Saia® PCD3 System
CPU

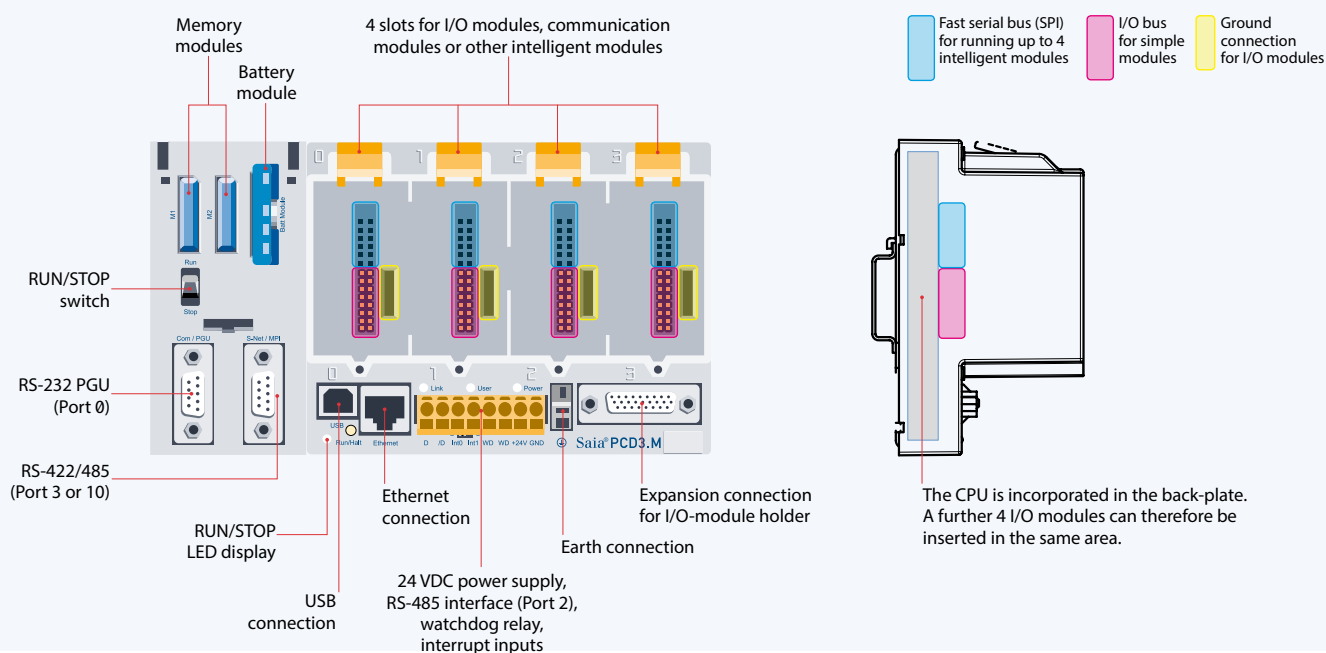# Layout for Saia® PCD3 controllers

The CPU has been incorporated in the back-plate of the device, unlike comparable systems. Its capacity can be increased individually with plug-in communication modules and/or intelligent I/O modules. These have a direct, very fast bus connection to the CPU.

PCD3.Mxxxxx base unit

Base unit with CPU and 4 slots for I/O modules, communication or other specific modules (e.g. PCD3.Hxxx counting module)

Layout

Memory modules

Battery module

4 slots for I/O modules, communication modules or other intelligent modules

Fast serial bus (SPI) for running up to 4 intelligent modules

I/O bus for simple modules

Ground connection for I/O modules

RUN/STOP switch

RS-232 PGU (Port 0)

RS-422/485 (Port 3 or 10)

RUN/STOP LED display

USB connection

Ethernet connection

24 VDC power supply, RS-485 interface (Port 2), watchdog relay, interrupt inputs

Earth connection

Expansion connection for I/O-module holder

The CPU is incorporated in the back-plate. A further 4 I/O modules can therefore be inserted in the same area.

With the left expansion, the Standard (PCD3.M5/M6xxx) and High Power (PCD3.Mxx60) CPU types have slots for a battery holder module with LED displays, a run/stop switch, two slots for flash memory modules and two further communication interfaces. The LED displays on the battery module indicate the status of the CPU and battery and any errors in the application. The battery also protects the data in the event of the supply voltage being interrupted. It can be replaced while under power during operation. The configuration, programs and data can be transferred from one controller to another using the plug-in flash memory modules. No programming tool is required for this.

Dimensions

PCD3.M5xx0/M6xx0

180 × 100.5 × 139 mm (W × H × D)
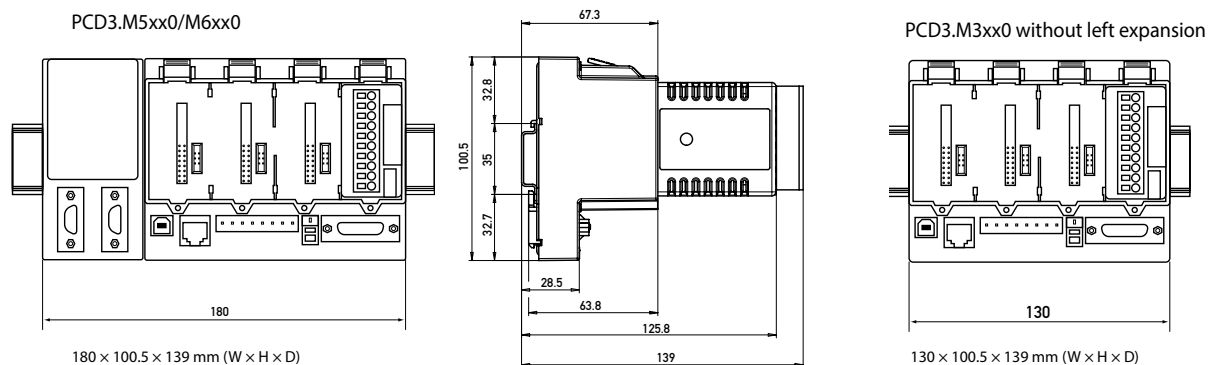
▲ Standard and High Power CPU with slots for battery and memory modules, run/stop switch and additional interfaces

PCD3.M3xx0 without left expansion

130 × 100.5 × 139 mm (W × H × D)

▶ Minimum Basic CPU without battery module PCD3.Rxxx memory modules are plugged into an I/O slot.

Saia® PCD3.Mxx60 controllers
High Power CPU for all requirements

Thanks to the fast processor and the increased system resources, the Power CPU has sufficient power reserves to process the most demanding control and communication tasks.


System properties

▸ Up to 1,023 inputs/outputs
Can be expanded locally with RIO PCD3.T66x or PCD3.T76x
▸ Up to 13 communication interfaces
▸ USB and Ethernet interface onboard
▸ 2 Ethernet interfaces (PCD3.M6860 only)
▸ Fast program processing (0.1 µs for bit operations)
▸ Large onboard memory for programs (2 MByte)
and data (128 MByte file system)
▸ Memory with SD flashcards can be expanded to 4 GByte
▸ AutomationServer for the integration into Web/IT systems

AutomationServer integrated in the base unit

Types

▸ **PCD3.M5560** CPU basic module with Ethernet TCP/IP, 2 MByte of program memory
▸ **PCD3.M6560** CPU basic module with Ethernet TCP/IP and Profibus-DP Master 12 Mbit/s, 2 MByte of program memory
▸ **PCD3.M6860*** CPU basic module with 2 × Ethernet TCP/IP, 2 MByte of program memory

*) In preparation, see section C2 Product status
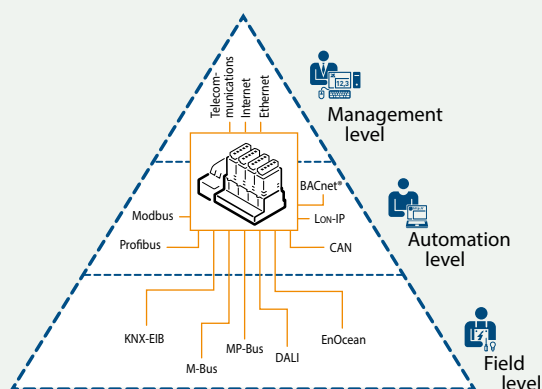
The Saia® PCD3 Power CPU has sufficient system resources to operate up to 13 communication interfaces in the same device. Even the most demanding tasks, such as simultaneous communication via BACnet® and Lon IP, are handled reliably.
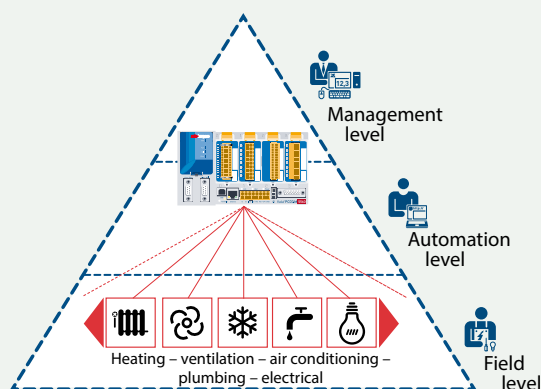
The generous memory resources (4 GByte) of the new PCD3 Power CPU make it possible to record/monitor, archive and control the data and statuses of all trades in the Saia® PCD, even without computer equipment and control system software. Applications for the various subsystems (HVAC) can be conveniently created using the graphical PG5 engineering tool and application-specific software libraries.

Saia® PCD3.Mxx60 controllers

High Power CPU
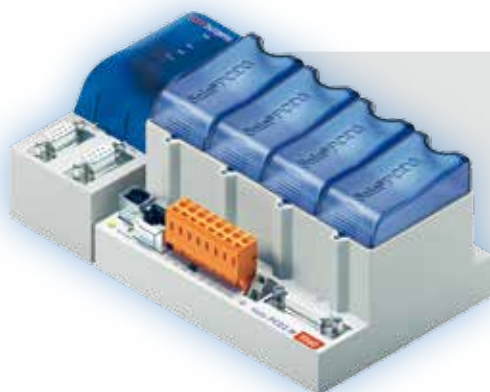
1,023	I/O
4.2 GByte	File system
2 MByte	Program
0.1/0.3 µs bit/word	CPU speed

	PCD3.M5560	PCD3.M6560	PCD3.M6860
Technical data	Power	DP Master	2 × Ethernet
Number of inputs/outputs	1023		
or I/O-module slots	64		
I/O expansion connection for PCD3.C module holder	Yes		
Processing time [µs] bit operation	0.1…0.8 µs		
word operation	0.3 µs		
Real time clock (RTC)	Yes		

On-Board memory

Program memory, DB/text (ROM)	2 MByte
User memory, DB/text (RAM)	1 MByte
Flash memory (S-RIO, configuration and backup)	128 MByte
User flash file system (INTFLASH)	128 MByte
Data backup	1…3 years with lithium battery

On-Board interfaces

USB 1.1	Yes		
Ethernet 10/100 Mbit/s, full-duplex, auto-sensing/auto-crossing	Yes		2×
RS-232 on D-Sub connector (PGU/Port 0)	up to 115 kbit/s		No
RS-485 on terminal block (Port 2) or	up to 115 kbit/s	up to 115 kbit/s	up to 115 kbit/s
RS-485 Profibus-DP Slave, Profi-S-Net on terminal block (Port 2)	No	up to 187.5 kbit/s	up to 187.5 kbit/s
RS-485 on D-Sub connector (Port 3) * or	up to 115 kbit/s	No	No
Profibus-DP Slave, Profi-S-Net on D-Sub connector (Port 10) * or	up to 1.5 Mbit/s	No	No
Profibus-DP Master up to 12 Mbit/s on D-Sub connector (Port 10) *	No	Yes	No

* can be used as an alternative, electrically isolated

Options

The data memory can be extended with flash memory modules (with file system) up to 4 GByte.

Optional data interfaces

|	
I/O slot 0	PCD3.F1xx modules for RS-232, RS-422, RS-485 and Belimo MP-Bus
I/O slot 0…3 up to 4 modules or 8 interfaces	PCD3.F2xx modules for RS-232, RS-422, RS-485, BACnet® MS/TP, Belimo MP-Bus, DALI and M-Bus

General data

|	
Supply voltage (according to EN/IEC 61131-2)	24 VDC −20/+25% max. incl. 5% ripple or 19 VAC +/−15% full-wave rectified (18 VDC)
Power consumption	typically 15 W for 64 I/Os
Capacity 5 V/+V (24 V) internal	max. 600 mA/100 mA

Saia® PCD3.M5x40 controllers

Standard CPU for a large number of applications
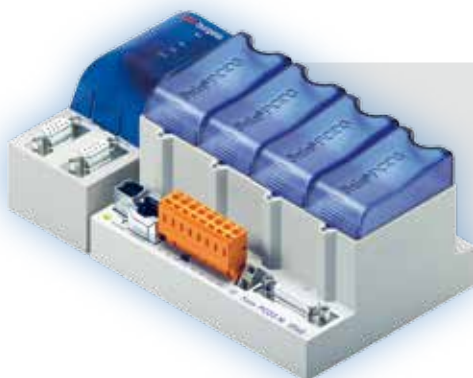
1,023	I/O
4 GByte	File system
1 MByte	Program
0.3/0.9 µs bit/word	CPU speed

AutomationServer integrated in the base unit
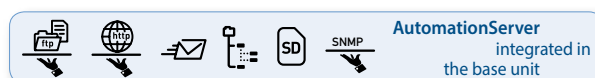
Types

▸ **PCD3.M5340** CPU basic module with Ethernet TCP/IP, 1 MByte of program memory

▸ **PCD3.M5440** CPU basic module without Ethernet TCP/IP, 1 MByte of program memory

▸ **PCD3.M5540** CPU basic module with Ethernet TCP/IP and Profibus-DP Slave 1.5 Mbit/s, 1 MByte of program memory

Technical data	PCD3.M5340 Standard	PCD3.M5440 Standard	PCD3.M5540 Standard
Number of inputs/outputs	1,023		
or I/O-module slots	64		
I/O expansion connection for PCD3.Cxxx module holder	Yes		
Processing times [µs] bit operation	0.3 … 1.5 µs		
word operation	0.9 µs		
Real time clock (RTC)	Yes		

On-Board memory

	PCD3.M5340	PCD3.M5440	PCD3.M5540
Main memory (RAM) for program and DB/text	1 MByte		
Flash memory (S-RIO, configuration and backup)	2 MByte		
User flash file system (INTFLASH)	No		
Data backup	1…3 years with lithium battery		

On-Board interfaces

	PCD3.M5340	PCD3.M5440	PCD3.M5540
USB 1.1	Yes		
Ethernet 10/100 Mbit/s, full-duplex, auto-sensing/auto-crossing	Yes	No	Yes
RS-232 on D-Sub connector (PGU/Port 0)	up to 115 kbit/s		
RS-485 on terminal block (Port 2) or	up to 115 kbit/s	up to 115 kbit/s	up to 115 kbit/s
RS-485 Profibus-DP Slave, Profi-S-Net on terminal block (Port 2)	up to 187.5 kbit/s	No	No
RS-422/485 (electrically connected) on D-Sub connector (Port 3) *	up to 115 kbit/s	No	No
RS-485 (electrically separated) on D-Sub connector (Port 3) *	No	up to 115 kbit/s	up to 115 kbit/s
Profibus-DP Slave, Profi-S-Net on D-Sub connector (Port 10) *	No	up to 1.5 Mbit/s	up to 1.5 Mbit/s

* can be used as an alternative

Options

The data memory can be expanded to 4 GByte with flash memory modules (with file system).

Optional data interfaces

|	
I/O slot 0	PCD3.F1xx modules for RS-232, RS-422, RS-485 and Belimo MP-Bus
I/O slot 0…3 up to 4 modules or 8 interfaces	PCD3.F2xx modules for RS-232, RS-422, RS-485, BACnet® MS/TP, Belimo MP-Bus, DALI and M-Bus

General data

Supply voltage (according to EN/IEC 61131-2)	24 VDC −20/+25% max. incl. 5% ripple or 19 VAC +/−15% full-wave rectified (18 VDC)
Power consumption	typically 15 W for 64 I/Os
Capacity 5 V/+V (24 V) internal	max. 600 mA/100 mA

Saia® PCD3.M3xx0 controllers

Basic CPU for simple applications
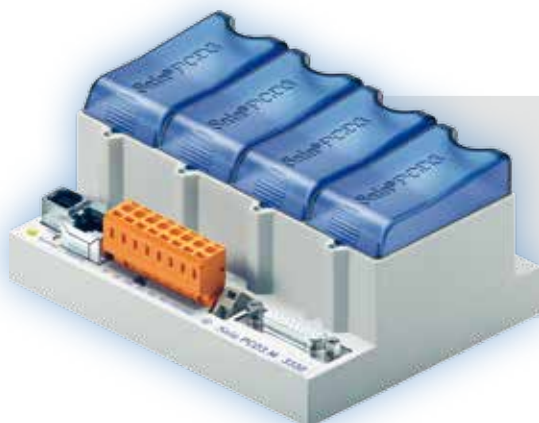
1,023	I/O
4 GByte	File system
512 kByte	Program
0.3/0.9 µs bit/word	CPU speed

AutomationServer integrated in the base unit
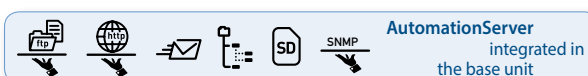
Types

▸ **PCD3.M3120**   CPU basic module with Ethernet TCP/IP, 64 I/Os, 128 kByte of program memory

▸ **PCD3.M3230**   CPU basic module without Ethernet TCP/IP, 1,023 I/Os, 512 kByte of program memory

▸ **PCD3.M3330**   CPU basic module with Ethernet TCP/IP, 1,023 I/Os, 512 kByte of program memory

	PCD3.M3120	PCD3.M3230	PCD3.M3330
Technical data	Basic	Basic	Basic
Number of inputs/outputs	64	1,023	1,023
or I/O-module slots	4	64	64
I/O expansion connection for PCD3.Cxxx module holder	No	Yes	Yes
Processing times [µs] bit operation	0.3…1.5 µs		
word operation	0.9 µs		
Real time clock (RTC)	Yes		

On-Board memory

	PCD3.M3120	PCD3.M3230	PCD3.M3330
Main memory (RAM) for program and DB/text	128 kByte	512 kByte	512 kByte
Flash memory (S-RIO, configuration and backup)	2 MByte		
User flash file system (INTFLASH)	No		
Data backup	4 hours with SuperCap		

On-Board interfaces

	PCD3.M3120	PCD3.M3230	PCD3.M3330
USB 1.1	Yes		
Ethernet 10/100 Mbit/s, full-duplex, auto-sensing/auto-crossing	Yes	No	Yes
RS-485 on terminal block (Port 2) or	up to 115 kbit/s		
RS-485 Profibus-DP Slave, Profi-S-Net on terminal block (Port 2)	up to 187.5 kbit/s		

Options

The data memory can be expanded to 4 GByte with flash memory modules (with file system).

Optional data interfaces

I/O slot 0	PCD3.F1xx modules for RS-232, RS-422, RS-485 and Belimo MP-Bus
I/O slot 0…3 up to 4 modules or 8 interfaces	PCD3.F2xx modules for RS-232, RS-422, RS-485, BACnet® MS/TP, Belimo MP-Bus, DALI and M-Bus

General data

Supply voltage (according to EN/IEC 61131-2)	24 VDC −20/+25% max. incl. 5% ripple or 19 VAC +/−15% full-wave rectified (18 VDC)
Power consumption	typically 15 W for 64 I/Os
Capacity 5 V/+V (24 V) internal	max. 600 mA/100 mA

1 Automation stations
2 HMI Visualization and operating
3 Dedicated room controller
4 Consumption data acquisition
5 Cabinet components