8 connections • Single license for 1 installation D | 6GK1 704-1LW08-1AA0 | IE S7 OPC Redundancy Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A IE S7 OPC Redundancy V8.1 for 64 bit: Windows 2008 Server R2; English/German • Single license for 1 installation D • Software Update Service for 1 year, with automatic extension; Prerequisite: current software version |
| SOFTNET-S7 Lean Edition 2008 (V7.1) for Industrial Ethernet up to 8 connections • Single license for 1 installation D | 6GK1 704-1LW71-3AA0 | 6GK17 06-1CW08-1AA0 6GK17 06-1CW00-3AL0 |
| Software Update Service D • Software Update Service for 1 year, with automatic extension; requirement: Current software version | 6GK1 704-1LW00-3AL0 | |
| Upgrade • from Edition 2006 or higher to Edition 2008 or V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 D | 6GK1 704-1LW00-3AE0 6GK1 704-1LW00-3AE1 | |

D: Subject to export regulations: AL: N and ECCN: 5D992

Overview



PC with SOFTNET PN IO as PROFINET IO Controller

| ISO | TCP/UDP | PN | MRP | OPC | PG/OP | S7/S5 | IT |
|-----|---------|----|-----|-----|-------|-------|----|
| | ● | ● | | ● | | | |

- Software with PROFINET IO Controller function for coupling PG/PC and IPC with PROFINET IO Devices
- Possible applications:
 - PC-based control systems
 - HMI systems
 - Test applications
- Communication services:
 - PROFINET IO Controller
- Can be used with
 - Integrated interfaces of SIMATIC PG/PC
 - You can find more information about the environment of use at www.siemens.com/simatic-net/ik-info
- Cost-effective solution for the low-end performance range
- OPC server for I/O interfacing over PROFINET included in scope of supply

PC-based Automation

Communication – Industrial Ethernet

SOFTNET PN IO

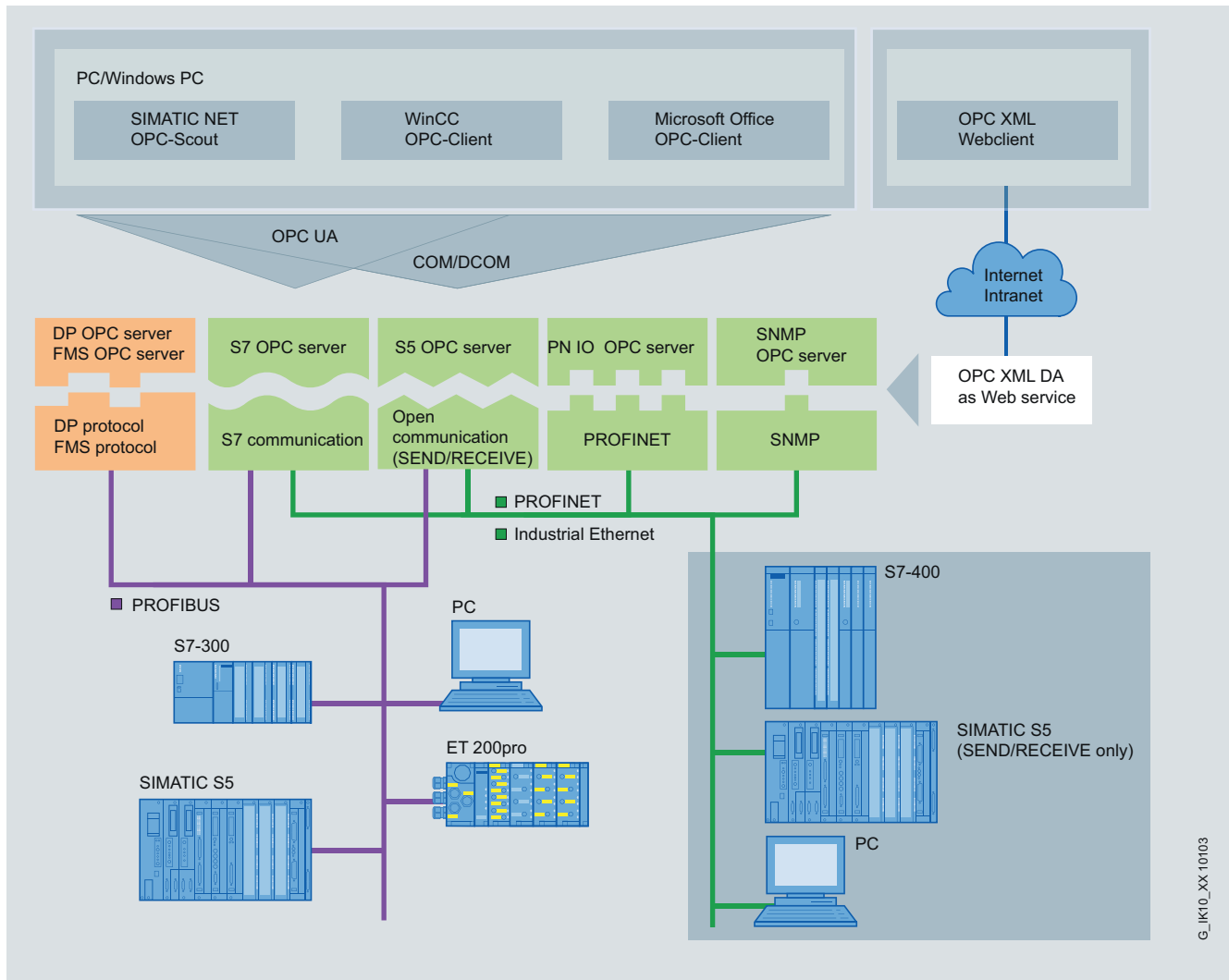
| Ordering data | Order No. | | Order No. |
|---|----------------------------|---|--|
| SOFTNET PN IO Software for PROFINET IO Controller with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, SOFTNET-IE PN IO V8.1 for 32/64 bit: Windows 7 Professional/Ultimate for 64 bit: Windows 2008 Server R2 English/German • Single License for one installation | | | |
| | 6GK1 704-1HW08-1AA0 | | |
| | | SOFTNET PN IO Edition 2008 (V7.1) for 32 bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for one installation | 6GK1 704-1HW71-3AA0 |
| | | Software Update Service • Software Update Service for 1 year, with automatic extension; requirement: Current software version | 6GK1 704-1HW00-3AL0 |
| | | Upgrade • from Edition 2006 or higher to SOFTNET PN IO Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to SOFTNET PN IO Edition 2008 or V8.1 | 6GK1 704-1HW00-3AE0 6GK1 704-1HW00-3AE1 |

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation Communication – Industrial Ethernet

OPC server for Industrial Ethernet

Overview



System integration with OPC server

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation.

OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering both interfaces for SIMATIC S7 and PROFINET.

- The appropriate OPC servers are included in the scope of supply of the respective communication software
- Standardized, open multi-vendor interface

- It permits interfacing of OPC-capable Windows applications to S7-communication, open communication (SEND/RECEIVE), PROFINET and SNMP.
- Increased availability due to additional option packages as OPC server redundancy
- OPC Scout with browser functionality as an OPC client and OX Data Control/.NET Data Control for simple OPC client creation

PC-based Automation

Communication – Industrial Ethernet

OPC server for Industrial Ethernet

| Ordering data | Order No. | Order No. |
|--|--|---|
| PN CBA OPC Server Edition 2008 PROFINET OPC server for CBA; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; German/English <ul style="list-style-type: none"> • Single license for 1 installation • Software Update Service for 1 year, with automatic extension; requirement: current software version • from Edition 2006 or higher to Edition 2008, single license • from V6.0 to Edition 2008, single license | D 6GK1 706-0HB71-3AA0 D 6GK1 706-0HB00-3AL0 D 6GK1 706-0HB00-3AE0 D 6GK1 706-0HB00-3AE1 | SNMP OPC server Extended Administration of up to 200 IP addresses <ul style="list-style-type: none"> • Extended V8.1 D 6GK1 706-1NX08-1AA0 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2, Single License for 1 installation • Extended 2008 (V7.1) D 6GK1 706-1NX71-3AA0 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; Single License for 1 installation |
| SNMP OPC server Including MIB compiler; single license for 1 installation of runtime software; software and electronic manual on CD-ROM; license key on USB flash drive, Class A; SNMP OPC server Basic Administration of up to 20 IP addresses <ul style="list-style-type: none"> • Basic V8.1 D 6GK1 706-1NW08-1AA0 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2, SP2 Windows Vista Business/Ultimate SP1; Windows 2008 Server; Single License for 1 installation • Basic 2008 (V7.1) D 6GK1 706-1NW71-3AA0 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; Single License for 1 installation | | Software Update Service SNMP OPC server Extended D 6GK1 706-1NX00-3AL0 Software Update Service for 1 year, with automatic extension; requirement: current software version Upgrade SNMP OPC server Extended <ul style="list-style-type: none"> • from Edition 2006 or higher to Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to V8.1 |
| Software Update Service SNMP OPC server Basic D 6GK1 706-1NW00-3AL0 Software Update Service for 1 year, with automatic extension; requirement: current software version Upgrade SNMP OPC server Basic <ul style="list-style-type: none"> • from Edition 2006 or higher to Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to V8.1 | D 6GK1 706-1NW00-3AE0 D 6GK1 706-1NW00-3AE1 | SNMP OPC server Power Pack For upgrade from SNM OPC Server Basic to SNM OPC Server Extended Power Pack V8.1 6GK1 706-1NX08-1AC0 Power Pack Edition 2008 (V7.1) D 6GK1 706-1NX71-3AC0 |
| | | S7 OPC Redundancy Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A S7 OPC Redundancy V8.1 for Industrial Ethernet for 64 bit: Windows 2008 Server R2; English/German <ul style="list-style-type: none"> • Single License for 1 installation |
| | | Software Update Service 6GK1 706-1CW00-3AL0 for 1 year, with automatic extension; prerequisite: current software version |

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation Communication – Industrial Ethernet

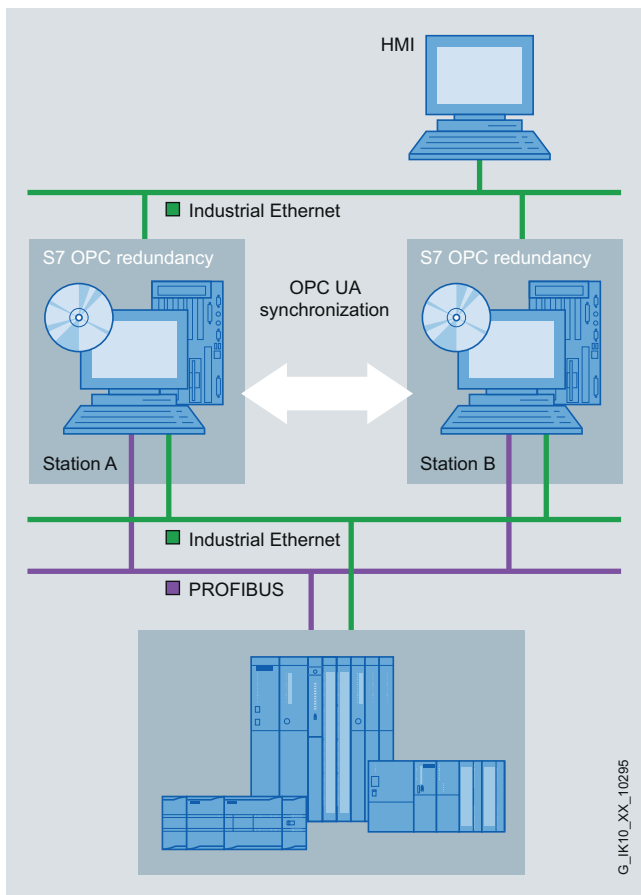
S7 OPC Redundancy for Industrial Ethernet

Overview

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 bit/s. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

Design



Redundant use of OPC servers

Ordering data

Order No.

S7 OPC Redundancy

Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A

S7 OPC Redundancy V8.1 for Industrial Ethernet

for 64 bit: Windows 2008 Server R2; English/German

- Single license for one installation D

6GK1 706-1CW08-1AA0

Software Update Service

for 1 year with automatic extension;
Prerequisite: Current software version

6GK1 706-1CW00-3AL0

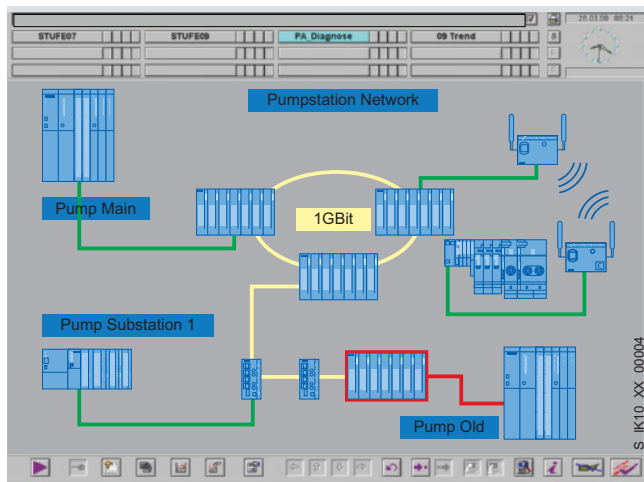
D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Communication – Industrial Ethernet

SNMP OPC server

Overview



- Status monitoring of SNMP-capable devices in any OPC client systems; e. g. SIMATIC WinCC/PCS 7
- Easy access to SNMP-capable devices over the OPC interface
- Devices without SNMP agents can be monitored using the ping mechanism
- Configuration with STEP 7 or NCM PC
- SNMP diagnostics profiles for Siemens devices, e.g. SCALANCE X/W
- Generation of optional SNMP diagnostics profiles with the integrated MIB compiler
- Easy design of monitoring devices with the aid of the autodiscovery function

PC-based Automation

Communication – Industrial Ethernet

SNMP OPC server

| Ordering data | Order No. | Order No. |
|--|--|-----------|
| SNMP OPC server Including MIB compiler; single license for 1 installation of runtime software; software and electronic manual on CD-ROM; license key on USB flash drive, Class A; | | |
| SNMP OPC server Basic Administration of up to 20 IP addresses | | |
| • Basic V8.1 D for 32/64 bit: Windows 7 Professional/ Ultimate; for 64 bit: Windows 2008 Server R2, Single License for 1 installation | 6GK1 706-1NW08-1AA0 | |
| • Basic 2008 (V7.1) D for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; Single License for 1 installation | 6GK1 706-1NW71-3AA0 | |
| Software Update Service SNMP OPC server Basic D Software Update Service for 1 year, with automatic extension; requirement: current software version | 6GK1 706-1NW00-3AL0 | |
| Upgrade SNMP OPC server Basic | | |
| • from Edition 2006 or higher to Edition 2008 or V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to V8.1 D | 6GK1 706-1NW00-3AE0 6GK1 706-1NW00-3AE1 | |
| SNMP OPC server Extended Administration of up to 200 IP addresses | | |
| • Extended V8.1 D for 32/64 bit: Windows 7 Professional/ Ultimate; for 64 bit: Windows 2008 Server R2, Single License for 1 installation | 6GK1 706-1NX08-1AA0 | |
| • Extended 2008 (V7.1) D for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; Single License for 1 installation | 6GK1 706-1NX71-3AA0 | |
| Software Update Service SNMP OPC server Extended D Software Update Service for 1 year, with automatic extension; Prerequisite: current software version | 6GK1 706-1NX00-3AL0 | |
| Upgrade SNMP OPC server Extended | | |
| • from Edition 2006 or higher to Edition 2008 or V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to V8.1 D | 6GK1 706-1NX00-3AE0 6GK1 706-1NX00-3AE1 | |
| SNMP OPC server Power Pack For extension of SNM OPC Server Basic to SNM OPC Server Extended | | |
| Power Pack V8.1 | 6GK1 706-1NX08-1AC0 | |
| Power Pack Edition 2008 (V7.1) D | 6GK1 706-1NX71-3AC0 | |

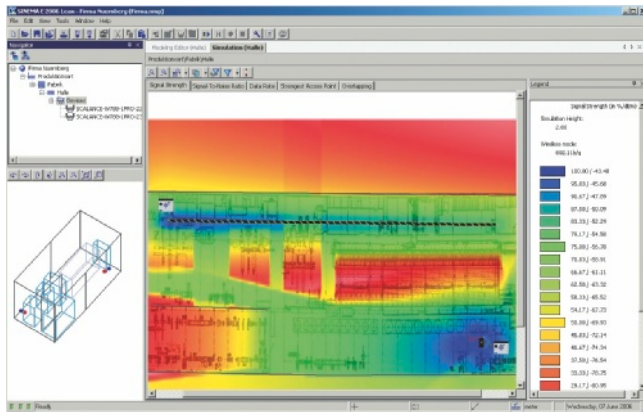
D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Communication – Industrial Ethernet

SINEMA E

Overview



- Engineering tool for support with planning, configuration, simulation and measurement of an IWLAN radio field on site (Site Survey) according to the IEEE 802.11 a/b/g/h standard
- Automatic determination of the WLAN infrastructure for new and existing networks
- Optimization functions for minimization of channel interference
- Visualization and analysis of WLAN networks according to signal strength, data rate, signal-to-noise ratio, overlapping and applications (PROFINET, TCP/IP, Voice over WLAN)
- Configuration of single and multiple devices as well as uploading/downloading of IWLAN device parameters
- Site survey functions (measurements) for the acquisition, conditioning, evaluation and visualization of measured WLAN signals
- Integrated and expandable catalog entries for WLAN devices, antennas and radio hindrances as well as standard graphic formats for importing layout plans
- Report function for documenting the configured and measured WLAN infrastructure

Ordering data

Order No.

SINEMA E

Engineering software for planning, configuring, simulating and measuring (Site Survey) industrial WLAN applications in office and industrial environments on PG/PC in accordance with IEEE 802.11 a/b/g/h standard;
software and electronic manual on CD-ROM, license key on diskette, Class A, for 32-bit Windows XP Professional +SP2; German/English

- | | | |
|---|---|----------------------------|
| • SINEMA E 2006 Lean Planning, configuring and simulating WLAN applications | D | 6GK1 781-0AA00-6AA0 |
| • SINEMA E 2006 standard Extended planning, configuring, simulating and measuring (site survey) of WLAN applications (automatic placement, application profile, contour presentation, storage/comparison of simulations, extended filter options) | D | 6GK1 782-0AA00-6AA0 |
| • SINEMA E 2006 Power pack Software upgrade from SINEMA E Lean to SINEMA E Standard | D | 6GK1 782-4AA00-6AC0 |

D: Subject to export regulations: AL: N and ECCN: 5D992

More information

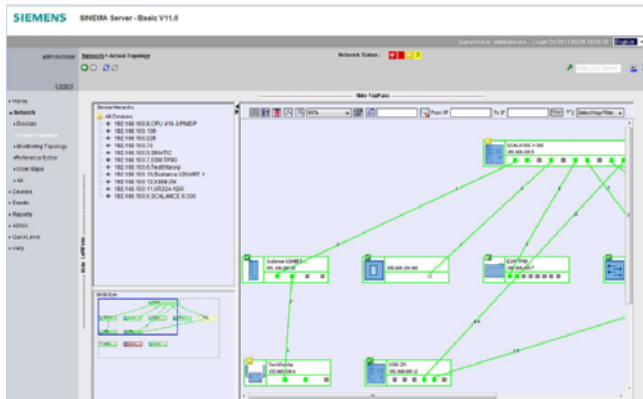
You can find further information on the Internet at:

www.siemens.com/sinema

PC-based Automation Communication – Industrial Ethernet

SINEMA server

Overview



SINEMA Server is a web-based network monitoring software that significantly reduces the response time to communication problems in industrial networks and thus avoids downtimes and saves costs.

- Also easy to use for plant operators or service personnel for autonomous detection and elimination of communication problems
- Graphical representation of industrial network structures
- Standardized network documentation (reports for SLAs (Service Level Agreements))
- Simple operation via Web browser or an HMI/SCADA application, without the need for specialized IT knowledge
- Automatic saving of network data such as the network topology and device information
- Low installation and maintenance outlay, in particular through the use of pre-installed industrial PCs (Microbox PC SIMATIC IPC427C)

Ordering data

Order No.

SINEMA Server Basic V11

Network monitoring software for industrial Ethernet and PROFINET networks, Runtime software, software and electronic manual on CD-ROM, license key on USB stick; Software for installation on PC hardware with 32 bit Windows XP, Windows 2003 Server R2 and Windows 7; German/English

- | | | |
|---|---|----------------------------|
| • For 50 via IP address identifiable devices | D | 6GK1 781-1BA01-1AA0 |
| • For 100 via IP address identifiable devices | D | 6GK1 781-1DA01-1AA0 |
| • For 250 via IP address identifiable devices | D | 6GK1 781-1HA01-1AA0 |

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation Communication – PROFIBUS

Connection options to SIMATIC PCs

Overview

The operating systems listed in the table refer exclusively to the communication products specified!

Please refer to the description of the relevant IPC for the operating system that is available and has been released for that IPC.

| | | | | | | | | | | | | | | | | | Embedded Systems | | | | | |
|--|--|--|------------------------|-----------------------------|-----------------------------------|----------------------|-----------------------------|------------------------------|-------------------------|---------------------------------|-----------------|-----------------|--------------------------------------|-----------------|-----------------|-----------------|---------------------------------------|--------------------------------------|---------------------|---------------------|-----------------|--|
| Communication hardware | Communication software | Operating system environment of the communication software | | | | | | | | SIMATIC Industrial PC/ Field PG | | | | | | | Op. sys. | SIMATIC Industrial PCs ³⁾ | | | | |
| | | Windows 7 Professional / Ultimate | Windows Server 2008 R2 | Windows Server 2008 + SP1/2 | Vista Business / Ultimate + SP1/2 | Windows XP Pro + SP3 | Windows Server 2003 + SP1/2 | Windows Server 2003 R2 / SP2 | other operating systems | Field PG M3 | SIMATIC IPC847C | SIMATIC IPC647C | SIMATIC IPC547C, SIMATIC HMI IPC577D | SIMATIC IPC627C | SIMATIC IPC827C | SIMATIC IPC427C | Windows XP Embedded + SP1/SP2/FP 2007 | SIMATIC IPC427C | SIMATIC HMI IPC477C | SIMATIC HMI IPC677C | SIMATIC IPC627C | SIMATIC S7 modular Embedded Controller |
| CPs and software for Industrial Ethernet | | | | | | | | | | | | | | | | | | | | | | |
| CP 5603 (PCI-104) | CP with DP-Base | ● | ● | ● | ● | ● | ● | ● | - | - | - | - | - | - | - | ● | ● | ● | ● | - | - | - |
| | HARDNET-PB DP DK 1) (DK-5613, DP-base) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | ○ | ○ | ○ | ○ | - | - | ○ ⁵⁾ |
| | HARDNET-PB DP (DP-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | - | - | - | - | - | ● | ● | ● | ● | - | - | - |
| | HARDNET-PB S7 (S7-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | - | - | - | - | - | ● | ● | ● | ● | - | - | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | - | - | - | - | - | - | ● | ● | ● | ● | - | - | - |
| CP 5613 A2, CP 5614 A2 (PCI 32 Bit) | CP mit DP-Base | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | HARDNET-PB DP DK 1) (DK-5613, DP-base) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | ○ | ○ | ○ | ○ | ○ | - | ○ | - | - | ○ | ○ | - |
| | HARDNET-PB DP (DP-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | HARDNET-PB S7 (S7-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| CP 5623, CP 5624 (PCIe x1) | CP with DP-Base | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | HARDNET-PB DP DK 1) (DK-5613, DP-base) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | ○ | - | ○ | ○ | ○ | - | ○ | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | HARDNET-PB DP (DP-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | HARDNET-PB S7 (S7-5613) | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| CP 5611 A2 (PCI 32 Bit) | SOFTNET-PB DP | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | SOFTNET-PB DP Slave | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | SOFTNET-PB S7 | ● | ● | ● | ● | ● | ● | ● | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | - | ● | ● | ● | ● | ● | - | - | - | - | ● | ● | - |
| CP 5621 (PCIe x1) | SOFTNET-PB DP | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | SOFTNET-PB DP Slave | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | SOFTNET-PB S7 | ● | ● | ● | ● | ● | ● | ● | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | - | ● ⁴⁾ | - | ● | ○ ⁴⁾ | ● | - | - | - | - | ○ ⁴⁾ | ○ ⁴⁾ | - |
| CP 5512 (Cardbus 32 Bit) | SOFTNET-PB DP | - | - | ● | ● | ● | ● | ● | - | ● | - | - | - | - | - | - | - | - | - | - | - | - |
| | SOFTNET-PB DP Slave | - | - | ● | ● | ● | ● | ● | - | ● | - | - | - | - | - | - | - | - | - | - | - | - |
| | SOFTNET-PB S7 | - | - | ● | ● | ● | ● | ● | - | ● | - | - | - | - | - | - | - | - | - | - | - | - |
| CP 5711 (USB V2.0) | SOFTNET-PB DP | ● | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | SOFTNET-PB DP Slave | ● | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | SOFTNET-PB S7 | ● | ● | ● | ● | ● | ● | ● | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| SIMATIC PG/PC | SOFTNET-PB DP | ● | ● | ● | ● | ● | ● | ● | - | ● | ○ ²⁾ | ○ ²⁾ | - | ○ ²⁾ | ○ ²⁾ | ○ ²⁾ | ● | ○ ²⁾ | ● | ○ ²⁾ | ○ ²⁾ | - |
| | SOFTNET-PB DP Slave | ● | ● | ● | ● | ● | ● | ● | - | ● | ○ ²⁾ | ○ ²⁾ | - | ○ ²⁾ | ○ ²⁾ | ○ ²⁾ | ● | ○ ²⁾ | ● | ○ ²⁾ | ○ ²⁾ | - |
| | SOFTNET-PB S7 | ● | ● | ● | ● | ● | ● | ● | - | ● | ○ ²⁾ | ○ ²⁾ | - | ○ ²⁾ | ○ ²⁾ | ○ ²⁾ | ● | ○ ²⁾ | ● | ○ ²⁾ | ○ ²⁾ | - |
| | S7 OPC Redundancy for PROFIBUS | - | ● | - | - | - | - | - | - | ● | ○ ²⁾ | ○ ²⁾ | - | ○ ²⁾ | ○ ²⁾ | ○ ²⁾ | ● | ○ ²⁾ | ● | ○ ²⁾ | ○ ²⁾ | - |

- In order to use these CPs in other operating system environments, it is required to port HARDNET DP Development Kits (DK-5613) into the respective operating system. You can request the HARDNET DP DK in the Internet under www.siemens.com/simatic-net/dk5613.
- integrated PROFIBUS interface is optional
- depending on available memory and processor performance there could be restrictions
- depending on the slots of the selected PC version
- EM-PCI 104 expansion module is required

Notes

- Please always note the supplementary conditions for the specified SIMATIC NET products that you can view on the Internet pages shown below.
- for further details on XP embedded, see <http://support.automation.siemens.com/WW/view/de/21661049>
- further details on system requirements and operating environments can be found in the Readme file of the communication products on the SIMATIC NET PC Software CD V8.1
- Updates and supplements to the catalog entries, as well as the above tables can be viewed at <http://www.siemens.com/simatic-net/ik-info>

- suitable
- not suitable
- suitable under certain conditions

G_IK10_XX_50025

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | ● | ● | ● | ● |

- PCI-104 interface card with own microprocessor for connecting embedded systems with PCI-104 interface to PROFIBUS at up to 12 Mbit/s
- Function compatible with CP 5613 A2
- Communication services:
 - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784
 - PG/OP communication with STEP 5 and STEP 7
 - S7 communication with HARDNET S7 software package
 - Open communication (SEND/RECEIVE) based on the FDL interface
 - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to three CPs
- The appropriate OPC server and configuration tools are included in the scope of delivery of the respective communication software
- Linux-based development kit with driver sources for integration into "non-Windows" environments

Note:

FMS-5613 supports up to two CP 5603/CP 5613 A2/5614 A2/CP 5623/CP 5624 processors

Ordering data

Order No.

CP 5603 communication processor

A

6GK1 560-3AA00

PCI-104 card for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English

Software-Upgrade

6GK1 561-3AA01-3AE0

for CP 5603, CP 5613 A2 and CP 5623 to Edition 2008 or V8.1

CP 5603 Microbox Package

A

6GK1 560-3AU00

For use of CP 5603 in Microbox 420/427B/427C; consisting of CP 5603 module and Microbox expansion frame

CP 5603 expansion rack

6GK1 560-3AA00-0AU0

for use in Microbox 420/427B with mounting material

CP 5603 mEC Package

A

6GK1 560-3AE00

For use of CP 5603 in SIMATIC S7-MEC; consisting of CP 5603 and withdrawable unit for CP 5603 for installation in the EM PCI-104 expansion module of the SIMATIC S7-MEC

CP 5603 insert plate

6GK1 560-3AA00-0AE0

Metal plate with RS485 cutout for inserting for the S7 modular embedded controller

Development Kit DK-5613

see
www.siemens.com/simatic-net/dk5613

Software development kit HARDNET-PB DP for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI slot

A: Subject to export regulations: AL: N and ECCN: EAR99H

PC-based Automation Communication – PROFIBUS

CP 5603

| Ordering data | Order No. | Order No. |
|---|----------------------------|--|
| HARDNET-PB DP Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624; | | Software Update Service D 6GK1 713-5CB00-3AL0 Software Update Service for 1 year, with automatic extension; requirement: current software version |
| HARDNET-PB DP V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 32/64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation D | 6GK1 713-5DB08-1AA0 | Upgrade • from Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D 6GK1 713-5CB00-3AE0 • from V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D 6GK1 713-5CB00-3AE1 |
| DP-5613 Edition 2008 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D | 6GK1 713-5DB71-3AA0 | FMS-5613 Edition 2008 Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB stick, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English • Single license for 1 installation D |
| Software Update Service D • Software Update Service for 1 year, with automatic extension; requirement: current software version | 6GK1 713-5DB00-3AL0 | Software Update Service D 6GK1 713-5FB71-3AA0 Software Update Service for 1 year, with automatic extension; requirement: current software version |
| Upgrade • from Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET DP V8.1 D 6GK1 713-5DB00-3AE0 • from V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1 D 6GK1 713-5DB00-3AE1 | | Software Update Service D 6GK1 713-5FB00-3AL0 Software Update Service for 1 year, with automatic extension; requirement: current software version |
| HARDNET-PB S7 Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614, CP 5614 A2, CP 5624; | see page 5/312 | Upgrade • from Edition 2006 or 2007 to FMS-5613 Edition 2008 D 6GK1 713-5FB00-3AE0 • from V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008 D 6GK1 713-5FB00-3AE1 |
| HARDNET-PB S7 V8.1 D for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation | 6GK1 713-5CB08-1AA0 | PROFIBUS FC Standard Cable GP 6XV1 830-0EH10 Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m |
| S7-5613 Edition 2008 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D | 6GK1 713-5CB71-3AA0 | PROFIBUS FastConnect bus connector RS485 Plug 180 6GK1 500-0FC10 With 180° cable outlet, insulation displacement |
| | | PROFIBUS bus terminal 12M 6GK1 500-0AA10 Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long |
| | | PROFIBUS FastConnect Stripping Tool 6GK1 905-6AA00 Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables |

D: Subject to export regulations: AL: N and ECCN: 5D992

More information

You can find further information about the HARDNET-PB DP Development Kit on the Internet at:
www.siemens.com/simatic-net/dk5613

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | | ● | ● | ● | ● |

- PCI card (universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
 - PROFIBUS DP master according to IEC 61158/61784 on a PCI card
 - PG/OP communication with STEP 5 and STEP 7
 - S7 communication with HARDNET S7 software package
 - Open communication (SEND/RECEIVE) based on the FDL interface
 - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Comprehensive diagnostic possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPUs
- Implementation in Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software

Ordering data

Order No.

CP 5613 A2 communication processor

6GK1 561-3AA01

PCI card (32-bit; 3.3 V/5 V) for connection to PROFIBUS including DP-Base software with NCM PC; DP-RAM interface for DP master, including PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, operating system support see SIMATIC NET software; German/English

Software Upgrade

6GK1 561-3AA01-3AE0

for CP 5603, CP 5613 A2 and CP 5623 on Edition 2008 or V8.1

HARDNET-PB DP Development Kit

see www.siemens.com/simatic-net/dk5613

Software HARDNET-PB DP Development Kit for CP 5613/CP 5614/CP 5613 A2/CP 5614 A2/CP 5613 FO for integration in other operating system environments on systems with a PCI slot

HARDNET-PB DP

Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;

HARDNET-PB DP V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German

• Single license for 1 installation D **6GK1 713-5DB08-1AA0**

DP-5613 Edition 2008

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

• Single license for 1 installation D **6GK1 713-5DB71-3AA0**

Software Update Service

D **6GK1 713-5DB00-3AL0**

Software Update Service for 1 year, with automatic extension; requirement: current software version

Upgrade

• from Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE0**

• from V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE1**

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation Communication – PROFIBUS

CP 5613 A2

| Ordering data | Order No. | Order No. |
|---|--|---|
| HARDNET-PB S7 Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624; | | |
| HARDNET-PB S7 V8.1 D for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation | 6GK1 713-5CB08-1AA0 | |
| S7-5613 Edition 2008 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D | 6GK1 713-5CB71-3AA0 | |
| Software Update Service D • Software Update Service for 1 year, with automatic extension; requirement: current software version | 6GK1 713-5CB00-3AL0 | |
| Upgrade • from Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D | 6GK1 713-5CB00-3AE0 6GK1 713-5CB00-3AE1 | |
| | | FMS-5613 Edition 2008 Software for FMS protocol, including PG/OP communication, FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A for 32-bit Windows XP Professional SP2/3, Windows 2003 Server R2, SP2, Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5613, CP 5613 A2, CP 5613 FO, CP 5614, CP 5614 A2; German/English • Single license for 1 installation D |
| | | Software Update Service D • Software Update Service for 1 year, with automatic extension; Prerequisite: current software version |
| | | Upgrade • from Edition 2006 or 2007 to FMS-5613 Edition 2008 D • from V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008 D |
| | | PROFIBUS FC Standard Cable GP Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m |
| | | PROFIBUS FastConnect bus connector RS485 Plug 180 With 180° cable outlet, insulation displacement |
| | | PROFIBUS bus terminal 12M Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long |
| | | PROFIBUS FastConnect Stripping Tool Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables |

D: Subject to export regulations: AL: N and ECCN: 5D992

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

www.siemens.com/simatic-net/dk5613

The CP 5613 A2 module can also be used under the LINUX and UNIX operating systems. You can find information about the available LINUX distributors and UNIX operating systems from:

Siemens AG

Contact

Your IT4Industry Team

Werner-von-Siemens-Str. 60

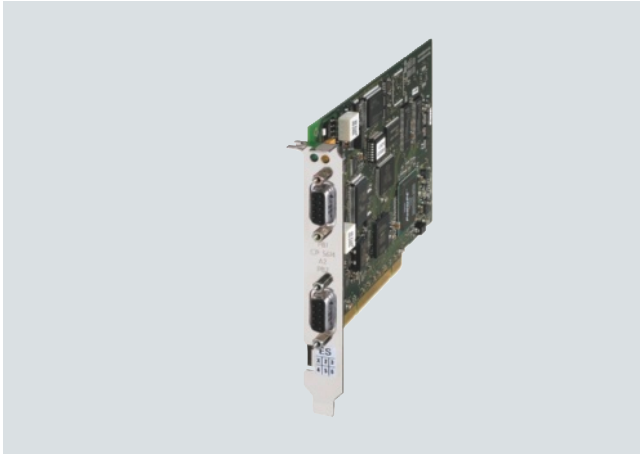
91052 Erlangen, Germany

Tel.: +49(0)9131/7-4 61 11

Fax: +49(0)9131/7-4 47 57

E-mail: it4industry@siemens.com

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | ● | ● | ● | ● |

- PCI card (Universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
 - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
 - PG/OP communication with STEP 5 and STEP 7
 - S7 communication with HARDNET S7 software package
 - Open communication (SEND/RECEIVE) based on the FDL interface
 - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Comprehensive diagnostics possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPUs
- Implementation of Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5614 A2 communication processor

6GK1 561-4AA01

PCI card (32-bit; 3.3 V/5 V) master and slave interface to PROFIBUS including DP-Base software with NCM PC; DP-RAM interface for DP master, including PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, operating system support see SIMATIC NET software; German/English

Software Upgrade

6GK1 561-3AA01-3AE0

for CP 5614 A2 and CP 5624 on Edition 2008 or V8.1

HARDNET-PB DP Development Kit

see www.siemens.com/simatic-net/dk5613

Software development kit HARDNET-PB DP for CP 5613/CP 5614/CP 5613 A2/CP 5614 A2/CP 5613 FO for integration in other operating system environments on systems with a PCI slot

HARDNET-PB DP

Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614, CP 5614 A2, CP 5624;

HARDNET-PB DP V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German

• Single license for 1 installation D **6GK1 713-5DB08-1AA0**

DP-5613 Edition 2008

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

• Single license for 1 installation D **6GK1 713-5DB71-3AA0**

Software Update Service

6GK1 713-5DB00-3AL0

• Software Update Service for 1 year, with automatic extension; requirement: current software version

Upgrade

• from Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE0**

• from V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE1**

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Communication – PROFIBUS

CP 5614 A2

| Ordering data | Order No. | Order No. |
|--|--|---|
| HARDNET-PB S7 Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624; S7-5613 Edition 2008 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D | 6GK1 713-5CB71-3AA0 | Software Update Service D • Software Update Service for 1 year, with automatic extension; requirement: current software version Upgrade • from Edition 2006 or 2007 to FMS-5613 Edition 2008 D • from V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008 D |
| Software Update Service • Software Update Service for 1 year, with automatic extension; requirement: Current software version D | 6GK1 713-5CB00-3AL0 | 6GK1 713-5FB00-3AE0 6GK1 713-5FB00-3AE1 |
| Upgrade • from Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D • from V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D | 6GK1 713-5CB00-3AE0 6GK1 713-5CB00-3AE1 | PROFIBUS FC Standard Cable GP Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m PROFIBUS FastConnect bus connector RS485 Plug 180 With 180° cable outlet, insulation displacement PROFIBUS bus terminal 12M Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long PROFIBUS FastConnect Stripping Tool Preinstalled stripping tool for fast stripping of PROFIBUS FastConnect bus cables |
| FMS-5613 Edition 2008 Software for FMS protocol, including PG/OP communication, FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A for 32 bit Windows XP Professional SP2/3, Windows 2003 Server R2, SP2, Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5613, CP 5613 A2, CP 5614 A2, CP 5614, CP 5614 A2, German/English • Single license for 1 installation D | 6GK1 713-5FB71-3AA0 | 6XV1 830-0EH10 6GK1 500-0FC10 6GK1 500-0AA10 6GK1 905-6AA00 |

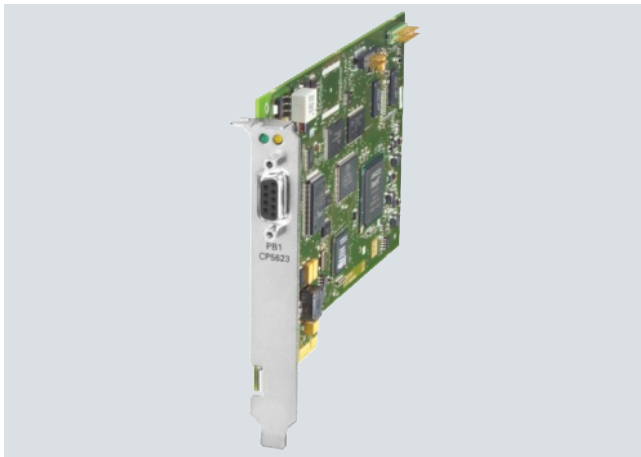
D: Subject to export regulations: AL: N and ECCN: 5D992

More information

You can find the HARDNET DP Development Kit on the Internet

www.siemens.com/simatic-net/dk5613

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| • | • | • | • | • | • |

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
 - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784 on a PCI card
 - PG/OP communication with STEP 5 and STEP 7
 - S7 communication with HARDNET S7 software package
 - Open communication (SEND/RECEIVE) based on the FDL interface
 - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostic options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5623 communication processor

E **6GK1 562-3AA00**

PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English

Software Upgrade

6GK1 561-3AA01-3AE0

for CP 5603, CP 5613 A2 and CP 5623 on Edition 2008 or V8.1

Development Kit HARDNET-PB DP

see www.siemens.com/simatic-net/dk5613

Software development kit HARDNET DP for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI or PCI Express slot

HARDNET-PB DP

Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;

HARDNET-PB DP V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German

• Single license for 1 installation D **6GK1 713-5DB08-1AA0**

DP-5613 Edition 2008

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

• Single license for 1 installation D **6GK1 713-5DB71-3AA0**

Software Update Service

D **6GK1 713-5DB00-3AL0**

• Software Update Service for 1 year, with automatic extension; requirement: current software version

Upgrade

• from Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE0**

• from V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE1**

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

Communication – PROFIBUS

CP 5623

| Ordering data | Order No. | Order No. |
|---|-----------|--|
| HARDNET-PB S7 Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624 HARDNET-PB S7 V8.1 D 6GK1 713-5CB08-1AA0 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation S7-5613 Edition 2008 for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation D 6GK1 713-5CB71-3AA0 Software Update Service D 6GK1 713-5CB00-3AL0 • Software Update Service for 1 year, with automatic extension; requirement: current software version Upgrade • from Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D 6GK1 713-5CB00-3AE0 • from V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET S7 V8.1 D 6GK1 713-5CB00-3AE1 FMS-5613 Edition 2008 Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB stick, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English • Single license for 1 installation D 6GK1 713-5FB71-3AA0 | | Software Update Service D 6GK1 713-5FB00-3AL0 • Software Update Service for 1 year, with automatic extension; requirement: current software version Upgrade • from Edition 2006 or 2007 to FMS-5613 Edition 2008 D 6GK1 713-5FB00-3AE0 • V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008 D 6GK1 713-5FB00-3AE1 PROFIBUS FC Standard Cable GP Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m PROFIBUS FastConnect bus connector RS485 Plug 180 With 180° cable outlet, insulation displacement PROFIBUS bus terminal 12M Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long PROFIBUS FastConnect Stripping Tool Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables 6XV1 830-0EH10 6GK1 500-0FC10 6GK1 500-0AA10 6GK1 905-6AA00 |

D: Subject to export regulations: AL: N and ECCN: 5D992

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

You will find more information on the Internet:
www.siemens.com/simatic-net/dk5613

The CP 5623 module can also be used under LINUX and UNIX operating systems. Find out more about the available LINUX distributors and UNIX operating systems from:

Siemens AG
 Contact
 Your IT4Industry Team
 Werner-von-Siemens-Str. 60
 91052 Erlangen, Germany
 Tel.: +49(0)9131/7-4 61 11
 Fax: +49(0)9131/7-4 47 57
 E-mail: it4industry@siemens.com

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | ● | ● | ● | ● |

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Two 9-pin sub-D sockets for parallel operation as DP master and DP slave
- Communication services:
 - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
 - PG/OP communication with STEP 5 and STEP 7
 - S7 communication with HARDNET S7 software package
 - Open communication (SEND/RECEIVE) based on the FDL interface
 - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostic options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5624 A2 communication processor

E **6GK1 562-4AA00**

PCI Express x1 card (32 bit) for master and slave connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English

Software upgrade

6GK1 561-3AA01-3AE0

for CP 5614 A2 and CP 5624 to Edition 2008 or V8.1

HARDNET-PB DP Development Kit

see www.siemens.com/simatic-net/dk5613

Software development kit HARDNET-PB DP for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI or PCI Express slot

HARDNET-PB DP

Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;

HARDNET-PB DP V8.1

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German

• Single license for 1 installation D **6GK1 713-5DB08-1AA0**

DP-5613, 2008 Edition

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

• Single license for 1 installation D **6GK1 713-5DB71-3AA0**

Software Update Service

• Software Update Service for 1 year, with automatic extension; requirement: current software version

D **6GK1 713-5DB00-3AL0**

Upgrade

• from Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE0**
• from V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1 D **6GK1 713-5DB00-3AE1**

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation Communication – PROFIBUS

CP 5624

Ordering data

Order No.

Order No.

HARDNET-PB S7

Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A; for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;

HARDNET-PB S7 V8.1

D

6GK1 713-5CB08-1AA0

for 32/64 bit:
Windows 7 Professional/Ultimate;
for 64 bit:
Windows 2008 Server R2
English/German
• Single license for 1 installation

S7-5613 Edition 2008

for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German

• Single license for 1 installation

D

6GK1 713-5CB71-3AA0

Software Update Service

D

6GK1 713-5CB00-3AL0

• Software Update Service for 1 year, with automatic extension; requirement: current software version

Upgrade

• from Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET S7 V8.1

D

6GK1 713-5CB00-3AE0

• from V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET S7 V8.1

D

6GK1 713-5CB00-3AE1

FMS-5613 Edition 2008

Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB stick, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English

• Single license for 1 installation

D

6GK1 713-5FB71-3AA0

Software Update Service

D

6GK1 713-5FB00-3AL0

• Software Update Service for 1 year, with automatic extension; requirement: current software version

Upgrade

• from Edition 2006 or 2007 to FMS-5613 Edition 2008

D

6GK1 713-5FB00-3AE0

• from V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008

D

6GK1 713-5FB00-3AE1

D: Subject to export regulations: AL: N and ECCN: 5D992

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

You can find more information on the Internet:

www.siemens.com/simatic-net/dk5613

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | | ● | ● | ● |

- PC Card Type II (CardBus 32 bit) to connect PG/PC and notebooks with PC card slot (CardBus 32 bit) to PROFIBUS and to the MPI of the SIMATIC S7
- Communication services:
 - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP slave with SOFTNET-DP Slave software package
 - PG/OP communication with STEP 5 or STEP 7
 - S7 communication with SOFTNET-S7 software package
 - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-DP or SOFTNET-S7 software package
- Can be used with:
 - STEP 7 and NCM PC; (ProTool, Micro/Win, ProTool/Pro, SIMATIC PDM for PG/OP communication)
 - SOFTNET-S7 (for S7 communication)
 - SOFTNET-DP, SOFTNET-DP slave (for DP)
- The appropriate OPC servers are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5512 communication processor

6GK1 551-2AA00

PC-Card (CardBus, 32-bit) for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7; German/English

SOFTNET-PB S7

see page 5/340

Software for S7 communication, incl. FDL protocol with OPC server and NCM-PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5711, CP 5621;

SOFTNET-PB DP

see page 5/340

Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5711, CP 5621;

SOFTNET-PB DP Slave

see page 5/340

Software for DP slave, with DP OPC server and NCM PC, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5711, CP 5621;

PROFIBUS FastConnect bus connector RS 485 Plug 180

6GK1 500-0FC10

With 180° cable outlet

PROFIBUS adapter for CP 5512

C79459-A1890-A10

PC-based Automation

Communication – PROFIBUS

CP 5611 A2

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | | ● | ● | ● |

- PCI card (Universal keyed 5 V/3.3 V) for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI interface of SIMATIC S7
- Communication services:
 - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP slave with SOFTNET-DP Slave software package
 - PG/OP communication with STEP 5 or STEP 7
 - S7 communication with SOFTNET-S7 software package
 - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-DP or SOFTNET-S7 software package
- Can be used with:
 - STEP 7, STEP 7-Micro/Win, ProTool, ProTool/Pro, SIMATIC PDM (for PG/OP communication)
 - COM PROFIBUS
 - SOFTNET-S7 (for S7 communication)
 - SOFTNET-DP, SOFTNET-DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software.

Ordering data

Order No.

CP 5611 A2 communication processor

- PCI card (32-bit) for connection of a PG or PC to PROFIBUS
- PCI card (32-bit) CP 5611 A2 and MPI cable, 5 m

6GK1 561-1AA01

6GK1 561-1AM01

SOFTNET-PB S7

Software for S7 communication, incl. FDL protocol with OPC server and NCM-PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5711, CP 5621

see page 5/340

SOFTNET-PB DP

Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621;

see page 5/340

SOFTNET-PB DP Slave

Software for DP slave, with DP OPC server and NCM PC, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621;

see page 5/340

PROFIBUS FastConnect bus connector RS 485 Plug 180

With 180° cable outlet

6GK1 500-0FC10

PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations for up to 12 Mbit/s with plug-in cable

6GK1 500-0AA10

A: Subject to export regulations: AL: N and ECCN: EAR99H

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | | ● | ● | ● |

- PCI Express card (PCIe x1) for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI of the SIMATIC S7
- Communication services:
 - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-DP software package
 - PROFIBUS DP slave with SOFTNET-DP Slave software package
 - PG/OP communication with STEP 5 or STEP 7
 - S7 communication with SOFTNET-S7 software package
 - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-DP or SOFTNET-S7 software package
- Can be used with:
 - STEP 7, STEP 7-Micro/Win, ProTool, ProTool/Pro, SIMATIC PDM (for PG/OP communication)
 - COM PROFIBUS
 - SOFTNET-S7 (for S7 communication)
 - SOFTNET-DP, SOFTNET-DP slave (for DP)
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5621 communication processor

- PCI Express x1 card (32-bit) for connection of a PG or PC to PROFIBUS
- PCI Express x1 card (32-bit) CP 5621 and MPI cable, 5 m

6GK1 562-1AA00
6GK1 562-1AM00

SOFTNET-PB S7

Software for S7 communication, incl. FDL protocol with OPC server and NCM-PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621

see page 5/340

SOFTNET-PB DP

Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621

see page 5/340

SOFTNET-PB DP slave

Software for DP slave, with DP OPC server and NCM PC, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621

see page 5/340

PROFIBUS FastConnect bus connector RS 485 Plug 180

With 180° cable outlet

6GK1 500-0FC10

PROFIBUS bus terminal 12M

Bus terminal for connection of PROFIBUS stations for up to 12 Mbit/s with plug-in cable

6GK1 500-0AA10

E: Subject to export regulations: AL: 91999 and ECCN: 5D002ENCU

PC-based Automation

Communication – PROFIBUS

CP 5711

Overview



| DP-M | DP-S | FMS | OPC | PG/OP | S7/S5 |
|------|------|-----|-----|-------|-------|
| ● | ● | | ● | ● | ● |

- USB adapter for the connection of PCs and SIMATIC PG/PC to PROFIBUS DP or MPI via USB 2.0
- Operation in extended temperature range of -20 °C to +60 °C
- Active PROFIBUS termination to supply the PROFIBUS network as end station of a segment
- Rugged USB connection due to mechanical locking of the USB connector to the CP 5711 enclosure
- Communication services:
 - PROFIBUS DP master Class 1 and 2 according to IEC 61158/61784 with SOFTNET-DP software package
 - PROFIBUS DP slave with SOFTNET-DP Slave software package
 - PG/OP communication with STEP 5 or STEP 7 software package
 - S7 communication with SOFTNET-S7 software package
 - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-DP or SOFTNET-S7 software package
- PROFIBUS connection with up to 12 Mbit/s
- Can be used with:
 - STEP 7, STEP 7 Micro/WIN, WinCC/WinCC flexible, NCM PC, SIMATIC PDM (for PG/OP communication)
 - SOFTNET-S7 (for S7 communication)
 - SOFTNET-DP, SOFTNET-DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

Order No.

CP 5711 communication processor

for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7; German/English

- USB V2.0 adapter
- USB V2.0 adapter CP 5711 and A MPI cable, 5 m

6GK1 571-1AA00
6GK1 571-1AM00

Mounting rail support for CP 5711

Compartment for CP 5711 enclosure; fastened mechanically to 35 mm DIN rail

6GK1 571-1AA00-0AH0

SOFTNET-PB S7

Software for S7 communication, incl. FDL protocol with OPC server and NCM-PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621

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Order No.

SOFTNET-PB DP

Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, for CP 5611 A2, CP 5711, CP 5621;

see page 5/340

SOFTNET-PB DP Slave

Software for DP slave, with DP OPC server and NCM PC, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621;

see page 5/340

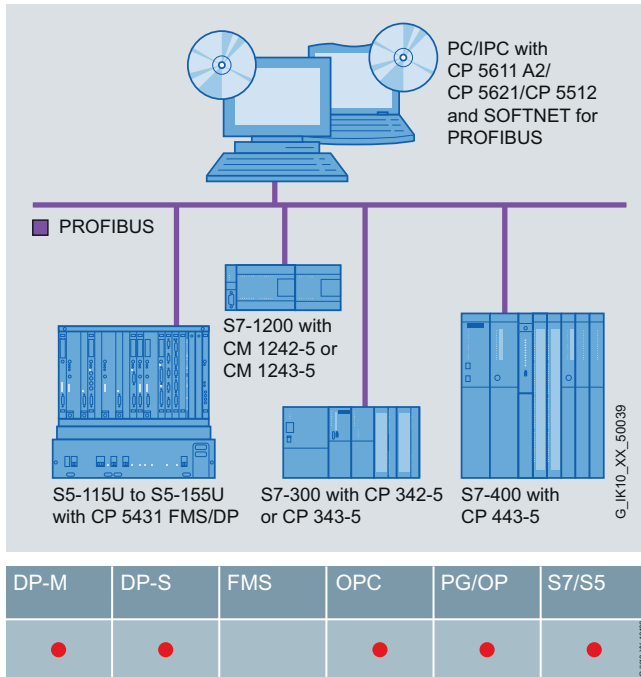
PROFIBUS FastConnect bus connector RS485 Plug 180

With 180° cable outlet

6GK1 500-0FC10

A: Subject to export regulations: AL: N and ECCN: EAR99H

Overview



- Software for coupling PCs/PGs and notebooks to automation systems
- Communication services:
 - PROFIBUS DP master Class 1 and 2 with acyclic expansions
 - PROFIBUS DP slave
 - PG/OP communication
 - S7 communication
 - Open communication (SEND/RECEIVE) based on the FDL interface
- The appropriate OPC servers are included in the scope of supply of the respective communication software

PC-based Automation

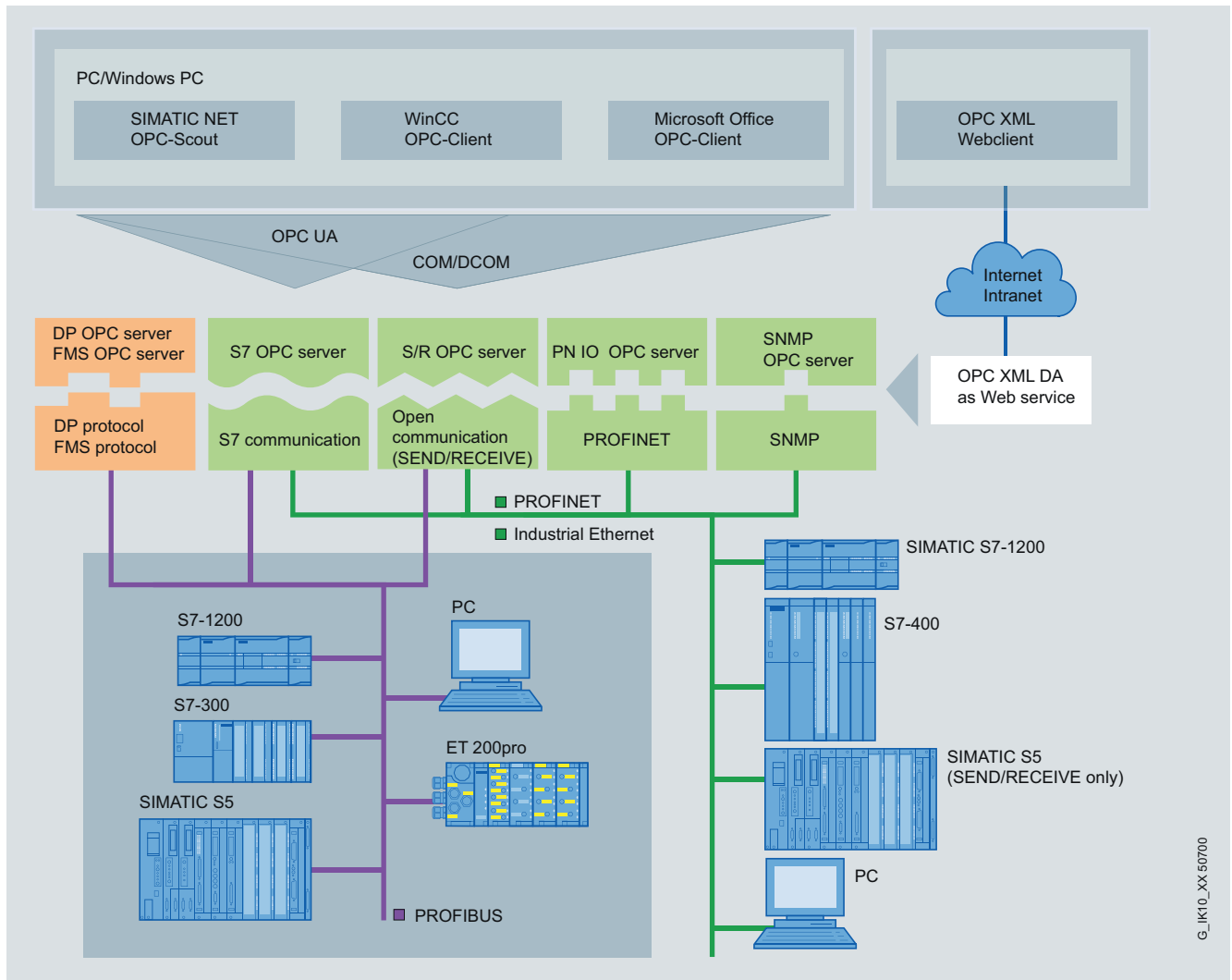
Communication – PROFIBUS

SOFTNET for PROFIBUS

| Ordering data | Order No. | Order No. |
|---|-----------|--|
| SOFTNET-PB S7 Software for S7 communication, incl. FDL protocol with OPC server and NCM-PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621 SOFTNET-PB S7 V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation | D | 6GK1 704-5CW08-1AA0 |
| SOFTNET-S7 Edition 2008 (V7.1) for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation | D | 6GK1 704-5CW71-3AA0 |
| Software Update Service Software Update Service for 1 year, with automatic extension; Prerequisite: Current software version | D | 6GK1 704-5CW00-3AL0 |
| Upgrade • from Edition 2006 or higher to SOFTNET-S7 Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V8.1 | D | 6GK1 704-5CW00-3AE0 6GK1 704-5CW00-3AE1 |
| SOFTNET-PB DP Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, for CP 5611 A2, CP 5711, CP 5621 SOFTNET-PB DP V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation | D | 6GK1 704-5DW08-1AA0 |
| SOFTNET-DP Edition 2008 (V7.1) for Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation | D | 6GK1 704-5DW71-3AA0 |
| Software Update Service Software Update Service for 1 year, with automatic extension; requirement: current software version | D | 6GK1 704-5DW00-3AL0 |
| Upgrade • from Edition 2006 or higher to SOFTNET-DP Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1 | D | 6GK1 704-5DW00-3AE0 6GK1 704-5DW00-3AE1 |
| SOFTNET-PB DP Slave Software for DP slave, with DP OPC server and NCM PC, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5711, CP 5621 SOFTNET-PB DP Slave V8.1 for 32/64 bit: Windows 7 Professional/Ultimate; for 64 bit: Windows 2008 Server R2 English/German • Single license for 1 installation | D | 6GK1 704-5SW08-1AA0 |
| SOFTNET-DP Slave Edition 2008 (V7.1) for 32 bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German • Single license for 1 installation | D | 6GK1 704-5SW71-3AA0 |
| Software Update Service Software Update Service for 1 year, with automatic extension; requirement: current software version | D | 6GK1 704-5SW00-3AL0 |
| Upgrade • from Edition 2006 or higher to SOFTNET-DP Slave Edition 2008 or V8.1 • from V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1 | D | 6GK1 704-5SW00-3AE0 6GK1 704-5SW00-3AE1 |

D: Subject to export regulations: AL: N and ECCN: 5D992

Overview



System integration with OPC server

- Standardized, open multi-vendor interface
- Interfacing of OPC-capable Windows applications to DP, FMS, S7 communication and open communication (SEND/RECEIVE) based on the FDL interface
- OPC Scout with browser functionality as an OPC client and OCX-Data-Control/.NET Data Control for simple OPC client creation
- The relevant OPC servers are supplied with each communication software package

PC-based Automation

Communication – PROFIBUS

OPC server for PROFIBUS

Technical specifications

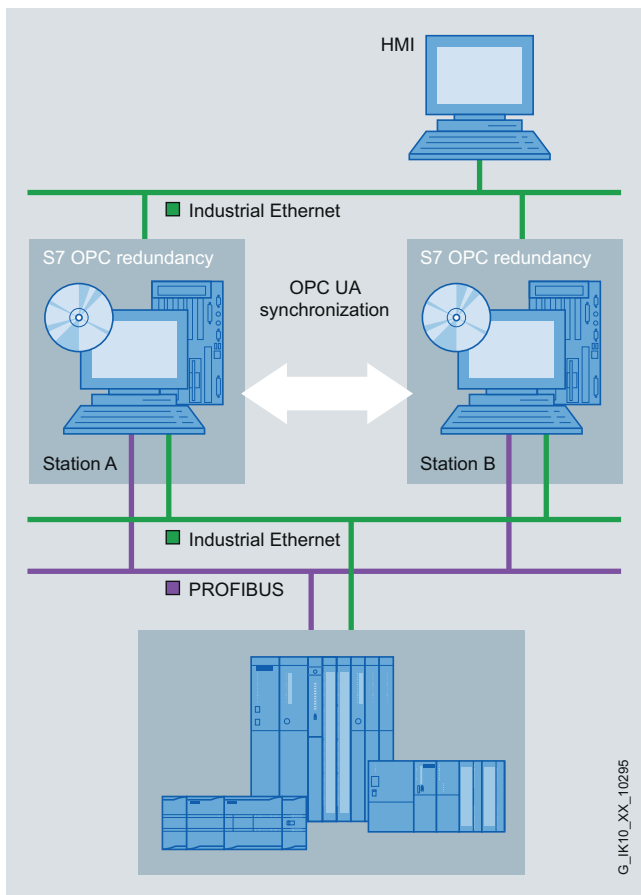
| | | | |
|-------------|---|--|---|
| Programming | <ul style="list-style-type: none"> • Synchronous and asynchronous reading and writing of variables • Monitoring of variables using the OPC server with a signal to the client when a change occurs • Use of quantity operations; so a large amount of data can be processed in a short time. | Product versions HARDNET-PB DP HARDNET-PB S7 FMS-5613 SOFTNET-PB S7 SOFTNET-PB DP SOFTNET-PB DP slave CP 5603/CP 5613 A2/CP 5623/ CP 5614 A2 and CP 5624 with DP-Base Software | include OPC servers for: PROFIBUS DP, XML-DA S7 communication, XML-DA FMS communication, XML-DA S7 communication, XML-DA PROFIBUS DP, XML-DA PROFIBUS DP slave, XML-DA Open communication (FDL) PROFIBUS DP Master, Access to DP-slave of the CP 5614 A2/CP 5624, XML-DA |
| Interfaces | <ul style="list-style-type: none"> • Custom Interface (C++, NET); for high OPC performance • Automation Interface (VB, Excel, Access, Delphi, ...) for ease-of-use • Graphics with OCX or .NET Data Control; for configuring instead of programming • OPC XML-Interface for Data Access | | |
| Protocols | <ul style="list-style-type: none"> • S7 communication • Open communication (SEND/RECEIVE) • PROFIBUS DP • PROFIBUS FMS | | |

Overview

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 Mbit/s. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

Design



Redundant use of OPC servers

Ordering data

Order No.

S7 OPC Redundancy

Software for redundant OPC servers, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A

S7 OPC Redundancy V8.1 for PROFIBUS

for 64-bit Windows 2008 server R2; English/German

• Single license for one installation D

6GK1 706-5CW08-1AA0

Software Update Service

for 1 year with automatic extension; requirement: current software version

6GK1 706-5CW00-3AL0

D: Subject to export regulations: AL: N and ECCN: 5D992

PC-based Automation

Notes

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