STERKRAK

PCI5

FIVE BITS DIGITAL TO CURRENT CONVERTER

DATASHEET

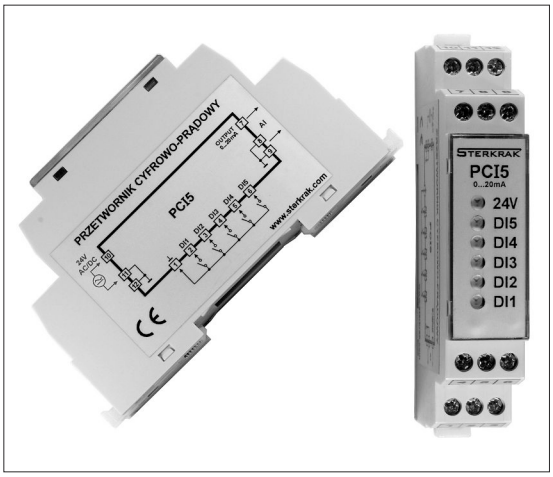

Fig.1 The PCI5 module.

APPLICATION

Digital expansion module for monitoring five digital inputs with a single analog input of the controller. Applied in current loops and long lines.

DESCRIPTION

The PCI5 module is a digital to analog converter, transforming a logical combination of five digital inputs to one current signal 0...20mA or 4...20mA. Using an ultra-precision electronic components, output current is stable in time, temperature, and precisely maps the input states. Connecting discrete inputs (DI1 ÷ DI5) to the GND (⊥), output current is generated by the formulas:

For 0... 20mA: $$I_{OUT} = \left[\left(\frac{20}{31}\right)*DI1+\left(\frac{40}{31}\right)*DI2+\left(\frac{80}{31}\right)*DI3+\left(\frac{160}{31}\right)*DI4+\left(\frac{320}{31}\right)*DI5\right] [mA]$$

For 4... 20mA: $$I_{OUT} = \left[4+\left(\frac{16}{31}\right)*DI1+\left(\frac{32}{31}\right)*DI2+\left(\frac{64}{31}\right)*DI3+\left(\frac{128}{31}\right)*DI4+\left(\frac{256}{31}\right)*DI5\right] [mA]$$

where: DI1...5 = 0 for opened terminals
DI1...5 = 1 for closed terminals

TECHNICAL DATA

Power supply	24 V AC/DC
Current consumption	max. 72mA
Input current for R_{IN} = 0Ω	0,3mA
Max. resistance for input terminals	20kΩ
Output signal	0... 20 mA or 4... 20 mA
Max. load resistance	≤ 500 Ω
Protection class of the case	IP-40
Protections	against reverse polarisation of power supply
Compliance with EU standards	2004/108/EC
Ambient temperature range	-10...+55°C
Diameter of terminals	2,5 mm^2
Mounting	DIN-35 rail
Dimensions (L x W x H)	90mm x 17,5mm x 56mm
Weight	55 g

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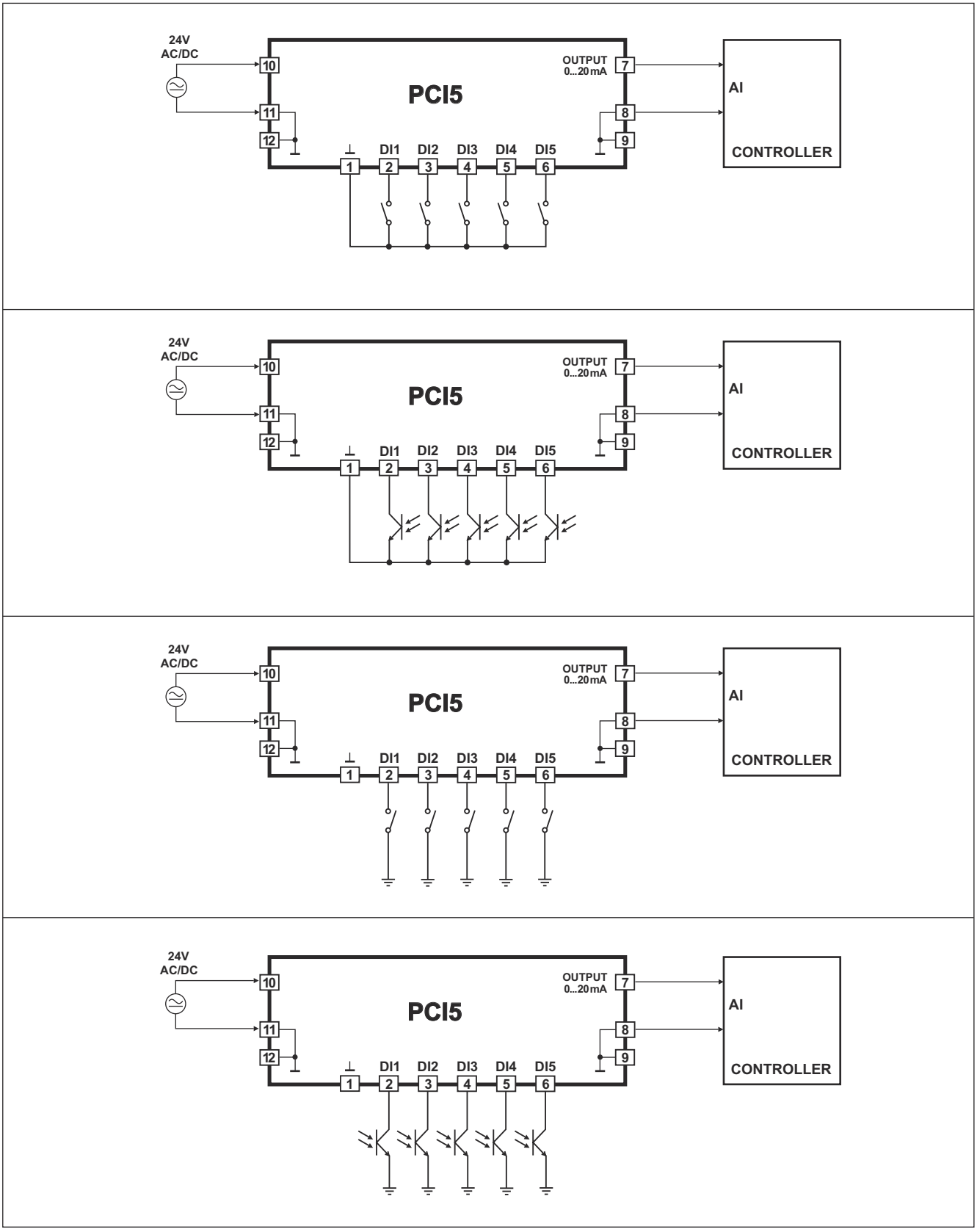

Fig.2 Connection methods examples of the PCI5.

TABLES OF STATES

For 0...20 mA model

State	Digital inputs					I_{OUT} [mA]
	DI1	DI2	DI3	DI4	DI5	
0	0	0	0	0	0	0,000
1	1	0	0	0	0	0,645
2	0	1	0	0	0	1,290
3	1	1	0	0	0	1,935
4	0	0	1	0	0	2,581
5	1	0	1	0	0	3,226
6	0	1	1	0	0	3,871
7	1	1	1	0	0	4,516
8	0	0	0	1	0	5,161
9	1	0	0	1	0	5,806
10	0	1	0	1	0	6,452
11	1	1	0	1	0	7,097
12	0	0	1	1	0	7,742
13	1	0	1	1	0	8,387
14	0	1	1	1	0	9,032
15	1	1	1	1	0	9,677
16	0	0	0	0	1	10,323
17	1	0	0	0	1	10,968
18	0	1	0	0	1	11,613
19	1	1	0	0	1	12,258
20	0	0	1	0	1	12,903
21	1	0	1	0	1	13,548
22	0	1	1	0	1	14,194
23	1	1	1	0	1	14,839
24	0	0	0	1	1	15,484
25	1	0	0	1	1	16,129
26	0	1	0	1	1	16,774
27	1	1	0	1	1	17,419
28	0	0	1	1	1	18,065
29	1	0	1	1	1	18,710
30	0	1	1	1	1	19,355
31	1	1	1	1	1	20,000

For 4...20 mA model

State	Digital inputs					I_{OUT} [mA]
	DI1	DI2	DI3	DI4	DI5	
0	0	0	0	0	0	4,000
1	1	0	0	0	0	4,516
2	0	1	0	0	0	5,032
3	1	1	0	0	0	5,548
4	0	0	1	0	0	6,065
5	1	0	1	0	0	6,581
6	0	1	1	0	0	7,097
7	1	1	1	0	0	7,613
8	0	0	0	1	0	8,129
9	1	0	0	1	0	8,645
10	0	1	0	1	0	9,161
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21	1	0	1	0	1	14,839
22	0	1	1	0	1	15,355
23	1	1	1	0	1	15,871
24	0	0	0	1	1	16,387
25	1	0	0	1	1	16,903
26	0	1	0	1	1	17,419
27	1	1	0	1	1	17,935
28	0	0	1	1	1	18,452
29	1	0	1	1	1	18,968
30	0	1	1	1	1	19,484
31	1	1	1	1	1	20,000

0 - opened contacts, 1 - closed contacts

Possible compensation of the controller should be made for the state no. 31.

Updated: January 2018

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