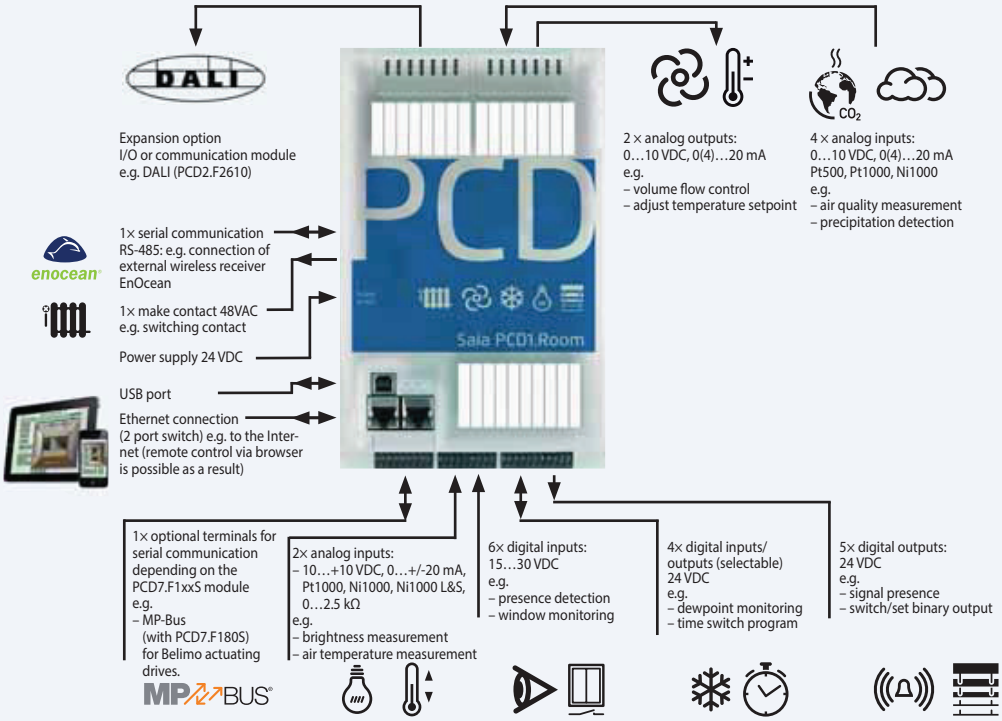
1.4.2 Saia PCD1.Room (PCD1.M2110R1)

Saia PCD1.Room (PCD1.M2110R1) is a programmable room controller for sophisticated solutions with many communication options. In addition to the I/Os that are already integrated, the controller offers a free I/O slot for an individual expansion with inputs/outputs or communication options. Web/IT functions for mobile operation, for instance, are also already onboard.
Furthermore, Saia PCD1.Room offers various possibilities for integrating other systems in the room through standard communication interfaces. (Energy) efficient and individual room automation can be easily implemented as a result.
The controller also provides a good basis for achieving the energy efficiency classes according to EN 15232:2012.

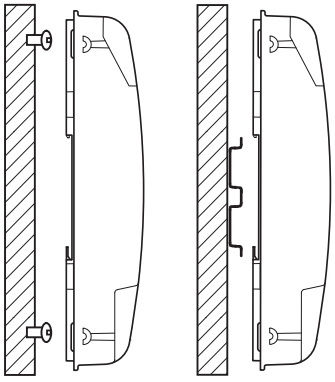
Layout with connection example



Lighting, sun blinds and single room control can be optimally harmonized with this controller. This example showing possible assignments was compiled on the basis of applications according to the VDI 3813 list of room automation functions and the DIN EN 15232 list of building automation functions.

The Smart RIO Manager function is not supported!

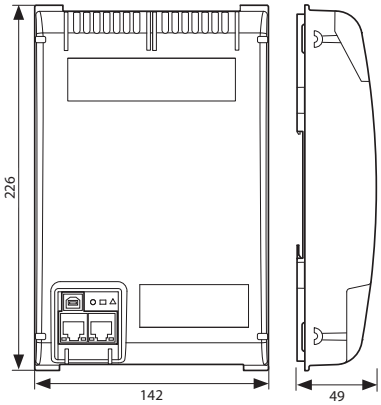
Mounting



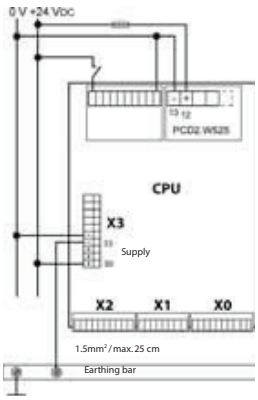
On a flat surface

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

Dimensions



Power supply and connection plan



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

Overview of Saia PCD1.Room (PCD1.M2110R1)

Technical data

Memory and file system	Type:	PCD1.M2110R1
Program memory, DB/text (Flash)		256 kByte
User memory, DB/text (Flash)		128 kByte
User flash file system onboard		8 MByte

Integrated communication	
Ethernet connection (2 port switch) 10/100 Mbit/s, full-duplex, auto-sensing, auto-crossing	yes
USB connection USB 1.1 device, 12 Mbit/s	yes
RS-485 (terminal X3), up to 115 kbit/s	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 smooth surface
Protection type	IP 20
Capacity 5V/+V(24V) internal	max. 500 mA/200 mA
Power consumption	typically 12 W
Automation Server	Flash memory, Filesystem, FTP and Web-Server, E-Mail, SNMP

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
4	Analog inputs, selectable via DIP switch	0…10 VDC, 0(4)…20 mA, Pt1000, Pt 500, Ni1000 14 Bit resolution	EA 1

Outputs

4	Digital outputs	24 VDC / 0.5 A	Terminal X0
1	PWM output	24 VDC / 0.2 A	Terminal X0
2	Analog outputs, selectable via PG5	0…10 VDC or 0(4)…20 mA, 12 Bit resolution	EA 1

Selectable/configurable via PG5

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

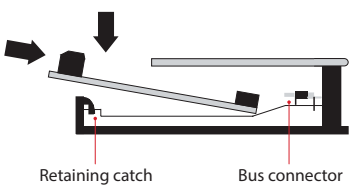
Analogue output module Saia PCD7.W600 *)

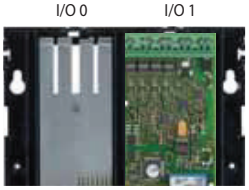
This new analogue outputs (range 0 to +10 V) with 12 bits resolution has been especially developed for the new PCD1 CPU (PCD1.M2xxx, PCD1.M0160E0, PCD1.M2110R1). It can be plugged in the slot A instead of a communication interface.

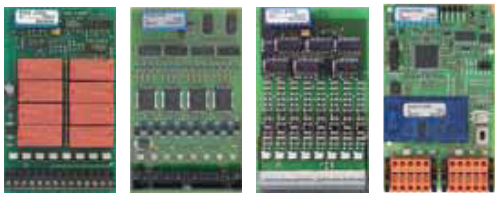
*) In preparation, see section C2 Product status

Plug-in I/O modules for slot I/O 0

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

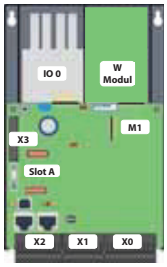






Only a PCD2.W525 module that is already supplied together with the controller in the default set up works in slot I/O 1. If the module is removed, the controller stops.

Saia PCD1.Room (PCD1.M2110R1) 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.M2110R1.
A detailed list of all the protocols 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

System properties of PCD2.F2xxx modules

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

- For each PCD1.M2120R1 Room Edition, up to 1 PCD2.F2xxx module (2 interfaces) can be used in slot I/O 0.
- To determine the maximum communication capacity for each PCD1.M2 system, consult the information and examples provided in Manual 27/619 für PCD1.M2110R1.

Memory modules

The onboard memory can be extended by means of a PCD7.Rxxx module in slot M1. In addition, BACnet® IP or LON IP can be activated.

For more information about memory management and construction, see Chapter 1.1 Saia PCD® System description.

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
PCD7.R610*	Base module for Micro SD Flash Card	M1
PCD7.R-MSD1024*	Micro SD Flash Card 1024 MB, PCD formatted	PCD7.R610

*) In preparation, see section C2 Product status

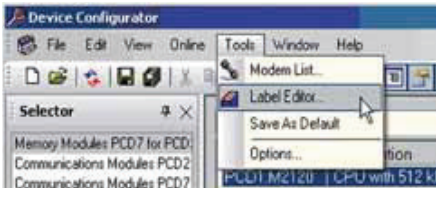
PCD7.R55xM04

PCD7.R610

Accessories and consumables for Saia PCD1.Room (PCD1.M2110R1)

Labeling

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



EPLAN macros

For project planning and engineering EPLAN macros are available

ePLAN® electric P8 macros are available from the support page.

Macros and product data may also be obtained from the ePLAN® data portal.

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

Cover

4 104 7759 0	Housing cover for PCD1.M2xxx without SBC-Logo can be individually designed on site with a foil

Range of uses

Applications

Options for programmable applications:

- Radiators
- Fan-coil applications
- Cooling ceiling
- VAV – variable air volume
- Air quality control
- Signal contacts (occupancy control, presence detection, window monitoring)
- Lighting control
- Blind control
- etc.

Room control units

Connection options via the following:

- Analog signals (onboard)
- S-Bus (onboard)
- Modbus (onboard)
- Internet access, web server (onboard)
- BACnet® with PCD7.R56x (slot M1)
- BACnet® MS/TP with PCD2.F2150* (slot I/O 0)
- LON IP with PCD7.R58x (slot M1)
- LON FTT 10 with PCD2.F2400 * (slot I/O 0)
- KNX over IP (IP onboard)
- KNX TP with an external coupler
- EnOcean with external receiver

Applications should be examined closely taking account of the number of I/Os. Depending on the application, coupling relays (for example: PCD7.L252) or S-Bus RIOs (PCD7.L200/L210) may be required. The S-Bus and Modbus stations are limited to a maximum of 10 units.

* In preparation, see chapter C2 "Product status"