



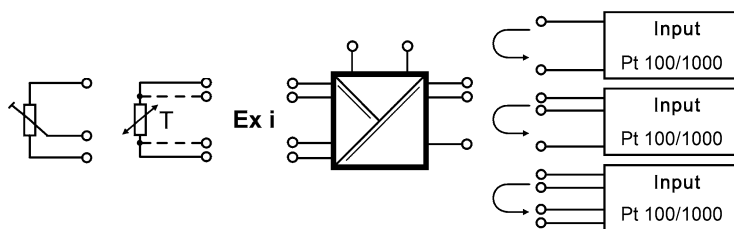
11029E00

Resistance Isolator Type 9180

- World-wide unique dual channel solution
 - space saving, only 8.8 mm per channel
- For 2-, 3- and 4-wire circuits
- Resistance range from 18 Ω up to 391 Ω resp. 180 Ω up to 3910 Ω
- Installation possible in Zone 2
- Intrinsically safe input [Ex ia] IIC
- Galvanic isolation between input, output and power supply
- Short rise time enables the operation along with Multiplexer
- 1 and 2 channels



Basic function: analog input, Ohm, 1 and 2 channels.
 The resistance isolators are used for intrinsically safe operation of Pt 100 and Pt 1000 resistance thermometer or other resistance sensors.
 The measured value is transferred to the output



11041E02

Selection Table			
Version	Channels	Measuring range	Ordering Code
Resistance isolator Type 9180	1	18 ... 391 Ω	9180/10-77-11.
		180 ... 3910 Ω	9180/11-77-11.
	2	18 ... 391 Ω	9180/20-77-11.
		180 ... 3910 Ω	9180/21-77-11.
Add. to Ordering Code			
	Screw terminal		9180/.....s
	Spring clamp terminal		9180/.....k
	Insulation displacement connectors		9180/.....q
Technical Data			
Certificates	BVS 05 ATEX E 176 X		
Explosion protection	Ⓔ II (1) GD [EEx ia] IIC/IIB and Ⓔ II 3 G EEx nAC T4		
Installation	in Zone 2, Div. 2 and in the safe area		
Safe maximum values (CENELEC)	Max. voltage U_o	6.5 V	
	Max. current I_o	16.4 mA	
	Max. power P_o	27 mW (linear characteristic)	
	Max. capacitance C_o for IIC / IIB	25 μ F / 570 μ F	
	Max. inductance L_o for IIC / IIB	120 mH / 450 mH	
	Internal capacitance C_i and inductance L_i	negligible	
	Insulation voltage U_m	250 V	
	Further information and combinations of values, see certification.		
Power supply	Nominal voltage U_N	24 V DC	
	Voltage range	18 V ... 31.2 V	
	Nominal current (at U_N) 1 / 2 channels	27 mA / 37 mA	
	Power consumption (at U_N) 1 / 2 channels	\leq 650 mW / 890 mW	
	Power losses (at U_N) 1 / 2 channels	\leq 600 mW / 720 mW	
	Indication	LED green „PWR“	
	Polarity reversal protection	yes	
	Undervoltage monitoring	yes (no faulty module / output states)	
Galvanic isolation	Test voltage under regulations EN 50020		
	I.S. input to output	1.5 kV AC	
	I.S. input to power supply	1.5 kV AC	
	I.S. input to configuration interface	1.5 kV AC	
	I.S. input to error-contact	1.5 kV AC	
	Test voltage under regulations EN 50178		
	Output to power supply	350 V AC	
	Output to configuration interface	350 V AC	
	Outputs to each other	350 V AC	
	Error-contact to power supply and outputs	350 V AC	
	There is no galvanic isolation between the I.S. input channels		
I.S. input	Connection type (no. of wires)	9180/0-...-... 2, 3, 4-wire circuits	9180/1-...-... 2, 3, 4-wire circuits
	Setup via DIP switch		
	Sensor current	\leq 0.25 mA	0.25 mA
	Max. conductor resistance	\leq 50 Ω at 2-wire circuits \leq 100 Ω at 3-and 4-wire circuits	50 Ω at 2-wire circuits 100 Ω at 3-and 4-wire circuits
	Measurement range	18 Ω ... 391 Ω	180 Ω ... 3910 Ω
	Resolution average	10 m Ω	100 m Ω
Output	Output signal	9180/0-...-... = Input signal (Resistance)	9180/1-...-... Input signal (Resistance)
	Settling time (10% ... 90%) multiplexer operation	< 10 ms	10 ms
	Response time (input = output)	< 1 sec	1 sec
	Sensor current	200 μ A ... 5 mA	200 μ A ... 0.5 mA resp. 200 μ A ... 2.5 mA till max. 2 V output voltage $I_{fmax} = 2 V / R_{Ptmax}$
	Connection type (no. of wires)	2, 3, 4-wire circuits	2, 3, 4-wire circuits



Technical Data

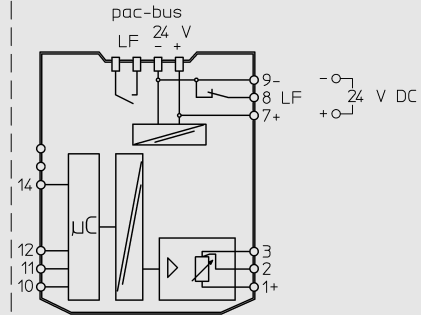
Error detection I.S. input	<p>9180/0-...-...</p> <p>Open-circuit > 394 Ω Short-circuit < 16 Ω Behaviour of output</p> <p>9180/1-...-...</p> <p>Open-circuit > 10 kΩ Short-circuit > 10 kΩ Settings (switch LF) activated / deactivated LED red „LF“ each channel Error detection - Contact (30 V / 100 mA), closed to ground in case of error Error messaging and power supply failure - pac-Bus, floating contact (30 V / 100 mA)</p> <p>9180/1-...-...</p> <p>3940 Ω 160 Ω 10 kΩ 10 kΩ activated / deactivated LED red „LF“ each channel - Contact (30 V / 100 mA), closed to ground in case of error - pac-Bus, floating contact (30 V / 100 mA)</p>
Error limits	<p>Accuracy, typical data expressed as % of basic range at U_N, 23 °C</p> <p>Middle measurement error ≤ 0.1 % Temperature influence ≤ 0.1 % / 10 K</p>
Electromagnetic compatibility	<p>Tested under the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 Class B); NAMUR NE 21 (IEC/EN 61000-4-1...6, 8 and 11; EN 55022 Class B)</p>
Ambient conditions	<p>Ambient temperature - 20 °C ... + 60 °C / + 70 °C (watch instructions) Storage temperature - 40 °C ... + 80 °C Relative humidity (no condensation) ≤ 95 %</p>

Connection diagram

for 9180/10-77-11

Hazardous area

Safe area

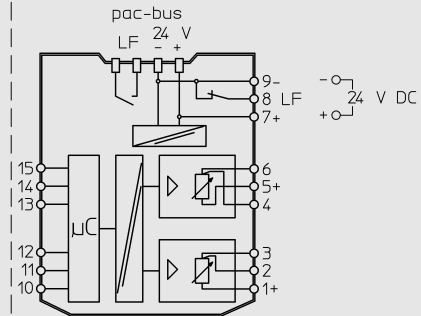


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for 9180/20-77-11

Hazardous area

Safe area



11030E03

Configuration input

Resistance thermometer / RTD

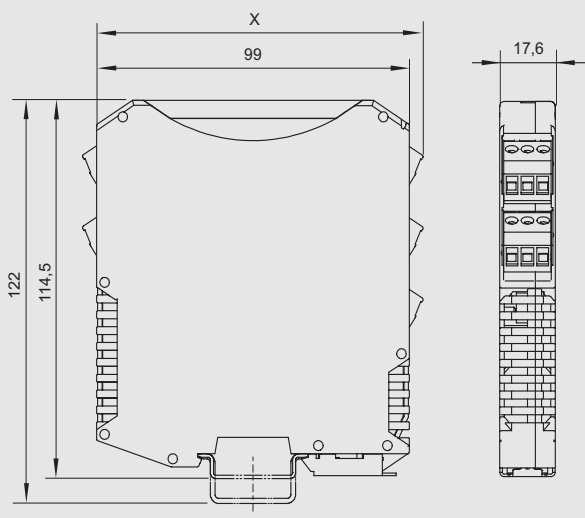
	2-wire	3-wire	4-wire
Channel 2	09756E00	09757E00	02388E00
Channel 1	09760E00	09761E00	05503F00



Technical Data

Configuration output	Type	2-wire	3-wire	4-wire
9180/1.-77-11 9180/2.-77-11	channel 1			
		11329E02	11330E02	11331E02
9180/2.-77-11	channel 2			
		11332E02	11333E02	11334E02
Mechanical data		Screw terminals	Spring clamp terminals	Insulation displacement connectors
	Connection one wire - rigid - flexible - flexible, end covering sleeves (without / with plastic sleeving) Connection two wires - rigid - flexible - flexible, end covering sleeves Weight Mounting type Mounting position Casing protection class Terminal protection class Casing material Fire protecting class (UL-94)	0.2 ... 2.5 mm ² 0.2 ... 2.5 mm ² 0.25 ... 2.5 mm ² 0.2 ... 1 mm ² 0.2 ... 1.5 mm ² 0.25 ... 1 mm ²	0.2 ... 2.5 mm ² 0.2 ... 2.5 mm ² 0.25 ... 2.5 mm ² -- -- 0.5 ... 1 mm ² approx. 160 g on DIN rail acc. to EN 50022 (NS35/15; NS35/7.5) or in pac-Carrier horizontal or vertical IP 30 IP 20 PA 6.6 V0	-- 0.5 ... 1 mm ² -- -- --

Dimension drawings (all dimensions in mm) - subject to alterations



	Dimension X
Screw terminals	108 mm
Spring clamp terminals	128 mm
Insulation displacement connectors	131 mm



We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.