PCD3.W615

Universal analogue module with 4 output channels, 0…20 mA, resolution 10 bits

High-speed analogue output module for general use with galvanic isolation.

Use of a fast on-board micro controller allows decoupling and relief of the PCD regarding intensive computing tasks, such as scaling and filtering of signal data.

Technical data

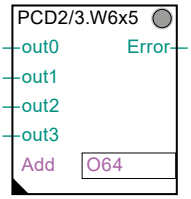
Number of outputs	4	
Galvanic separation	500 V, electrical isolation of outputs to Saia PCD®, channels themselves not separated	
Signal range	Current 0…20 mA	
Resolution (digital representation)	10 bits (0…1023)	
Resolution	20 µA	
Load resistance	< 500 Ω*	
Cut off frequency	300 Hz	
Accuracy at 25°C	± 0.7%	
Temperature error (0…+55°C)	± 0.25%, 100 ppm/K or 0.01%/K	
Short circuit protection	yes (permanent)	
EMC protection	According to standards ENV 50 141, EN 55 022, EN 61000-4-2, EN 61000-4-4, EN 61000-4-5	
Time constant of output filter	typ. 0.3 ms	
Internal current consumption: (from +5 V bus)	55 mA (typ. 45 mA)	
Internal current consumption: (from V+ bus)	max. 90 mA, smoothed Voltage range*	
Terminals	Pluggable 14-pole spring terminal block (4 405 4998 0), for Ø up to 1.5 mm²	
***Voltage range:**	**RL•20 mA + 10…20 V**	
Examples:	**RL = 500 Ω**	**Ue = 20…30 V**
	RL = 0 Ω	**Ue = 10…20 V**

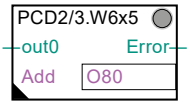
Pin configuration

13	12	11	10	9	8	7	6	5	4	3	2	1	0
–	+	–	n.c.	–	n.c.	–	A3	–	A2	–	A1	–	A0

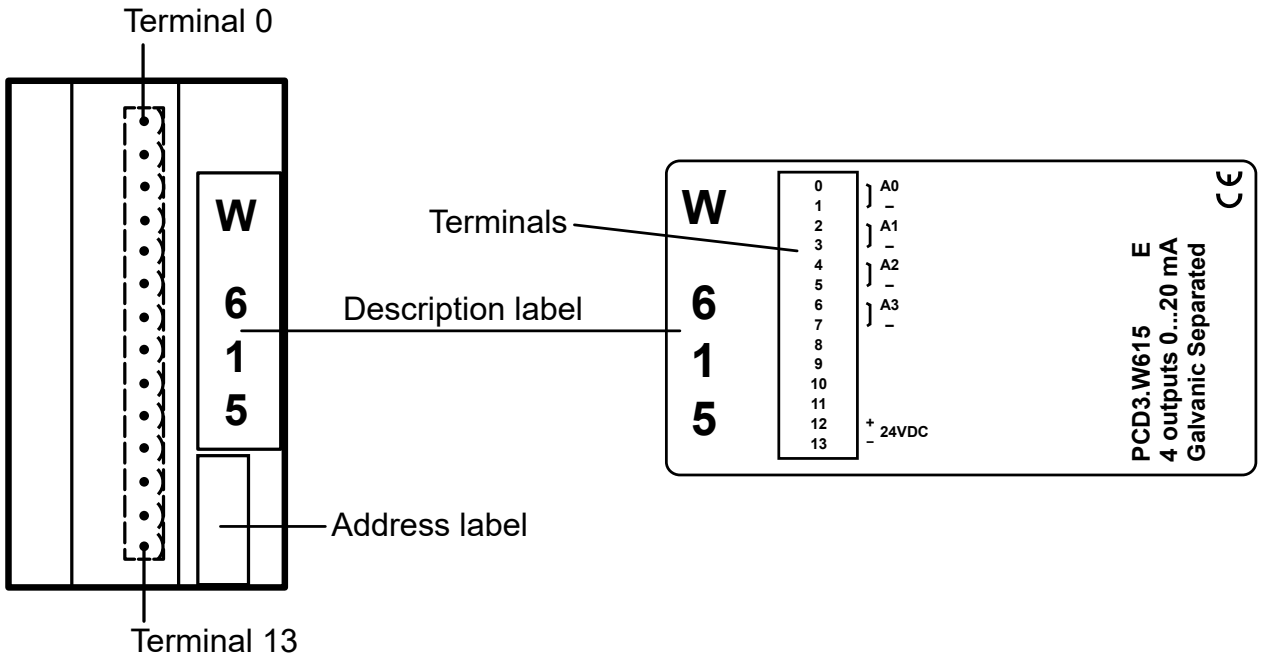
Outputs 0…4 with separate negative connection

FBox PCD3.W615 (1…4 outputs selectable)

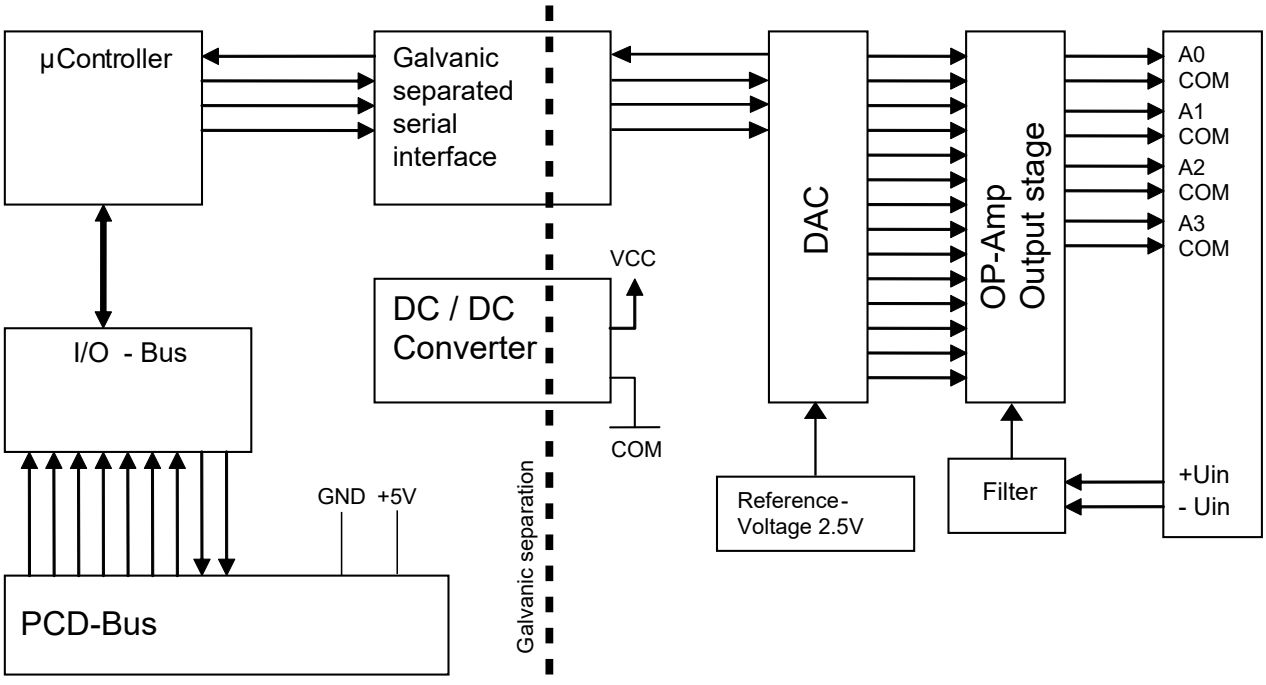




LEDs and connection terminals

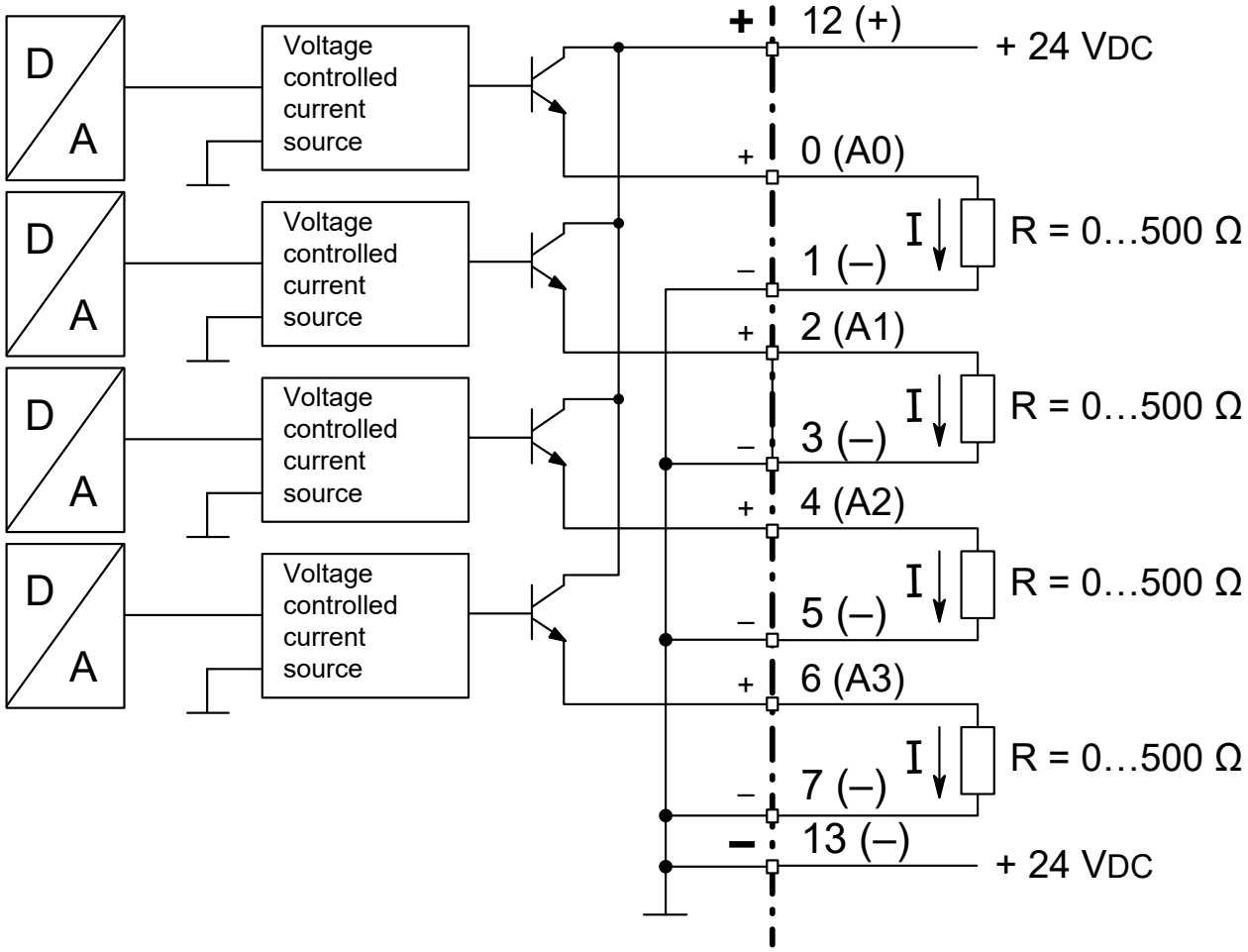


Block diagram



Connection concept

Connection for 0…20 mA



Analogue/digital values and jumper positions

Digital values			
Classic	**xx7**	**Simatic**	**Output voltage**
1023	1023	27684	+ 20 mA
512	512	13842	+ 10 mA
205	205	5530	+ 3 mA
0	0	0	0 V

Notes on the output range

Balancing the offset and the amplification is done for the PCD3.W615 digitally by the µC. As there is no potentiometer, the output range has been slightly enlarged to cover maximum values even in the worst case.

Typical output range (without component tolerances):

0 mA …21.4 mA (instead of 0…20 mA)

This range is broken down on a 10 bit scale (1024 steps), as before.
The result is the following LSB resolution:

1 LSB = 21.7 µA

Galvanic separation of outputs to Saia PCD®, channels themselves not separated.

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.

Watchdog: This module can be used on all base addresses; there is no interaction with the watchdog on the CPUs.

For programming the modules PCD3.W605, an FBox is available.

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 27-600_ENG "I/O-modules for PCD1 / PCD2 series and for PCD3 series PCD2 and PCD3".

Ordering information

Type	Short description	Description	Weight
PCD3.W615	6 outputs 10 bit, electrically isolated, 0…20 mA	Analogue output module with galvanic isolation, 6 channels, 10 bits, 0…20 mA (connector type E included)	80 g

Accessories

Type	Short description	Description	Weight
4 405 4998 0	Plug-in, type E	Plug-in I/O spring terminal block, 14-pole up to 1.5 mm², labelled 0 to 13, for complex modules (e.g. weighing modules), connector type "E"	13 g

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