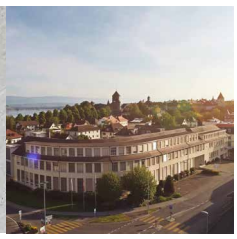
PCD3.W340

Analog input module, 8 channel, 12 bit, 0…2.5 V, 0…10 V, 0…20 mA or Pt/Ni1000



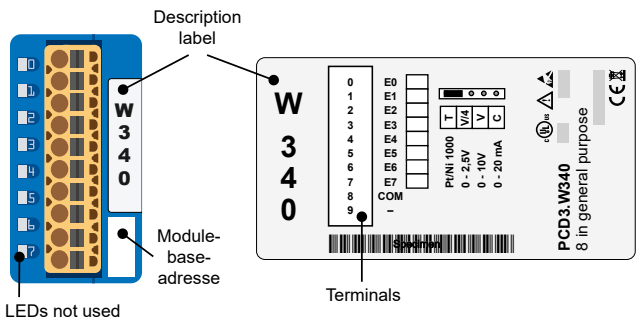
High-speed input module for general use with 8 channels, each with 12 bit resolution.
Different variantes pour tension 0 … 2,5 V, 0 … 10 V, current 0 … 20 mA and the use of different resistance thermometers are available.

PCD3.W340

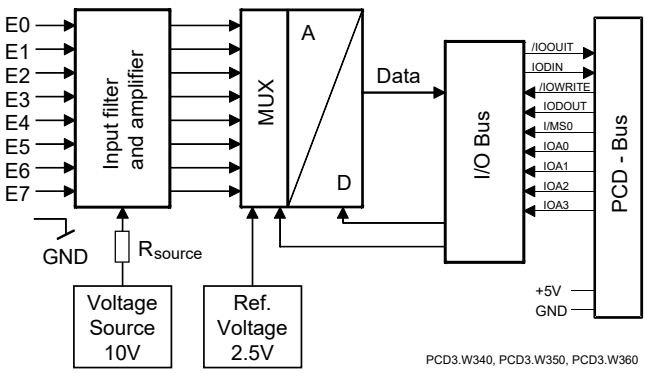
Technical specifications	
Number of inputs (channels)	8
Signal range	0 … 2,5 V, 0 … 10 V, 0 … 20 mA Pt/Ni 1000
Resolution (representation)	12 bit (0 … 4095)
Resolution (value of least significant bit(LSB))	2,442 mV (0 … 10 V) 4,884 µA (0 … 20 mA) Pt/Ni 1000 (default) 0,14 … 0,24 °C (Pt 1000 – 50 … +400 °C) 0,09 … 0,12 °C (Ni 1000 – 50 … +200 °C)
Method of linearization for temperature inputs	by software
Galvanic separation	no
Measuring principle	non-differential, single-ended
Input resistance	U: 200 kΩ / I: 125 Ω
	1,5 mA
Accuracy at 25 °C	± 0,3 %
Repeating accuracy (under same conditions)	± 0,05 %
Temperature error (0 … +55 °C)	± 0,2 %
Conversion time A/D	≤ 10 µs
Overvoltage protection	± 50 VDC (permanently)
Overcurrent protection	± 40 mA (permanently)
EMV protection	yes

Technical specifications	
Time constant of input filter	V: typically 7.8 ms C: typically 24.2 ms T: typically 24.2 ms
Internal current consumption (from +5 V bus)	< 8 mA
Internal current consumption (from V+ bus)	< 20 mA
External current consumption	0 mA
Terminals	Pluggable 10-pole spring terminal block for Ø up to 2.5 mm², plug type A (4 405 4954 0)

Indicators and connections

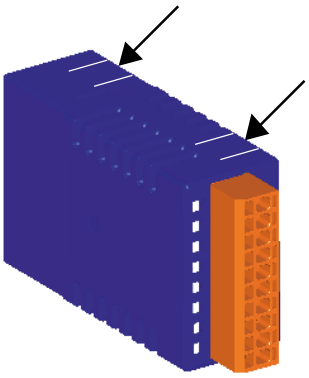


Block schematic



PCD3.W340, PCD3.W350, PCD3.W360

Open and close the module housing



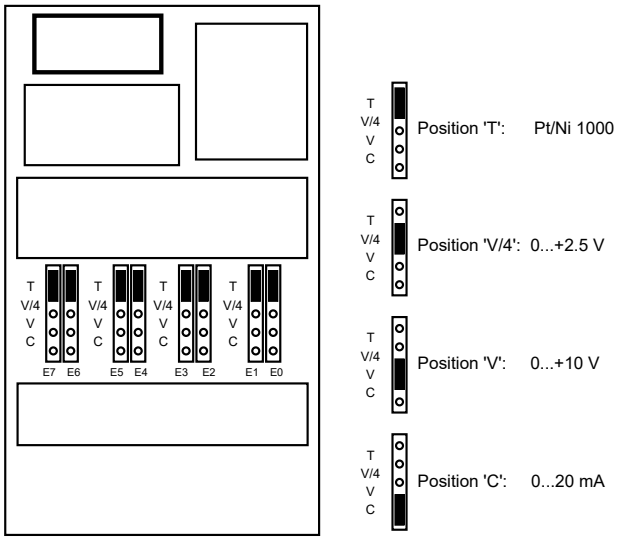
Open

On each of the two narrow sides of the housing are two snap-in clips. Lift these gently with your fingernails on one side then the other and separate the two parts of the housing.

Close

To close the housing, lay the bottom part on a flat surface (table etc.). Ensure that the circuit board is precisely located in this part of the housing. Press top part onto bottom until you hear the snap-in clips engage. Ensure that all four clips are correctly engaged.

Topology (open housing)



No negative input voltage should be applied on these modules.

Changing the jumpers

On this circuit board there are components that are sensitive to electrostatic discharges.

All inputs set for temperature (position T) must be wired. All unused inputs must be adjusted to current range ‘C’ or voltage range ‘V’.

The reference potentials of signal sources should be wired to a common GND connection (“–” and “COM” terminals). To obtain optimum measurement results, any connection to an earthing bar should be avoided.

If shielded cables are used, the shielding should be connected to an earthing rail.

Input signals with incorrect polarity significantly distort the measurements on the other channels.

Galvanic separation of inputs to CPU, channels themselves not separated.

I/O modules and I/O terminal blocks may only be plugged in and removed when the CPU and the external +24 V are disconnected from the power supply.

Watchdog ..

.. in classic system

The watchdog with his address 255 can influence this module if it is used at the base address 240.

.. in IEC-controller system

is not affected

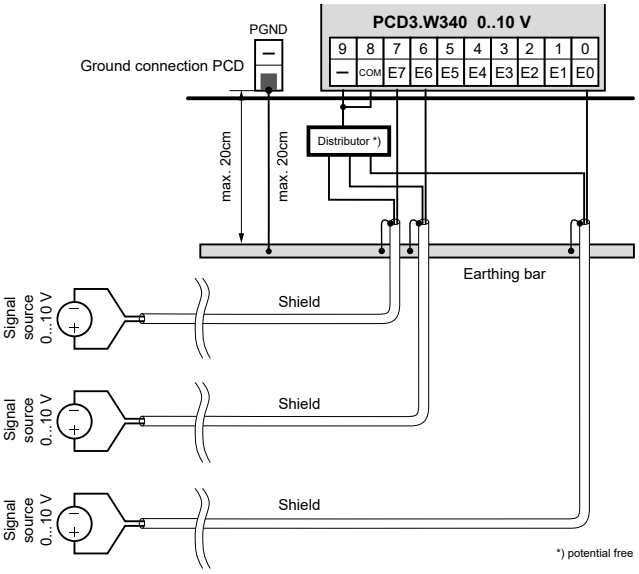
Further information

This can be found in the Manual "27-600_I/O-modules for PCD1 / PCD2 series and for PCD3".

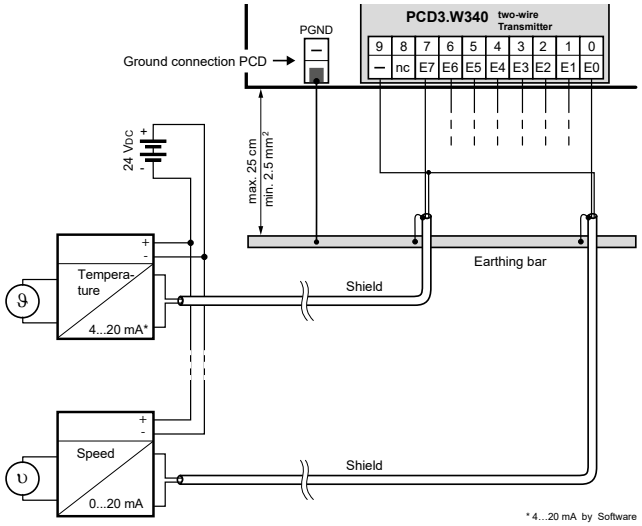
Connection concept

The voltage input signals are connected directly to the 10-pole terminal block (E0 … E7 and COM). To minimize the amount of interference coupled into the module via the transmission lines, connection should be made according to the principle explained below.

Connection for 0 … 10 V

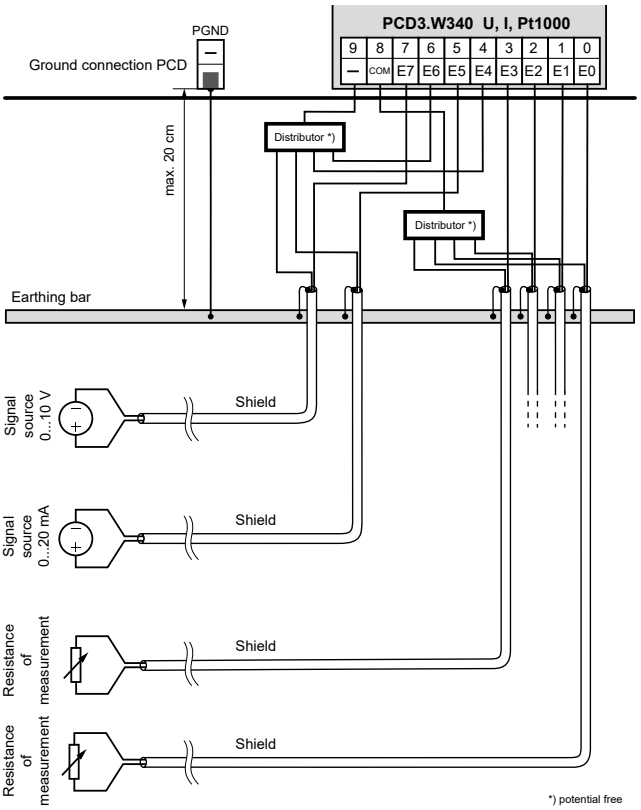


Connection for 0…20 mA with two-wire transducers



Two-wire transducers need a 24 VDC-supply in the measuring trunk.

Connection mixed operation



Formulae for temperature measurement

T = temperature in °C
DV = digital value (0…4095)

For Ni1000

Validity: Temperature range − 50 … + 210 °C
Computational error: ± 0.5 °C

$$T = -188.5 + \frac{260 \cdot DV}{2616} - 4.676 \cdot 10\text{-}6 \cdot (DV - 2784)^2$$

For Pi1000

Validity: Temperature range − 50 … + 400 °C
Computational error: ± 1.5 °C

$$T = -366.5 + \frac{450 \cdot DV}{2474} + 18.291 \cdot 10^{-6} \cdot (DV - 2821)^2$$

Resistance measurement up to 2.5 kΩ

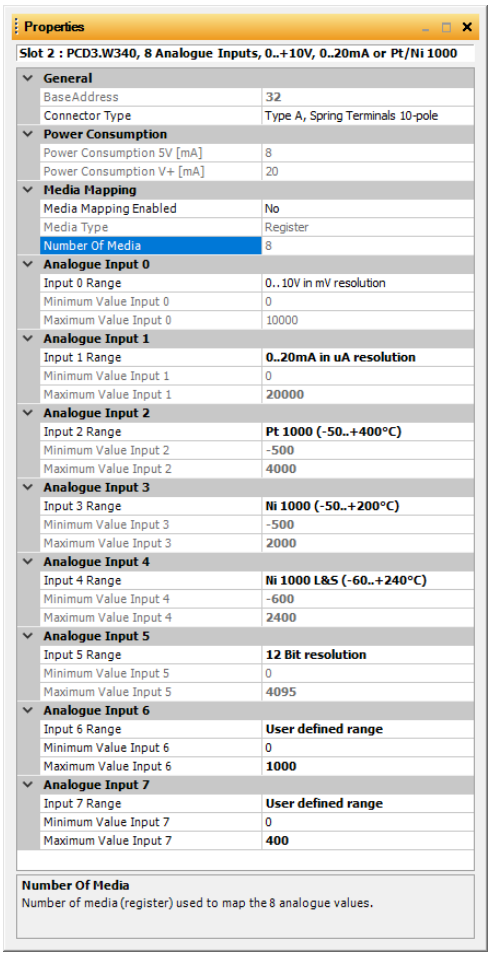
Special temperature sensors or any other resistances up to 2.5 kΩ can be connected to the PCD3.W340. The digital value can be calculated as follows:

$$DV = \frac{16380 \cdot R}{(7500 + R)}$$

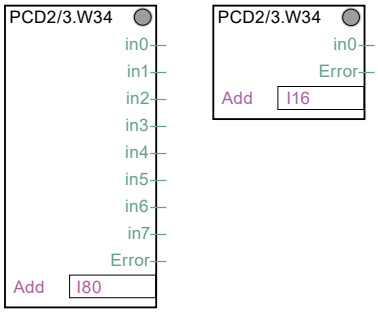
Configuration

Saia PG5® Controls Suite

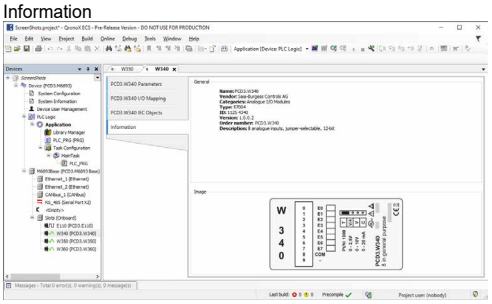
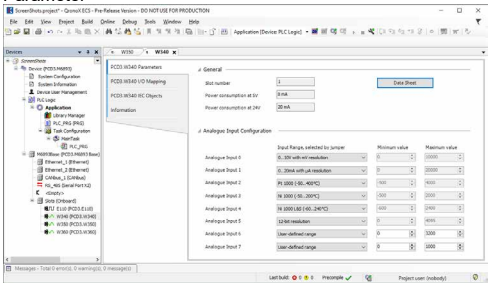
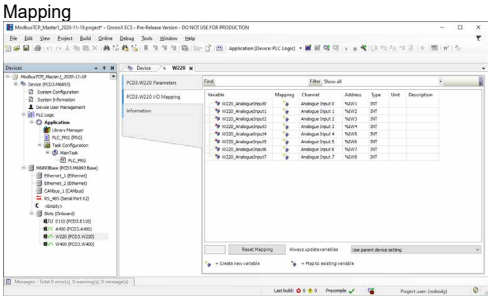
PCD-System	Evaluation
Classic	The evaluation is performed by the firmware. It reads the values according to the configuration (Device Configurator or Network Configurator).



Alternatively	An FBox "PCD2/3.W34" exists for evaluation. FBox for PCD3.W340 (Inputs 0…7 selectable)



Saia Qronox ECS Engineering and Commisioning Suite

PCD-System	Evaluation
IEC-Controller	The evaluation is performed by the firmware. It reads the values according to the configuration (Device Configurator) Information  Parameter  Mapping 

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 0used 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.
Do not use a damaged device !

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, no repairs should be undertaken by the user.

Observe this instructions (data sheet) and keep them in a safe place.
Pass on the instructions (data sheet) to any future user.

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.

PCD3.W340

4 405 4954 0

Ordering information

Type	Short description	Description	Weight
PCD3.W340	8 analogue inputs, 12 bit. 0…2,5 V, 0…10 V, 0…20 mA or Pt/Ni1000	Analogue input module, 8 inputs (channels), resolution 12 bit, signal range 0…2,5 V, 0…10 V, 0…20 mA or Pt/Ni1000. The channels themselves not separated. Connection with pluggable spring terminals, plug-in type A (4 405 4954 0) included	80 g

Ordering information equipment

Type	Short description	Description	Weight
4 405 4954 0	Plug-in, type A	Plug-in I/O spring terminal block, 10-pole up to 2.5 mm², labelled 0 … 9	15 g

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