SIEMENS

Desigo™

System controller

PXC5.E003

System controller for integration of BACnet/MSTP, Modbus, and KNX PL-Link devices

- System controller to integrate BACnet MS/TP, Modbus, and KNX PL-Link devices
- Communication BACnet/IP (BTL certified)
- 2-port Ethernet switch for low-cost cabling
- Integration of Modbus data points via RTU and / or TCP
- Integration of BACnet MS/TP devices
- KNX PL-Link bus to connect sensors and operator units (including bus power)
- WLAN interface for engineering and commissioning
- Operating voltage AC 24 V
- Mounted on standard rails or on the wall
- Plug-in screw terminal blocks

Functions

Freely programmable system controller.

- System functions (alarming, scheduling, trending, access protection with individually definable user profiles and categories)
- System controller for system networks with PXC3, PXC4, PXC5, PXC7 and DXR controllers over BACnet/IP, BACnet/SC, or BACnet MS/TP
- Integrates third-party devices and systems
- The following functions are available with KNX PL-Link bus:
  - Communication with room operator units and sensors.
  - Plug-and-play connection of Siemens field devices with KNX PL-Link.
- Generic object viewer for data points of several assigned devices via embedded web interface
- Generic object viewer for local data points and assigned devices via embedded web interface
- Engineering and commissioning with the ABT Site Tool using graphical function charts
- BTL tested BACnet communication on IP (BACnet/IP and BACnet/SC) or MS/TP, in compliance with the BACnet standard including B-BC profile (Rev. 1.15)
- Wireless connection for engineering and commissioning
- Cloud connectivity for remote access
- Integration of Modbus data points via RTU and / or TCP

Type summary

Type	PXC5.E003
Order number	S55375-C103 [1)]
Number of integration data points (Modbus TCP and/or RTU)	up to 500
Number of BACnet/MSTP devices per RS485 interface	up to 60 [2)]
Number of BACnet/SC devices as a BACnet/SC hub	up to 100
Number of KNX PL-Link devices	up to 64
Number of configurable RS485 interfaces either for integration of Modbus RTU or BACnet MS/TP	2

[1)] For details on engineering, see PXC4, PXC5 & PXC7 Planning overview, A6V13054435.

[2)] Depending on the behavior of the third-party MS/TP devices

Equipment combinations

KNX PL-Link devices

Description	Type	Data sheet
Wall-mounted temperature sensor	QMX3.P30	CM2N1602
Wall-mounted temperature and humidity sensor	QMX3.P40	
Wall-mounted temperature, humidity, and CO_2 sensor	QMX3.P70	
Wall-mounted temperature sensor and room operator unit	QMX3.P34	
Wall-mounted temperature and humidity sensor and room operator unit	QMX3.P44	
Wall-mounted temperature, humidity, and CO_2 sensor and room operator unit	QMX3.P74	

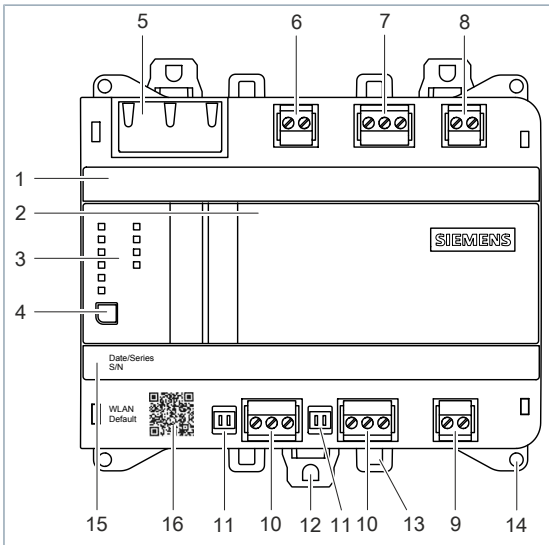
For details, see planning overview A6V13054435 and data sheets.

Desigo Control Point

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

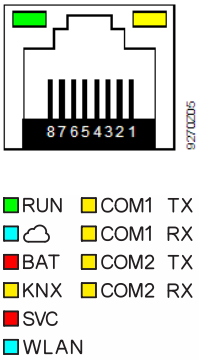
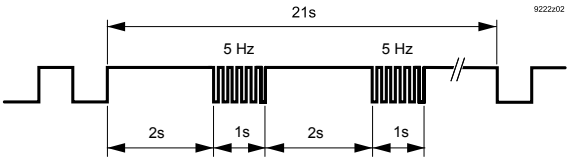
Technical and mechanical design

The compact build allows for mounting the devices on a standard rail or a wall.



1	Plastic housing	14	Holes for wall mounting
2	Front cover	15	Date / Series and Serial number
3	LEDs for communication and state	16	QR code for default WLAN access Description see Technical data
4	Service button (network login and WLAN on/off)		
5	2-port Ethernet switch with 2 LEDs per port for display purposes		
6	Plug-in terminal block with screw terminals KNX PL-Link		
7	Plug-in terminal block with screw terminals Power supply		
8	Plug-in terminal blocks with screw terminals Digital input, for future use		
9	Plug-in terminal block with screw terminals M-bus, for future use		
10	Plug-in terminal block with screw terminals COM1 / COM2 (MS/TP or Modbus)		
11	DIP switches for bus termination and polarization COM1 / COM2		
12	Slider for mounting on standard mounting rails		
13	Eyelets for cable ties		

LED displays

Activity	LED	Color	Activity	Function
	Ethernet 1/2	Green	Continuously ON Continuously OFF Flashing	Link active No connection Network traffic
		Yellow	Continuously ON Continuously OFF	Link 100 Mbps Link 10 Mbps
	RUN	Green	Continuously ON Continuously OFF Flashing	Device operational Device not operational Start-up or program halted
		Red	Continuously OFF Continuously ON Rapid flashing	OK HW or SW fault Firmware or application missing/corrupted
	☁	Blue	Continuously ON Continuously OFF	Connection to the cloud OK No connection to the cloud
	BAT	Red	Continuously OFF Continuously ON	Optional battery OK Optional battery empty - replace
	COM…	Yellow	Flashing Continuously OFF	Communication No communication to subsystem
	KNX	Yellow	Flashing Continuously OFF	Communication No communication to subsystem
	SVC	Red	Continuously OFF Flashing	OK Device is not configured
			Flashing per wink command	Identification of the device after receipt of wink command
				
	WLAN	Blue	Steady OFF Steady ON Flashing	WLAN inactive WLAN active and at least one WLAN client connected WLAN active and no WLAN client connected
	Service button		Press 0.2 ... 1 s Press 1 ... 3 s	Identification in the network Enable/disable WLAN WLAN is disabled automatically after 10 min if no client is connected
			As per description	Do the following to reset the device to factory state: 1. Power off the device. 2. Power on the device. 3. Wait until all LEDs light up and turn off again, then press the Service button. 4. Keep the Service button pressed until all LEDs light up, then release the button. All LEDs go off, the device restarts. 5. Wait until the device has fully started – unconfigured (green RUN LED and red SVC LED are flashing)

Product documentation

Related documents such as the environmental declarations, CE declarations, etc., can be downloaded from the following Internet address:

www.siemens.com/bt/download

Notes

Safety

⚠ CAUTION	
	**National safety regulations** Failure to comply with national safety regulations may result in personal injury and property damage. ● Observe national provisions and comply with the appropriate safety regulations.

Mounting position and ambient temperature

The devices can be snapped onto standard rails or screwed onto a flat surface.

Plug-in screw terminals connect power and interfaces.

Ambient temperature -5...50 °C (23...122 °F)	Ambient temperature -5...45 °C (23...113 °F)
● Wall, horizontal – From left to right – From right to left	● Overhead ● Wall, vertically – From top to bottom – From bottom to top ● On a horizontal surface

Installation

⚠ WARNING	
	**Electric shock** Incorrect installation of the device may lead to electric shock injuries when touching the device! ● Install the device in a lockable cabinet or use terminal covers. ● Do not install the device in locations where children are likely to be present. ● Conductors with a cross-section of 0.5 mm2 (AWG24) or greater shall comply with the requirements of IEC 60332-1-2 and IEC 60332-1-3 or IEC TS 60695-11-21.

Disposal

	The device is considered an electronic device for disposal in accordance with European Directive and may not be disposed of as domestic waste. ● Use only designated channels for disposing the devices. ● Comply with all local and currently applicable laws and regulations. ● Dispose of empty batteries at designated collection points.

Technical data

Power supply

Operating voltage (24 V~, ⊥, ⏚)	AC 24 V -15 / +20 % (PELV) AC 24 V Class 2 (US) 48…63 Hz
Functional ground (US) Functional earth ⏚	The terminal for the functional ground must be connected on the installation side with the building grounding system (PE).
Screw terminals for wire cross sections up to	Max. 2.5 mm^2 (14 AWG)
Internal fusing	3.15 A irreversible / non-replaceable
External supply line fusing (EU)	Non-renewable fuse max. 10 A slow-blow or circuit breaker max. 13 A Tripping characteristic B, C, D per EN 60898 or Power supply with current limitation of max. 10 A

Power consumption (for transformer planning)

Full load	**19 VA / 0.8 A**
Base load (without loading by KNX PL-Link and M-Bus)	12 VA / 0.5 A
KNX PL-Link supply	4 VA / 0.17 A
M-Bus supply, for future use	3 VA / 0.13 A

Function data

Hardware information	
Processor	NXP i.MX8 DualX, 1 GHz
Storage	1 GByte RAM 8 GByte eMMC

Data backup in the event of power failure
Energy reserve (Supercap) to support real-time clock (7 days). Energy reserve to support real-time clock can be extended using optional battery CR2032: depending on the life time of battery and use, typical 10 years. *(Battery safety requirement and specification for CR2032 according to IEC 60086-4 or UL1642.* *Battery must be rated for ambient temperature 70 °C (158 °F))* Low power of battery will be indicated by LED and a system alarm will be generated
Data available if stored to flash memory. Occurs every 5 minutes. The interval of 5 minutes is only valid for change log but not for trending. In case of a power failure, trend log data can be lost up to 30 minutes.

Interfaces

Ethernet interface	
Plug	2 x RJ45, shielded
Interface type	10Base-T / 100Base-TX, IEEE 802.3 compatible
Bit rate	10/100 Mbps, autosensing
Protocol	BACnet/IP on UDP/IP, BACnet/SC on TCP/IP, and HTTPS on TCP/IP
Cabling (in-house cabling only), cable type	10 Mbps: Min. CAT3, shielded cable is recommended 100 Mbps: Min. CAT5, shielded cable is recommended
Cable length	Max. 100 m (330 ft)

Screw terminals, plug-in	
Cu-wire or Cu-strand with wire end sleeve	1 x 0.6 mm ⌀ to 2.5 mm^2 (22 to 14 AWG) or 2 x 0.6 mm ⌀ to 1.0 mm^2 (22 to 18 AWG)
Cu-strand without wire end sleeve	1 x 0.6 mm ⌀ to 2.5 mm^2 (22 to 14 AWG) or 2 x 0.6 mm ⌀ to 1.5 mm^2 (22 to 16 AWG)
Stripping length	6...7.5 mm (0.24...0.29 in)
Screwdriver	Slot screws, screwdriver size 1 with shaft ø = 3 mm
Max. tightening torque	0.6 Nm (0.44 lb ft)

The two COM interfaces can be used either for Modbus or for MS/TP, according to configuration.

Modbus RTU interface	
Interface type	EIA-485, electrically isolated
Baud rate	300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 76800, 115200 (depending on the configuration)
Internal bus termination	120 Ohm, switchable with DIP switch
Internal bus polarization	270 Ohm pull-up/pull-down resistances, switchable with DIP switch
Cabling (in-house cabling only) Cable length	3-wire cable, shielded cable recommended (shield must be connected to building earth in the mounting panel) Max. 1000 m (3300 ft)
Protection	Short-circuit proof Protection against faulty wiring with AC 24 V

BACnet MS/TP interface	
Interface type	EIA-485, electrically isolated
Baud rate	9600, 19200, 38400, 76800, 115200 (depending on the configuration)
Internal bus termination	120 Ohm, switchable with DIP switch
Internal bus polarization	270 Ohm pull-up/pull-down resistances, switchable with DIP switch
Cabling (in-house cabling only) Distance between 2 devices Length of the MS/TP line	3-wire cable, shielded Max. 500 m (1650 ft) Max. 1000 m (3300 ft)
Protection	Short-circuit proof Protection against faulty wiring with AC 24 V

WLAN interface	
Interface type	Wireless access point
Supported standards Frequency band WLAN channels Maximum radio-frequency power	IEEE 802.11b/g/n 2.4…2.462 GHz 1…11 16.4 dBm
Distance (unobstructed field)	Min. 5 m (16 ft)
Device pairing	Activation / Deactivation with service button Automatic switch off after 10 minutes if no WLAN-client is connected. Optionally, for cyber security reasons, the WLAN can be permanently disabled via configuration.
Default SSID and WLAN password: Scan the QR code. It will show something like WIFI:S:**PXC5.E003_0000550**;T:WPA;P:**1400052738**;; Then SSID = PXC5.E003_0000550 and password = 1400052738 Determine manually: Use the information from the Date/Series/SN block It will show something like: Date/Series: 20190423A**0000550** S/N: **1400052738** SSID = <ASN>_<Running number after the series letter> and password = <S/N>	

KNX PL-Link interface	
Type	KNX TP1 PL-Link, galvanic isolation Baud rate: 9.6 kbps
Cabling (in-house cabling only) Cable length	2-wire cable, 0.75 mm^2 / AWG20 or 1 mm^2 / AWG18 With internal supply: Max. 80 m (262 ft) With external supply: Max. 1000 m (3300 ft)
Internal bus power	Max. 50 mA When using external bus power for KNX PL-Link, switch off the internal bus power via the ABT Site Tool.

Conformity

Ambient conditions and protection classification	
Classification as per EN 60730 Automatic action Control function Degree of pollution Overvoltage category	 Type 1 Class A 2 I
Protection against electric shock	Protection class III
Degree of protection of housing to EN 60529 Front parts in DIN cut-out Terminal part	 IP30 IP20
Climatic ambient conditions ● Storage / Transport (packaged for transport) as per IEC EN 60721-3-2 ● Operation as per IEC/EN 60721-3-3	 ● Class 1K22 / 2K12 Temperature -25...70 °C (-13...158 °F) Air humidity 5...95 % (non-condensing) ● Class 3K23 Temperature -5...50 °C (23...122 °F) *(for details see chapter Mounting)* Air humidity 5...95 % (non-condensing)
Mechanical ambient conditions ● Transport per IEC/EN 60721-3-2 ● Operation as per IEC/EN 60721-3-3	 ● Class 2M4 ● Class 3M11

Standards, directives and approvals	
Product standards	IEC/EN 60730-1, IEC/EN 62368-1
Product family standard	IEC/EN 63044-x
Electromagnetic compatibility (EMC)	For residential, commercial, and industrial environments
EU conformity (CE)	See CE declaration [1)]
EAC compliance	Eurasian compliance
RCM conformity	See RCM declaration [1)]
UL/cUL approbation (US / Canada)	UL916; http://ul.com/database
CSA certification	C22.2, http://csagroup.org/services-industries/product-listing
FCC	CFR 47 Part 15C
BACnet.	B-BC
Environmental compatibility [1)]	The product environmental declaration [1)] contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

[1)] Documents can be downloaded at http://siemens.com/bt/download.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation

FCC Caution: Changes or modifications not expressly approved by Siemens Switzerland Ltd. could void user authority to operate the equipment. United States representative https://new.siemens.com/us/en/products/buildingtechnologies/home.html

Industry Canada statement

This device complies with ISED's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Radiofrequency radiation exposure statement

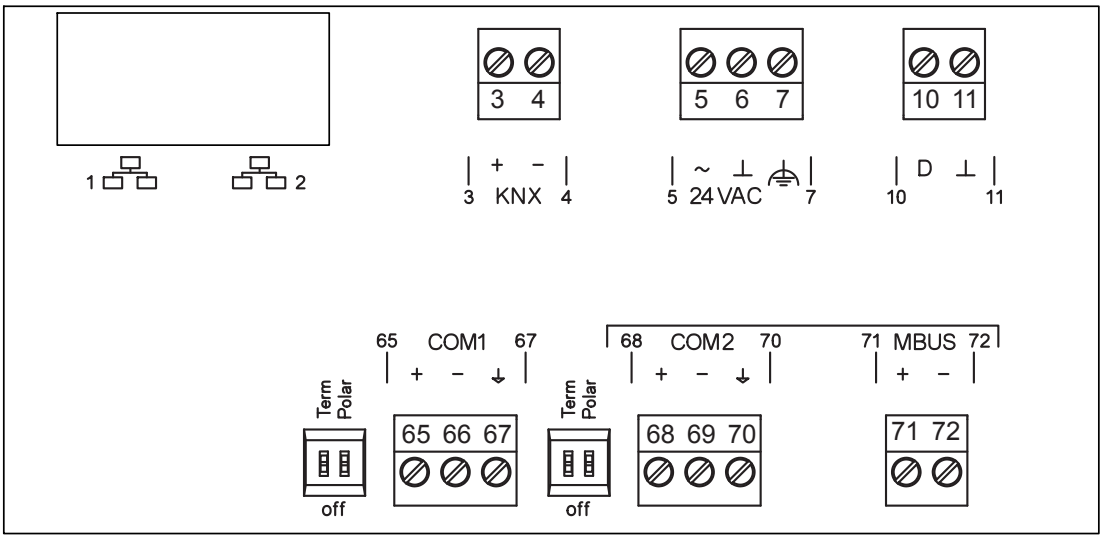
This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Housing

Color top/bottom	RAL 7035 (light grey) / RAL 7016 (anthracite grey)
Dimensions	per DIN 43880, see dimensions
Weight without/with packaging	351 g / 391 g

Connection terminals



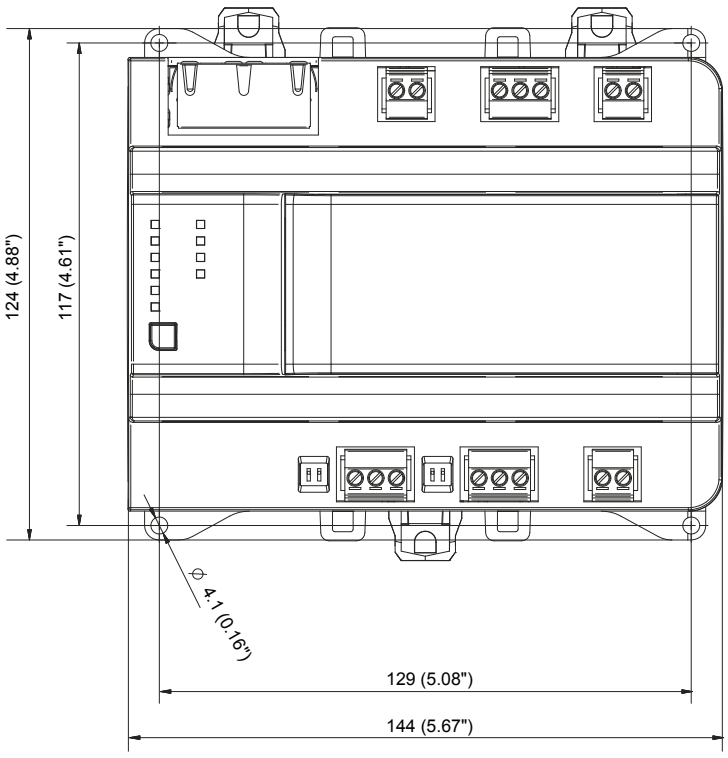
Terminal	Symbol	Description
1, 2		2 x RJ45 interface for Ethernet with switch
3, 4	KNX	KNX PL-Link
5, 6	~ , ⊥	Operating voltage AC 24 V
7		Functional ground must be connected on the installation side with the building grounding system (PE).
10, 11	D, ⊥	Digital input (for future use)
Term	On, off	Switch for bus termination
Polar	On, off	Switch for polarization
65, 66, 67	COM1	Interface EIA-485 (Modbus RTU and MS/TP)
68, 69, 70	COM2	
71, 72	MBUS	M-bus interface (for future use)

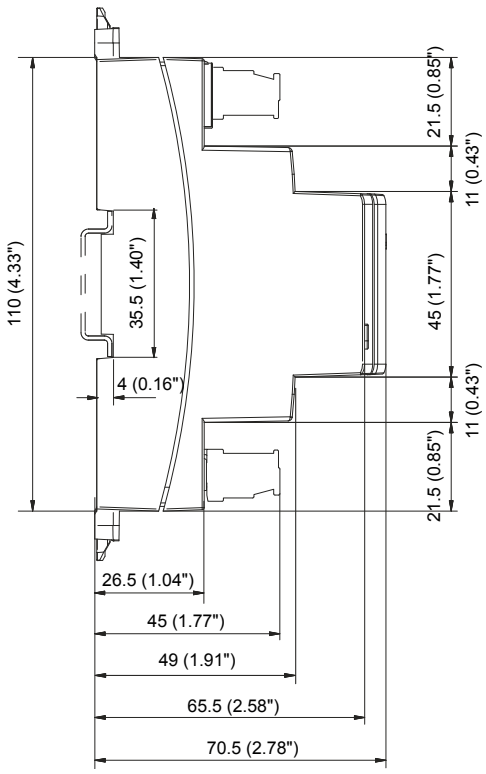
Warranty

The application-specific technical data is guaranteed only in combination with the Siemens products listed in the 'Device combinations' section. If third-party products are used, any guarantee provided by Siemens will be invalidated.

Dimensions

All dimensions in mm and inches





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