PCD3.W525

Analogue, combined I-/O-modules for PCD3

The analog, combined modules PCD3.W525 offer highest performance in a small space. The use of a fast "on-board" microcontroller allows the PCD to be decoupled and relieved of computing-intensive tasks such as scaling and filtering signal data.

PCD3.W525 is a multi-purpose analog module with four inputs and two outputs. Each input and each output can be individually configured as one of the standard industrial interface type like 0…10 V, 0…20 mA and 4…20 mA. In addition, the inputs can be configured to support Pt/Ni1000 or Pt500 temperature sensors. Furthermore, different filter types and scaling ranges can be used for the module with the help of FBoxes.

Technical Data

Amount of Inputs / outputs	4 Inputs / 2 Outputs	
Signal range	Inputs	0 … 10 V 0 … 20 mA 4 … 20 mA
	Outputs	0 … 10 V 0 … 20 mA 4 … 20 mA –50 … 400 °C Pt1000 –50 … 400 °C Pt500 –60 … 200 °C Ni1000
Resolution	Inputs Outputs	14 Bits 12 Bits
Kind of Measurement	differential	
Galvanic isolated	to PCD to external supply between other channels	yes yes no
Channel setting: inputs outputs	by DIP-Switchs by PG5 device configurator	
Configuration of the operating mode	Inputs / Outputs	PG5 device configurator or FBoxes, FBs
Filter for Inputs	Time constant of hardware filter	2 ms
	Attenuation of software based 50 Hz filter	min. 40 dB, 20 ms
	Attenuation of software based 60 Hz filter	min. 40 dB, 16.67 ms
Filter for Outputs	Time constant of hardware filters	1 ms
Internal current consumption I from +5 V [mA]	40 mA	
Temperature range	0…55° C	
Accuracy at 25° C	± 0.2 % max.	
Terminals	Pluggable 14-pin spring-loaded terminal-bloc for Ø to 1.5 mm², Plugtyp E (4 405 4998 0), Every channel has two connection terminals.	

Performance characteristics

Input channels

4 analogue input channels, 14 Bit resolution

- Channels are individually configurable for: 0…10 V, 0…20 mA, 4…20 mA, Pt/Ni 1000, Pt 500
- Differential voltage and measuring current, Gleichtaktspannung: ±50 V
- Selectable filtering options: Fast mode, 50/60 Hz suppression, automatic filter

Output channels

2 analogue output channels, 12 Bit resolution

- Channels are individually configurable for: 0…10 V, 0…20 mA, 4…20 mA

Galvanische Trennung

- All I/O-Channels are galvanically isolated to the PCD and external power supply. (But all channels are galvanically connected to each other.)

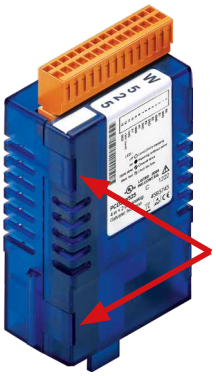
External power supply

The same power supply as for the PCD can be used without losing the galvanic isolation of the inputs/outputs!

Opening the modul-housing

Opening

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.

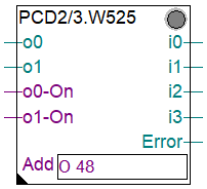


Closing

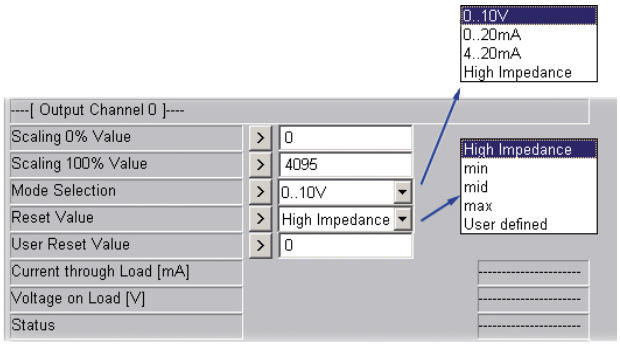
To close the housing, lay the bottom part on a flat surface (table etc.). Ensure that the circuit board is precisely located in this part of the housing. Press top part onto bottom until you hear the snap-in clips engage. Ensure that all four clips are correctly engaged.

Configure the output channels

The outputs are configured using the PG5 Device Configurator, -FUPLA-FBox or -AWL-FB. It is not necessary to configure the operating mode of the outputs using jumpers or DIP switches.

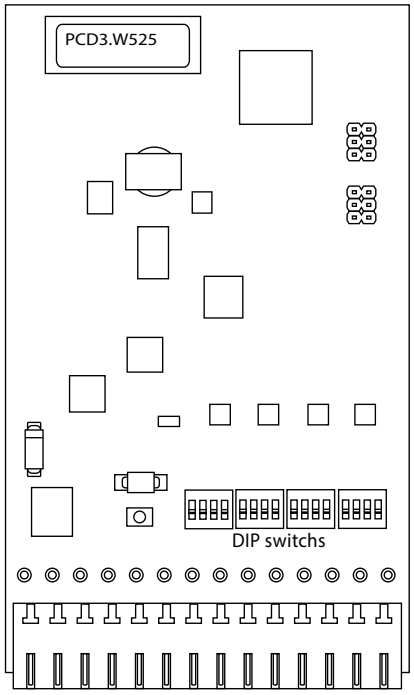


FUPLA



FUPLA

Layout



(open case)

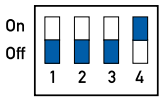
Pin assignment

Supply		Outputs				Inputs							
13 -	12 +	11 -	10 +	9 -	8 +	7 -	6 +	5 -	4 +	3 -	2 +	1 -	0 +
Uext		A1		A0		E3		E2		E1		E0	

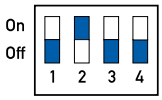
Configuration of inputs

Operating mode

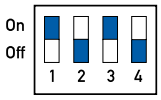
Each input channel is configured via a DIP switch with four pins.



Voltage mode:
0…10 V



Current mode:
0…20 mA
4…20 mA



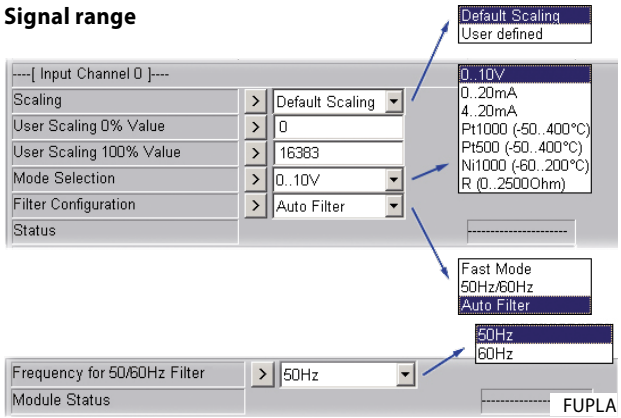
Temperature:
Pt 1000 (–50…400° C)
Pt 500 (–50…400° C)
Ni 1000 (–60…200° C)

Resistor mode:
0…2500 Ohm

The function of each pin is as follows:

Switch no.	Off	On
1	Differential mode	Single-ended-modus
2		Current shunt resistance on
3		Supply to external resistors on
4	Gain=1	Gain=0,25

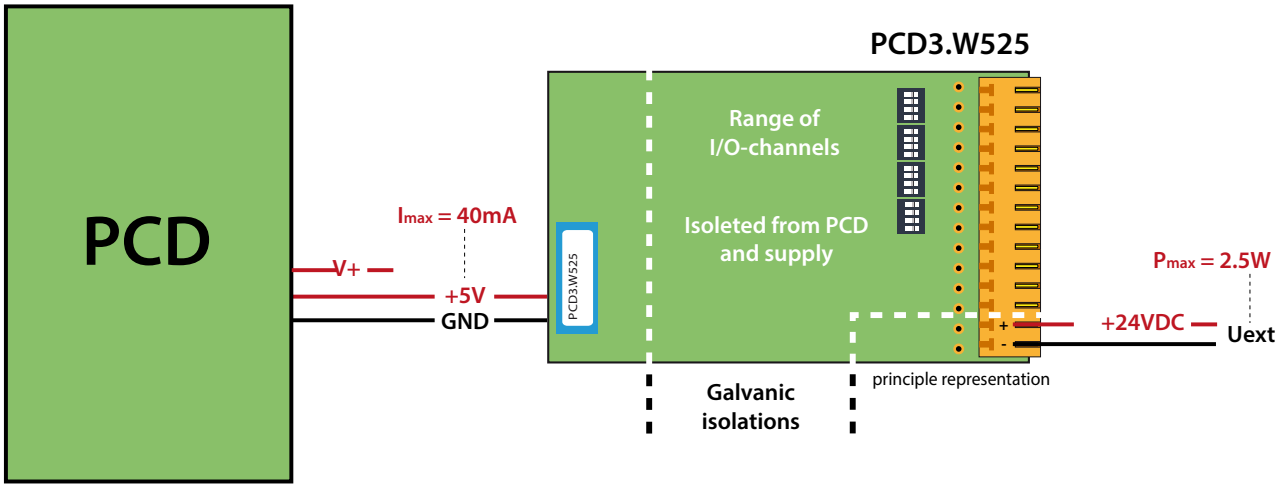
Signal range



FUPLA

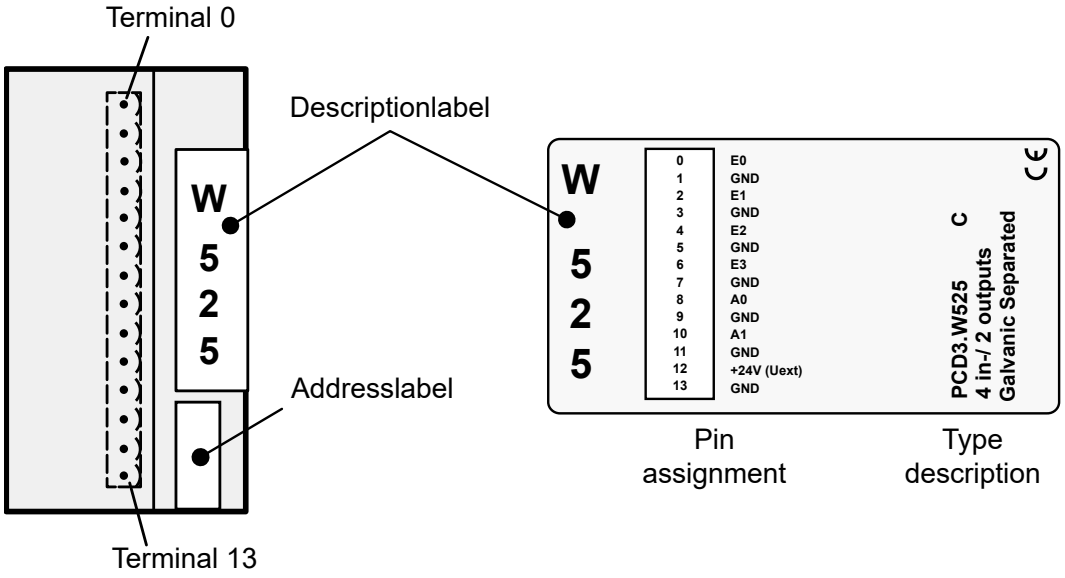
Power Supply

PCD3.W525 has to be supplied externally! This power supply is galvanically isolated to both, the PCD and the I/Os of W525. Furthermore, the design allows using the same power supply for the PCD and for W525 without loosing the galvanic isolation. These schematics show the different zones of isolation:



Connections and LED

Terminals, Descriptionlabel and LED



Comportamento del LED (interna)

▶ Off	No power supply to module. U_{ext} (24 V) absent.
▶ On	Module working correctly.
▶ Flashing slowly	Channel error (overload/underload/short circuit/open load)
▶ Flashing quickly	U_{ext} lower than specified (< 19 V).

Pluggable
I/O modules and I/O terminal blocks may only be pulled or plugged in when the Saia PCD® is disconnected from the power supply. The external power supply of the +24 V modules must also be switched off.

DIP-Switch
This circuit board contains components which are sensitive to electrostatic discharges!
Recommendation: At least touch the negative pole of the system (housing PGU plug) before coming into contact with the electronic parts. It is better to wear an earthed strap on your wrist which is connected to the negative pole of the system.

Watchdog
The watchdog can influence this module if it is used at the base address 240. In this case the last input with address 255 cannot be used.

For details, please read the Watchdog chapter of the "27-600 I/O-manual", which describes the correct use of the watchdog together with Saia PCD components.

xx7 and RIOs
The firmware reads the values according to the configuration (I/O Builder or Network Configurator).

More information
More details can be found in the manual "27-600 EA-Modules" for PCD1 / PCD2 and for PCD3".

Ordering data

Type	Description	Dimensions	Weight
PCD3.W525	**Analogue input/output modules with galvanic isolation**	**Analogue input/output modules with galvanic isolation** (no galvanic isolated between other channels) 4 Inputs, 14 Bits, 0…10 V, 0(4)…20 mA, Pt 1000, Pt 500 or Ni 1000 2 Outputs, 12 Bits, 0…10 V or 0(4)…20 mA	100 g

Ordering data Accessories

Type	Description	Dimensions	Weight
4 405 4998 0	Stecker Typ E	Plug-in I/O spring terminal block 14 - pin for wires up to 1.5 mm², labeled 0…13	13 g

Saia-Burgess Controls AG
Bahnhofstrasse 18 | 3280 Murten, Switzerland
T +41 26 580 30 00 | F +41 26 580 34 99
www.saia-pcd.com

support@saia-pcd.com | www.sbc-support.com