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Siemens Digital Industries Webinari
CI1: Industrial networks

Siemens Digital Industries Webinari 1/2



Datum	Tema	Predavač
14.04. / 19.05.	FA1: Motion Control	<i>Darko Živković, Jelena Đukić</i>
15.04. / 14.05.	FA2: Energy Management System	<i>Zoran Jovanović</i>
22.04. / 21.05.	FA3: Redundantni kontroleri serije S7-1500R/H	<i>Mirko Milovanović</i>
05.05. / 26.05.	FA4: WinCC Unified	<i>Mirko Milovanović</i>
15.04. / 13.05.	MC1: DT konfigurator	<i>Nenad Bakal, Pavle Dragišić</i>
23.04. / 22.05.	MC2: Sizer, large drives	<i>Miloš Marković, Pavle Dragišić</i>
06.05. / 26.05.	MC3: Sizer, motion drives	<i>Miloš Marković, Pavle Dragišić</i>
 21.04. / 21.05.	CI1: Industrial Networks	<i>Jelena Đukić</i>

Siemens Digital Industries Webinari 2/2



Datum	Tema	Predavač
16.04. / 15.05.	PI1: PI Academy world	<i>Andrijana Popara, Miljan Miljanić, Marko Marić</i>
24.04. / 22.05.	PI2: PI workshop for specialist	<i>Andrijana Popara, Miljan Miljanić, Marko Marić</i>
08.05. / 29.05.	PI3: #New@PI	<i>Andrijana Popara, Miljan Miljanić, Marko Marić</i>
30.04. / 29.05.	AE1: Digitalna rešenja u procesnoj industriji	<i>Jelena Đukić, Marko Milenković</i>
29.04.	CP1: Control Panel Online Symposium	<i>Siemens worldwide webinar</i>
22.04. / 27.05.	CP2: Clever engineering in the control panel	<i>Tijana Džodžo</i>
28.04. / 12.05.	CP3: New series of signaling devices 3SU	<i>Tijana Džodžo</i>
21.04. / 20.05.	CP4: SIRIUS 3RW Soft starters	<i>Bojan Janković</i>
07.05. / 28.05.	DE1: Siemens Digital Enterprise	<i>Zoran Jovanović</i>

Današnji predavač

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Jelena Đukić

Responsibility

Sales Professional for DCS and
Industrial Communication

Contact

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Industrial Communication and Identification

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[siemens.com/net](https://www.siemens.com/net)

Industrial Networks have critical requirements which need to be addressed



High Availability

To avoid significant economic losses or other damages



Robustness

Extreme temperatures, dusty or corrosive environments



Flexibility

Optimization and innovation causes changing production layouts



Determinism

Real-time requirements of automation tasks



Security

Threat of unauthorized access; secure remote access, e.g. for OEMs



Mobile Applications

Reliable communication e.g. for automated guided vehicles, monorails



Safety

Fail-safe communication to provide safety for operators and assets

- **Ring redundancy** e.g. with MRP, HSR, PRP,...
- Quick and easy replacement with **C-PLUG**
- **Fanless design** to avoid downtimes
- **FastConnect** cables and plugs
- **Modularity, KEY - PLUG**
- **Different interfaces** for electrical / optical connections
- **Guaranteed switchover** times in case of failures or **deterministic roaming** for wireless applications
- **Security modules** which fit to industrial security concepts
- **IWLAN RCoax Cable** for durable wireless connection during movement
- **Emergency shutdown over PROFINET** (wired as well as wireless)

Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



Remote



Wireless



CPs, Profinet and Profibus



Software



Cabling Technology



Industrial Identification & Locating

Optical Identification



RFID



RTLS



Industrial Ethernet with SCALANCE X

The right product for each application

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Layer 3 – High data throughput, high port density, modularity



Networking all the way to office IT

- Use on management level,
- Connection to office IT (high bandwidth, 19"-enclosure, many ports)
- Support of industry-specific technologies (ring redundancy, etc.)

Layer 2 – PROFINET, compact, robust, DIN rail mounting



Integration at the field level

- PROFINET – real-time capable, ring redundancy
- Compact design – small number of ports, DIN rail mounting
- Robust design – metal housing, fanless, extended temperature range

Industrial Networking with SCALANCE X

Powerful & reliable

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Simple device replacement +

- With C-PLUG also doable for untrained personnel

High availability +

- Industrial functions, industrial design
- Numerous certificates
- Redundant power supply

Robust design +

- Extended temperature range
- FastConnect cabling system

For all networks and media +

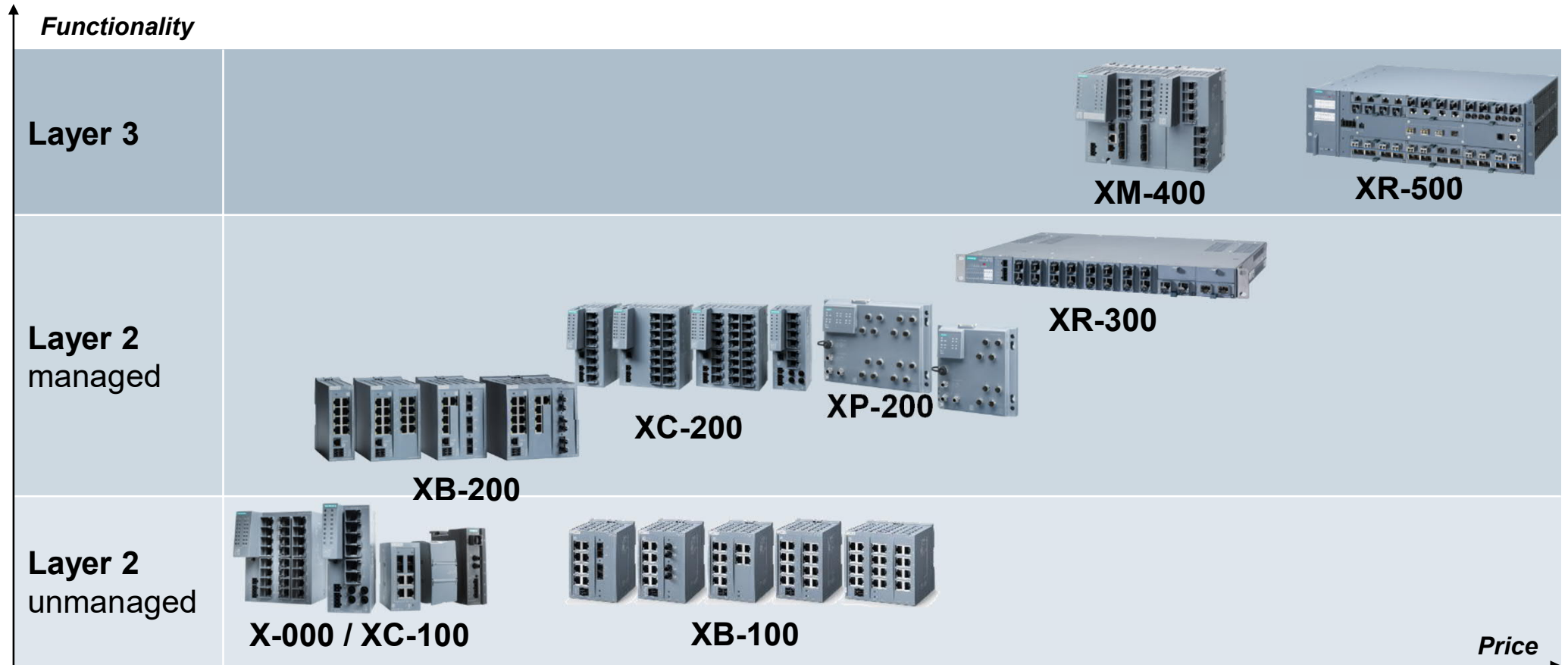
- Bandwidth: 10/100/1000 Mbit/s, 10 Gbit/s
- Electrical and optical

Easy to handle +

- Web Based Management
- TIA-Portal Integration
- Command Line Interface

SCALANCE X: The perfect switch for every application

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Unmanaged SCALANCE X-000 and X-100 Machine-oriented networking



Highlights



Feature / function	Benefit
Attractive price / performance ratio	▶ Cost-optimized switches with typical functions for the industry
Variants optionally with Fast Ethernet and Gigabit Ethernet	▶ Increased productivity through higher data rates
LED diagnostics or signal contact	▶ Reduced downtimes - thanks to fast error detection
Approvals (e.g. Ex-zone 2, shipbuilding licenses, E1)	▶ Reduced spare parts inventory through use in many industries

Managed SCALANCE X-200 and X-300 (Layer 2) Networking in the field level



Highlights



Feature / function	Benefit
Large portfolio with many different designs - also for the cabinet-free use	One-stop shopping due to a complete portfolio
Numerous redundant configuration options	Increase efficiency by enhanced plant availability
Various diagnostic options, e.g. by LED, signal contact, PROFINET, SNMP	Reduced downtime through rapid detection of error sources
Easy device replacement with removable data storage medium C-PLUG	Further reduction of downtime in case of error

SCALANCE XC-200

The new managed product line for universal usage



Characteristic/function
Versions with SFP ports: Gigabit capable and electively single and multimode
Electrical and optical Gigabit ports
VLAN, RSTP, HRP, MRP, IGMP
Temperature range: -40 °C to +70 °C
It can be switched between PROFINET and EtherNet/IP in one device
Mounting on wall, DIN rail, S7-300 or S7-1500 mounting rail
Trackside railway approval (EN 50121-4)
ATEX Zone 2 / IECEx, cULus HazLoc, FM, Marine approvals







Benefits
Flexibility due to freely selectable SFP transceivers, depending on the cable length and performance that is needed
A broad spectrum for challenging applications (e.g. camera applications)
Many FW functions allow flexible usage of the switches
Use in areas with harsh environmental conditions
Use in new markets/industries when manufacturer-neutral controllers are used
Many mounting options for quick and convenient mounting
Permitted for rail operations (trackside)
Wide range of additional permits for worldwide operation in a variety of areas

SCALANCE XC-200EEC

Additional features/functions and benefits



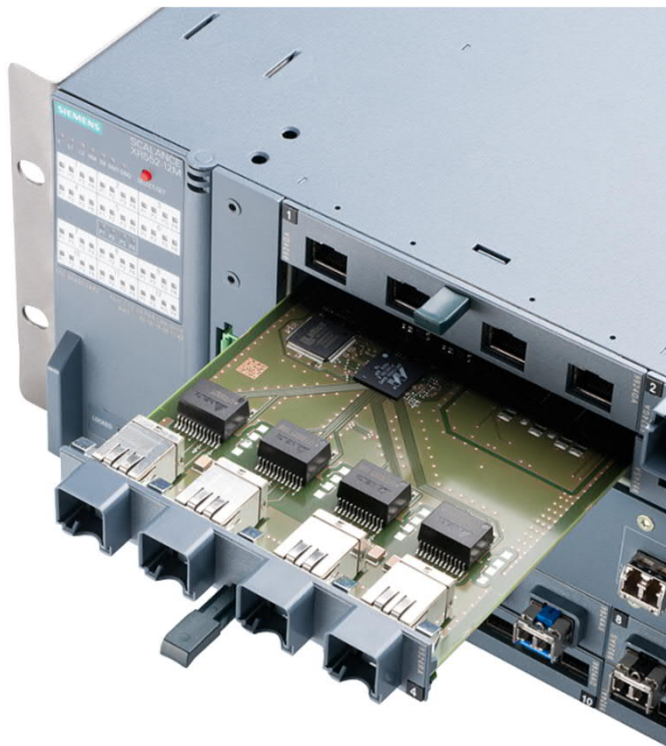
The SCALANCE XC-200EEC product line supports all hardware and firmware features of the entire SCALANCE X-200 line and in addition:

Characteristic/function	Benefits
NAMUR NE 21-compliant, conformal coating, mounting altitude up to 4000 m	Suitable for use in all established process control systems e.g. PCS 7
S2-system redundancy 	Full integration in SIMATIC PCS 7 and thereby consistent system diagnosis with PROFINET
CiR/H-CiR 	Change of configuration and/or replacement during operation
 =  +  + 	<p>For unrestricted application in process automation IO-Devices have to support at least the following functionalities:</p> <ul style="list-style-type: none"> - Basic S2-system redundancy - Media Redundancy Protocol (MRP) - Configuration in Run (CiR) <p>To tag those IO-Devices clearly, which fulfill PA's requirements of availability and configuration during operation, Siemens uses the symbol PA ready</p>

Managed SCALANCE X-400 and X-500 (Layer 2/3) Connection to conventional enterprise networks



Highlights



Feature / function

High flexibility e.g. through modular construction, Comboports, Layer 2 or Layer 3

Suitable for industry (PROFINET) and office (voice, video)

Industrial Ethernet Switches with up to 10 Gbit/s

Easy device replacement with C-PLUG, redundant power supply, „hot-swappable“

Benefit

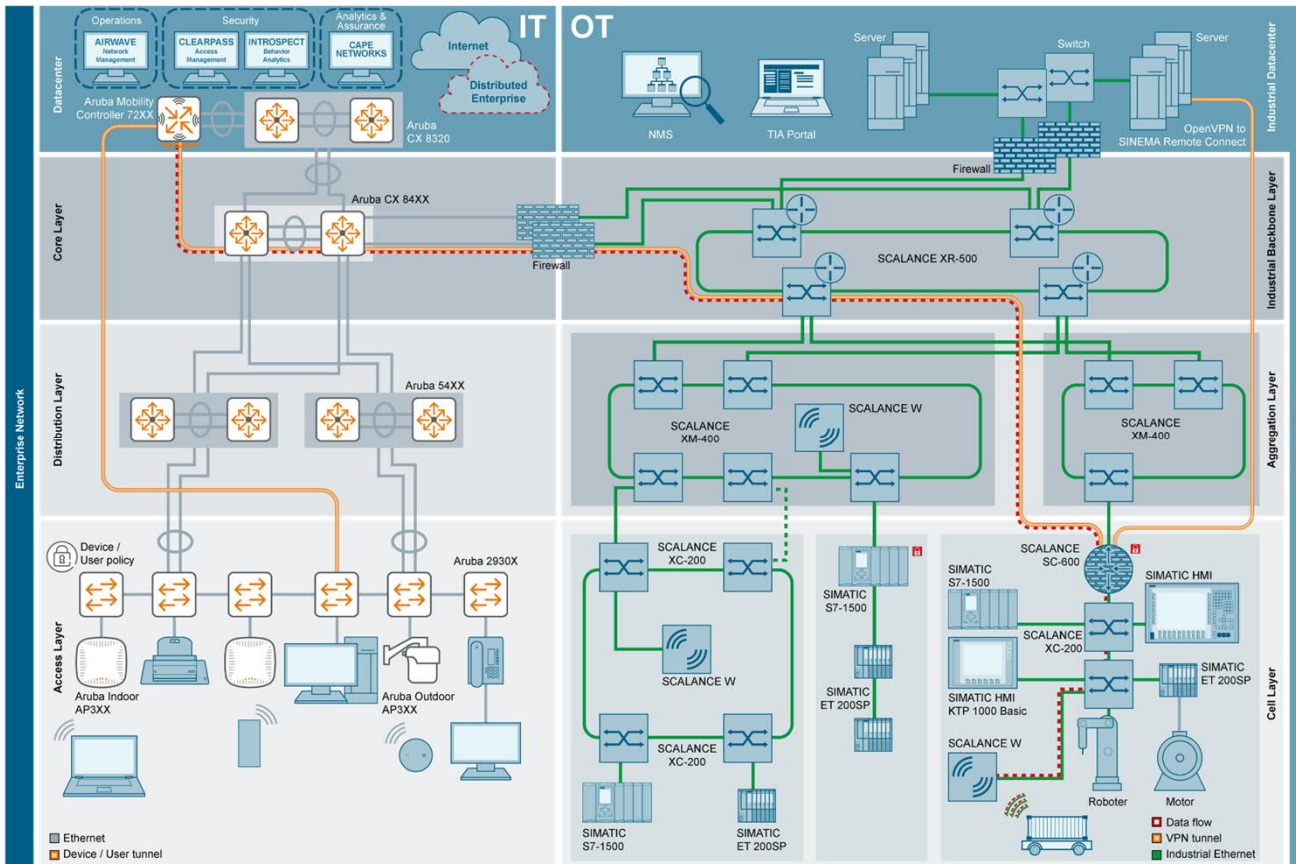
▶ **Investment protection** through easy adaptation to changing requirements

▶ **Cost reduction** through functional connection of office and production in just one device

▶ **Future-proof** due to very high data transfer rates

▶ **Increased productivity** by enhanced plant availability

We offer a tested architecture and a proven record of interoperability **SIEMENS** Ingenuity for life



- Enhance customers' productivity, efficiency and flexibility
- Secure end-to-end industrial network from the field level up to the data center
- Improve user experience and application visibility
- Proven interoperability for network concepts

Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



Remote



Wireless



CPs, Profinet and Profibus



Software



Cabling Technology



Industrial Identification & Locating

Optical Identification



RFID



RTLS



RUGGEDCOM

Key markets



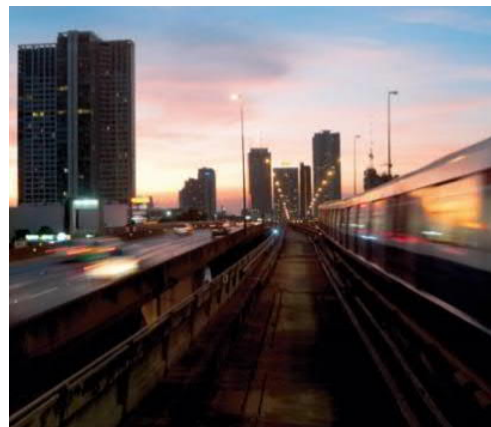
RUGGEDCOM Products...

...provide a level of robustness and reliability that have set the standard for communications networks deployed in harsh environments.

“ Our products are at their best when the environment around them is at its worst. ”



Electric Power



Transportation



Industrial



Defense

Product portfolio overview



Layer 3 Routers



Cellular routers



Layer 2 Switches



Private Wireless



Power Injectors



Serial Device Servers



EoVDSL Modems



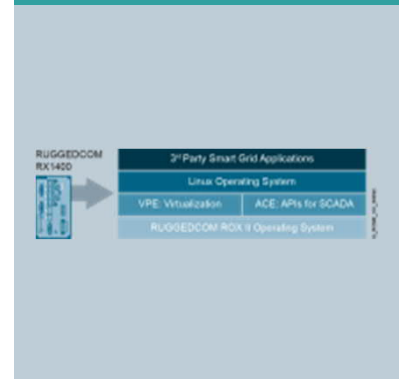
Media Converters



Software



Application Solutions



Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



Remote



Wireless



CPs, Profinet and Profibus



Software



Cabling Technology



Industrial Identification & Locating

Optical Identification



RFID



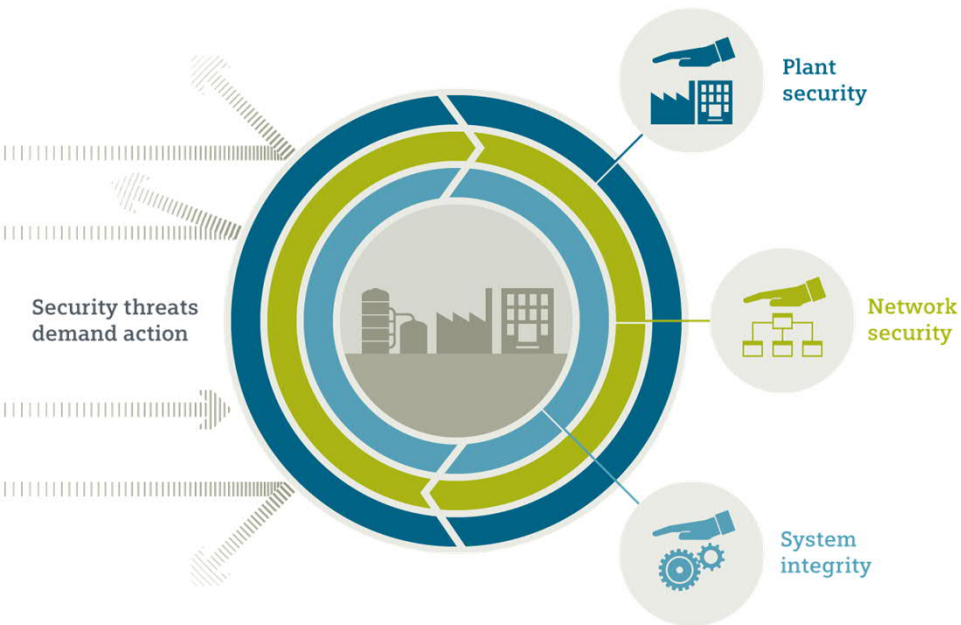
RTLS



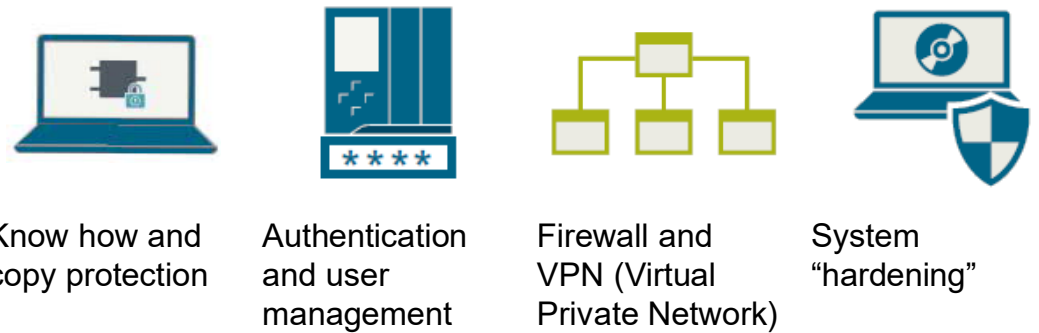
Industrial Security Offering from Siemens



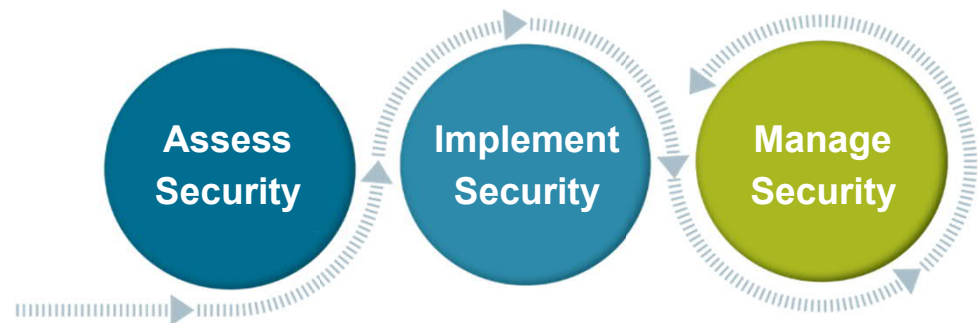
The Siemens security concept – “Defense in Depth”



Siemens products and systems offer integrated security



Siemens Plant Security Services



Industrial security appliances – SCALANCE S

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Industrial Security Appliance SCALANCE S



SC632-2C

SC636-2C

S615

SC642-2C

SC646-2C

Security appliances – SCALANCE S

Protection of industrial networks with SCALANCE SC-600

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Feature / function

Firewall or encryption performance approx. 600 Mbps or 120 Mbps

Virtual Private Network: VPN (IPsec) only SC642-2C and SC646-2C

- **Up to 6 ports**
- **2 of them designed as combo port**
- **Stateful packet inspection firewall**
- **NAT/NAPT**

Implementation of a flexible security zone concept

TIA Portal¹⁾ and SINEC NMS²⁾ integration

Integration into SINEMA Remote Connect

Benefits

High data throughput and the best possible data security in the network

Eavesdropping and integrity protection

- Configurable ports – depending on requirements and quantity structure
- Combo port can be equipped with SFPs for FO topologies

- Protection against unauthorized network access
- Integration of networks with identical IP addresses (e.g. series machine case)

Network separation, DMZ (e.g. for secure remote maintenance)

Network management and integrated engineering in the TIA Portal

Secure remote access to machines and plants

¹⁾ TIA Portal V15 or higher

²⁾ Planned start of delivery in 9/2018

Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



Remote



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Industrial Identification & Locating

Optical Identification



RFID



RTLS



Telecontrol

Components of telecontrol plant

Control Center

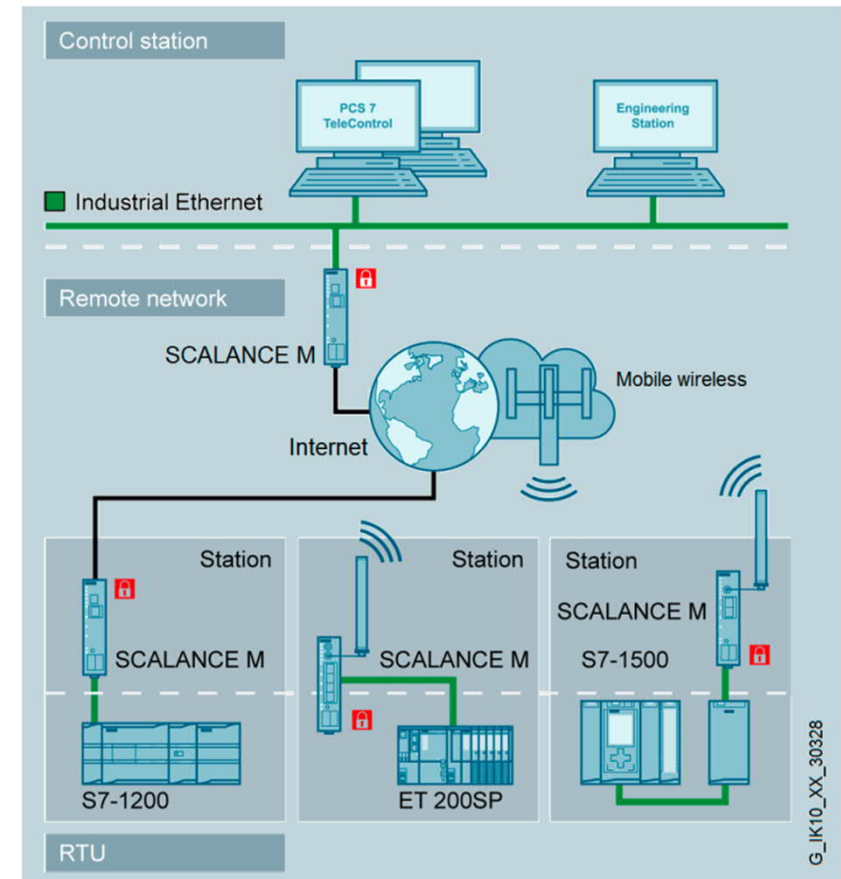
Central Control and monitoring of distributed telecontrol stations. The control center is composed of visualization or SCADA software, appropriate telecontrol products for telecontrol protocols and if necessary node stations and products for connecting to public or private networks (Remote Networks).

Substation or Remote Terminal Units (RTU)

Remote Terminal Units (RTUs) are located at substations of telecontrol plants and monitor and control a wide spread measuring points and processes. Depending on complexity of task different RTUs are used. Required process instrumentation (actuator and sensors) are directly connected to the RTUs.

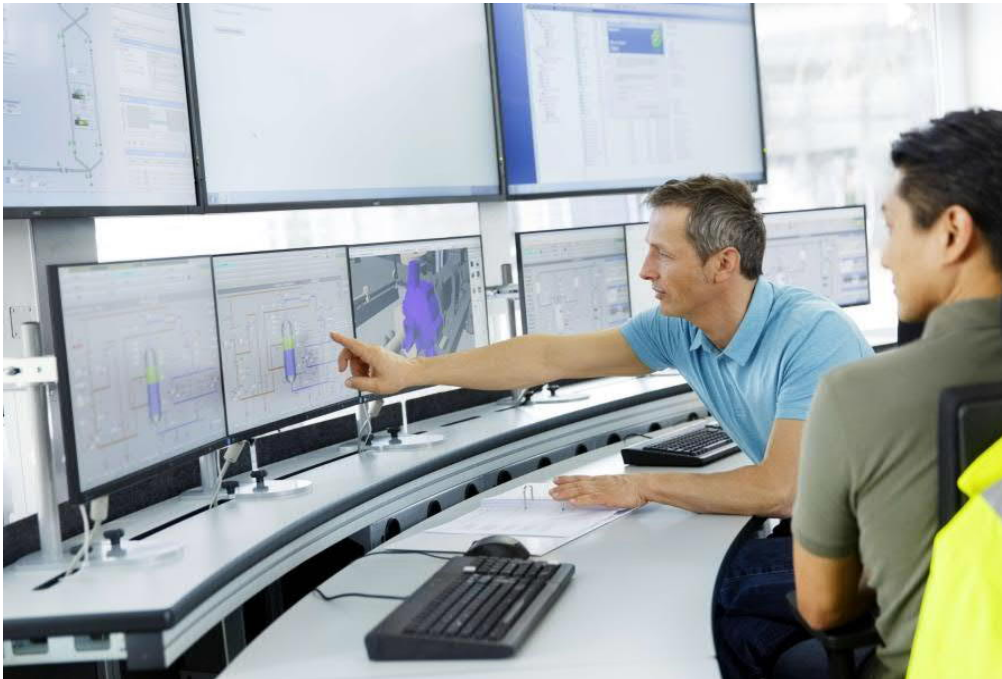
Remote Network

Siemens offers an extensive portfolio of modems and industry routers for the connection of telecontrol stations to the control center.



Telecontrol Solution for the control center

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Telecontrol solutions for control center can be used independently of each other or combined with each other.

Depending on the Telecontrol applications, there are different products for the control center to support different telecontrol protocols:

Control center with TeleControl Basic

A control center with TeleControl Server Basic is based on the TeleControl Basic transmission protocol. It supports a very high number of substations and is used to transmit small amounts of data via mobile wireless and the Internet. The connection to the HMI or SCADA software of the control center is made via OPC (UA) interface.

Control center with IEC 60870-5, DNP3 or SINAUT ST7 protocol

Control centers with SINAUT ST7 protocol or with open telecontrol protocols IEC 60870-5-101/104 or DNP3 support a wide range of network structures including redundant transmission paths. They are therefore suitable for the transmission of large amounts of data via a wide variety of communication networks (private and public networks, mobile wireless, Internet). Various SCADA and DCS systems (e. g. WinCC, PCS 7, etc.) provide software to support the various telecontrol protocols.

SCALANCE M

Wireless Public portfolio overview

NEW

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		SCALANCE M874-2	SCALANCE M874-3	SCALANCE M876-3	SCALANCE M876-4
WAN interfaces		2G / EDGE	3G / HSPA+	3G / HSPA+ CDMA2000 / EV-DO	4G / LTE
Number of IE ports		2	2	4	4
DI/DO		1/1	1/1	1/1	1/1
FW/VPN (IPsec)/ NAT		Yes	Yes	Yes	Yes
OpenVPN (Client)		Yes	Yes	Yes	Yes
VRRP/RSTP		Yes	Yes	Yes	Yes
WBM / CLI		Yes	Yes	Yes	Yes
TIA Portal		Yes	Yes	Yes	Yes
EN 50155 (no Conformal Coating)		No	No	No	Yes
Data rate	Downlink	Up to 237 Kbit/s	Up to 14,4 Mbit/s	Up to 14,4 Mbit/s	Up to 100 Mbit/s
	Uplink	Up to 237 Kbit/s	Up to 5,76 Mbit/s	Up to 5,76 Mbit/s	Up to 50 Mbit/s
Country versions		-	RoW, CN	RoW, ROK	EU, NAM



SCALANCE M

Wired portfolio overview



		SCALANCE M812-1	SCALANCE M816-1	SCALANCE M826-2	SCALANCE M804PB
WAN interfaces		ADSL2+	ADSL2+	SHDSL	Industrial Ethernet
Number of IE ports		1	4	4	2
DI/DO		1/1	1/1	1/1	1/1
FW/VPN (IPsec)/ NAT		Yes	Yes	Yes	Yes
OpenVPN (Client)		Yes	Yes	Yes	Yes
VRRP/RSTP		Yes	Yes	Yes*	Yes
WBM / CLI		Yes	Yes	Yes	Yes
TIA Portal		Yes	Yes	Yes	No**
C-PLUG / KEY-PLUG		No	Yes	Yes	Yes
Annex		A, B, J	A, B, J	n.a.	n.a.
Data rate	Downlink	Up to 25 Mbit/s	Up to 25 Mbit/s	Up to 15,3 Mbit/s	9,6 kbit/s ... 12 Mbit/s
	Uplink	Up to 1,4 Mbit/s	Up to 1,4 Mbit/s	Up to 15,3 Mbit/s	9,6 kbit/s ... 12 Mbit/s

 = public  = private

*only RSTP
**in work

Redundant connection of a RTU based on S7-1500

Task

Two RTUs / measuring stations are to be integrated into a control center. For the connection of the outstations, Internet connections are available via DSL as well as mobile communications; one station is to be connected over a redundant path.

Solution

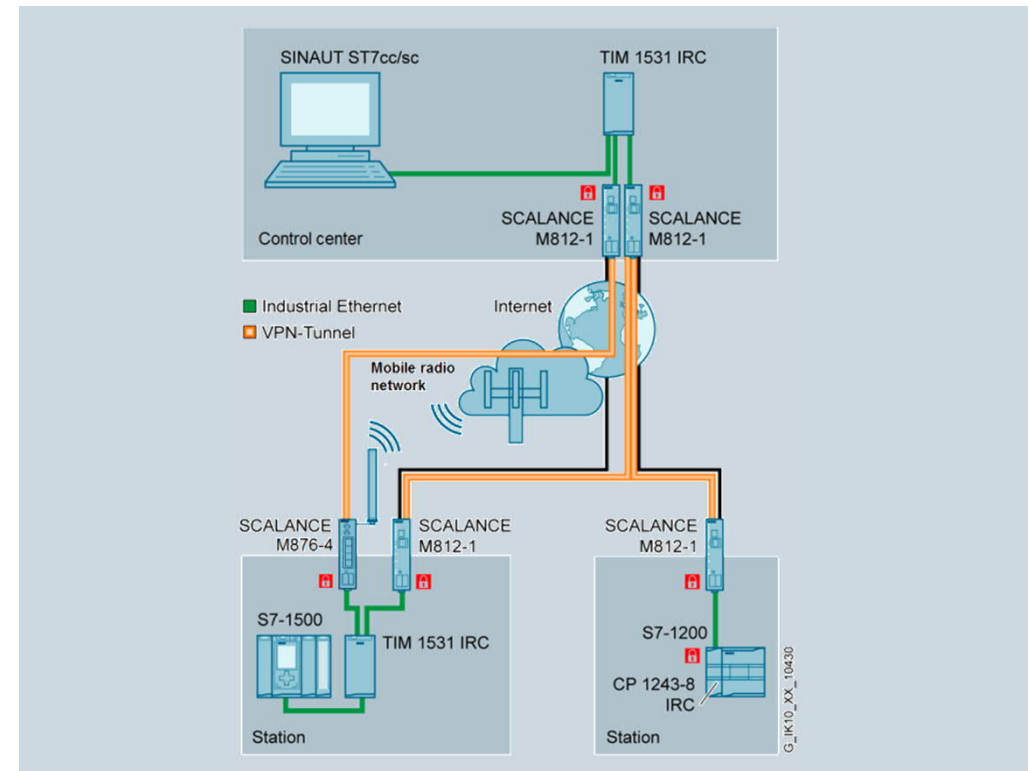
The outstations are based on the S7-1500 and S7-1200.

Station 1 (S7-1500 with TIM 1531 IRC): A connection is implemented via the Ethernet interface of the TIM 1531 IRC and the SCALANCE M812-1. For the second connection path (backup connection), a SCALANCE M876-4 is used, which is connected to the TIM 1531 IRC using the second Ethernet interface.

Station 2 (S7-1200 with CP 1243-8 IRC): The CP 1243-8 IRC is connected to the control center by a SCALANCE M812-1 via DSL / Internet.

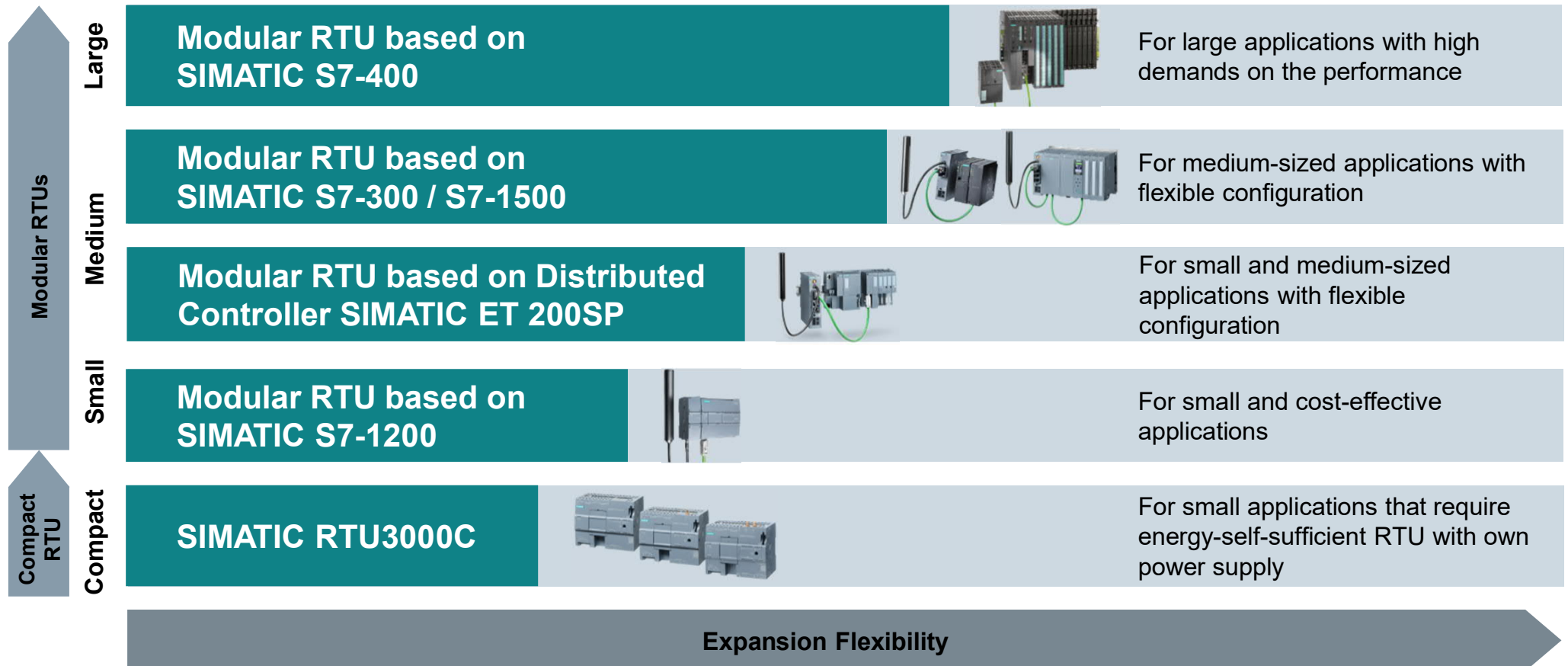
Benefit

- Based on the modular systems SIMATIC S7-1500 and S7-1200, optimally adapted RTU stations with low investment costs can be set up for the application.
- The availability of the systems is further increased through the optional use of path redundancy.
- Easy configuration of modular RTUs with TIA portal.



Redundant connection of RTU based on S7-1500 control center

Telecontrol RTU product portfolio



SIMATIC RTU3000C Highlights

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Security mechanisms ✓
 • OpenVPN tunnel
 • Encrypted e-mail connection

Web Server for configuration and diagnostics ✓

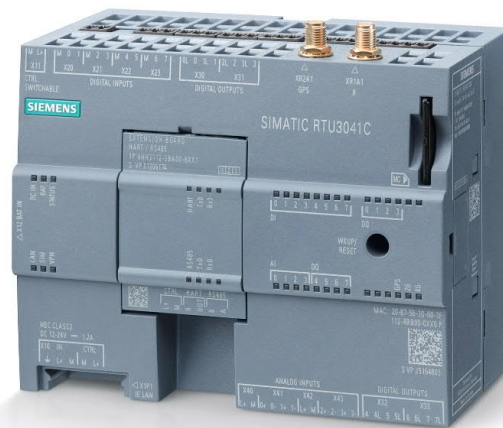
Remote reading and setting of I/Os ✓

Data logging on memory card ✓

Wake-up through SMS or phone call ✓

High degree of protection with IP68 external enclosure ✓

Localization und time synchronization via GPS (with RTU3031C / RTU3041C) ✓ **NEW**



Remote Access to HART-/Modbus-Devices on the Extension Board via SIMATIC PDM ✓ **NEW**

Remote communication ✓
 • via cellular radio 2G /3G /4G or via external routers **NEW**

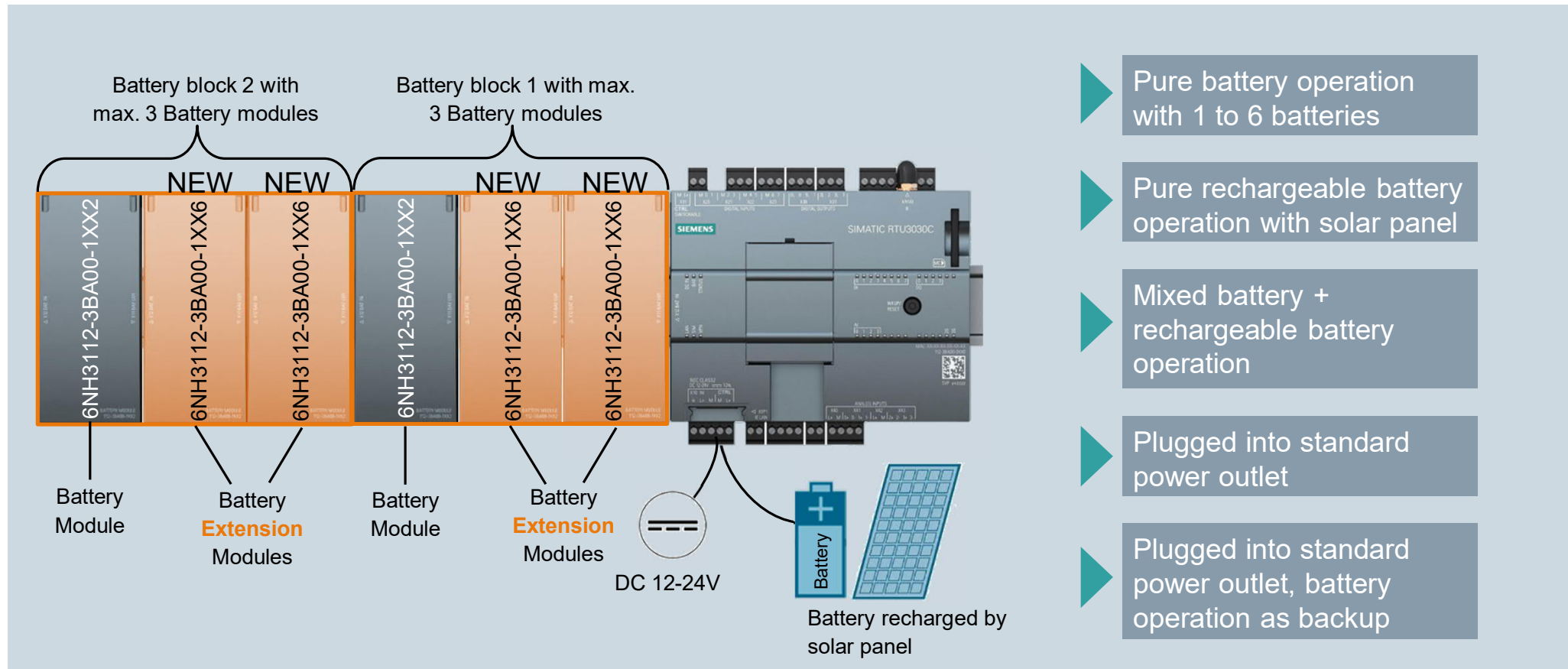
Communication ✓
 • SMS or e-mail
 • Event or time triggered
 • Telecontrol protocols: TeleControl Basic, DNP3, IEC 60870-5-104, SINAUT ST7
 • FTP-Client

Time synchronization via ✓
 • NTP
 • Telecontrol protocol
 • Cellular network

Expanded temperature range -40 to +70 °C (conformal coating) ✓



SIMATIC RTU3000C Power Source Options



SIMATIC RTU3000C

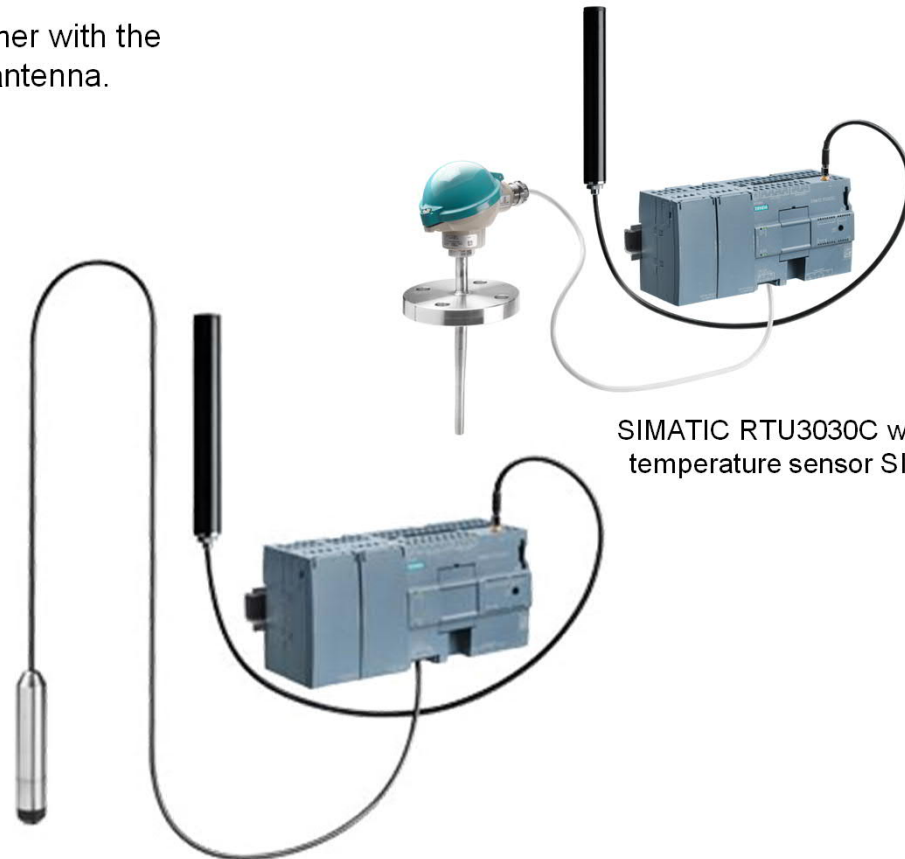
Typical Combination together with Sensors

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Battery-operated water meter SITRANS F M MAG 8000 together with the SIMATIC RTU3030C inside the external enclosure IP68 with antenna.



SIMATIC RTU3030C with antenna and pressure transmitter SITRANS LH100 for hydrostatic level measurement.



SIMATIC RTU3030C with antenna and temperature sensor SITRANS TS500.

SIMATIC RTU3000C

Monitoring of Measuring Stations via private radio system



Task

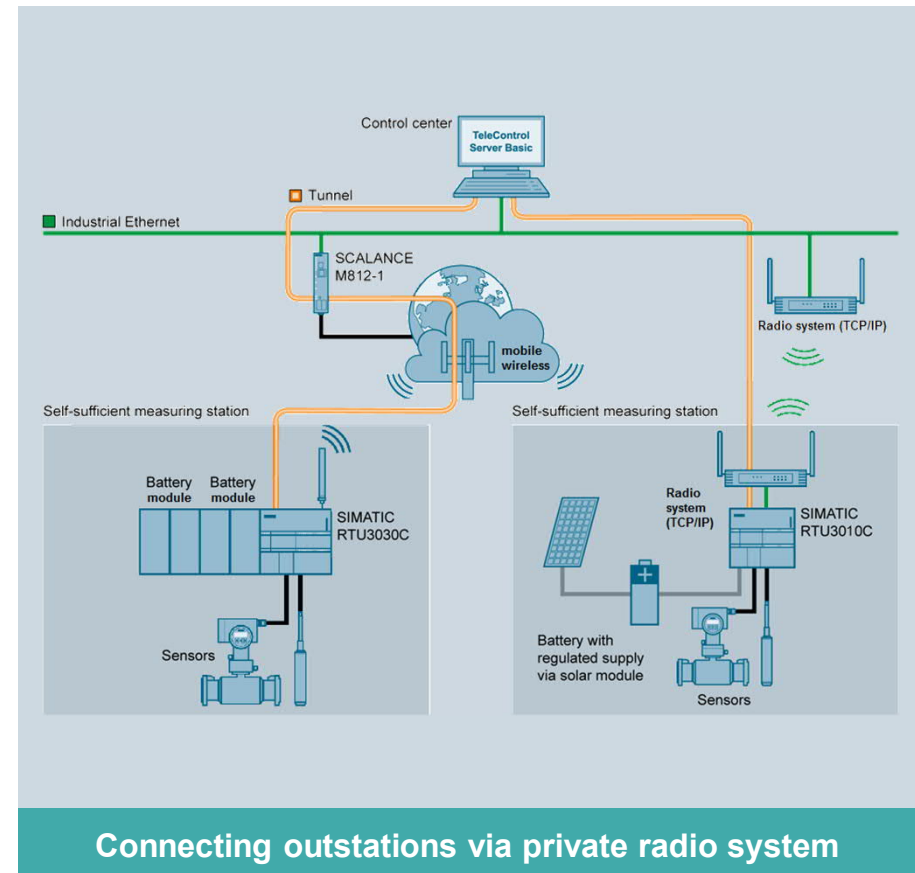
Monitoring of measuring stations at remote locations without connection to the power grid. If specified limit values are exceeded, an alarm is to be sent. Some outstations should be connected via private radio system.

Solution

The RTU3000C is operated without an external power supply and sends data to a control center with TeleControl Server Basic. Should extraordinary events defined by the user occur fault messages are sent with high priority to the control center. The RTU3010C supports the transparent data transmission e.g. private radio system (TCP/IP) to the control center via telecontrol interface.

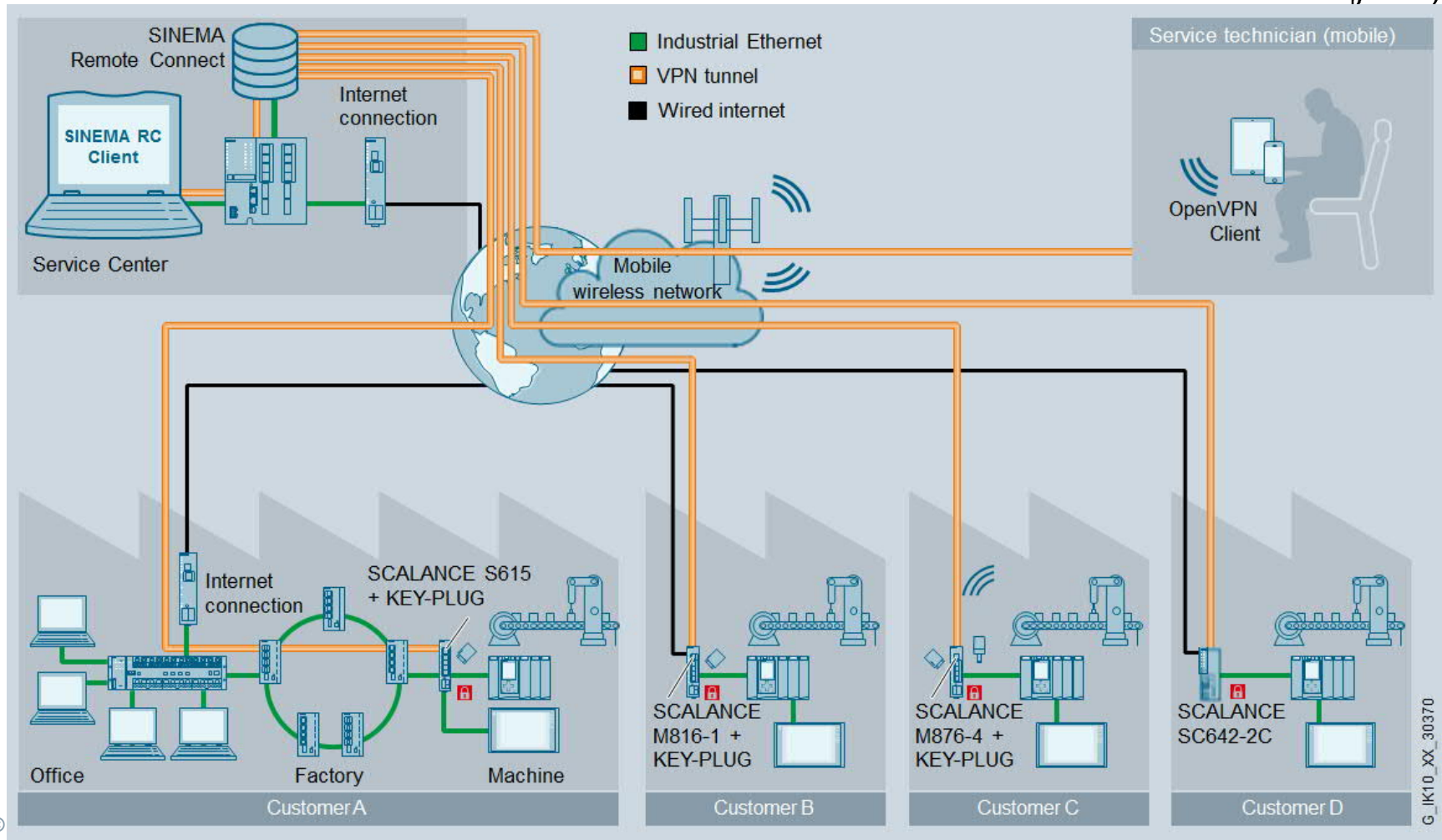
Benefit

Deployment location is not dependent on power grid availability. Reduction of the time and money required to monitor widely spread plants. Use of private Ethernet radio networks for connection of outstations in regions without cellular coverage.



Connecting outstations via private radio system

SINEMA Remote Connect and SCALANCE



SINEMA RC Wireless (4G/ LTE)



- SINEMA Remote Connect
 - Basic software for 4 VPN connections
 - SINEMA RC Client
 - License key on USB stick
- SCALANCE M876-4 (EU) industrial router (4G)²⁾
- KEY-PLUG SINEMA RC
 - Direct-mount antenna
 - Remote antenna with 5m cable

Article No. 6GK1720-0AP03
Price: please ask your sales representative

SINEMA RC (PROFIBUS/ MPI)



- SINEMA Remote Connect
 - Basic software for 4 VPN connections
 - SINEMA RC Client
 - License key on USB stick
- SCALANCE M804PB industrial router (PROFIBUS/ MPI)
- KEY-PLUG SINEMA RC

Article No. 6GK1720-0AP04
Price: please ask your sales representative

SINEMA RC LAN (4 VPN connections)



- SINEMA Remote Connect
 - Basic software for 4 VPN connections
 - SINEMA RC Client
 - License key on USB stick
- SCALANCE S615 Industrial Security Appliance
- KEY-PLUG SINEMA RC

Article No. 6GK1720-0AP02
Price: please ask your sales representative

SINEMA RC LAN (68 VPN connections)



- SINEMA Remote Connect
 - Basic software for 4 VPN connections
 - Upgrade of 64 VPN connections
 - SINEMA RC Client
 - License key on USB stick
- SCALANCE SC636-2C Industrial Security Appliance

Article No. 6GK1720-0AP05
Price: please ask your sales representative

Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



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RTLS



Industrial Wireless LAN: SCALANCE W - Powerful, safe and reliable

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Wide-ranging usage

- In the cabinet
- Wall and ceiling mounting
- Outdoor applications

High reliability

- Industrial-standard hardware
- iFeatures for industrial requirements
- Redundant wireless connection by iPRP

Powerful

Up to 1733 Mbit/s data rate with Dual Radio and 3 x 3:3 MIMO

Wireless communication

- Connection of mobile devices
- Flexibility without cables

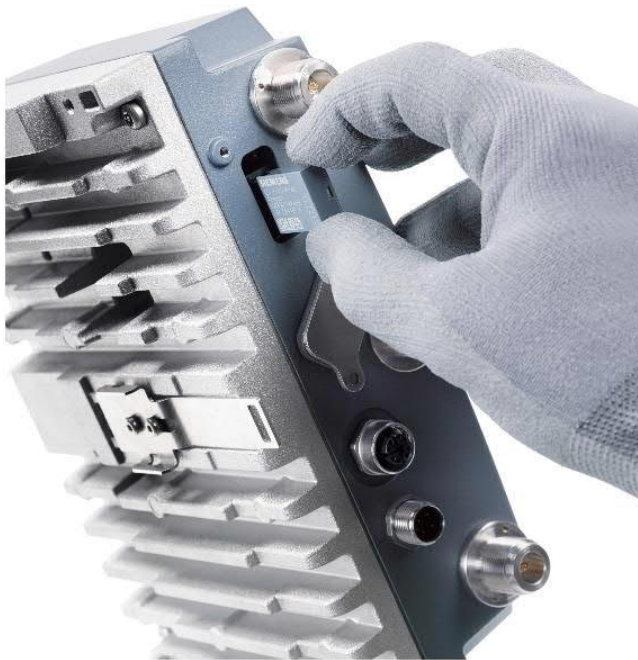
Easy handling

- Configuration via Web-based Management
- Integration into TIA Portal

Real-time wireless networks: Additional industry features activated by KEY-PLUG



Top highlights



Feature / Function	Benefit
<ul style="list-style-type: none"> • Real-time functionality, PROFINET IO, PROFIsafe, Determinism with iPCF 	<ul style="list-style-type: none"> • Safety over wireless • Connectivity to fast moving applications
<ul style="list-style-type: none"> • Wireless communication for free guided roaming subscribers (iPCF-MC) 	<ul style="list-style-type: none"> • Reliable communication also for mobile clients
<ul style="list-style-type: none"> • Redundancy for wireless communication (iPRP) 	<ul style="list-style-type: none"> • High availability and redundant applications possible
<ul style="list-style-type: none"> • Save and restore functionality 	<ul style="list-style-type: none"> • Easy recovery – reduced costs in service and configuration
<ul style="list-style-type: none"> • Blocking and firewall algorithms 	<ul style="list-style-type: none"> • Increased network security

Office environment: Manage wireless networks with controller-based SCALANCE W1750D-2IA RJ45 Access Point



Top highlights

Very high data rates
up to 1733 Mbps for high-density applications



No separate controller necessary
thanks to integrated controller functionality (virtual controller) for up to 64 and more access points



Reduced costs for cabling
thanks to Power-over-Ethernet



Investment protection
through state-of-the-art technology



Flexible use in indoor spaces
due to simple and discreet wall or ceiling mounting as well as a flat, modern design



The products SCALANCE W1750D deliver the combination of maximum performance, flexibility, scalability and centralized management in a single device.

Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



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Optical Identification



RFID

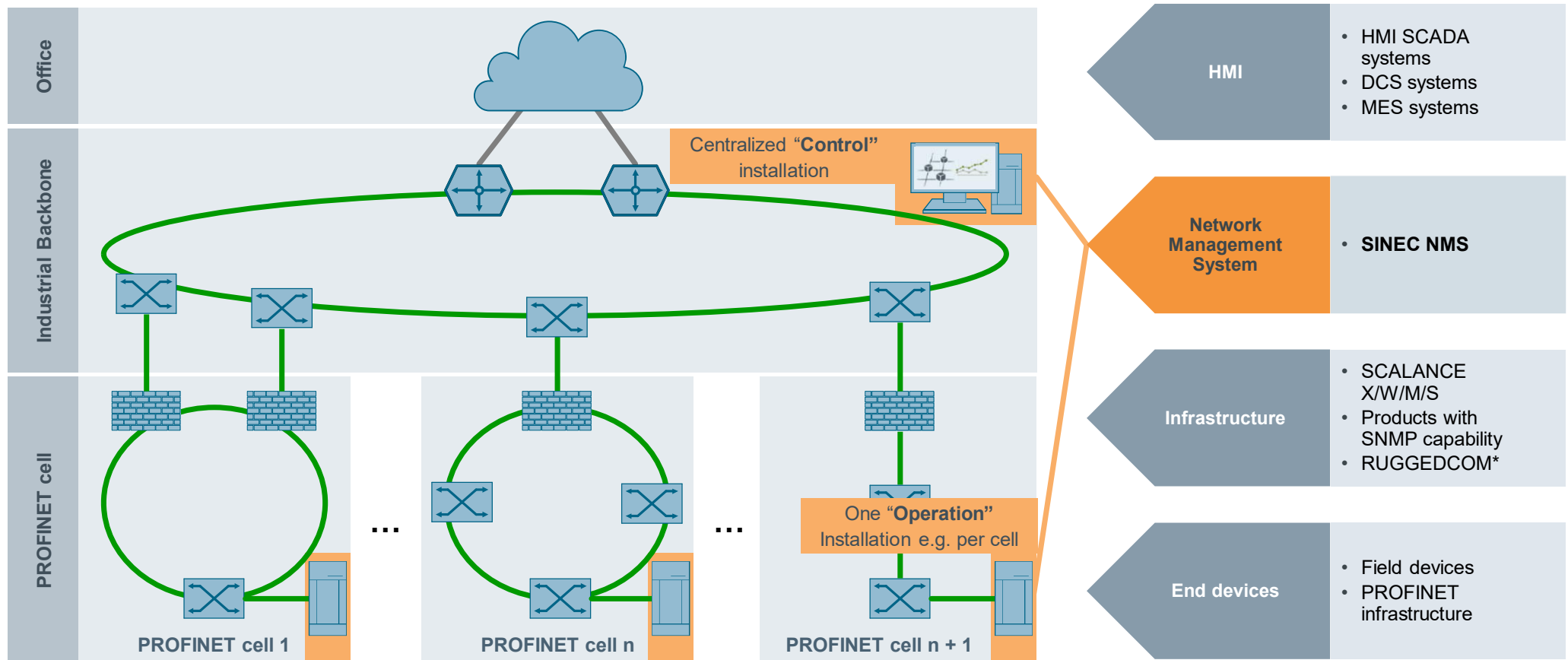


RTLS



Portfolio Positioning

Part of Siemens' integrated network management system



* V1.0: only monitoring

Top Highlights SINEC NMS

Maximum transparency for your industrial network

SIEMENS
Ingenuity for life

Graphical representation

- Topological recognition and representation of the network
- Integration into HMI / SCADA systems possible



Monitoring and diagnostics

- SNMP, PROFINET and SIMATIC mechanisms are being used
- Evaluation and presentation of diagnostic conditions



Automatic Documentation

- Permanent inventory and documentation of all network users



Management

- Device configuration via policy roll-out
- Firmware management
- Monitoring and management centrally and 24/7



Validation of network parameters

- Repeatedly check and document the essential characteristics of the network



Industrial Communication and Identification

Expertise in industrial networks and industrial identification



Industrial Communication

Industrial Ethernet



Rugged Communication



Security



Remote



Wireless



CPs, Profinet and Profibus



Software



Cabling Technology



Industrial Identification & Locating

Optical Identification



RFID



RTLS



The world's leading provider of identification systems –
with more than 30 years of proven technology and industry expertise

SIEMENS
Ingenuity for life

Optical Identification systems

- Reliable, flexible reading and verification of 1D/2D codes, text recognition and object recognition
- Teachable stationary readers for highest precision
- Handheld readers for maximum flexibility



RFID systems

- Read/write large amounts of data without visual contact
- HF-systems (high-frequency) for mid-range and compact environments
- UHF-systems (ultra-high-frequency) for long ranges with higher read speeds and bulk reading



Siemens offers a comprehensive, single-source range of RFID and Optical Identification systems to visualize your entire production chain and monitor your material flows at all times

SIEMENS

your reliable partner for path-breaking Industrial Identification



SIMATIC Ident Top Highlights

Competent partner



More than 30 years of experience in development and implementation of Industrial Identification

High investment reliability



Making use of open standards and international certifications

Long-term availability of products - perfectly matched and thoroughly tested components



Supreme profitability



Through a comprehensive and scalable portfolio

Highest reliability



Components with high protection class for harsh industrial environments

Reduced engineering costs



Through simple and seamless integration into Automation and IT systems

SIMATIC Ident masters various challenges in production and logistics



Target industries / applications



Production and Material Flow Management

- Order-related production control
- Decentralized availability of order data
- Correct sequencing of materials in production process

Asset Management

- Information about inventory and status in real-time
- Optimal utilization of tools and containers
- Error-free identification without any manual intervention

Track & Trace and Supply Chain Management

- Real-time synchronization of real flow of goods and digital world
- Complete transparency along the whole value added chain

Controlled plant and machine access in challenging industrial environments

Top Highlights - RF1060R



Feature / Function	Benefit
<ul style="list-style-type: none"> • Supports Standards ISO 15693¹⁾ and ISO 14443 A/B²⁾ (MIFARE) 	<ul style="list-style-type: none"> • Use of existing employee badges possible
<ul style="list-style-type: none"> • DLL for connection to Windows-based systems (Windows 7-10) 	<ul style="list-style-type: none"> • Simple integration into existing hardware (HMI devices and PC-based panels)
<ul style="list-style-type: none"> • Compact design with low mounting depth and flexible cable management 	<ul style="list-style-type: none"> • For applications with limited installation space, e.g. HMI panels
<ul style="list-style-type: none"> • 3-color-LED on front 	<ul style="list-style-type: none"> • User-friendly status information
<ul style="list-style-type: none"> • High degree of protection (IP65 front) and extended temperature range (-25° to +55° C) 	<ul style="list-style-type: none"> • Use on machines and plants in harsh industrial environments

1) Standard series for contactless identification cards – for frequency 13,56 MHz and reading distances up to 1,5m

2) Standard series for contactless smart cards – used for identification systems and access control

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Industrial Identification & Locating

Optical Identification



RFID



RTLS



The scalable locating platform for your Digital Enterprise



SIMATIC RTLS

Flexible and scalable +

Unique Hybrid Technology (supports both UWB and 2.4GHz locating)

Easily expandable to new applications and areas

Precise and reliable +

Real-time locating with accuracy down to centimeters

Developed and optimized for demanding industrial environments



Ease-of-Use +

Adaptable integration into IT systems via ISO standard interface

Innovative +

Delivers precise locating information for all production goods to control the Digital Factory

Comprehensive +

Global support for the implementation of locating solutions

Various applications for the Digital Enterprise – based on the same infrastructure



Applications



Production control

- Tool locating and management
- Work-in-progress tracking

Production logistics

- Complete material flow control
- Container management incl. visualization of information
- Direct work-piece locating

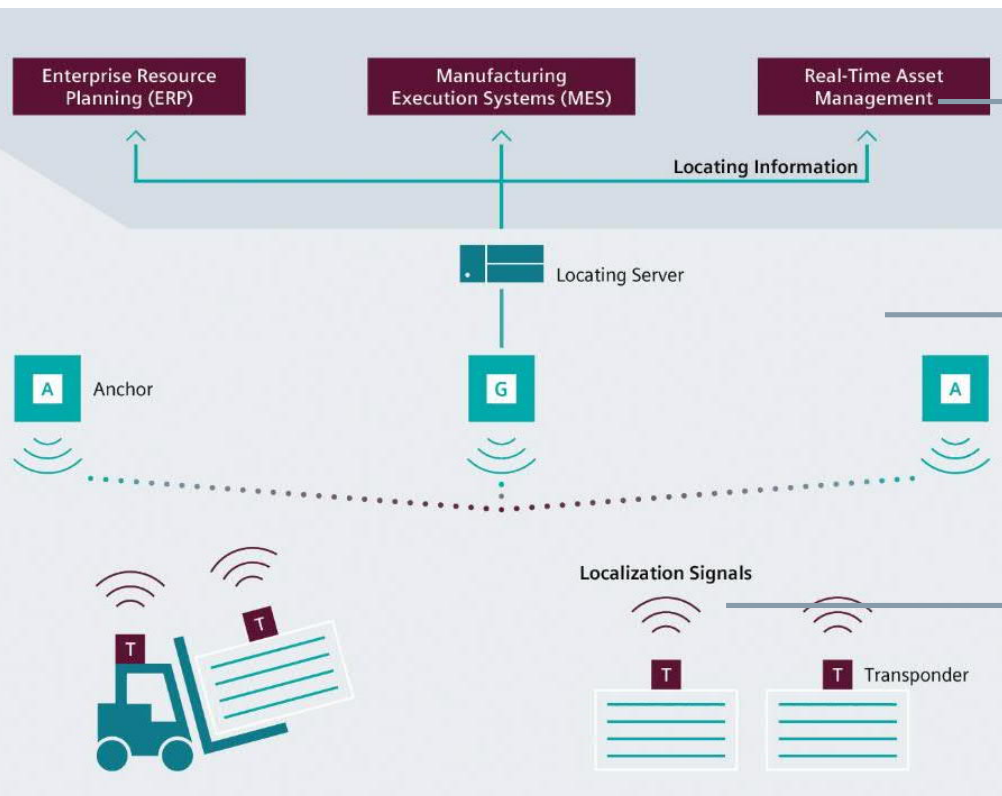
Fleet management

- Forklift locating with collision control
- Automated Guided Vehicles
- Yard management

The locating platform SIMATIC RTLS includes Hardware and Software components



System architecture



IT-Integration

Locating information and events are transmitted to higher-level systems via ISO standard interface



Locating Manager

Calculates the real-time position of transponders
Essential for commissioning and optimizing the solution



Hardware Infrastructure

Active transponders mounted on objects which send signals in user defined intervals
Anchors and Gateways collect the signal and transmit it via Gateway to the locating server



SIMATIC RTLS

Flexible transponders for a variety of applications



Top-Highlights transponder portfolio



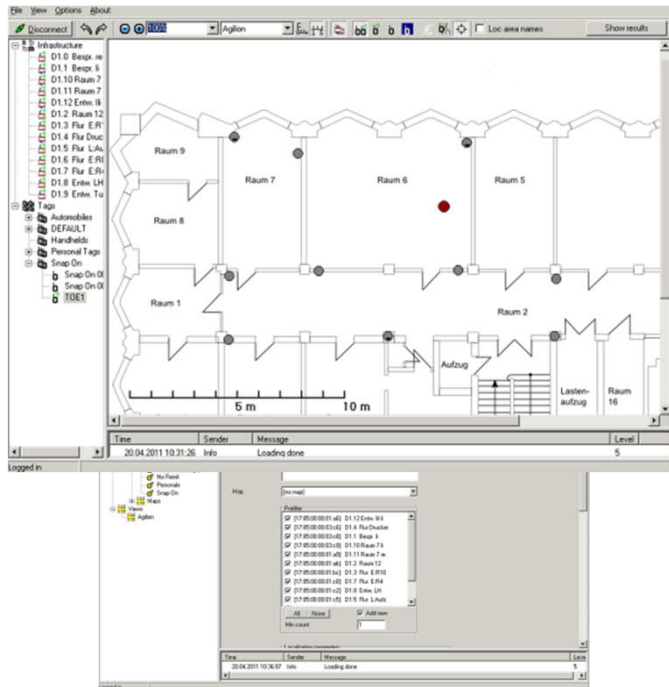
Feature / Function	Benefit
<ul style="list-style-type: none"> • Transponder with integrated e-Ink display 	<ul style="list-style-type: none"> ▶ • Visualization of information depending on location
<ul style="list-style-type: none"> • Bi-directional communication from and to the transponder 	<ul style="list-style-type: none"> ▶ • Data transfer from and to higher-level IT systems (e.g. sensor information)
<ul style="list-style-type: none"> • TDOA (Time Difference of Arrival) and TWR (Two Way Ranging) possible 	<ul style="list-style-type: none"> ▶ • Large transponder populations and battery saving operation
<ul style="list-style-type: none"> • Various models with large protection degree 	<ul style="list-style-type: none"> ▶ • Flexibility when choosing transponders
<ul style="list-style-type: none"> • External power supply or exchangeable battery available 	<ul style="list-style-type: none"> ▶ • Perfect portfolio fit for each application

SIMATIC RTLS

User friendly Software



Top-Highlights Software und Integration



Feature / Function

- Flexible license management
- Additional features can be bought individually
- ISO standard Interface
- Integrated 2D visualization
- Comprehensive commissioning tools

Benefit

- Optimal cost-benefit ratio
- Scope of performance can be adapted to customer requirements
- Flexible integration with higher-level IT systems
- Stand-alone visualization for simplified commissioning
- Individual parameterization of the application

Questions and Answers

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Thank you for your attention!

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