

PCD3.W340

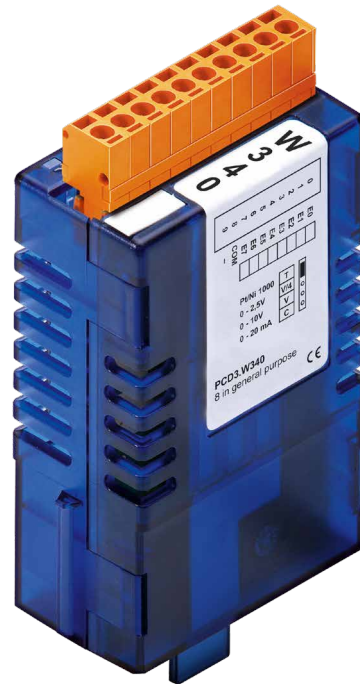
Analogue input module with 8 input channels, resolution 12 bits

High-speed input module for general use with 8 channels, each with 12 bit resolution.

General purpose module with:

Measurement parameter	Resolution*
0...10V	2.442 mV
0...20 mA	4.884 µA
Pt/Ni1000 (default)	
Pt1000: -50...+400°C	0.14...0.24°C
Ni1000: -50...+200°C	0.09...0.12°C

*) Resolution = value of least significant bit(LSB)

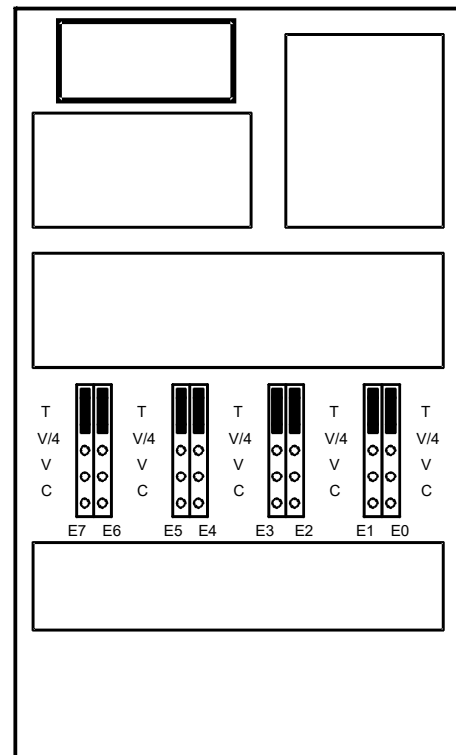


Technical data

Galvanic separation	no
Resolution (digital representation)	12 bits (0...4095)
Measuring principle	non-differential, single-ended
Input resistance	U: 200 kΩ / I: 125Ω
Maximum measurement current for temperature probes	1.5 mA
Accuracy at 25°C	± 0.3%
Repeat accuracy	± 0.05%
Temperature error (0...+55°C)	± 0.2%
Conversion time A/D	< 10 µs
Overvoltage protection	+ 50 VDC (permanent)
Overcurrent protection	± 40 mA (permanent)
EMC protection	yes
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	Plug-in 10-pole spring terminal block (4 405 4954 0) or pluggable 10-pole screw terminal block (4 405 4955 0), both for wires up to 2.5 mm ²

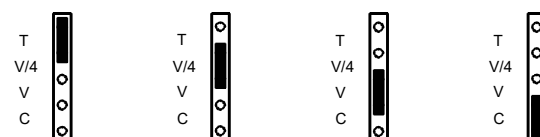
*) No negative input voltage should be applied on these modules.

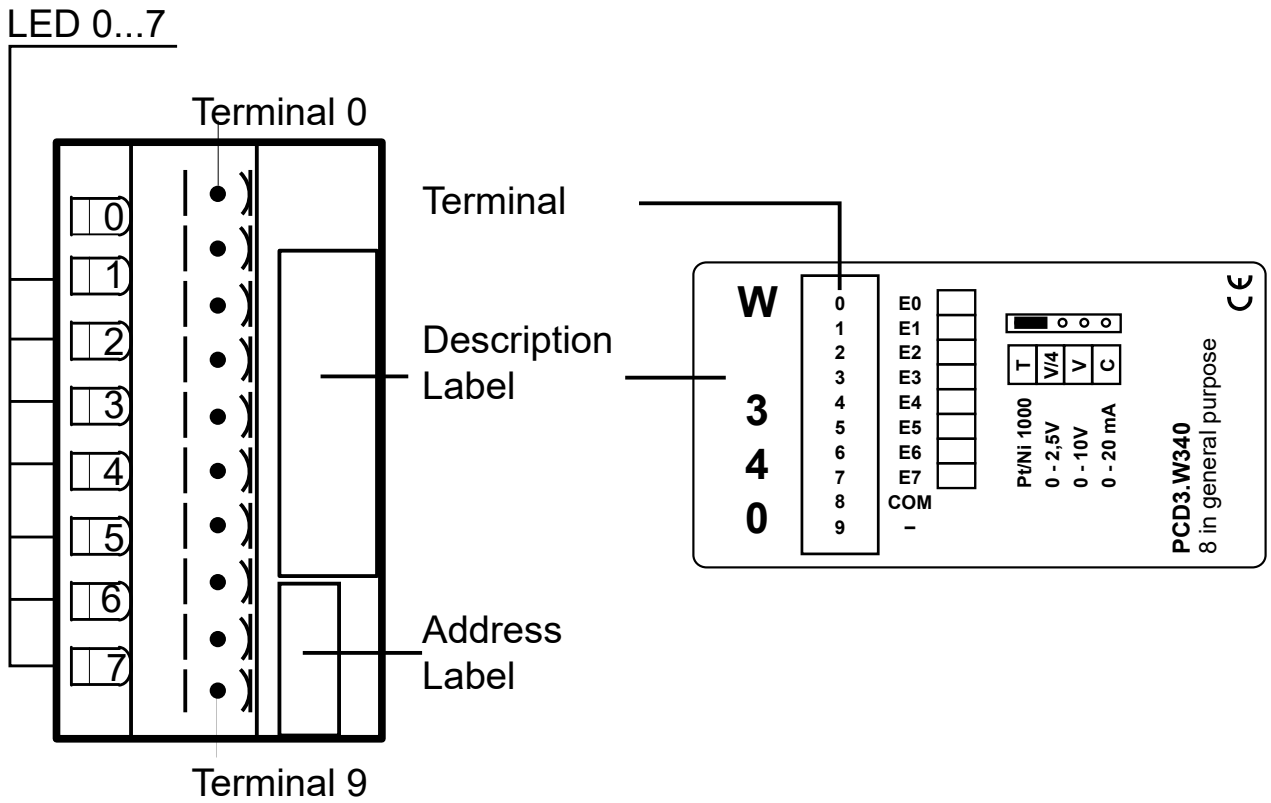
Layout (Opened housing)



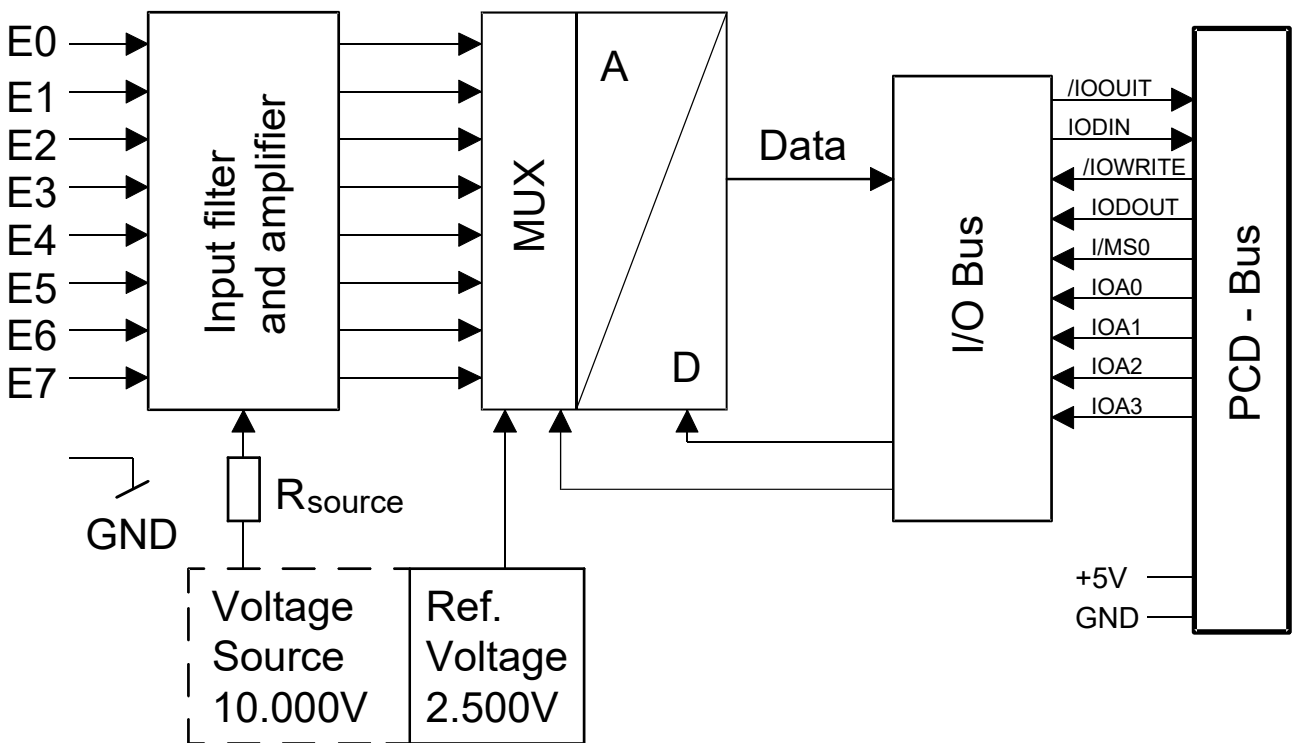
Jumper positions for selecting working mode

Position 'T': Pt/Ni 1000 Position 'V/4': 0...+2.5 V Position 'V': 0...+10 V Position 'C': 0...20 mA





Block diagram



Analogue/digital values and jumper positions

Input signals and type				Digital values		
Jumper "V"	Jumper "V/4"	Jumper "C"	Jumper "T"	Classic	xx7	Simatic
+ 10.0 V	+ 2.5 V	+ 20 mA	Calculate the appropriate values with the formulae below	4095	4095	27648
+ 5.0 V*)	+ 1.25 V	+ 10 mA		2047	2047	13842
0 V	0 V	0 mA		0	0	0

Formulae for temperature measurement

For Ni1000

Validity: Temperature range - 50...+ 210°C

Computational error: ± 0.5°C

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

For Pt1000

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:

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

where $0 \leq DV \leq 4095$ and R = the resistance to be measured in Ω.

T = temperature

DV = digital value



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



Changing the jumpers:

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

Recommendation: Before coming into contact with electrical components, you should at least touch the Minus of the system (cabinet or PGU connector). It is better to use a grounding wrist strap with its cable permanently attached to the Minus of the system.



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



Watchdog: This module can interact with the watchdog, if it is used on base address 240. In this case, the last input with address 255 cannot be used.

For details, please refer to the "Watchdog" section of the manual 27-600_ENG, which describes the correct use of the watchdog in conjunction with Saia PCD components.



xx7 and RIOs: the firmware reads in the values according to the configuration (I/O Builder or network configurator).

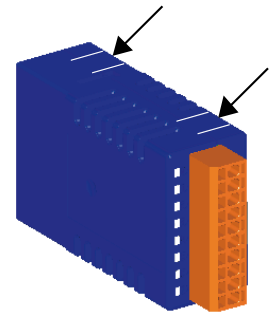


Further information can be found in the Manual on "I/O-modules for PCD1 / PCD2 series and for PCD3 series PCD2 and PCD3" 27-600_ENG.

Open 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.

Ordering information

Type	Short description	Description	Weight
PCD3.W340	Universal analogue inputs, 8 channels, 12 bit resolution	Universal analogue input module, 8 channels, 12 bits, 0...10 V, 0...2.5 V, 0...20 mA, Pt/Ni 1000	80 g

Accessories

Type	Short description	Description	Weight
4 405 4954 0	Plug-in, type A	Plug-in screw terminal block, 10-pin (type A) for wires up to 2.5 mm², labelling 0...9	15 g

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