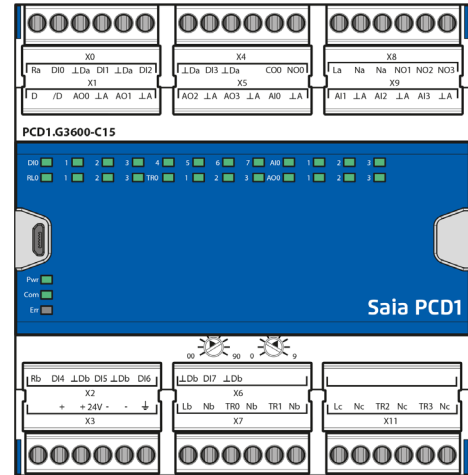# PCD1.G360x-C15

E-Line room control module

The fully programmable module with a housing width of 105 mm (6 HP*) can be controlled via RS-485. For example, it allows individual room control with widely available room automation components. It allows controller tasks from the HVAC and electrical plant areas to be combined. All relevant sensors for measuring temperature, humidity, CO2, VOC and digital 24 VAC / VDC signals are detected via the diverse inputs. The Triac and 0…10 V outputs enable the silent setting of valves. Fan coil devices can also be controlled direct.

Features

▶ 8 digital inputs

▶ 4 analogue inputs, individually configurable via software

▶ 4 analogue outputs

▶ 4 Triac outputs

▶ 4 relay outputs

▶ Electrical isolation between supply, bus and I/Os

▶ Pluggable terminal blocks protected by flaps

▶ Status LEDs on the front

▶ RS-485, USB and NFC interface (for PCD1.G3601-C15 also 1× RS-485)

▶ Freely programmable with Saia PG5®

General technical data

Power supply

| Supply voltage	Nominal 24 VAC (50 Hz) or DC 24 VDC, -15/+20 % incl. 5% ripple 24 VAC, -15 %/+10 % (in accordance with EN/IEC 61131-2)
Electrically isolated	500 VDC between power supply and RS-485
Power consumption	2 W

Interfaces

Communications interface	RS-485 with galvanic isolation Baud rate: 9,600, 19,200, 38,400, 57,600, 115,200 bps (autobauding)
Address switch for S-Bus address	Two rotary switches 0…9 Address range 0…253
Service interface	Micro USB NFC (Near Field Communication)
Additional interface	RS-485 for PCD.G3601-C15 in "Mode C" (without interpreted text). Baud rate: 1,200, 2,400, 4,800, 9,600, 19,200, 38,400, 57,600, 115,200 bps
Terminating resistor	Install externally

General data

Ambient temperature	Operation: 0 … +55 °C Storage: −40 … +70 °C

Dimensions and installation
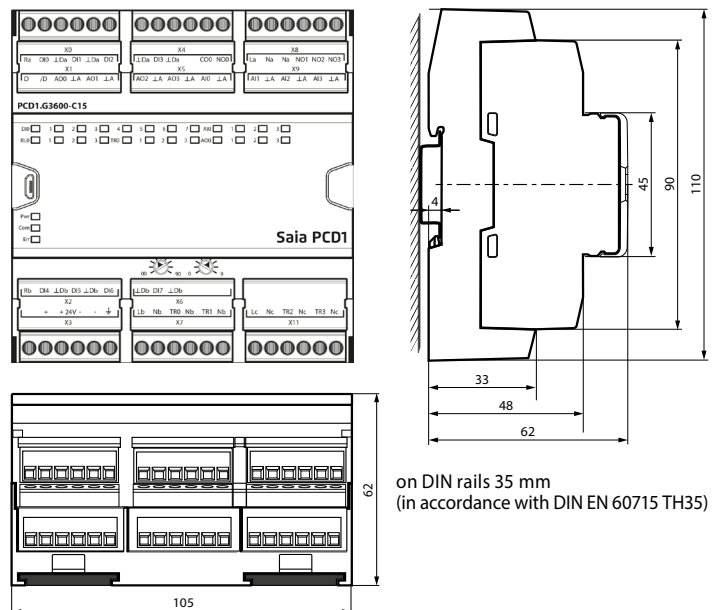
on DIN rails 35 mm (in accordance with DIN EN 60715 TH35)

Housing width 6 HP* (105 mm) Compatible with electrical control cabinets (in accordance with DIN 43880, size 2 × 55 mm) * Horizontal pitch: 1 HP corresponds to 17.5 mm

Input/output configuration

Digital inputs

Number	8
Input voltage	24 VAC / VDC source operation (positive switching) or sink operation
Switching level	Low: 0…5 V, High: 15…24 V
Input current	Typically 2 mA (AC/DC)
Input delay	20 ms (AC), 2 / 8 / 50 ms (DC)

Analogue inputs

Number	4	
Potential isolation	No	
Signal range and measured values (can be set via FBoxes)	Voltage measurement . . . . 0 V ... +10 V -10 V ... +10 V Current. . . . . -20 mA ... +20 mA Resistance . . . . 0 Ω ... 2500 Ω 0 Ω ... 7500 Ω 0 Ω ... 300 kΩ NTC10k . . . . 0 Ω ... 300 kΩ NTC20k . . . . 0 Ω ... 300 kΩ Pt1000 . . . . -50 °C ... +400 °C Ni1000 . . . . -50 °C ... +210 °C Ni1000 L&S . . . . -30 °C ... +140 °C	
	+/– 20V (independent of input configuration) voltages > 15 V / < –15 V, can result in incorrect values at other inputs	
Input delay	Channel update	4 ms (all channels are updated during this time)
	Hardware input filter time constant	Current / voltage measurement $\tau = 2.5$ ms Resistance $\tau \approx 8$ ms
	Digital input filter	10 values (0.2 to 50 ms)

Mode	Resolution [bit]	Resolution [measured value]	Accuracy (at TAmbient = 25°C)	Display
Voltage 0…10 V	13	1.22 mV (linear) $R_{IN} = 220\,k\Omega$	0.3% of the measured value +/– 10 mV	0…1000 (standard) or user scaling
Current –20 mA …+20 mA	12 + sign	5.2 µA (linear) $R_{SHUNT} = 240\,k\Omega$	0.3 % of the measured value +/– 20 µA	0…1000 (standard) or user scaling
Resistance 0…2500 Ω	12	0.50 …0.80 Ω *Measured current: 1.0 ….1.3 mA*	0.3% of the measured value +/– 3 Ω	0…25,000
0…7500 Ω	13	0 .. 3000 Ω: 1 ..... 2 Ω 3000 .. 7500 Ω: 2 ..... 4 Ω *Measured current: 0.6 ….1.3 mA*	0.3% of the measured value +/– 8 Ω 0.3% of the measured value +/– 15 Ω	0…75,000
0…300 kΩ	13	0 …..15 kΩ: 1 …. 10 Ω 15 …..40 kΩ: 10 …. 40 Ω 40 …..70 kΩ: 40 …100 Ω 70 ….100 kΩ: 100 …200 Ω 100 ….300 kΩ: 0.2 ….1.5 kΩ *Measured current: 30 µA ….1.3 mA*	0.3% of the measured value +/– 40 Ω 0.3% of the measured value +/– 160 Ω 0.5% of the measured value +/– 400 Ω 1.0% of the measured value +/– 800 Ω 2.5% of the measured value +/– 5.0 kΩ	0…300,000
NTC10k [2]	13	–40 .. +120 °C: 0.05 …..0.1 °C	–20…+60 °C: +/– 0.6 °C –30…+80 °C: +/– 1.0 °C –40…+120 °C: +/– 2.8 °C	–400…1200 [1]
NTC20k [2]	13	–10 … +80 °C: 0.02 .. 0.05 °C –20 .. +150 °C: < 0.15 °C	–15…+75 °C: +/– 0.6 °C –20…+95 °C: +/– 1.0 °C +95…+120 °C: +/– 2.5 °C +120…+150 °C: +/– 5.8 °C	–200…1500 [1]
Pt 1000	12	–50 .. +400 °C: 0.15 .. 0.25 °C *Measured current: 1.0 ….1.3 mA*	0.3% of the measured value +/– 0.5 °C	–500…4000
Ni 1000	12	–50 .. +210 °C: 0.09 .. 0.11 °C *Measured current: 1.0 ….1.3 mA*	0.3% of the measured value +/– 0.5 °C	–500…2100
Ni 1000 L&S	12	–30 .. +140 °C: 0.12 … 0.15 °C *Measured current: 1.0 ….1.3 mA*	0.3% of the measured value +/– 0.5 °C	–300…1400

[1] The PCD register outputs the value 0…300 kΩ.
[2] The temperature curves for NTC are not standardised and may differ depending on the manufacturer. A CSV file can be used for the value generation with a linearisation FBox. The CSV file can be found on the support page (link, see last page).

Input/output configuration

Relay outputs

Number	3 (normally open)
Switching voltage max.	250 VAC / 30 VDC
Switching current max.	6 A (AC1, DC1)
Max. inrush current	15 A
Contact protection	None
Local operation	None

Relay output

Number	1 (normally open)
Switching voltage max.	250 VAC / 30 VDC
Switching current max.	10 A (AC1, DC1)
Max. inrush current	65 A
Contact protection	None
Local operation	None

Triac outputs

Number	4	
Switching voltage max.	24 VAC / 230 VAC	
Switching current max.	1 A (AC1, DC1)	
Mode	Phase control	
	PWM	time 30…600 s, standard 300 s
Local operation	None	

Analogue outputs

Number	4	
Resolution	12 bit	
Signal range	0…10 V	
Protection	Short-circuit protection	
Resolution	2.44 mV	
Max. load at output	3.3 kΩ (3.3 mA @ 10 V)	
Accuracy (at TAmbient = 25°C)	0.3% of the value +/- 10 mV	
Residual ripple	< 15 mVpp	
Temperature error (0°C…+55°C)	+/- 0.2%	
Output delay	Channel update	1 ms (all channels are updated during this time)
	Time constant of hardware output filter	voltage measurement τ = 2.5 ms
Local override operation	None	

Terminal technology

Rigid or flexible wires with a diameter of up to 1.5 mm² can be used. A max. of 1 mm² is permitted with wire ferrules.

Connection concept

The device is supplied by a 24 VDC or AC voltage supply.

Bus wiring

DB- and /DA+ terminals must be used for exchanging data between the modules. The bus is through-wired to a terminal to ensure the exchange between modules to avoid an interruption in the bus connection.
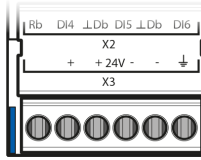
> Flexible RS-485 cables with a cross section of no more than 0.75 mm² are permissible for bus wiring. A cable cross section of 1.5 mm² per terminal applies overall. External bus terminating resistors must be used.

Assignment overview

	X0						X4						X8					
0	1	2	3	4	5	0	1	2	4	5	0	1	2	3	4	5
Ra	DI0	⊥Da	DI1	⊥Da	DI2	⊥Da	DI3	⊥Da	CO0	NO0	La	Na	Na	NO1	NO2	NO3

	X1						X5						X9					
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
D	/D	AO0	⊥A	AO1	⊥A	AO2	⊥A	AO3	⊥A	AI0	⊥A	AI1	⊥A	AI2	⊥A	AI3	⊥A

DI0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ AI0 ☐ 1 ☐ 2 ☐ 3 ☐
RL0 ☐ 1 ☐ 2 ☐ 3 ☐ TR0 ☐ 1 ☐ 2 ☐ 3 ☐ AO0 ☐ 1 ☐ 2 ☐ 3 ☐

USB

Pwr ☐
Com ☐
Err ☐

PCD1.G3600-C15

Rb	DI4	⊥Db	DI5	⊥Db	DI6		⊥Db	DI7	⊥Db	
0	1	2	3	4	5		0	1	2	
		X2						X6		

24V AC/DC

+	+	–	–	⊥		Lb	Nb	TR0	Nb	TR1	Nb		Lc	Nc	TR2	Nc	TR3	Nc
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
		X3						X7						X11				
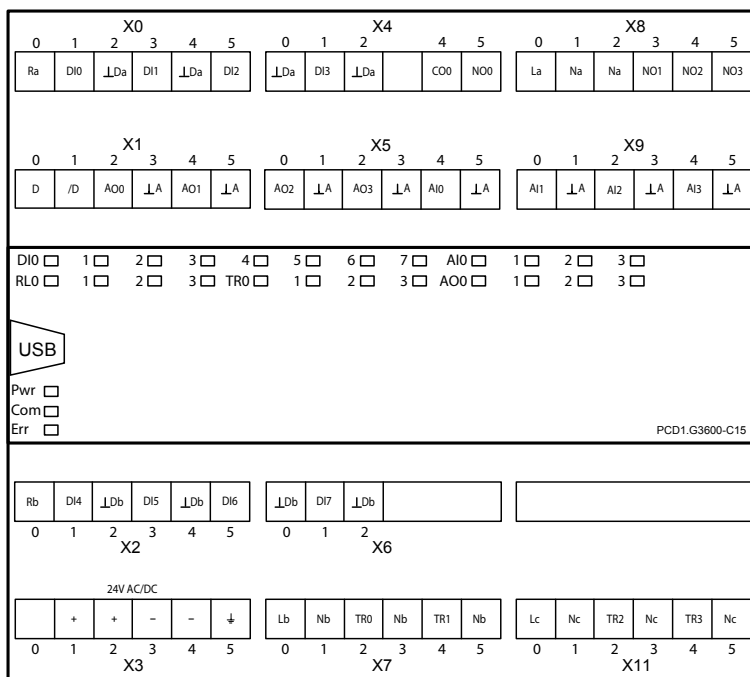
PCD1.G3600-C15

PCD1.G3601-C15 has an additional RS-485 interface (see labelling on terminals X6 and X10).

PCD1.G3601-C15

I7	⊥Db	a	b	c		d	⊥	e	f	g	h
2	3	4	5		0	1	2	3	4	5
	X6						X10			

	Nb	TR1	Nb		Lc	
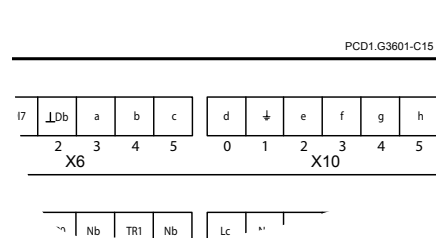
PCD1.G3601-C15

> | GND | ⊥ | ground (Masse) |
> |---|---|---|
> | DGND | ⊥D | digital galvanic isolated ground (galvanisch isolierte Digitalmasse) |
> | AGND | ⊥A | analog galvanic isolated ground (galvanisch isolierte Analogmasse) |
> | SGND | ⊥S | signal ground (Signal Masse) |
> | | a, b, .. | alphanumeric index by different grounds (Alphanumerischer Index bei unterschiedlichen Massen) |
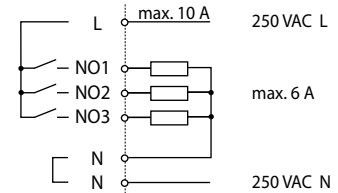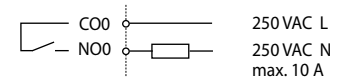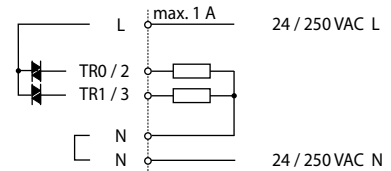
Connection diagrams

Digital input

Source operation — DI, ⊥D, R — 24 VAC or DC
Sink operation — DI, ⊥D, R

Analogue input

AI, ⊥A — V / mA / Ohm

Relay (6A)

L — max. 10 A — 250 VAC L
NO1
NO2 — max. 6 A
NO3
N
N — 250 VAC N

Relay (10A)

CO0 — 250 VAC L
NO0 — 250 VAC N / max. 10 A

Triac (1A)

L — max. 1 A — 24 / 250 VAC L
TR0 / 2
TR1 / 3
N
N — 24 / 250 VAC N

Analogue output

AO — 0…10 V (3.3 mA max.)
⊥A
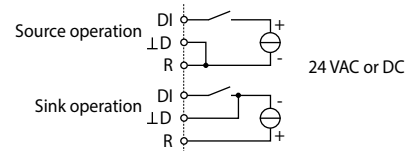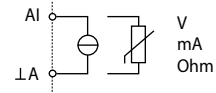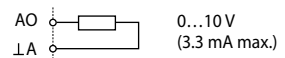
Additional RS-485 interface (for PCD1.G3601-C15)

a — DB-
b — /DA+
c — not used
...
h — not used

Supports "Mode C" (without interpreted text)
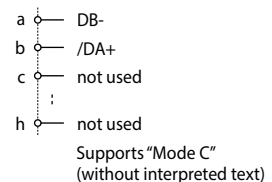
Programming

5 The modules are programmed with Saia PG5® via a master controller or directly via Micro USB.

Program
Non-volatile memory (Flash memory)

Program blocks

COB	COB 0
XOB	XOB 10, 12, 13 and 16
PB / FB	100 with maximum hierarchy of 8

Data types

ROM Text / DB	50

Memory

Program memory	64 kByte

Media
Volatile memory (RAM) without battery backup

Data types

Register	2000
Flag	2000
Timer / Counter	200

Memory

Memory (RAM) for 50 Text / DB	5 kByte
Memory (EEPROM) for up to 500 parameters (media) backup	2 kByte
Cyclic synchronisation with PCD controller	Real-time clock (RTC)

Supported libraries

The modules are planned with Saia PG5® using FBoxes or IL. The Saia PG5® Fupla Editor provides a selection of FBoxes which significantly simplify engineering.

PG5 standard FBox libraries

- Binary
- Blinker
- Block Control   (without SB)
- Buffers
- Com.Text   (not interpreted)
- Converter
- Counter
- DALI E-Line Driver   (new)
- Data Block
- Data Buffer
- EIB Driver   (partly)
- EnOcean   (partly)

- Flip-Flop
- Floating Point   (IEEE only)
- HVC   (partly)
- Indirect
- Integer
- Ladder
- Move In / Out
- MP-Bus
- Regulation   (partly)
- Special, sys info   (partly)
- Timer

In addition to these libraries, an "E-Suite" library is available for specific applications that can be created with the Saia PCD1 E-Line modules. An example for the electrical plant: shade control, light dimming…
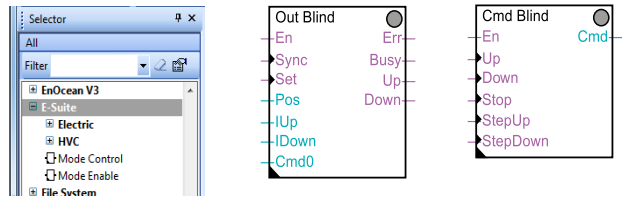
i More details on which FBoxes are supported, Getting Started, etc. are available on our support page
www.saia-support.com

NOTE

Extra low voltages (ELV) or secure low voltages (SELV) are voltages up to 50 Volts.

NOTE

Low voltages are voltages between 50 … 250 Volts.

INSTALLATION DIRECTION FOR SWITCHING LOWER VOLTAGES

For reasons of safety it is not allowed that extra low voltages and low voltages are connected to two adjacent relay contacts. Neither may different phases may be connected to two adjacent relay contacts. But a relay contact between them can be left empty.

If a Saia PCD® system module is connected to low voltage, then all components which are electrically connected to this system must be approved for low voltage.

When using low voltage, all connections to the relay contacts, which are connected to the same circuit, must be protected by a common fuse.
The individual load circuits, on the other hand, may be protected individually by a fuse.

ATTENTION

These devices must only be installed by a professional electrician, otherwise there is the risk of fire or the risk of an electric shock.

WARNING

Product is not intended to be used in safety critical applications, using it in safety critical applications is unsafe.

WARNING - Safety

The unit is not suitable for the explosion-proof areas and the areas of use excluded in EN 61010 Part 1.

WARNING - Safety

Check compliance with nominal voltage before commissioning the device (see type label). Check that connection cables are free from damage and that, when wiring up the device, they are not connected to voltage.

NOTE

In order to avoid moisture in the device due to condensate build-up, acclimatise the device at room temperature for about half an hour before connecting.

CLEANING

The device can be cleaned in dead state with a dry cloth or cloth soaked in soap solution. Do not use caustic or solvent-containing substances for cleaning.

MAINTENANCE

These devices are maintenance-free. If damaged during transportation or storage, no repairs should be undertaken by the user.

GUARANTEE

Opening the module invalidates the guarantee.

WEEE Directive 2012/19/EC Waste Electrical and Electronic Equipment directive
The product should not be disposed of with other household waste. Check for the nearest authorized collection centers or authorized recyclers. The correct disposal of end-of-life equipment will help prevent potential negative consequences for the environment and human health.
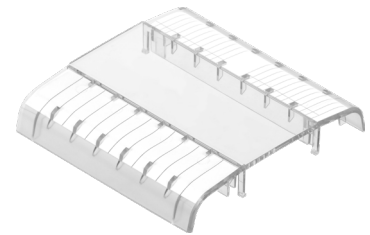
EAC Mark of Conformity for Machinery Exports to Russia, Kazakhstan or Belarus.

PCD1.G360x-C15

PCD1.G360x-C15

PCD1.K0206-005

Terminal set
32304321-003-S

Order details

Type	Short description	Description	Weight

PCD1.G3600-C15	E-Line room control module	Fully programmable input/output module for room automation
		Supply 24 VAC / VDC
		 8 digital inputs 24 VAC / VDC
		 3 normally open relays 230 VAC / 30 VDC, 6 A, max. inrush current 15 A
		 1 normally open relay 230 VAC / 30 VDC, 10 A, max. inrush current 65 A
		 4 Triacs 24 VAC or 230 VAC / 1 A
		 4 analogue inputs 12 bit, 0...10 V, ±10 V,
		   0(4)…20 mA, NTC, Pt/Ni 1000, Ni 1000 L&S
		   0…2500 Ω, 0…7500 Ω, 0…300 kΩ
		 4 analogue outputs 12 bit, 0…10 V (3 mA max.)
		 3 interfaces: RS-485 (S-Bus), USB & NFC (Service)
			389 g

PCD1.G3601-C15	E-Line room control module + additional RS-485	Input/output module for room automation with additional RS-485 interface Otherwise as PCD1.G3600-C15	389 g
PCD1.K0206-005	E-Line labelling set 5 × 6 HP*	E-Line cover and labelling set consisting of 5 × covers (6 HP* = 105 mm) and labelling sheet for mounting in the automation control cabinet	365 g
32304321-003-S	Terminal set	6-pin terminal. Set of 6 terminal blocks	40 g

* Horizontal pitch: 1 HP corresponds to 17.5 mm