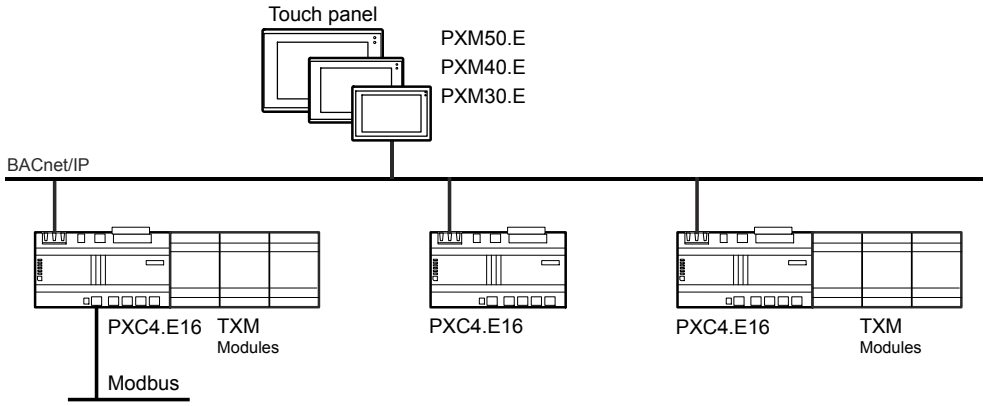
SIEMENS



Desigo™ PXC4 & PXC5

Planning overview

Engineering

Planning

A6V11973797_en--_c
2021-06-11

Smart Infrastructure

Contents

PXC4.E16 automation station

Description	Data sheet
Compact, freely programmable automation stations for HVAC and building services plants over BACnet/IP	A6V11646018

	PXC4.E16	PXC4.E16S
Total number of inputs / outputs (Onboard)	**16**	**16**
Number of universal inputs / outputs (UIO)	12	12
Number of relay outputs (DO)	4	4
Total number of inputs / outputs (Onboard + TXM)	**40**	**40**
Number of Modbus data points via RTU and/or TCP	40	0

PXC4 I/O modules

Type TXM1.xxx [1), 2)]	8D	16D	8U	8U-ML	8X	8X-ML	6R	6R-M	8P	8T	4D3R
Data sheet CM2Nxxxx	8172	8172	8173	8173	8174	8174	8175	8175	8176	8179	8188
Number of inputs / outputs	**8**	**16**	**8**	**8**	**8**	**8**	**6**	**6**	**8**	**8**	**7**
Number of universal inputs / outputs (UIO)			8	8							
Number of universal inputs / outputs (XIO)					8	8					
Number of relay outputs (DO)							6	6			3
Number of digital inputs (DI)	8	16									4
Number of triac outputs (TRIAC)										8	
Number of sensor inputs (P)									8		
Local override				●		●		●			
LCD indication				●		●					
3-colored status LED	●							●			●
Green status LED		●	●	●	●	●	●		●	●	
Energy consumption per module in mA [3)]	53	65	59	84	230	235	68	78	43	42	42

1) Each TXM module requires an address key. It can be ordered as a set: TXA1.K24
(Set with 24 I/O address keys)

3) Use module series D and higher

3) PXC4.E16 automation stations supply up to 300 mA to power I/O modules TXM.
A power supply module must be added if more current is required:
TXS1.12F10 (data sheet CM2N8183) or TXS1.12F4 (data sheet 149-476T).
Comply with all local laws and regulations.

UIO	Universal inputs / outputs support the following signal types: - Passive sensors LG-Ni 1000, 2x LG-Ni1000, Ni 1000 DIN, Pt 1000 (375, 385), NTC 10k, NTC 100k - Resistance sensors 1000 Ohm, 2500 Ohm, 2650 Ohm, 1000...1175 Ohm (for setpoint shift) - Active sensors DC 0...10 V. - Binary potential-free contacts for signaling functions - Counters to 25 Hz (electronic switches to 100 Hz) - Analog outputs DC 0…10 V
XIO	Universal inputs / outputs support the following signal types: - The same as UIO, plus - Current inputs 4...20 mA or 0...20 mA - Current output 4...20 mA to outputs 5 to 8
DO	Relay outputs AC 250 V for binary control, changeover contact (NO, NC, impulse)
TRIAC	TRIAC: Permanent contact, impulse, pulse width modulation
DI	Binary contact, state signal (NO/NC), signal impulse, counter 10 Hz (DI 1-8)
P	Resistance sensor Pt100 4-wire, 0…250 Ohm, Pt1000 / 0…2500 Ohm, LG-Ni1000

PXC5.E003 system controller

Description	Data sheet
System controller with BACnet/IP communication 1 x RS485 to integrate Modbus devices or subsystems via RTU and/or TCP 1 x RS485 to integrate MSTP devices	A6V11646020

Other devices

Description		Data sheet
PXM30.E PXM40.E PXM50.E	BACnet touch panels with integrated data storage and web functionality: 7.0 ", 10.1 ", 15.6 "	A6V11664137
PXG3.W100-2 PXG3.W200-2	BACnet/IP web interface with standard functionality BACnet/IP web interface with extended functionality	A6V12304192
PXM30-1 PXM40-1 PXM50-1	TCP/IP client touch panels with data storage in web server PXG3.Wx00-1: 7.0 ", 10.1 ", 15.6 "	A6V11664139

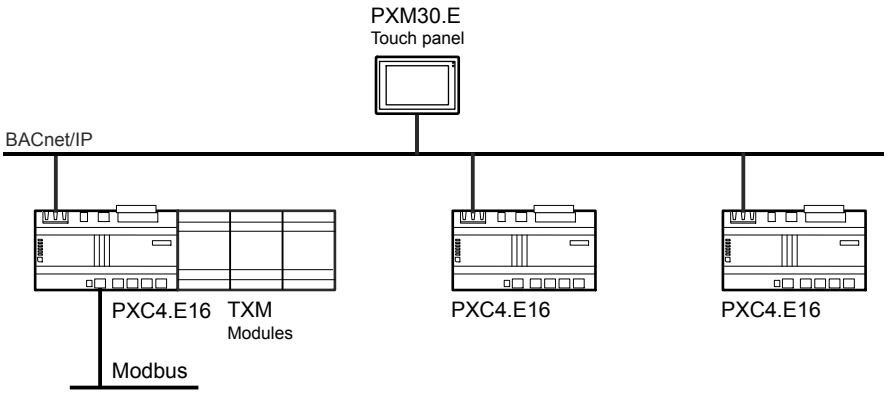
Accessories		Data sheet
PXA.V40	Wall-mount frame for installing the PXM40 in hollow walls	A6V11664137 A6V11664139
PXA.V50	Wall-mount frame for installing the PXM50 in hollow walls	A6V11664137 A6V11664139
PXA.S30	Mounting set for wall-mounting (surface mounting) the PXM30 or mounting on panel doors	A6V11646070

Additional documentation

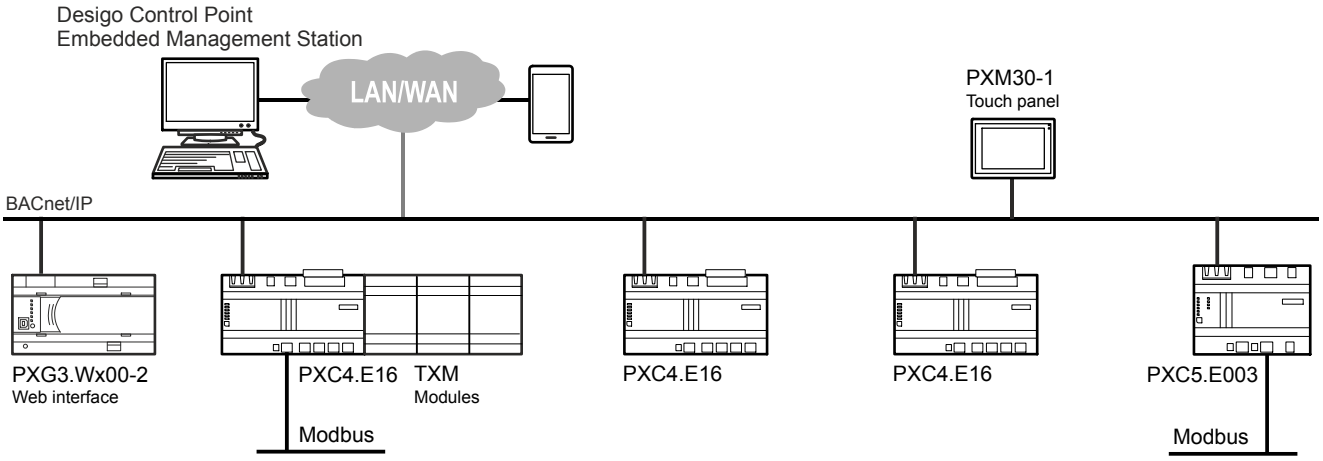
Description	Documentation
Desigo PXC4 & PXC5 product range overview	A6V11973782
Engineering and commissioning Desigo PXC4 & PXC5	
ABT Site online help	Part of ABT
Application libraries online help	Part of ABT
Desigo Control Point	
Basic documentation (Desigo)	A6V11170804
Desigo Touch panel client Commissioning	A6V11604303
User's guide	A6V11211557
Engineering manual (Desigo)	A6V11211560
Detailed technical documentation	
Application guide for BACnet networks in building automation and control	A6V11159798
Application guide for IP networks in building automation and control	A6V10630964
Ethernet, TCP/IP, MS/TP and BACnet technical principles	A6V10408751
IT security in Desigo systems	A6V10437207
IT security checklist for Desigo systems	A6V10863845
Desigo room automation DXR	
Desigo Room automation Product range description	A6V10866237
Desigo Room automation Engineering, mounting, and installation	CM111043
Onboard I/O functions for DXR2 room automation stations	CM110569

Typical topologies

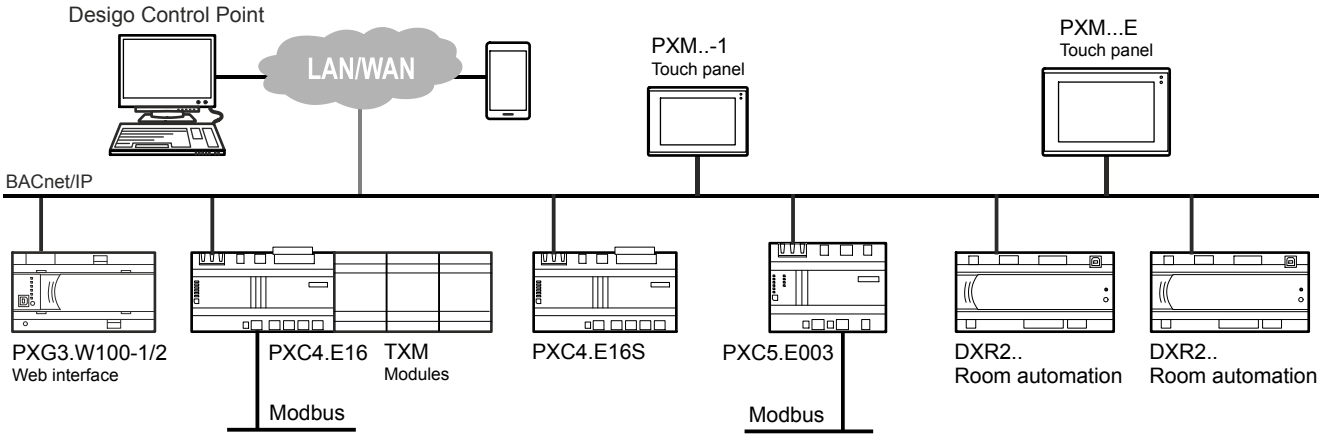
Some primary plants with a touch panel (20-100 data points)



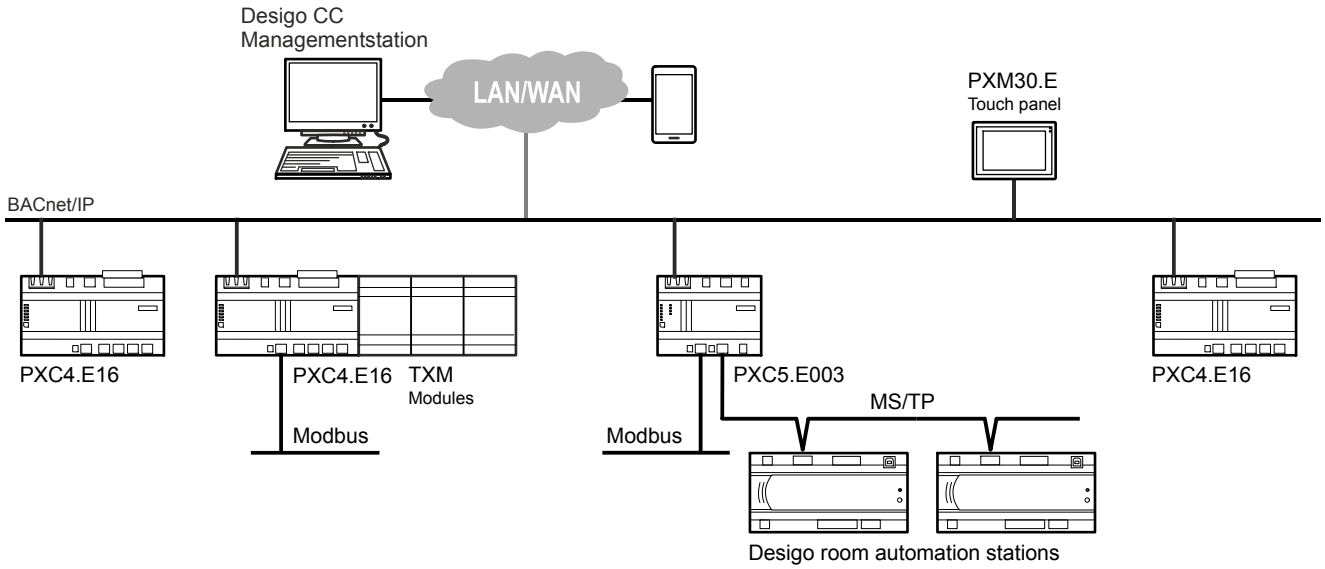
Small to mid-sized system with an embedded management station, primary plants, touch panels, and integration of Modbus subsystems (50-500 data points)



Mid-sized system with an embedded management station, primary plants, touch panel operation, and room automation on BACnet/IP (100-1000 data points)



System with Desigo CC management station, primary plants, touch panel operation, and room automation (500-1500 data points).



System functions and configuration

System functions	PXC4.E16, PXC4.E16S	PXC5.E003
BACnet profile (Rev. 1.15)	B-BC	B-BC
Time Master RTC (Real Time Clock) or NTP (Network Time Protocol)	Yes	Yes
BBMD (Broadcast Management Device)	Yes	Yes
Device monitoring: Life check of other BACnet devices	No	Yes
Web interface (via IP network, local WLAN access point, and Cloud)	Yes	Yes
Number of alarms	100	>500
Number of trend blocks	40	200
Number of trend entries	20'000	100'000
Number of schedulers	5	20
Schedulers: Number of switching points per day	20	20
Number of calendars	5	20
Number of BACnet objects	E16: 300 E16S: 220	1’000
Number of COV client objects	10	600
Number of COV server objects	50	600
Web interface – Local operation	Yes	Yes
Web interface – System-wide operation (for assigned devices)	No	Yes

Number of devices per network range	Recommended and tested limits [1]
Number of devices per BACnet Internetwork	Up to 1500 [1]
Number of IP segments per BACnet Internetwork	Up to 10 [1]
Number of devices per ABT Site project	500
Number of PXC4/5 and DXR devices per IP segment in mixed combinations	Up to 250
Number of PXC4/5 and DXR devices via integrated IP switch (Daisy chain)	Up to 20 in any combination
Number of MSTP networks per BACnet Internetwork	Up to 50
Number of Panels PXM30.E / 40.E / 50.E touch panels or PXG3.W100-2 / W200-2 web interfaces per IP segment	Up to 10
Number of PXM30-1 / 40-1 / 50-1 touch panels per IP segment	Up to 30
PXM30 / 40 / 50 and PXG3.W100-2 / W200-2: Max. number of assigned devices BACnet/IP devices MS/TP devices	 50 10
Max. number of assigned devices for web interface operation on PXC5.E003: BACnet/IP devices MS/TP devices	 50 10
Number of assigned devices for supervisory functions (Time sync, Life check etc.) per PXC5.E003	250
Number of Desigo CC management stations	1
Number of Modbus data points, integrated on one PXC4.E16	Up to 40
Number of Modbus RTU devices in field level network per PXC4.E16	Up to 31

Number of devices per network range	Recommended and tested limits [1]
Number of Modbus data points, integrated on one PXC5.E003 (via RTU and/or TCP)	Up to 500
Number of Modbus RTU devices in field level network per PXC5.E003	Up to 128 [2]
Number of MS/TP devices in field level network per PXC5.E003	Up to 60
Number of PXC4.Mxx and/or DXR MS/TP devices per PXC5.E003 (routing functionality)	Up to 60 [1]
Number of third-party MS/TP devices connected to a PXC5.E003	Up to 60 [3]

[1] These figures are based on system communication between the various units for typical systems. For addition information and details, e.g. on topology, communication, see: "Application guide for BACnet networks in building automation and control" (A6V11159798).

[2] The number of possible RTU devices depends on distance and baudrate. Using repeaters, it is possible to connect up to 247 Modbus devices in a network.

[3] Dependent on the behavior of the 3rd MS/TP devices

PXC4.M16 automation station

Description	Data sheet
Compact, freely programmable automation stations for HVAC and building services plants over BACnet MS/TP	A6V11937668

	PXC4.M16	PXC4.M16S
Total number of inputs / outputs (Onboard)	**16**	**16**
Number of universal inputs / outputs (UIO)	12	12
Number of relay outputs (DO)	4	4
Total number of inputs / outputs (Onboard + TXM)	**40**	**40**
Number of Modbus data points via RTU	40	0

PXC4 I/O modules

Type TXM1.xxx [1), 2)]	8D	16D	8U	8U-ML	8X	8X-ML	6R	6R-M	8P	8T	4D3R
Data sheet CM2Nxxxx	8172	8172	8173	8173	8174	8174	8175	8175	8176	8179	8188
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Number of relay outputs (DO)							6	6			3
Number of digital inputs (DI)	8	16									4
Number of triac outputs (TRIAC)										8	
Number of sensor inputs (P)									8		
Local override				●		●		●			
LCD indication				●		●					
3-colored status LED	●							●			●
Green status LED		●	●	●	●	●	●		●	●	
Energy consumption per module in mA [3)]	53	65	59	84	230	235	68	78	43	42	42

1) Each TXM module requires an address key. It can be ordered as a set: TXA1.K24
(Set with 24 I/O address keys)

3) Use module series D and higher

3) PXC4.E16 automation stations supply up to 300 mA to power I/O modules TXM.
A power supply module must be added if more current is required: TXS1.12F10
(data sheet CM2N8183) or TXS1.12F4 (data sheet 149-476T).
Comply with all local laws and regulations.

UIO	Universal inputs / outputs support the following signal types: - Passive sensors LG-Ni 1000, 2x LG-Ni1000, Ni 1000 DIN, Pt 1000 (375, 385), NTC 10k, NTC 100k - Resistance sensors 1000 Ohm, 2500 Ohm, 2650 Ohm, 1000...1175 Ohm (for setpoint shift) - Active sensors DC 0...10 V. - Binary potential-free contacts for signaling functions - Counters to 25 Hz (electronic switches to 100 Hz) - Analog outputs DC 0…10 V
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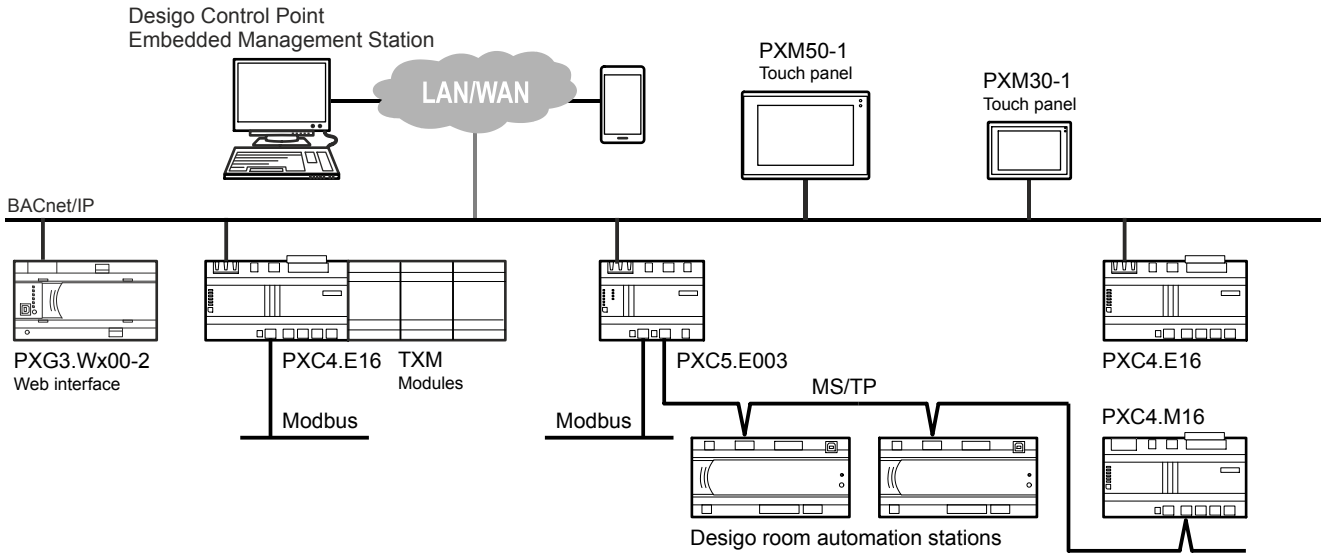
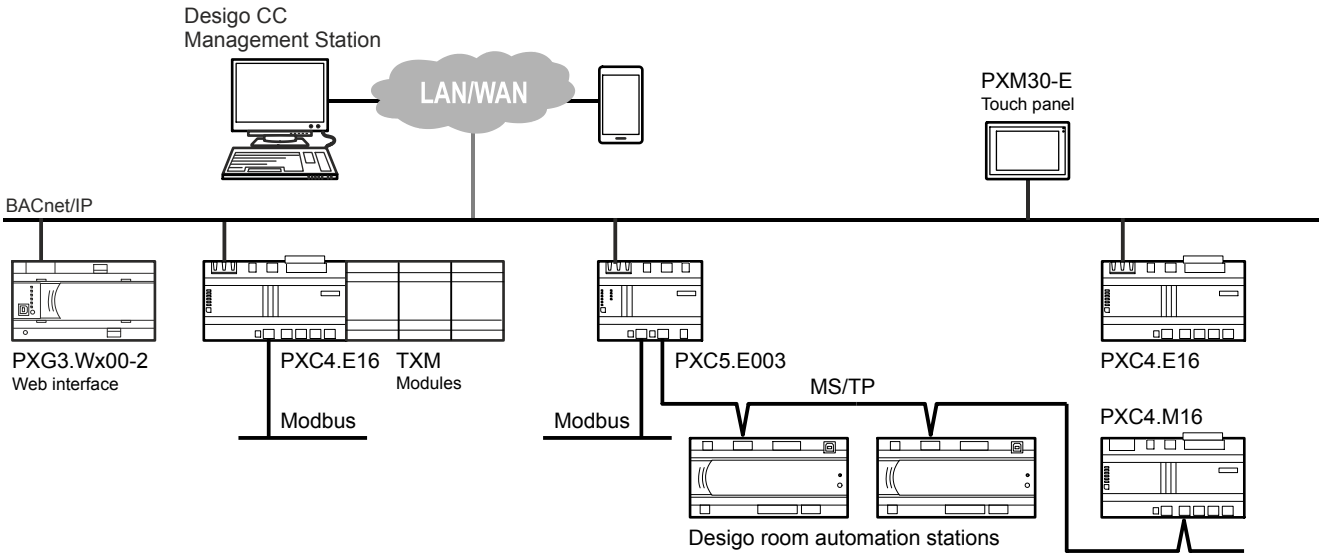
DO	Relay outputs AC 250 V for binary control, changeover contact (NO, NC, impulse)
TRIAC	TRIAC: Permanent contact, impulse, pulse width modulation
DI	Binary contact, state signal (NO/NC), signal impulse, counter 10 Hz (DI 1-8)
P	Resistance sensor Pt100 4-wire, 0…250 Ohm, Pt1000 / 0…2500 Ohm, LG-Ni1000

Typical topologies

Mid-sized system with an embedded management station, primary plants, touch panel operation, and room automation on BACnet MS/TP (100-1000 data points)



System with Desigo CC management station, primary plants, touch panel operation, and room automation on BACnet MS/TP (500-1500 data points).



System functions and configuration of MS/TP subnets

System functions	PXC4.M16, PXC4.M16S
BACnet profile (Rev. 1.15)	B-BC
Time Master RTC (Real Time Clock)	Yes
Web interface (via local WLAN access point)	Yes
Number of alarms	100
Number of trend blocks	40
Number of trend entries *(local only, not for upload to the system due to limitations of the MS/TP network)*	20'000
Number of schedulers	5
Schedulers: Number of switching points per day	20
Number of calendars	5
Number of BACnet objects	M16: 300 M16S: 220
Number of COV client objects	10
Number of COV server objects	50
Number of Modbus data points, integrated on PXC4.M16 (via RTU)	Up to 40
Number of Modbus RTU devices in field level network per PXC4.M16	Up to 31

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