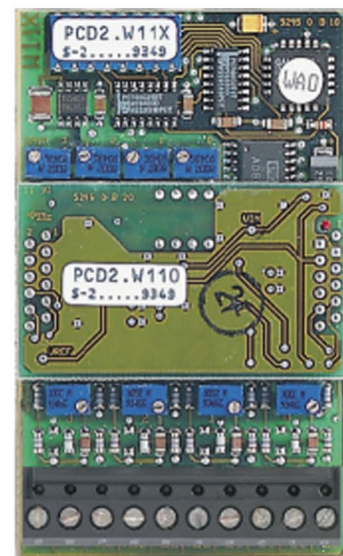
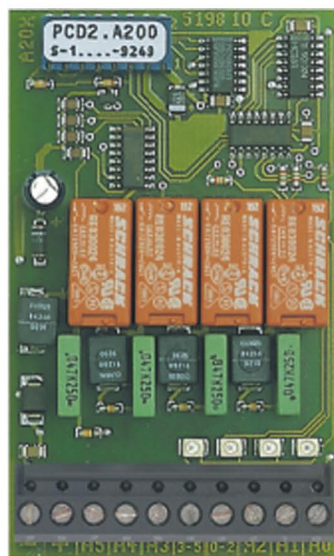
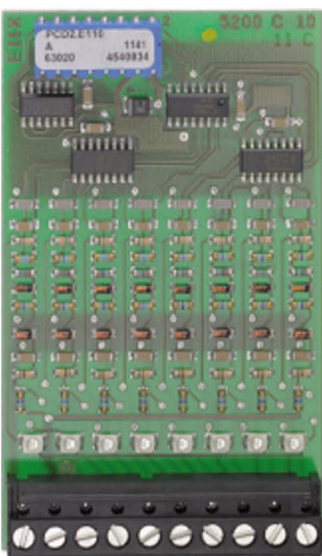


## Saia® PCD2 System I/O kort

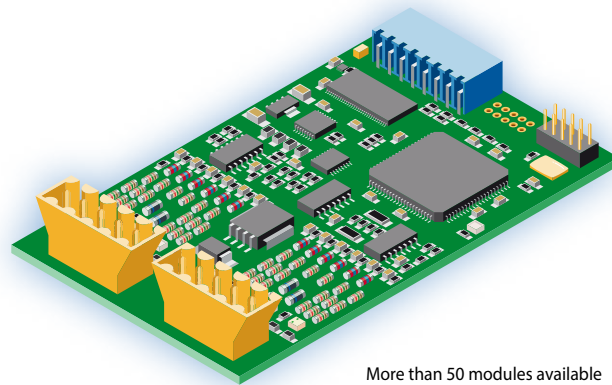


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## Saia® PCD2 Plug-in I/O modules: Overview

The functions of Saia® PCD2 can be expanded as required using a wide range of plug-in I/O modules and can be adapted to the specified needs. This not only ensures that a project can be implemented quickly but also provides the option of expanding the system at any time during operation.



More than 50 modules available with differing functionalities

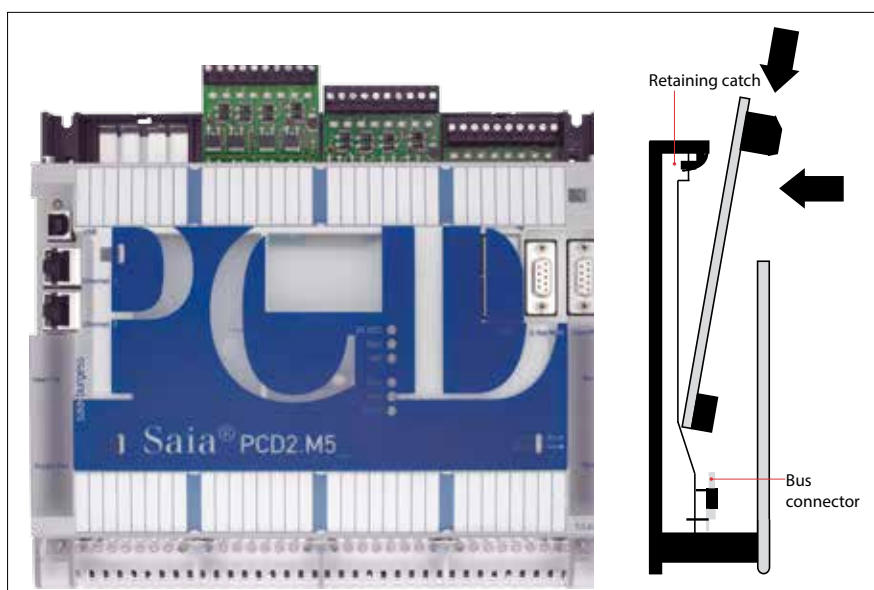
### System properties

- ▶ Numerous variants available
- ▶ Slot directly in the Saia® PCD2.M5xxxx, PCD1.M2xxx or in the module holder
- ▶ Full integration into the Saia® PCD2 housing
- ▶ Compact design
- ▶ Up to 16 I/Os per module
- ▶ Modules with an input delay of 0.2 ms

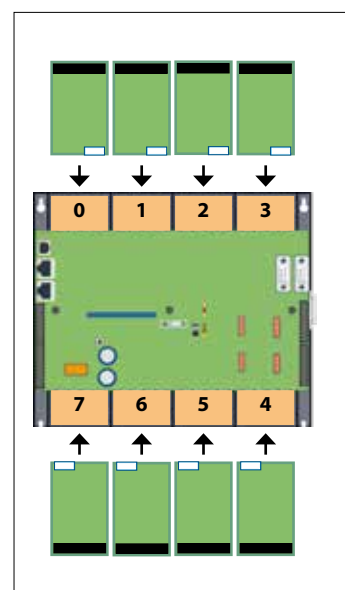
### General type key

- ▶ PCD2.Axxx Digital output modules
- ▶ PCD2.Bxxx Digital combined input/output modules
- ▶ PCD2.Exxx Digital input modules
- ▶ PCD2.Fxxx Communication modules
- ▶ PCD2.Hxxx Fast counter modules
- ▶ PCD2.Rxxx Memory modules
- ▶ PCD2.Wxxx Analog input/output modules

### Insertion in housing



### Slots for I/O modules



### Differences between the terminals of the I/O modules

|                                    |                                                     |                                                     |                                             |                                          |                                             |                                             |
|------------------------------------|-----------------------------------------------------|-----------------------------------------------------|---------------------------------------------|------------------------------------------|---------------------------------------------|---------------------------------------------|
| <b>Type K</b><br>2×5-pin connector | <b>Type L</b><br>10-pin connection terminal plug-in | <b>Type M</b><br>14-pin connection terminal plug-in | <b>Type N</b><br>20-pin connection terminal | <b>Type O</b><br>34-pin ribbon connector | <b>Type P</b><br>14-pin connection terminal | <b>Type R</b><br>17-pin connection terminal |
|                                    |                                                     |                                                     |                                             |                                          |                                             |                                             |

The screw terminal blocks and connectors can also be ordered individually as accessories.

## Saia® PCD2 Digital input and output modules

The digital I/O modules can be easily plugged into Saia® PCD2 and Saia® PCD1 base units or an appropriate I/O-module holder. In addition to inputs for various voltage levels, digital outputs are provided with both transistor construction and as mechanical relays. This means that electrical isolation from the switching electrical circuit can be achieved easily and reliably.

### Digital input modules

| Type      | Number of inputs | Input voltage | Breaking capacity |     | Input filter | Electrical isolation | Current draw |         | I/O connector type <sup>1)</sup> |
|-----------|------------------|---------------|-------------------|-----|--------------|----------------------|--------------|---------|----------------------------------|
|           |                  |               | DC                | AC  |              |                      | 5 V bus      | + V bus |                                  |
| PCD2.E110 | 8 I              | 15...30 VDC   | ---               | --- | 8 ms         | ---                  | 24 mA        | ---     | L                                |
| PCD2.E111 | 8 I              | 15...30 VDC   | ---               | --- | 0.2 ms       | ---                  | 24 mA        | ---     | L                                |
| PCD2.E112 | 8 I              | 7.5...15 VDC  | ---               | --- | 9 ms         | ---                  | 24 mA        | ---     | L                                |
| PCD2.E116 | 8 I              | 3.5...7 VDC   | ---               | --- | 0.2 ms       | ---                  | 24 mA        | ---     | L                                |
| PCD2.E160 | 16 I             | 15...30 VDC   | ---               | --- | 8 ms         | ---                  | 72 mA        | ---     | O                                |
| PCD2.E161 | 16 I             | 15...30 VDC   | ---               | --- | 0.2 ms       | ---                  | 72 mA        | ---     | O                                |
| PCD2.E165 | 16 I             | 15...30 VDC   | ---               | --- | 8 ms         | ---                  | 72 mA        | ---     | N                                |
| PCD2.E166 | 16 I             | 15...30 VDC   | ---               | --- | 0.2 ms       | ---                  | 72 mA        | ---     | N                                |
| PCD2.E500 | 6 I              | 80...250 VAC  | ---               | --- | 20 ms        | •                    | 1 mA         | ---     | L                                |
| PCD2.E610 | 8 I              | 15...30 VDC   | ---               | --- | 10 ms        | •                    | 24 mA        | ---     | L                                |
| PCD2.E611 | 8 I              | 15...30 VDC   | ---               | --- | 0.2 ms       | •                    | 24 mA        | ---     | L                                |
| PCD2.E613 | 8 I              | 30...60 VDC   | ---               | --- | 9 ms         | •                    | 24 mA        | ---     | L                                |
| PCD2.E616 | 8 I              | 3.5...7 VDC   | ---               | --- | 0.2 ms       | •                    | 24 mA        | ---     | L                                |

### Digital output modules

| Type      | Number of outputs                                | Input voltage | Breaking capacity |             | Input filter | Electrical isolation | Current draw |         | I/O connector type <sup>1)</sup> |
|-----------|--------------------------------------------------|---------------|-------------------|-------------|--------------|----------------------|--------------|---------|----------------------------------|
|           |                                                  |               | DC                | AC          |              |                      | 5 V bus      | + V bus |                                  |
| PCD2.A200 | 4 O, relay (make)                                | ---           | 2 A/50 VDC        | 2 A/250 VAC | ---          | •                    | 15 mA        | ---     | L                                |
| PCD2.A210 | 4 O, relay (break with contact protection)       | ---           | 2 A/50 VDC        | 2 A/250 VAC | ---          | •                    | 15 mA        | ---     | L                                |
| PCD2.A220 | 6 O, relay (make with contact protection)        | ---           | 2 A/50 VDC        | 2 A/250 VAC | ---          | •                    | 20 mA        | ---     | L                                |
| PCD2.A250 | 8 O, relay (make)                                | ---           | 2 A/50 VDC        | 2 A/48 VAC  | ---          | •                    | 25 mA        | ---     | M                                |
| PCD2.A300 | 6 O, transistor                                  | ---           | 2 A/10...32 VDC   | ---         | ---          | ---                  | 20 mA        | ---     | L                                |
| PCD2.A400 | 8 O, transistor                                  | ---           | 0.5 A/5...32 VDC  | ---         | ---          | ---                  | 25 mA        | ---     | L                                |
| PCD2.A410 | 8 O, transistor                                  | ---           | 0.5 A/5...32 VDC  | ---         | ---          | •                    | 24 mA        | ---     | L                                |
| PCD2.A460 | 16 O, transistor (with short circuit protection) | ---           | 0.5 A/10...32 VDC | ---         | ---          | ---                  | 74 mA        | ---     | O                                |
| PCD2.A465 | 16 O, transistor (with short circuit protection) | ---           | 0.5 A/10...32 VDC | ---         | ---          | ---                  | 74 mA        | ---     | N                                |

### Digital input/output modules

| Type      | Number of I/Os                         | Input voltage | Breaking capacity  |     | Input filter   | Electrical isolation | Current draw |         | I/O connector type <sup>1)</sup> |
|-----------|----------------------------------------|---------------|--------------------|-----|----------------|----------------------|--------------|---------|----------------------------------|
|           |                                        |               | DC                 | AC  |                |                      | 5 V bus      | + V bus |                                  |
| PCD2.B100 | 2 I + 2 O + 4 selectable I or O        | 15...32 VDC   | 0.5 A/5...32 VDC   | --- | 8 ms           | ---                  | 25 mA        | ---     | L                                |
| PCD2.B160 | 16 I/O (in blocks of 4 (configurable)) | 24 VDC        | 0.25 A/18...30 VDC | --- | 8 ms or 0.2 ms | ---                  | 120 mA       | ---     | 2x K                             |

### Fast counter modules (only for I/O slots with fast SPI bus)

| Type      | Number of counters | Inputs per counter     | Outputs per counter | Counting range          | Selectable digital filter | Current draw |         | I/O connector type <sup>1)</sup> |
|-----------|--------------------|------------------------|---------------------|-------------------------|---------------------------|--------------|---------|----------------------------------|
|           |                    |                        |                     |                         |                           | 5 V bus      | + V bus |                                  |
| PCD2.H112 | 2                  | 2 I + 1 configurable I | 1 CCO               | 0...16 777 215 (24-bit) | 10 kHz...150 kHz          | 50 mA        | 4 mA    | 2x K                             |
| PCD2.H114 | 4                  | 2 I + 1 configurable I | 1 CCO               | 0...16 777 215 (24 bit) | 10 kHz...150 kHz          | 50 mA        | 4 mA    | 2x K                             |



The internal load current drawn by the I/O modules from the +5V and +V bus supply must not exceed the maximum supply current specified for the PCD2.M5xxx, PCD2.Cxxxx and PCD1.M2xxx.

### Capacity of the PCD2 controllers and module holders

| Capacity                         | PCD1.M2xxx | PCD2.M5xxx | PCD2.C1000 | PCD2.C2000 |
|----------------------------------|------------|------------|------------|------------|
| <sup>1)</sup> Internal 5V bus    | 500 mA     | 1400 mA    | 1400 mA    | 1400 mA    |
| <sup>2)</sup> Internal +V bus 2) | 200 mA     | 800 mA     | 800 mA     | 800 mA     |

The electrical requirement of the internal +5V and +V bus for the I/O modules is calculated in the PG5 2.0 Device Configurator.

<sup>3)</sup> Plug-in terminal blocks are included with I/O modules.  
Spare parts are listed on the last page of this section (page 52).  
Ribbon cables are not included in the scope of delivery and are listed in section 1.7 (page 78).



More information on counting modules, stepper motor control and positioning modules:  
Webcode scen13046

## Saia® PCD2 Analog input and output modules

The numerous analog modules allow complex control tasks or measurements. Depending on the speed of the AD converter, the resolution is between 8 and 16-bit. The digitized values can be processed further directly in the project in PCD2 and PCD1. The large number of different modules means that suitable modules can be found to cover nearly every requirement.

### Analog input modules

| Type/<br>Order no. | Total<br>channels | Signal range                                                                                       | Resolution | Electrical<br>isolation | Current draw |         | I/O connector<br>type <sup>1)</sup> |
|--------------------|-------------------|----------------------------------------------------------------------------------------------------|------------|-------------------------|--------------|---------|-------------------------------------|
|                    |                   |                                                                                                    |            |                         | 5 V bus      | + V bus |                                     |
| PCD2.W200          | 8 I               | 0...+10 V                                                                                          | 10-bit     | ---                     | 8 mA         | 5 mA    | L                                   |
| PCD2.W210          | 8 I               | 0...20 mA (4...20 mA via user program)                                                             | 10-bit     | ---                     | 8 mA         | 5 mA    | L                                   |
| PCD2.W220          | 8 I               | Pt 1000: -50°C...400°C/Ni 1000: -50°C...+200°C                                                     | 10-bit     | ---                     | 8 mA         | 16 mA   | L                                   |
| PCD2.W220Z02       | 8 I               | NTC 10 temperature sensor                                                                          | 10-bit     | ---                     | 8 mA         | 16 mA   | L                                   |
| PCD2.W220Z12       | 4 I +<br>4 I      | 4 I: 0...10 V and<br>4 I: Pt 1000: -50°C...400°C/Ni 1000: -50°C...+200°C                           | 10-bit     | ---                     | 8 mA         | 11 mA   | L                                   |
| PCD2.W300          | 8 I               | 0...+10 V                                                                                          | 12-bit     | ---                     | 8 mA         | 5 mA    | L                                   |
| PCD2.W310          | 8 I               | 0...20 mA (4...20 mA via user program)                                                             | 12-bit     | ---                     | 8 mA         | 5 mA    | L                                   |
| PCD2.W340          | 8 I               | 0...+10 V/0...20 mA (4...20 mA via user program)<br>Pt 1000: -50°C...400°C/Ni 1000: -50°C...+200°C | 12-bit     | ---                     | 8 mA         | 20 mA   | L                                   |
| PCD2.W350          | 8 I               | Pt 100: -50°C...+600°C/Ni 100: -50°C...+250°C                                                      | 12-bit     | ---                     | 8 mA         | 30 mA   | L                                   |
| PCD2.W360          | 8 I               | Pt 1000: -50°C...+150°C                                                                            | 12-bit     | ---                     | 8 mA         | 20 mA   | L                                   |
| PCD2.W305          | 7 I               | 0...+10 V                                                                                          | 12-bit     | •                       | 60 mA        | 0 mA    | M                                   |
| PCD2.W315          | 7 I               | 0...20 mA/4...20 mA, parameters can be set                                                         | 12-bit     | •                       | 60 mA        | 0 mA    | M                                   |
| PCD2.W325          | 7 I               | -10 V...+10 V                                                                                      | 12-bit     | •                       | 60 mA        | 0 mA    | M                                   |
| PCD2.W720          | 2 I               | Weighing module with 2 systems for up to 6 weighing cells                                          | ≤ 18 bit   | ---                     | 60 mA        | 100 mA  | M                                   |
| PCD2.W745          | 4 I               | Temperature module for TC type J, K and 4-wire Pt/Ni 100/1000                                      | 16 bit     | •                       | 200 mA       | 0 mA    | P                                   |

### Analog output modules

| Type/<br>Order no. | Total<br>channels | Signal range                                                  | Resolution | Electrical<br>isolation | Current draw |         | I/O connector<br>type <sup>1)</sup> |
|--------------------|-------------------|---------------------------------------------------------------|------------|-------------------------|--------------|---------|-------------------------------------|
|                    |                   |                                                               |            |                         | 5 V bus      | + V bus |                                     |
| PCD2.W400          | 4 O               | 0...+10 V                                                     | 8-bit      | ---                     | 1 mA         | 30 mA   | L                                   |
| PCD2.W410          | 4 O               | 0...+10 V/0...20 mA/4...20 mA jumper-selectable               | 8-bit      | ---                     | 1 mA         | 30 mA   | L                                   |
| PCD2.W600          | 4 O               | 0...+10 V                                                     | 12-bit     | ---                     | 4 mA         | 20 mA   | L                                   |
| PCD2.W610          | 4 O               | 0...+10 V/-10 V...+10 V/0...20 mA/4...20 mA jumper-selectable | 12-bit     | ---                     | 110 mA       | 0 mA    | L                                   |
| PCD2.W605          | 6 O               | 0...+10 V                                                     | 10-bit     | •                       | 110 mA       | 0 mA    | M                                   |
| PCD2.W615          | 4 O               | 0...20 mA/4...20 mA, parameters can be set                    | 10-bit     | •                       | 55 mA        | 0 mA    | M                                   |
| PCD2.W625          | 6 O               | -10 V...+10 V                                                 | 10-bit     | •                       | 110 mA       | 0 mA    | M                                   |

### Analog input/output modules

| Type/<br>Order no. | Total<br>channels | Signal range                                                                                                                                | Resolution             | Electrical<br>isolation | Current draw |         | I/O connector<br>type <sup>1)</sup> |
|--------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------|--------------|---------|-------------------------------------|
|                    |                   |                                                                                                                                             |                        |                         | 5 V bus      | + V bus |                                     |
| PCD2.W525          | 4 I +<br>2 O      | I: 0...10 V, 0(4)...20 mA, Pt 1000, Pt 500 or Ni 1000<br>(selectable by DIP switch)<br>O: 0...10 V or 0(4)...20 mA (selectable by software) | I: 14-bit<br>O: 12-bit | •                       | 40 mA        | 0 mA    | M                                   |



The internal load current taken by the I/O modules from the +5V and +V bus supply must not exceed the maximum supply current specified for the PCD2.M5xxx, PCD2.Cxxxx and PCD1.M2xxx.

### Capacity of the PCD2 controllers and module holders

| Capacity                         | PCD1.M2xxx | PCD2.M5xxx | PCD2.C1000 | PCD2.C2000 |
|----------------------------------|------------|------------|------------|------------|
| <sup>1)</sup> Internal 5V bus    | 500 mA     | 1400 mA    | 1400 mA    | 1400 mA    |
| <sup>2)</sup> Internal +V bus 2) | 200 mA     | 800 mA     | 800 mA     | 800 mA     |

The electrical requirement of the internal +5V and +V bus for the I/O modules is calculated in the PG5 2.0 Device Configurator.

<sup>3)</sup> Plug-in terminal blocks are included with I/O modules.  
Spare parts are listed on the last page of this section (page 52).  
Ribbon cables are not included in the scope of delivery and are listed in section 1.7 (page 78).