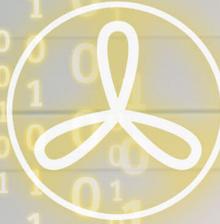


SIEMENS

Ingenuity for life

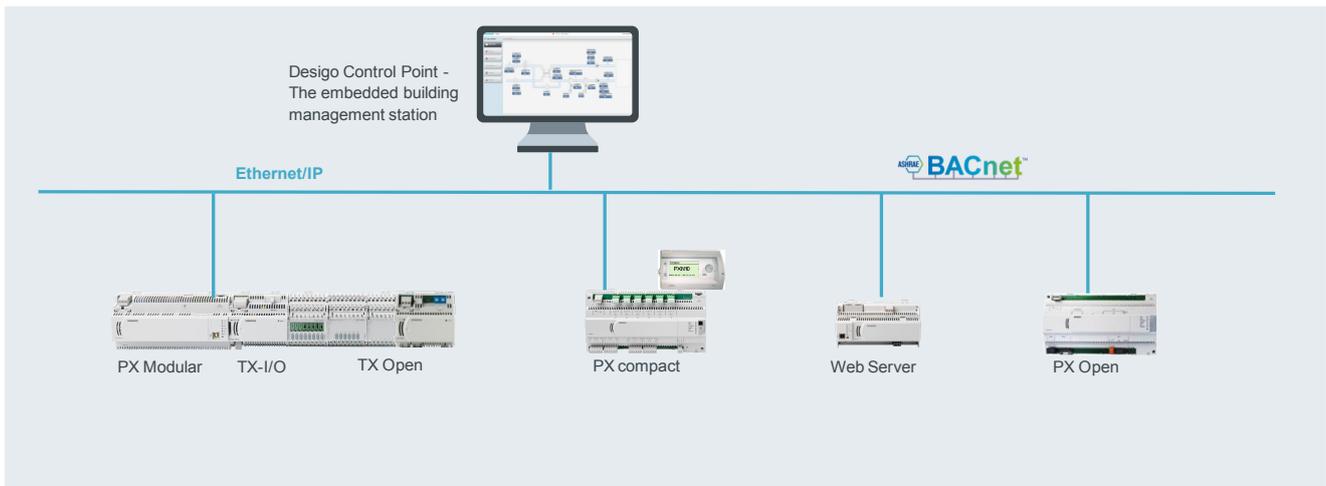


Designo PX Automation system for HVAC and building services

System overview
Version 6.1

Building Technologies

Desigo PX – the flexible, reliable, scalable...



Desigo PX is a modern building automation and control system for the entire field of building service plants. Scalable from small to large projects with highest degree of energy efficiency, openness and user-friendly operation.

Desigo Control Point – the embedded management station

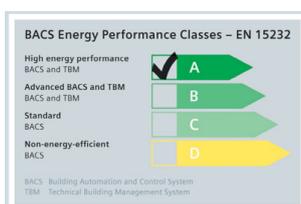
Ergonomic operation from any location: Remote access means ease of use, and independence. Automation stations can be accessed from any location and at any time via Desigo Control Point. This offers low-cost monitoring and controlling of small to medium- sized systems.

Desigo Control Point – Range of Touch panels

User-friendly, easy-to-understand, and flexible to use: Desigo PX offers a choice of different touch panels to satisfy the different requirements in terms of location and functionality. They excel in intuitive handling with clear user guidance and full graphical displays.

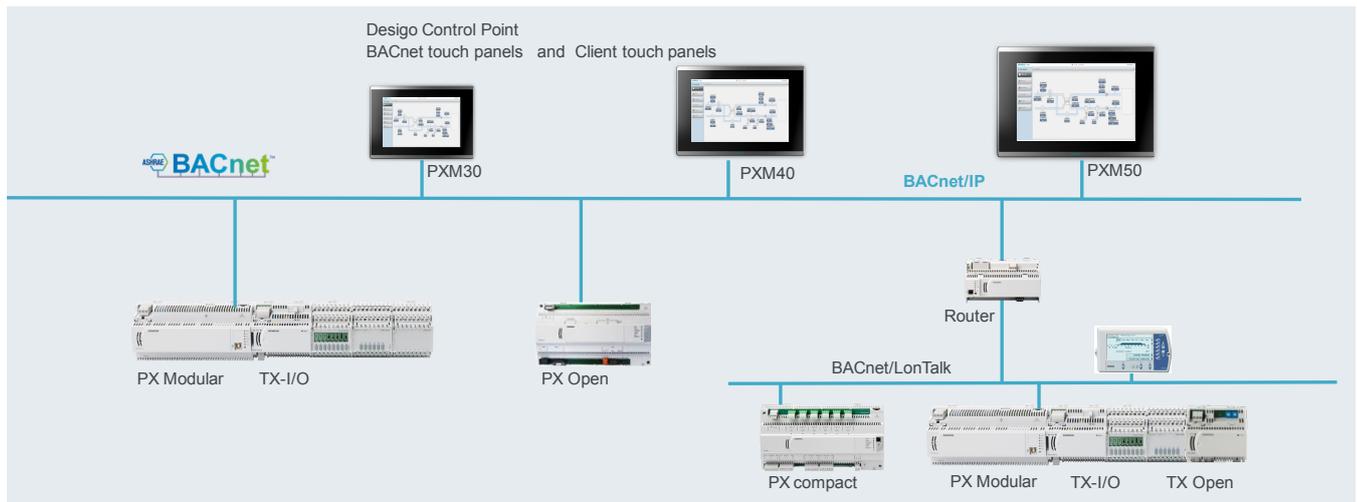
Desigo PX Automation Stations – scalability and openness

The Desigo PX range of programmable automation stations for primary plants offers outstanding scalability and consistent system openness. Desigo PX reliably performs all the tasks required of building technology. It has a modular system concept to make it a perfect match for the relevant requirements and needs. In smaller HVAC plants, too, it can be used to deploy DDC technology in a cost-effective way. In new buildings as well as modernization projects, this means it is only necessary to invest in the system components that are actually needed. The innovative system concept means that Desigo PX can be gradually scaled up to a large building automation system at any time. Desigo is consistent in its support of open communications, making it easy to connect a wide variety of building systems on the basis of standard open data interfaces.



Tested quality
BACnet® Testing Laboratories (BTL) is a registered trademark. Products that were successfully tested by BACnet Testing Laboratories, like Desigo PX, are allowed to carry the BTL trademark.

... building automation and control system



Desigo PX Open and TX Open – scalable integration platforms

PX Open and TX Open offer a portfolio of solutions for simple and cost-effective integration of third-party systems and devices depending on the required process interaction and the number of data points.

- KNX[®] and LonWorks[®] to link room automation and secondary processes
- M-Bus, Modbus and other interfaces for universal connection of third-party devices and systems
- Simple ASCII protocols for RS232 or RS485 via PX SCL (Structured Control Languages)

Wide choice of applications for energy efficiency

The broad range of Desigo application libraries covers individual customer needs in a comprehensive manner.

Ready to use application solutions are available for generation, distribution, and consumption. The different application libraries scale from simple control sequences up to highly sophisticated equipment controls. The sophisticated control strategies in our applications offer an optimized balance between energy efficiency and comfort.

Project Engineering, service and commissioning

Professional software tools ensure efficient engineering, service and commissioning by graphical user interface and lots of analysis and reporting functions.

Years of experience

Siemens is one of the leaders in building automation and HVAC control worldwide. Our developments base on the years of experience of our specialists. The result is the reliable and user- friendly automation system Desigo PX.

Highlights

- + Universal use thanks to modular system concept
- + BACnet[™] communication for maximum openness
- + User friendly operations for any location and functionality
- + Years of experience in building automation

Desigo Control Point ...

Desigo Control Point – designed to simplify your building management tasks

Buildings are so much more than just four walls. We spend 90 percent of our lives in buildings – to live, to sleep, to learn, to work, to recover. That's why it's so important to ensure that buildings are always optimized to support our well-being. With Desigo Control Point, this task has become a lot easier.

Desigo Control Point is an embedded building management station for operating and monitoring building automation and control systems in small to medium-sized buildings. A great variety of public and commercial buildings can now increase user comfort while saving costs.

The functionality can be adapted to any user profiles. Installation and operation are straightforward allowing anyone to use it. The use of native BACnet ensures that third-party devices can be integrated and operated as well.

Embedded building management station to be independent



In the office or...

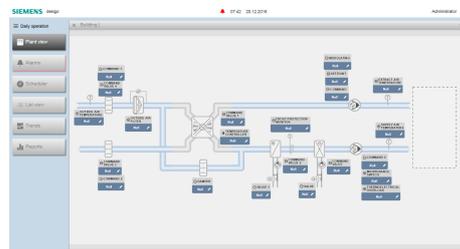


...mobile from anywhere.

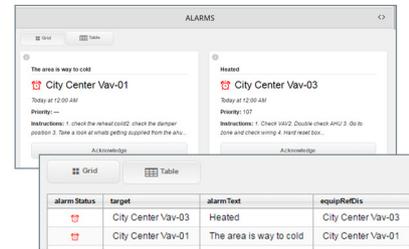


Alarms on your mobile

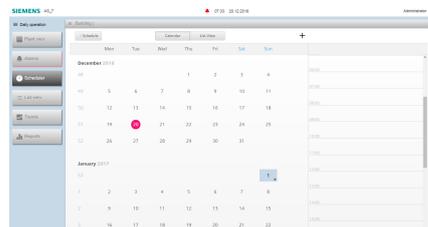
Embedded building management functions



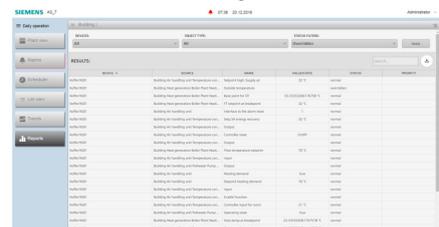
Animated plant graphics to verify plant status



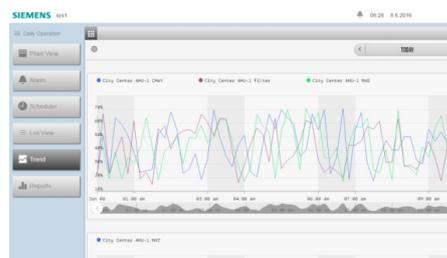
Efficient Alarm management



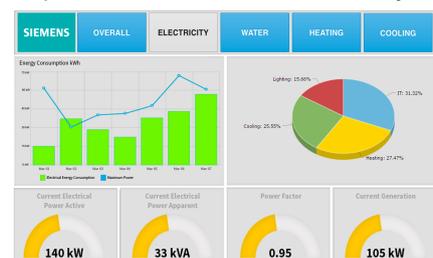
Schedulers to adapt occupancy



Reports for documentation and analysis



Online / offline trend for analysis



Energy dashboards for information

... the embedded building management station

Function overview

- **Plant graphics:** Animated plant graphics allowing fast, targeted monitoring and operation of all Desigo and third-party devices
- **Scheduler:** Central set-up and changes of all time-controlled building services functions
- **Alarming:** Detailed overview of alarms to quickly localize and eliminate errors
- **Alarm Routing:** Flexible routing of alarms via e-mail or SMS (via SMS gateway)
- **Trend:** Convenient analysis of trend data to optimize operation and increase energy efficiency based on trend logs from Desigo PX or user defined online trends. Export to CSV file. Automatic transmission via e-mail or to save on a FTP server, pursuant to schedule.
- **Reports:** Snapshot queries to meet customers' needs and their display in reports. Reports provide information on plant operation for analysis, evaluation and documentation purposes. Filter data points by alarm state, operating state or object type. Export to CSV file. Transmission of reports via e-mail or to save on a FTP server,
- **Generic operation:** An efficient tool for navigation through the hierarchical tree structure to all the data points and object properties in the assigned devices. These points can then be read or manipulated, depending on the access rights of the user concerned
- **Energy dashboards:** Display and compare energy consumption based on a comprehensive selection of graphics and configurable controls
- **Haystack interface:** Access from external IT application to BACnet objects of a Desigo system via Haystack tagging or Haystack REST API. Project Haystack is an initiative to simplify handling data from the Internet of Things (IoT) and to optimize it for building automation and control (<http://project-haystack.org/>). Application examples: Data access to third-party devices with HTML5.0 Browser, customized apps, SAP systems, etc.
- **Heating curve:** graphical display and adaptations of the operating parameters
- **Engineering:** Flexible and efficient creation of customized user interface based on graphics library with a large selection of symbols and templates: via optimized offline tool or online via web browser anytime during operation.
- **Commissioning and Service:** Integrated tool for HTML5.0 compatible web browsers
- **User Management:** Used to configure the user access rights even for an individual data point with read / write access.

Range overview



	Type	Data sheet
BACnet/IP web server with standard Control Point functionality	PXG3.W100-1	A6V11170804
BACnet/IP web server with enhanced Control Point functionality	PXG3.W200-1	

Efficient and intuitive plant operation from anywhere ...

... that is Desigo Control point



Desigo Control Point ...

The Desigo touch panel range offers intuitive operation and monitoring of multiple plants. The user-friendly graphical interface makes plant operation particularly straightforward and efficient.

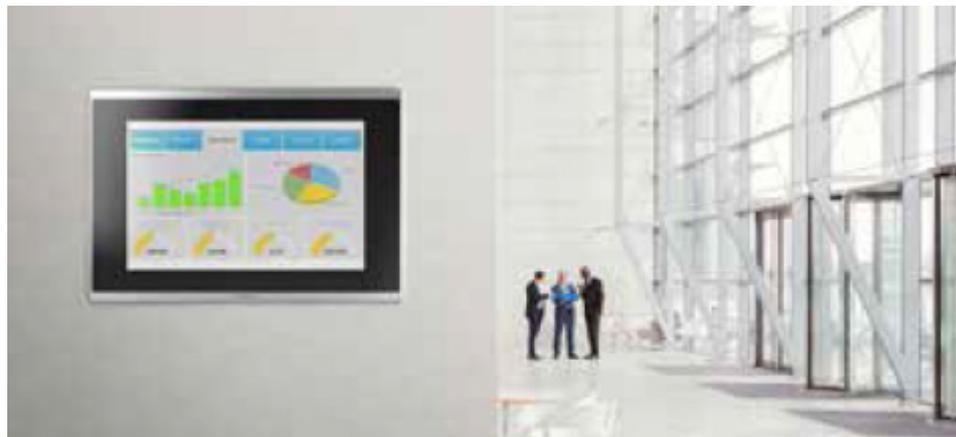
Plant operation

The touch panels allow to operate and monitor your plant using customized graphics or generic data point lists. They are mounted on cabinet doors, next to the plants. Also included are alarm management, display of trends, schedules, heating curves, and animated graphics



Energy monitoring

Desigo touch panels allow you to monitor your energy consumption while achieving additional savings. It provides standard templates to display and compare energy consumption along with a flexible suit of configurable elements to fully customize your dashboards.



Function overview Touch Panels

- | | |
|---|---|
| <ul style="list-style-type: none">• Animated Plant graphics• Schedulers: Central set-up and adaptations• Alarming: Detailed overview of alarms• Trend: Display of plant data over time• Heating curve: Graphical display and adaptation• Energy dashboards: Display to support careful use of energy | <ul style="list-style-type: none">• Generic display and operation of all data points and parameters of the plants• Engineering: Flexible and efficient creation of customized user interface• User Management: Configuration of user access rights. |
|---|---|

... Touch Panels

Touch panel features

Features touch panels PXM30, PXM40, PXM50:

- Robust, high-quality, industrial 24/7
- Capacitive touchscreen
- Multi-touch gestures (swipe and zoom, etc.)
- Widescreen format
- LED to indicate alarms when the screen is inactive
- Brightness sensor
- Panel mounting



Additional features PXM40, PXM50

- Wall mounting
- Aluminum frame
- Anti-theft protection
- Power over Ethernet (PoE)

BACnet Touch panels (BACnet/IP)

The BACnet/IP touch panels can be connected directly to the BACnet network and allow generic operation of the connected devices. The customized graphical views are stored in the touch panel.

To enable easy user support as well in small projects the web access is supported in the touch panel and allows remote user support. Remote access via a Web browser and remote alarming via e-mail is supported as well.



Range overview	Type	Data sheet
BACnet touch panels with integrated data management and web server functionality: 7.0 " 10.1 ", 15.6 "	PXM30.E PXM40.E, PXM50.E	A6V10933111 A6V10933114

Touch panel clients (TCP/IP)

The client touch panels are used in combination with the Web server. The Web server stores all project specific user datas for multiple touch panels.

In addition, the Web server allows the access via Web browser and remote alarming via e-mail.



Range overview	Type	Data sheet
Touch panel clients (TCP/IP) 7.0 " 10.1 ", 15.6 "	PXM30-1 PXM40-1, PXM50-1	A6V10933111 A6V10933114
Data server for client touch panels: BACnet/IP web server with standard functionality BACnet/IP web server with enhanced functionality	PXG3.W100-1 PXG3.W200-1	A6V11170804

Desigo PX Operation and Monitoring

Ergonomic operation from any location

Different requirements in terms of locations and functions are fully covered by the intuitive range of Desigo PX operator units. Either inside the panel, for the technical plant room or via Web from any location at any time. This offers you low-cost monitoring and controlling of small to medium-sized systems.

Installation location	Products	Application	User
Office Remote from anywhere	Desigo Control Point Embedded building management station Büro Remote via Web HMIs	Operation and monitoring	Facility operator
Control panel door	Touch panels PXM50 PXM40 PXM30 Operator units PXM20 PXM10	Local plant operation	Technical operator
Control panel	TXM...	Onsite manual control	Service technician

Plant operation with Control Point – embedded building management station

- Cost-effective plant monitoring and operation: A Web interface allows you to check and operate your plants anytime and anywhere from a tablet, smartphone or notebook using a standard Web browser.

Plant operation via Touch Panels and operator units

- The Desigo touch panels PXM30, PXM40, PXM50 offer intuitive operation and monitoring of multiple plants. The user-friendly graphical interfaces makes plant operation particularly straightforward and efficient.
- The PXM20 network-compatible operator unit presents Desigo PX plant and system information in an easy-to-understand format with a clear-text commentary.
- The PXM10 operator unit facilitates full local operation of one Desigo PX automation station.

Manual operation in the Control Panel

- The Desigo TX-I/O modules include features for manual/emergency operation of plants and for the display of operating states.

One building.
Different users.



A family of programmable automation stations

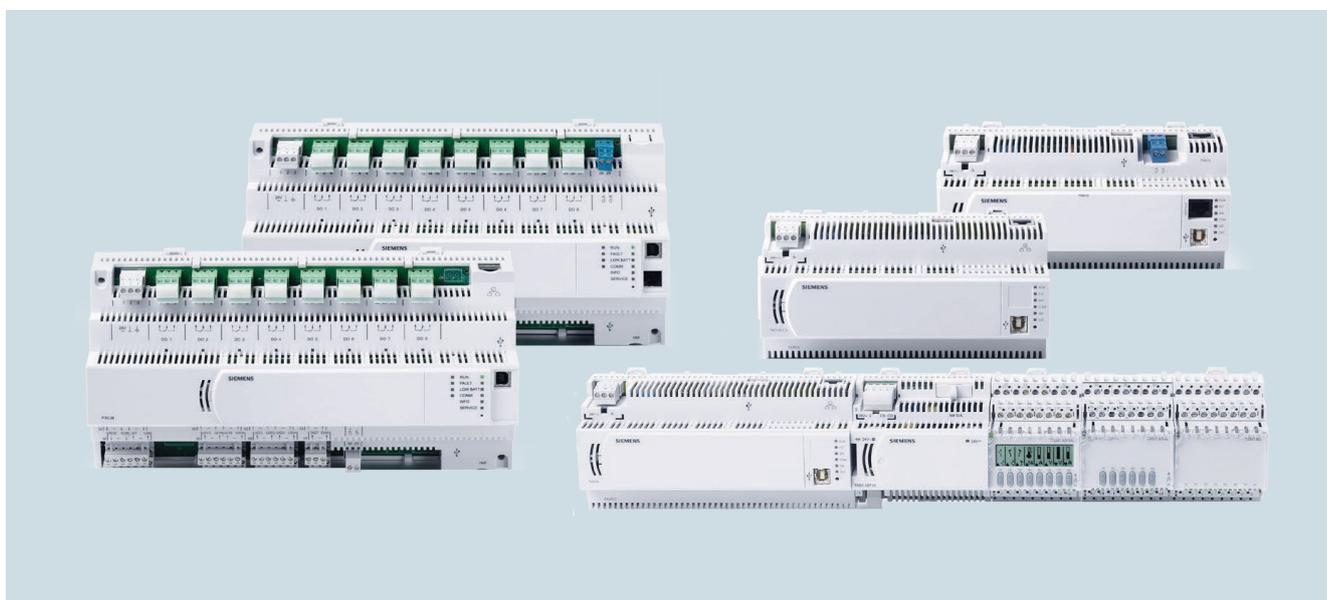
With the PXC... family of programmable automation stations, Desigo PX offers maximum flexibility in the control and monitoring of building services systems.

Comprehensive system functions such as alarm management, time scheduling and trend data storage cover all the requirements associated with the operation of a building.

Decentralized automation stations operate autonomously with consistently networked BACnet communication, guaranteeing a high level of operating reliability

You also benefit from uniform equipment design. Thanks to standard handling, installation, maintenance and replacement are quick and cost-efficient.

The range of programmable Desigo PX automation stations has two different series: compact and modular. They differ in terms of installation type, and data point distribution, quantity and mix.



- Range of flexible, programmable automation stations optimized for HVAC and building services plants
- Standalone application or for use in a system network
- Flexible I/O configuration
- Comprehensive managements and system functions such as alarming, trending, scheduling, grouping
- System Controller for integration of devices or subsystems for Modbus, M-Bus, KNX, LonWorks
- BTL tested BACnet communication on LonTalk, PTP or IP according to BACnet standard including B-BC profile
- AMEV profiles AS-A and AS-B according to guideline "BACnet 2011 – Version 1.2 (as of Desigo V6.0)"
- Optimized Applications Libraries and energy saving functions

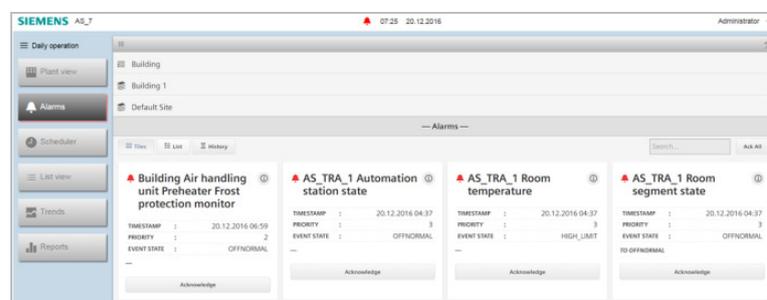
Alarm management

One of the most important functions of a BACS (Building Automation Control System) is automatic alarming in the event of faults in building services plants. The management of alarms (generation, display and handling) must be simple, efficient and consistent at all levels of the system. Desigo uses the BACnet alarm functions and supports the following three types of alarms with up to 256 alarm priority levels:

- Basic alarm (for alarms not requiring user interaction)
- Simple alarms (for alarms requiring acknowledgment)
- Extended alarms (alarms requiring acknowledgement and reset)

Alarm messages

When an alarm occurs, it is automatically detected, registered and transferred to operator units such as the touch panels or to the Desigo management station. Informative alarm messages are also transmitted to remote devices such as mobile phones, PCs and browsers, via SMS and e-mail. Alarm lists provide a view of all pending and time-stamped alarms at a glance and permit straightforward processing.



Overview on touch panel PXM30/40/50 and on Web client

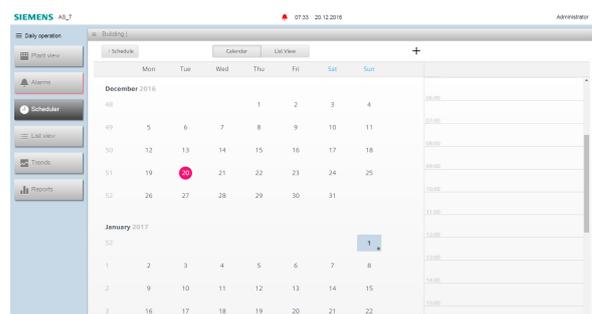
Schedulers/calendar

One of the basic functions of a BACS is time control of procedures and processes and ensuring energy-efficient operation.

Scheduler programs ensure that heating and air-conditioning are switched off automatically at the end of the workday, that the temperature in the building is reduced at night, and that the plant is not kept running for longer than necessary. They can also be used to switch off the air conditioning in certain rooms during holidays.

Using standard BACnet functions, the BACnet scheduler programs can be operated system-wide from the user-friendly touch panels PXM30/40/50, via operator units or via Web Browser as well as from the Desigo management station.

For safety reasons, schedules and calendars are stored in the Desigo PX automation station, so that in the event of a network or PC failure, the automation level can continue to operate autonomously.



Calendar on the PXM30/40/50

Trend and history function

Fully integrated trend data processing allows effortless evaluation and analysis of real-time (online) data and historical (offline) data. The trend feature facilitates the monitoring and fine-tuning of the plant. In the Desigo system, this feature is implemented in the form of Trendlog objects, in compliance with the BACnet standard.



Checking the dynamic response of the plant using a touch panel or a Web client

Access rights

Access rights can be used to filter information from the plant and system based on the individual requirements of a user. The caretaker or service engineer, for example, only has access to information important to him. A distinction can also be made between read access and write access.

Freely-definable access rights

Only authorized personnel are granted access to the system via the operator units. When a user enters a user name and password, the system verifies the associated access rights and enables access to the relevant plant. Read and write access rights can be defined in detail, right down to individual information points.

The following access classes are supported in the Desigo system:

- Internal, service and standard service
- Administration and experts
- Standard and customer

Automation stations – compact PXC

Compact, freely programmable automation stations for HVAC and building services plant. The fixed data point mix makes the automation stations ideal for commonly used applications with standard signals.



Automation station PXC22-E.D

Overview of automation stations: Compact series				
BACnet/LonTalk	PXC12.D	PXC22.D	PXC22.1.D	PXC36.1.D
BACnet/IP	PXC12-E.D	PXC22-E.D	PXC22.1-E.D	PXC36.1-E.D
I/Os (onboard)	12	22	22	36
UIO	8	16	16	24
DI	2	0	0	4
DO	2	6	6	8
Number of I/O's via TX-I/O modules	-	-	16	16
Number of TX Open modules	-	-	5	5
Number of data points (Onboard + TX-I/O + TX Open)	-	-	400	400

Input and output options of onboard IO's	
UIO	Universal inputs that can be: <ul style="list-style-type: none"> Passive (LG-Ni1000 sensor) and active sensors (DC 0...10 V signal) With binary, potential-free contacts for signaling functions Or counters as an alternative (20 Hz) Analog outputs <ul style="list-style-type: none"> To drive DC 0...10 V actuators Some of the UIOs can also be programmed as binary switching function and handle switched loads of 24 V/20mA via the program structure: For PXC12/22..D: 4 UIO, and PXC36: 6 UIO
DI	Binary inputs for signaling functions
DO	AC 230 V/2 A relay outputs for binary control

Up to 5 QAX3... operator units/sensors can be connected to any of the automation stations of the compact series.

Extension capabilities for PXC22.1.D/-E.D and PXC36.1.D/-E.D



TXM1... : Additional I/O flexibility via extension of up to 16 TX-I/O data points. They could be used e.g. to connect special peripheral devices or for status indication and control of other technical equipment.



TXI2.OPEN, TXI2-S.OPEN : Flexible TX Open platform to integrate third-party systems and devices via RS232/RS485 such as Modbus, M-Bus or Modbus TCP. Tested integration solutions and applications based on our large know how.



TXA1.IBE : Remote IO islands with integration

Easy to use solution via simple adapter for remote TX-I/O and TX Open. No programming / parameterization required

Automation stations – modular series PXC

The freely programmable modular series PXC..D automation stations with their free I/O configuration and DIN compliant construction are optimized for panel assembly. They primarily control and monitor medium-size to larger plants. The flexible TX-I/O module product range for signaling, measuring, counting, switching, and positioning can be seamlessly connected to the automation station.



Modular automation station with connected TX-I/O modules

Overview of automation stations – modular series

Connect TX-I/O modules, TX Open modules, PTM-I/O modules via PXX-PBUS and LonWorks devices via PXX-L11/12.

Activate generic Web operation using PXA40-W1



	PXC00-E.D	PXC50-E.D	PXC100-E.D	PXC200-E.D
BACnet/IP				
BACnet/LonTalk	PXC00.D	PXC50.D	PXC100.D	PXC200.D
Number of physical data points TX-I/O	–	52	200	350
Number of TX Open Modules for e.g. Modbus, M-Bus	–	5	5	5
Number of data points (TX-I/O and TX Open)	–	400	600	1000
Number LonWorks Devices via PXX-Lx	60 or 120	10	60 or 120 ¹⁾	60 or 120 ¹⁾

¹⁾ In concurrent use with TX-I/O modules, the number of devices is reduced in relation to capacity

Extension capabilities

TXM1.. : The flexible range of TX-I/O modules for signaling, measuring, counting, switching, and positioning. The I/O modules with local manual control on the module housing permit the operator to control the equipment manually directly from the cabinet.



TXI2.OPEN, TXI2-S.OPEN : Flexible TX Open platform to integrate third- party systems and devices such as Modbus, M-Bus or Modbus TCP. Tested integrations solutions and aApplications based on our large know how.



PXX-L11/12.. : Extension modules allow for flexibly connecting LONWORKS devices such as room controllers and third- party devices.



PXX-PBUS : The extension module allows connecting installed PTM-I/O modules to PXC50/100/200...D automation stations, making them the perfect solution to migrate legacy systems.



TXA1.IBE : Remote IO Islands with Integration

Easy to use solution via simple adapter for remote TX-I/O and TX Open. No programming/ parameterization required.

Desigo TX-I/O

Desigo TX-I/O is a versatile and flexible range of input and output modules. The I/O modules feature optional manual control of the connected equipment, simplifying commissioning and service.

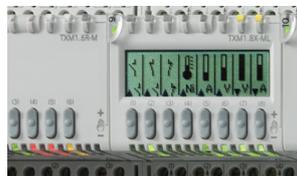
Desigo TX-I/O modules are the interface to the devices at the field level, the sensors and actuators. They communicate with connected Desigo PX modular automation stations and can be interconnected in application-specific configurations. A flexible product range of TX-I/O modules is available for signaling, measuring, counting, switching and positioning.

The I/O module system is designed for panel mounting, and supports decentralized, remote module installations. The TX-I/O modules have LEDs and optional LCDs with signal and warning display to indicate the status of the equipment and facilitate manual or emergency operation. The integrated isolated terminal base and the parking position is an optimal feature for testing and commissioning.

The combination of Desigo TX-I/O modules with already existing PTM modules within a plant is also possible.

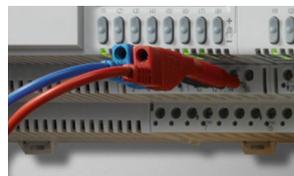
For the user, the advantages of the Desigo TX-I/O modules are as follows:

- | | |
|---|--|
| <ul style="list-style-type: none">• Configurable functionality for highest levels of versatility and scalability• Lean product range to ensure straightforward handling• Optimized for use with actuators and sensors in building automation plants• All connection terminals are short-circuit-proof and protected against faulty wiring with AC/DC 24V | <ul style="list-style-type: none">• Manual control, multicolor LEDs and LCD for optimum commissioning, diagnostics and servicing• Self-establishing bus connections to ensure straightforward installation• Optimized for control panel mounting |
|---|--|



Optional manual control, multicolor LEDs and LCD

The LEDs and the optional LCD show the field devices' operating state at any time. Faults are reliably detected and displayed as easy-to-understand error pictograms.



Direct wiring and connection terminals with tapping points

All field device cables can be directly connected, with no need for using auxiliary terminals, thus saving installation time and material. Furthermore, the terminals feature tapping points to make servicing simpler and more convenient.



Parking position

To facilitate servicing, selected modules can be removed or brought into parking position. In that case, the respective module is disconnected from power but the other modules continue to work normally.

Overview of TX-I/O modules

Type	TXM1.8D	TXM1.16D	TXM1.8U	TXM1.8U-ML	TXM1.8X	TXM1.8X-ML	TXM1.6R	TXM1.6R-M	TXM1.8P	TXM1.6RL	TXM1.8T
Total number of inputs/outputs	8	16	8	8	8	8	6	6	8	6	8
Functionality											
Local override	-	-	-	•	-	•	-	•	-	-	-
LCD panel	-	-	-	•	-	•	-	-	-	-	-
3 color I/O status LED	•	-	-	-	-	-	-	•	-	-	-
Green I/O status LED	-	•	•	•	•	•	•	-	•	•	•
Digital inputs (DI)											
N/O or N/C	•	•	•	•	•	•	-	-	-	-	-
Signal pulse	•	•	•	•	•	•	-	-	-	-	-
Counter 10 Hz (with debouncing)	•	1...8 ¹⁾	-	-	-	-	-	-	-	-	-
Counter 25 Hz (no debouncing)	-	-	•	•	•	•	-	-	-	-	-
Analog inputs (AI)											
LG-Ni1000	-	-	•	•	•	•	-	-	•	-	-
Pt1000 / 0...2500 Ohm	-	-	•	•	•	•	-	-	•	-	-
T1	-	-	•	•	•	•	-	-	-	-	-
NTC 10K / 100K	-	-	•	•	•	•	-	-	-	-	-
DC 0...10 V	-	-	•	•	•	•	-	-	0...250 Ohm	-	-
4...20 mA / 0...20 mA	-	-	-	-	•	•	-	-	Pt100 4-wire	-	-
Analog outputs (AO)											
DC 0...10 V	-	-	•	•	•	•	-	-	-	-	-
4...20 mA	-	-	-	-	5...8 ¹⁾	5...8 ¹⁾	-	-	-	-	-
Digital outputs (DO)											
Permanent contact on/off	-	-	-	-	-	-	•	•	-	-	-
Permanent contact 4-stage	-	-	-	-	-	-	•	•	-	-	-
3-position output	-	-	-	-	-	-	•	•	-	-	-
Pulse on/off, 3-stage	-	-	-	-	-	-	•	•	-	-	-
Multistate	-	-	-	-	-	-	•	•	-	-	-
Triac Permanent contact	-	-	-	-	-	-	-	-	-	-	•
Triac Pulse (3-stage)	-	-	-	-	-	-	-	-	-	-	•
Triac Pulse width modulation	-	-	-	-	-	-	-	-	-	-	•
Blinds control	-	-	-	-	-	-	-	-	-	-	-
Permanent contact, bistable	-	-	-	-	-	-	-	-	-	•	-

1) Implementation on these I/O points

Desigo PX Open and TX Open

The Desigo Automation System offers a portfolio of solutions for simple, cost-effective and scalable integration of third-party systems and devices depending on the required process interactions and the number of data points.

Desigo PX Open

The native BACnet system controller PX Open is a multifunctional integration platform used to connect third-party systems and devices of open field-bus networks to the BACnet network:

- PX Modbus, PX M-Bus and PX SCL (Structured Control Language) to connect Modbus, M-Bus or simple ASCII protocols for RS232 or RS485 (free SCL programming).
- PX KNX to connect KNX S-Mode (EIB) devices and networks, and the Desigo RXB room automation system.
- PX LON for the connection of LONWORKS devices and networks, and the Desigo RXC room automation system.

The data points of the third-party system are mapped to input/output functions in BACnet and are then available as fully communicating data points for further processing and further connection, e.g. for:

- Alarm handling and prioritization
- Overriding, priority control and commands for central operation
- Grouping
- Scheduler programs
- Trend logging

PX Open integrates up to 2000 items of information per device. The bidirectional exchange of data is event-driven, i.e. the systems only exchange information if the data point value changes. Peer-to-peer communication can be implemented without difficulty in the BACnet network. The PX Open integration stations are positioned in a flexible configuration in the BACnet network.

"Simple" protocols based on ASCII strings can be connected directly to PX Open by use of SCL in conjunction with a freely programmable RS232 or RS485 port. The following vendor-neutral protocols are supported:

- BACnet
- LONWORKS
- KNX S-Mode (EIB)
- M-Bus
- Modbus

Desigo TX Open

A few decentralized, distributed third-party devices can be connected quickly and cost-effectively via Desigo TX Open and processed in the automation system. The microprocessor-based TX Open modules connect selected third-party devices via RS232 or RS485 to the I/O bus of the Desigo PX automation station.

**PX Open:
PXC001.D, PXC001-E.D system controllers and PXA40-RS...option modules**



Type	Description
PXC001.D	System-Controller for the integration of KNX, M-Bus, Modbus or SCL over BACnet/LonTalk
PXC001-E.D	System-Controller for the integration of KNX, M-Bus, Modbus or SCL over BACnet/IP



Equipment combinations

PXC001.D PXC001-E.D		Option modules	
		PXA40-RS1	PXA40-RS2
Interfaces			
KNX	X	–	–
Serial RS232	X	–	–
Serial RS485	X	–	–
Network functions			
Integration KNX	2000 DP	–	–
Integration M-Bus	250 DP	800 DP	2000 DP
Integration Modbus	250 DP	800 DP	2000 DP
Integration SCL	250 DP	800 DP	1000 DP

PXA40-... option modules can be plugged and unplugged while the automation station is operating.

- The functionality is available immediately after inserting.
- The functionality disappears approx.1 minute after unplugging.

TX Open modules



The TX Open module integrates third-party systems and devices via RS232, RS485, or Ethernet interface to the Desigo building automation and control system. The required applications are loaded to the module via the Ethernet interface.

Siemens offers integration solutions for the following systems:

- Modbus RTU and TCP
- M-bus
- G120P
- Grundfos
- Danfoss
- WILO

Typ	Description
TXI2.OPEN	TX Open RS232/485 Module (up to 160 data points)
TXI2-S.OPEN	TX Open RS232/485 Module (up to 40 data points)

Desigo tools

Professional software tools and a wide range of proven application blocks are available for engineering and processing the automation stations.

Desigo Xworks Plus

The engineering tool Desigo Xworks Plus offers user-friendly software tool that are easy to use and geared to technical processing of customer projects. They include planning, configuration, commissioning and final adjustment of the automation station with the associated program. A variety of report functions are available for documentation purposes.

Thanks to its intuitive design of Desigo Xworks Plus, makes it easy to begin working without time-consuming training.

Various processes are consistently supported depending on whether you are working with standardized Desigo application libraries or setup the program using data points.

Flexible programming

Moreover, Desigo Xworks Plus provides tools that flexibly program, together with the Desigo application library, individual solutions as well as parameterization and commissioning. The CFC Editor is used as a basis for this work.

Data exchange is continuous for distributed work on various user groups within the project. Data only needs to be entered once and is always consistent. Functions for project management are available such as creating and archiving projects as well as check in/out of project data for commissioning.



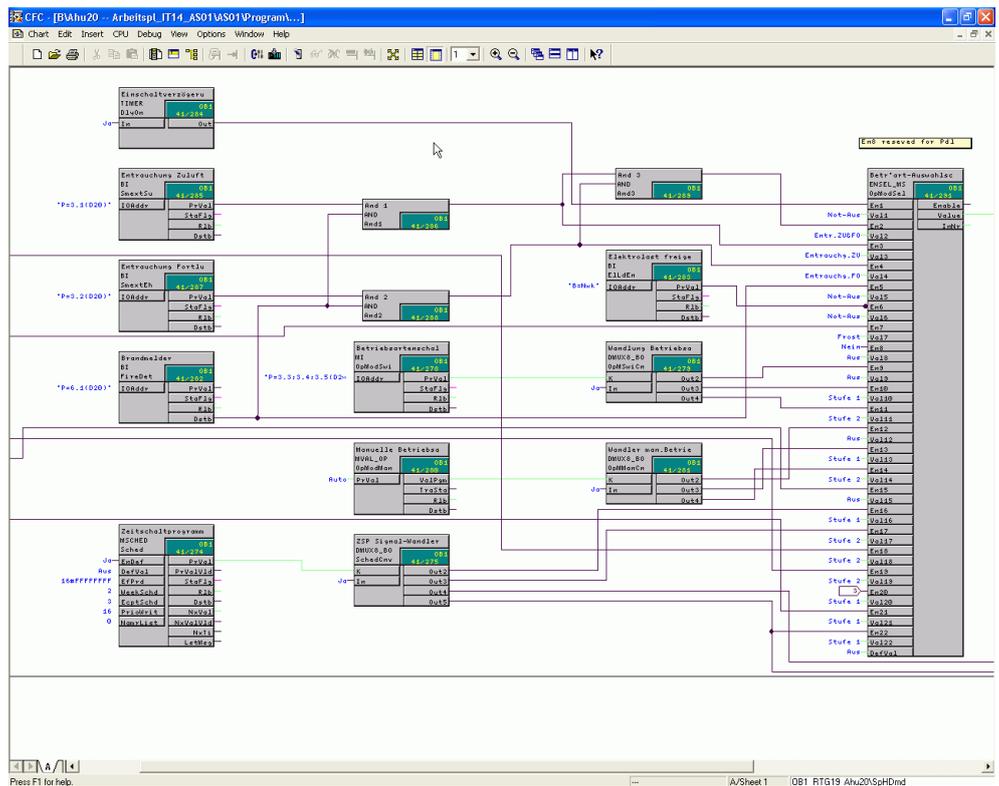
As a comprehensive engineering tool, Desigo Xworks Plus also establishes network topology, integrates third-party systems up to the planning of room automation systems. At the same time Desigo Xworks Plus supports the interaction with standard room automation LNS tools as well.

Programming with D-MAP

The D-MAP programming language (Desigo Modular Application Programming) for Desigo PX ensures efficient programming and parameter setting for building services plant. D-MAP is optimized for building services applications. The control strategies required for and best suited to efficient operation are implemented using graphics-based data flow programming.

Efficient engineering with blocks and compounds

The project-specific HVAC applications are configured, programmed, commissioned and maintained using the CFC Editor. The CFC Editor is a graphics editor based on block and data flow techniques. Predefined and tested application programs are assembled to create compound structures (referred to simply as "compounds"), and these are then made available in the libraries.



Creating the CFC chart with the CFC Editor

DMAP programming features

- The basic elements of D-MAP programming are blocks and "compounds" (compound functional units). These are stored in libraries.
- To create a D-MAP program, the blocks and compounds for the required functions are put together in the CFC Editor. This process involves creating instances (of blocks) or copies (of compounds) from the libraries
- The flow of data between blocks is programmed by interconnecting the "pins" (inputs and outputs) of various blocks

Proven application solutions

The broad range of Desigo application libraries cover individual customers needs with building automation and control applications in a comprehensive manner. All available solutions contain images of actual plant, aggregates and components in a structure which can be used equally for design engineering, control, operation and monitoring and display.

You can lower operating costs in a sustainable way using energy optimizing Desigo applications saving energy resources and lowering CO2 emission in the process.

Energy efficiency

Standardized, tested functions meet European standard EN15232 : 2007 Energy “Efficiency in buildings – Influence of Building Automation and Control and Building Management” in the highest classes. Using the existing energy efficiency applications, you not only sustainably save the environment, but also lower building operating costs through the entire life cycle of the building.

Safety and quality

The application reflect decades of Siemens experience. Many of software applications were developed and extensively tested in real plants to maximize the safety and quality of the solutions.

The application portfolio guarantees a high degree of protection for your investment

Comfort

All applications are created with a focus on maximizing the user’s comfort.

With their sophisticated control strategies and concepts, the applications offer a optimum balance between comfort and energy use.

Operation and monitoring

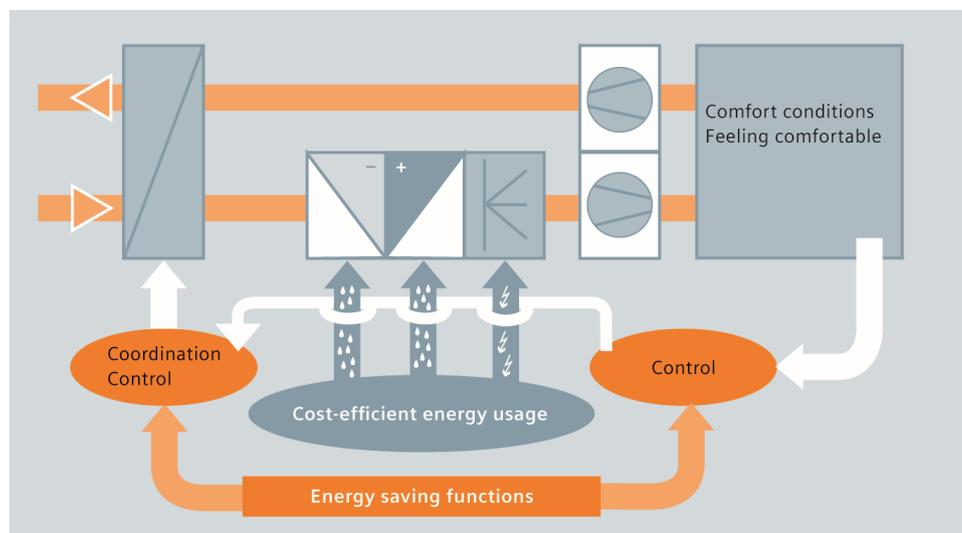
All applications are subject to a transparent operating concept to keep training costs to a minimum. The ease of operation is applied throughout the entire Desigo system and is provided to the customer when compiling the plants. We always pay special attention to ease of operation should operator interventions be required from the management station or a touch panel. Thanks to its consistent operating concept, operators are able to quickly initiate the proper measure; even during hectic situations.

Flexibility

Desigo applications map real plants and are clearly structured. Multiple components form an aggregate with multiple aggregates forms a complete plant.

Changes to the structures can be undertaken in a flexible manner during a project's engineering phase. Desigo applications thus fit into the overall expandable modular system, ensuring long-term cost-effectiveness.

Comfort – efficiently controlled thanks to years of experience in building automation and control.



System that grows with your needs

The Desigo PX Automation System can be enhanced and extended at any time, so meeting the need for optimum flexibility. The modular structure of the system makes it adaptable to buildings of all types and sizes. This makes phased investment possible, ensuring long-term protection of your investment capital and optimum added value.



Stepwise improving Usability

Touch Panels can be added in the technical plant room or on the floor level to improve usability of the system.



Increased serviceability

Remote operation via intuitive web solutions can increase service efficiency during the life cycle of the building.



Desigo Integration – Control your technical building from one spot

Combining all technical equipment in the building into the Desigo Automation System via integration of devices or complete subsystems.



Desigo Room Automation

Desigo Room Automation – the unique solution for flexible and efficient room control. Reduce energy consumption of the building via individual room control. Desigo room automation provides a range of control solutions with room operation units for HVAC, light and blinds.



Desigo Control Point

Desigo Control Point allows to easily operate lighting, shading and HVAC in meeting room, conference room and open office space operation.

Migration

Siemens Building Technologies offers solutions to allow for stepwise migration of your installed base to protect your investment.



Desigo CC – the integrated building management platform

The Desigo CC management platform provides convenient, system-wide multi-user and multi-site operation, reporting and management. The ease of use is enhanced by state-of-the-art operation capabilities that meet today's user needs.

People spend about 90 percent of their time indoors.

Improve the places where they spend their lives and you improve their lives.

With our people and technology, our products and services, our aim is to create perfect places.

For every stage of life.

When building technology creates perfect places – that's Ingenuity for life.

#CreatingPerfectPlaces
siemens.com/perfect-places

Desigo PX –
Automation system for HVAC and building services
System overview
Version 6.1
CM110756en_13
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