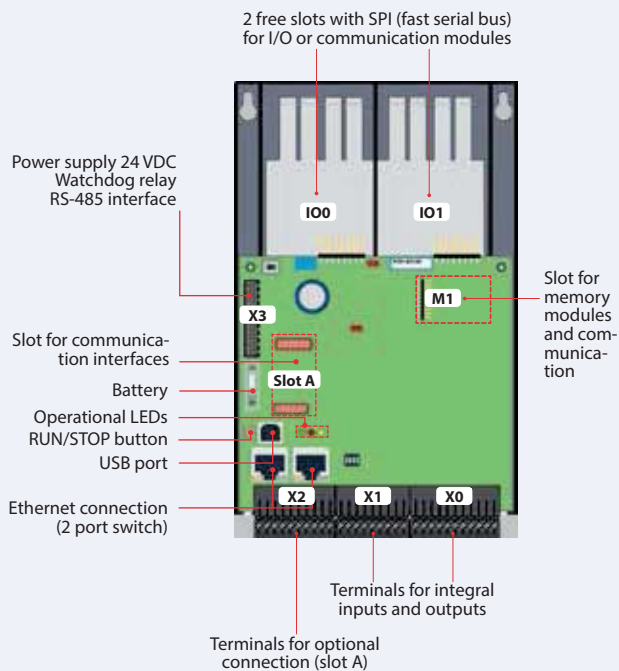## 1.4.1 **Saia® PCD1.M2xxx**

The Saia® PCD1.M2xxx series is a compact controller with onboard I/Os and in addition two I/O-slots for PCD2 I/O-modules or communication interface-modules. The Web/IT functionality, the onboard memory, the range of standard communication interfaces and the expansion options offer good solutions for small to medium installations.

Layout

2 free slots with SPI (fast serial bus) for I/O or communication modules

IO0   IO1

Power supply 24 VDC
Watchdog relay
RS-485 interface

X3

Slot for communica-
tion interfaces

Battery

Operational LEDs
RUN/STOP button

USB port

Ethernet connection
(2 port switch)

M1

Slot for
memory
modules
and com-
munica-
tion

Slot A

X2   X1   X0

Terminals for integral
inputs and outputs

Terminals for optional
connection (slot A)

System characteristics

▶ Up to 50 inputs / outputs
  may be expanded locally with RIO PCD3.T66x or PCD3.T76x
▶ Up to 8 communication interfaces
▶ USB and Ethernet interface onboard
▶ Large onboard memory for programs (up to 1 MByte)
  and data (up to 128 MByte file system)
▶ AutomationServer for integration into Web/IT systems

AutomationServer
integrated in
the base unit

Types

▶ PCD1.M2160   with Ethernet TCP/IP
  and expanded memory
▶ PCD1.M2120   with Ethernet TCP/IP
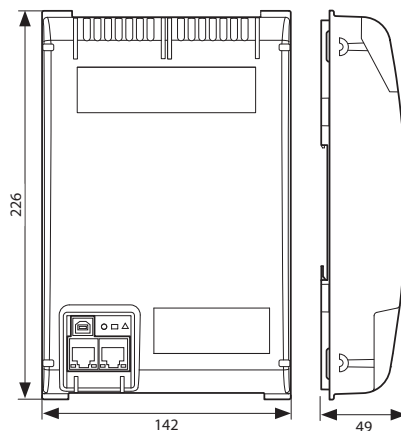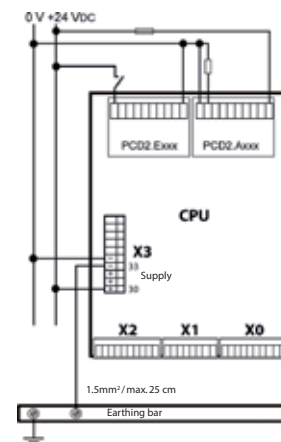▶ PCD1.M2020   without Ethernet TCP/IP

Mounting
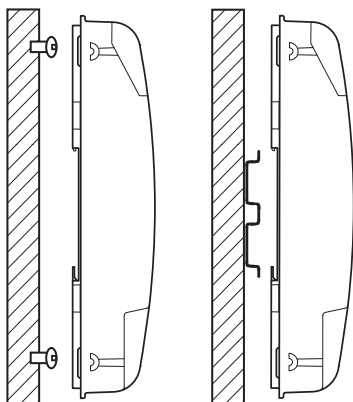
On a flat surface

On two top-hat rails
(2 × 35 mm pursuant to
DIN EN 60 715 TH35)

Dimensions

226

142   49

Power supply and connection plan

0 V +24 VDC

PCD2.Exxx   PCD2.Axxx

CPU

X3
33
Supply
30

X2   X1   X0

1.5mm² / max. 25 cm

Earthing bar

Further information is provided in the Saia PCD3 power supply and connection plan section and in Manual 26-875.

Overview of Saia® PCD1.M2xxx

Technical data

Memory and file system	Types:	PCD1.M2160	PCD1.M2120	PCD1.M2020
Program memory, DB/text (Flash)		1 MByte	512 kByte	512 kByte
User memory, DB/text (RAM)		1 MByte	128 kByte	128 kByte
User flash file system onboard		128 MByte	8 MByte	8 MByte

Integrated communication

Ethernet connection (2 port switch) 10/100 Mbit/s, full-duplex, auto-sensing, auto-crossing		yes	yes	no
USB connection USB 1.1 device, 12 Mbit/s		yes	yes	yes
RS-485 (terminal X3), up to 115 kbit/s		yes	yes	yes

General data

Supply voltage	24 VDC, −20/+25 % max. incl. 5 % ripple (according to EN/IEC 61131-2)
Battery for data backup (exchangeable)	Lithium battery with a service life of 1 to 3 years
Operating temperature	0…55 °C
Dimensions (W × H × D)	142 × 226 × 49 mm
Type of mounting	2× top-hat rails according to DIN EN60715 TH35 (2 × 35 mm) or on a flat surface
Protection level	IP 20
Capacity 5V/+V(24 V) internal	max. 500 mA/200 mA
Power consumption	typically 12 W

On-Board inputs/outputs

Inputs

|		
6 Digital inputs (4 + 2 interrupts)	15…30 VDC, 8 ms / 0,2 ms input filter	Terminal X1
2 Analog inputs, selectable via DIP switch	−10…+10 VDC, 0…+/−20 mA, Pt1000, Ni1000, Ni1000 L&S, 0…2.5 kΩ, 12 bit resolution	Terminal X1

Outputs

4 Digital outputs	24 VDC / 0,5 A	Terminal X0
1 PWM output	24 VDC / 0,2 A	Terminal X0

selectable/configurable via PG5

|		
4 Digital inputs or outputs	24 VDC / data as digital inputs resp. outputs	Terminal X0
1 Watchdog relay or make contact	48 VAC or VDC, 1 A mount a free wheeling diode over the load when switching DC-tension	Terminal X3

Plug-in I/O modules for slots I/O 0 and I/O 1

The modules that have already been listed in the PCD2.M5 series are used for the Saia® PCD1 series.

I/O 0 I/O 1

Retaining catch Bus connector
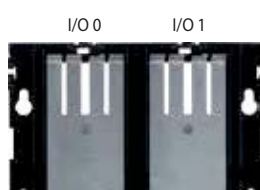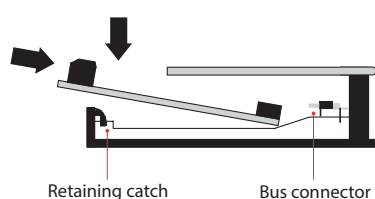
Saia® PCD1.M2xxx interface options

In addition to the onboard interfaces, the interface functions can also be extended in a modular way by means of the various slots. Numerous protocols are therefore supported by the Saia® PCD1.M2 series. Detailed information and an overview can be found in the section BA communication systems.
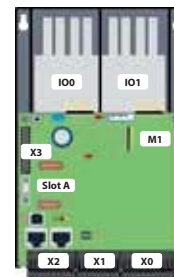
Communication		Current draw on 5V bus	Current draw on +V bus (24V)	Slot
PCD7.F110S	RS-485/RS-422 not electrically isolated	40 mA	---	Slot A
PCD7.F121S	RS-232 with RTC/CTS, DTR/DSR, DCD suitable for modem, EIB connection	15 mA	---	Slot A
PCD7.F150S	RS-485 electrically isolated, with activatable termination resistors	130 mA	---	Slot A
PCD7.F180S	Belimo MP-Bus, for connecting up to 8 drives on one line	15 mA	15 mA	Slot A
PCD2.F2100	RS-422/RS-485 plus PCD7.F1xxS as option	110 mA	---	EA 0/1
PCD2.F2150	BACnet® MS/TP RS-485 plus PCD7.F1xxS as option	110 mA	---	EA 0/1
PCD2.F2210	RS-232 plus PCD7.F1xxS as option	90 mA	---	EA 0/1
PCD2.F2400*	LONWORKS®-Interface-Modul	90 mA	---	EA 0/1
PCD2.F2610	DALI master for up to 64 DALI-devices	90 mA	---	EA 0/1
PCD2.F27x0	M-Bus master with 2 M-Bus interfaces	70 mA	8 mA	EA 0/1
PCD2.F2810	Belimo MP-Bus plus PCD7.F1xxS as option	90 mA	15 mA	EA 0/1

> ! The use of external modem modules such as Q.M716-KS1 is recommended.
> The PCD2.T8xx modem modules can only be used together with a PCD7.F121S module. External wiring is therefore required.

System properties of PCD2.F2xxx modules

The following points must be observed when using the PCD2.F2xxx interface modules:

▸ For each PCD1.M2 system, up to 2 PCD2.F2xxx modules (4 interfaces) can be used in slots I/O 0/1.

▸ To determine the maximum communication capacity for each PCD1.M2 system, consult the information and examples provided in Manual 26/875 for PCD1.M2.

Memory modules

The onboard memory of the Saia® PCD1.M2xxx can be extended by means of a Saia® PCD7.Rxxx module in slot M1. In addition, the Saia® PCD1.M21x0 can be extended with BACnet® IP or LON IP.

More information about the memory management and construction are listed in Chapter 1.1 Saia® PCD basic properties.

Memory extension and communication

PCD7.R550M04	Flash memory module with 4 MByte file system (for user program backup, web pages, etc.)	M1
PCD7.R560	Flash memory module for BACnet® firmware	M1
PCD7.R562	Flash memory module for BACnet® firmware with 128 MByte file system	M1
PCD7.R580	Flash memory module for LON IP firmware	M1
PCD7.R582*	Flash memory module for LON IP firmware with 128 MByte file system	M1

> ! For the BACnet® extension with Saia® PCD1.M2160, please check availability!

* In preparation, see chapter C2 "Product status"

Accessories and consumables for Saia® PCD1.M2xxx

Labeling

The self-adhesive labels can be printed directly with the Saia® LabelEditor from the PG5 2.0 Device Configurator

EPLAN macros

For project planning and engineering EPLAN macros are available.

An update of the macros and article data for eplan® electric P8 and the providing on the eplan® Data Portal is in preparation.

Availability,
see chapter C2 Product status

Battery for data backup

Type	Description
4 507 4817 0	Lithium battery for PCD processor unit (RENATA button battery type CR 2032)

Plug-in screw terminal blocks

4 405 5089 0	Plug-in screw terminal block, 11-pole, labeling 0…10	Terminal X0
4 405 5087 0	Plug-in screw terminal block, 9-pole, labeling 11…19	Terminal X1
4 405 5088 0	Plug-in screw terminal block, 10-pole, labeling 20…29	Terminal X2
4 405 4919 0	Plug-in screw terminal block, 10-pole, labeling 30…39	Terminal X3

Cover

4 104 7759 0	Housing cover for PCD1.M2xxx without Saia® logo can be individually designed on site with a foil

Range of uses

▶ For small and medium installations with a minimum risk through the expandability and programmability

▶ Modernization and enhancement of existing installations through the compact design, for example

▶ Various interface options, including to existing installations as a gateway.
  For example, optimization of a cooling system by setting all the free parameters

Connection to an existing EIB/KNX installation providing conference rooms with a web connection

Use as communication interface with M-Bus in a district heating network

Typical application and further information about the product:
Webcode scen13057