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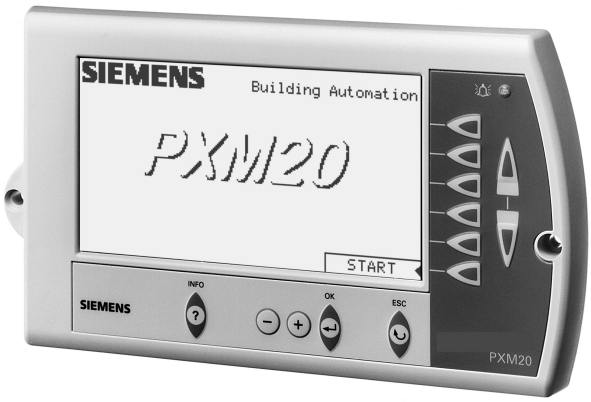


Desigo™ PX

Operator unit PXM20

BACnet on LonTalk

Networkable operator unit for viewing and operating one or several Desigo PX automation stations

- **Display with adjustable contrast**
- **Energy saving LED backlight (series D and later)**
- **Simple key operation with direct access to the required plant information**
- **Generic operation and display of plant functions (alarm handling, time schedulers, calendars, setpoint adjustments, display of current values, etc.)**
- **Integrated acoustic and/or visual collective alarm**
- **Graphic online-trend function**
- **Support of integrated access protection in the overall Desigo system**
- **Ability to add or delete new users**
- **Automatic logout**
- **Heating curve graphics**
- **System date and time setting**
- **Context-sensitive help function**
- **Installation in modular automation station PXC..-U or remote**

Application

The PXM20 operator unit ensures the convenient display and operation of Desigo PX automation stations via BACnet network communication. The graphics-based display with clear text and direct access via the keyboard ensure a most user-friendly operation.

Functions

All values visible in the system can be displayed in accordance with the defined operator profile. Typical displays:

- Display of current values
- Setpoint and parameter settings
- Maintenance and error messages
- Alarm lists and single alarm messages with acknowledgement option and/or reset
- Time schedulers (7-day schedules and exception programs)
- Plant switching
- Login and password inputs

An integrated collective alarm message system with acoustic and visual indication is provided.

Operating concept

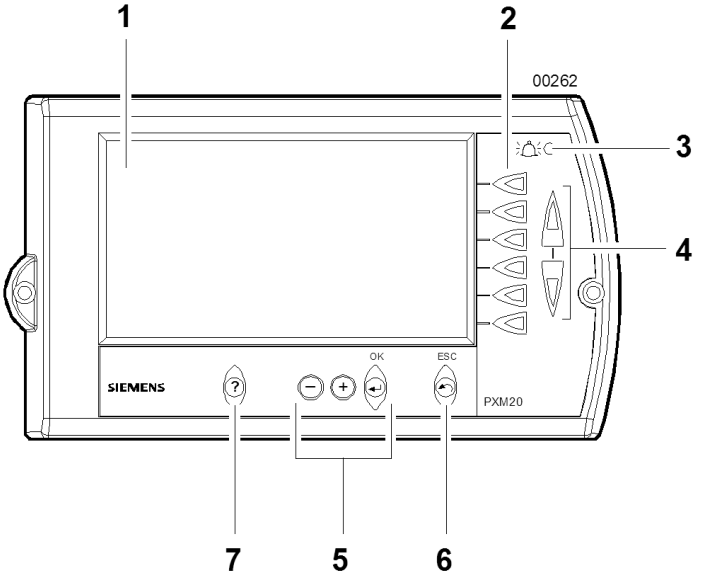
As the PXM20 operator unit is designed for end-user operation the operating concept concentrates on the simplest and clearest possible display following intuitive operating principles rather then displaying as many values as possible.

- Any text is displayed as clear text in the chosen language.
- To ensure a clear orientation for any operator the two top display lines (header lines) always show which building services system or which function is currently in operation.
- The basic concept of the operation ensures that it is always possible to select direct, with the click of a button on the keyboard, the plant information shown on the relevant line (*direct access* keys).
- Any settings or modifications (for example in graphics) can be followed direct on the display (e.g. graphics display for scheduler).
- The basic concept also ensures that all information and help functions can be called up any time (info key).

User's guide

The PXM20 functionality is described in detail in the following document:
Operator unit PXM20 / PXM20-E, User's guide, CM110754en.

Indicators and operator controls



1 Display
2 Navigation keys (*direct access* keys and *PageUp/PageDown* keys):
The *direct access* keys allow direct access to the relevant line. Possible functions:
– Select value and start the value adjustment
– Confirm new value
– Start function
– Open object
The *PageUp* and *PageDown* keys are provided for page scrolling if a page contains more values than can be shown on the display at the same time.
3 Alarm LED: The alarm LED lights up or flashes if an alarm is present in the system.
4 Page Up-, Page Down keys
5 Edit keys: These keys allow the selected values to be modified (<+> and <–>) and confirmed (<↵>).
6 ESC key (*Undo* and *GoUp)*: When editing a value the editing process can be cancelled by using the *Undo* key (previous value will be displayed again). Otherwise the *GoUp* key selects the hierarchically higher object.
This key is placed between the two blocks containing the navigation and editing keys because, according to its function, it belongs to both.
7 <?> Info key: This key selects the information mode for the next keyboard click.

Generic operation and display

Due to the application program each menu tree is different. Navigation through the menu tree is based on the so-called C*lickDown* procedure using the navigation keys.

Alarms and events

If the PXM20 receives an alarm or an event appears on the display a pop-op window appears with the relevant information.

Visual and acoustic alarm

When an alarm is present the alarm LED flashes and changes to steady light when all alarms have been acknowledged. The acoustic alarm is provided as an option and can be activated optionally when an alarm is triggered.

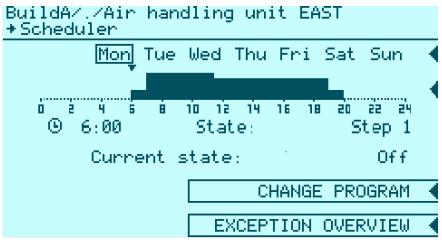
AlarmViewer

Alarms are written into the AlarmViewer with a symbol, a description and a time/date stamp in chronological order. An acknowledgement mask to acknowledge alarms can be called up in the AlarmViewer. After acknowledgement the alarm entry disappears from the AlarmViewer; however, it will continue to be saved in the history list. Further details can be viewed in the alarm history (e.g. out of service, overridden, deadband, present value, etc.)
The PXM20 history can contain max. 60 entries; the older ones are deleted.

Scheduler

The Scheduler allows the user a time-dependent switch on/off and the programming of time-dependent setpoint adjustments.
The Scheduler consists of a 7-day schedule and an exception program.

7-day schedule



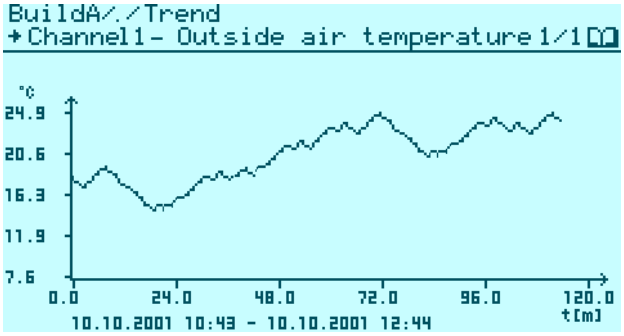
With the help of the navigation and editing keys it is very simple to create, modify, delete or copy a 7-day schedule in this mask. For each day an individual *"road map"* is programmed.

Exception programs

If the field *EXCEPTION OVERVIEW* is clicked in the *7-day schedule* (see above) the current monthly overview appears and shows as inverted all the days which are affected by an exception. All other months can be called up as overview by using the top *direct access* key.

In the exception program, too, the exceptions are created, modified or deleted by using the navigation and editing keys. It is possible to define exception days (e.g. a bank holiday) as well as exception periods (e.g. holiday periods).
Click the *EXCEPTIONS* field to display a list of all programmed exceptions.

Online trend



The PXM20 operator unit provides the user with five channels for trend logging, enabling 5 data points to be logged.

There are three separate ways of viewing the trend data:

1 Graphical view: Int his view all the values of a trend datapoint stored in PXM20 will be displayed graphically
2 Online graphical view : In the online view the values will be displayed in a grsphical and dynamic manner, i.e. in real time.
3 List: In place of a graphic view, the values can be displayed in list form

Info concept

Press info key to switch to info mode. In this info mode two different kind of information can be called up:

- Pressing the info key a second time displays general information for the currently displayed object (e.g. complete path, clear text of object).
- Pressing a *direct access* key in info mode displays information for the object or value on the selected line.

Exit the info mode by pressing any key.

Access protection

- Login by entering password with string editor
- Display and operation in accordance with user privileges
- Definition of user privileges during engineering of Desigo PX configurations
- Login always referenced to a site
- Alarms
- – Alarm display depends on user privilege
- – Alarm handling in accordance with user privileges
- Logout

Auto logout and sleep mode

If no operator activities are carried out within a set period the device switches off automatically and the display is turned off.
Pressing any key activates the device automatically again and the background lighting of the display is switched on.

Language versions

When the operator unit is delivered the language is set to English. The language setting can be changed internally to one of the following languages: Dutch, French, German, Italian and Swedish.

Ordering

1 PXM20 operator unit

Compatibility

Device	Type	Data sheet
Compact automation stations	PXC...	N9211
Modular automation stations	PXC...-U	N9221
Compact automation stations	PXC....D or PXC...-T.D	N9215
Modular automation stations	PXC....D	N9222

Accessories

Description	Type
Connection cable (CAT5), length 3.0 m (order separately)	PXA-C1
Adapter RS232 – RJ45 to connect a PXA-C1 to a PC (order separately)	PXA-C2
Mounting frame for mounting on the wall or on the control panel door (order separately)	PXA-H1

Design

The PXM20 operator unit is contained in a robust plastic housing, ideally suited for its many different mounting methods.
All indicators and controls are mounted on the front cover of the unit (see page 2).
The connections for the automation stations are incorporated on the back of the unit (see page 7).

Mounting instructions

The PXM20 is suitable for control panel front mounting or vertical panels (e.g. remote operating panels or similar units). The unit is also suitable for DIN rail snap-mounting. In addition, the PXM20 can be mounted direct on any modular automation station.

Commissioning

Wiring test

- The device only supports I/Os that are not configurable, i.e. dedicated I/Os on compact automation stations and I/Os on PTM modules. No support of UIs and I/Os on TX-I/O modules.
- **Therefore the preferred method for wiring test is the Point Test Tool.**

Switchless commissioning

Commissioning before programming:
The wiring test supports the reading of all I/Os of compact automation stations, and modular – as long as the modules have an address key. In addition the wiring test supports writing to all outputs. This means you can switch on fans, pumps, lamps etc., or drive valves to a defined position.
The outputs keep their state as long as the automation station is powered.

Firmware download

It is possible to download firmware via the RS232 interface.

Disposal

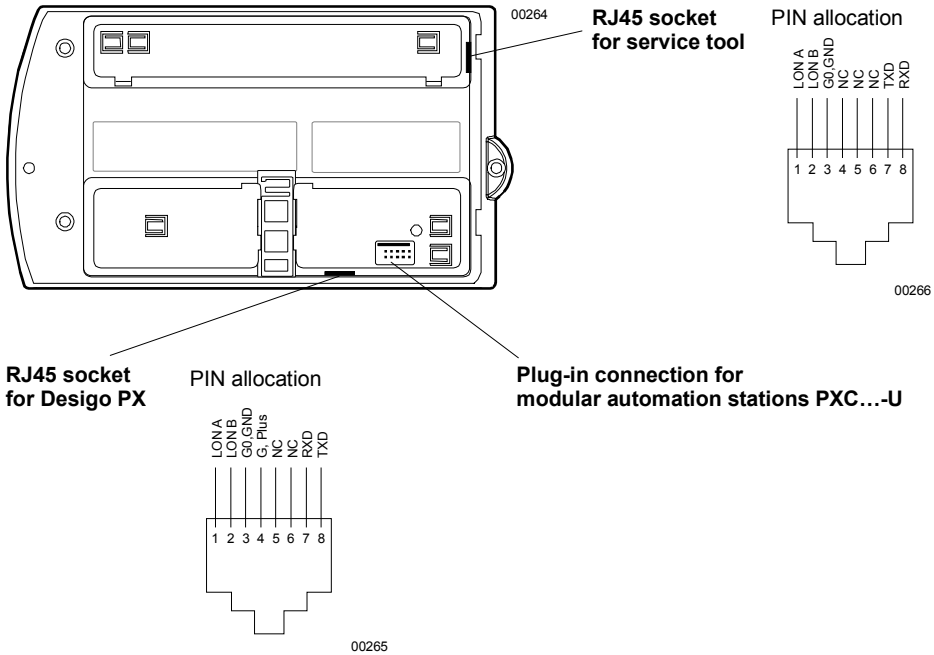
The device is classified as waste electronic equipment in terms of the European Directive 2012/19/EU (WEEE) and should not be disposed of as unsorted municipal waste.
The relevant national legal rules are to be adhered to.
Regarding disposal, use the systems setup for collecting electronic waste.
Observe all local and applicable laws.

Technical data

General device data	Operating voltage		AC 24 V ± 20 %
	Safety extra-low voltage SELV		
	Protective extra-low voltage PELV		HD 384
	Frequency		50/60 Hz
	Power consumption	Series D and later	Up to Series C
	AC 24 V	max. 3 VA	max. 12 VA
	DC 12	max. 6 W	max. 5 W
	Internal fuse		Thermic, automatic reset
Operating data	Main processor		Freescale PowerPC
	Communication processor		Neuron 3150
	Data backup in case of power failure		
	Applications, parameter (FLASH)		> 10 years
Keyboard	Type		Keyboard with plastic membrane and pressure point
	Key area		7 x 7 mm
	Switching pressure		2.1 N
	Travel		0.6 ... 0.7 mm
	Operating life		> 1 million operations
	Material, front membrane		Polycarbonate
	Material, contacts		Conductive silver, snap-on discs gold-plated
Display	Mechanical		
	LCD display		F-STN, Black & White
	Display area		123 x 68 mm
	No. of dots		240 x 128 dots
	Dot size		0.47 x 0.47 mm
	Dot area		0.50 x 0.50 mm
	Optical		
	Contrast ratio		20 : 1
	Viewing angle		± 40°
	Viewing direction		6 o'clock
	Background lighting	Series D and later	Up to Series C
	Type	LED	CCFL Cold Cathode Fluorescent Lamp
	Brightness	150 cd/m^2	60 cd/m^2
	Rise time lamp	0 s	5 min = 80% Brightness
	Life span Lamp	50'000 hrs. = 50 % Brightness	20'000 hrs. = 64 % Brightness
Interface LON bus	Transceiver		FTT-10A
	Baud rate		78 kBit/s
	Protocol		BACnet
Interface RS232	Data bits		8
	Parity		None
	Stop bits		1
	Baud rate		115,2 kBit/s
	Protocol		Xon / Xoff

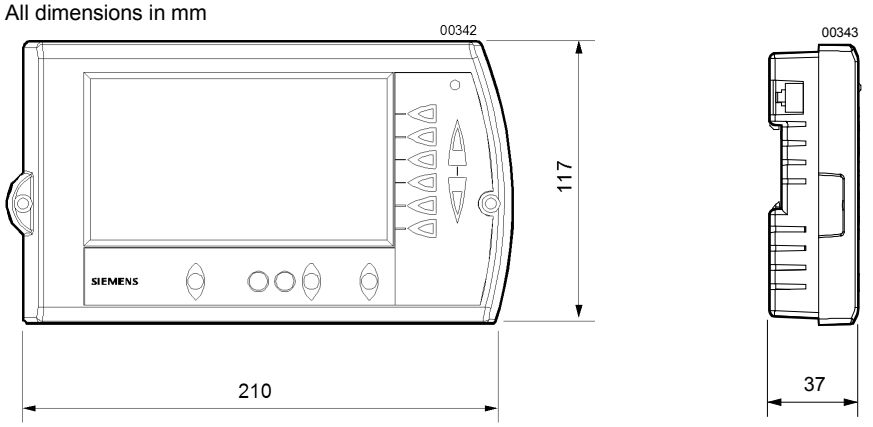
Mounting options	– For control panel mounting, remote operating panels, etc. – DIN rails – Direct on modular automation stations	
Connections	*See page 7*	
Housing protection standard	Protection standard to EN 60529	IP 40 (built-in), else IP30
Protection class	Isolation protection class	III
Ambient conditions	Operation	Class 3K5 to IEC 721
	Temperature	0 ... 45 °C
	Humidity	< 85 % rh
	Transport	Class 2K3 to IEC 721
	Temperature	– 25 ... 65 °C
	Humidity	< 95 % rh
Standards, directives and approvals	Product standard Automatic electronic controls for household and similar use	EN 60730-1
	Electromagnetic compatibility (EMC) (area of use)	For residential and industrial environments
	EU conformity (CE)	CM1T9231xx *)
	UL approbation	UL 916, http://ul.com/database
Environmental compatibility	The product environmental declaration contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal)	CA1E9231 *)
	*) The documents can be downloaded from http://siemens.com/bt/download.	
Dimensions	117 x 210 x 37 mm (H x W x D)	*See "Dimensions", page 8*
Weight	Without / with packaging + accessories	508 g / 566 g

Connections



Dimensions

All dimensions in mm



Drill and cut-out template