1. Safety

WARNING
Power off the module and all connected devices before installation.
Voltage on the terminals can be dangerous!

2. Specifications

Table 1 General specifications

Device		PRM-230.3	PRM-24.3
Power supply		~230 (90…264) V AC, 50 Hz ~230 (127…373) V DC	=24 (19 … 30) V DC
Power consumption, max.		8 VA	4 W
Galvanic isolation		2300 V	510 V
Reverse polarity protection		—	yes
Inputs	Digital	—	
	Analog	4	
Outputs	Digital	—	
	Analog	2	
Internal bus	Frequency	2.25 MHz	
	Packet rate	4000 packet/s	
	Number of modules, max.	2	
Dimensions		88 × 90 × 58 mm	
Mounting		DIN rail (35 mm)	
Weight, max.		400 g	

Table 2 Analog inputs (AI)

Input signal		see *Table 4*
ADC resolution		16 bit
Basic error	RTD	±0.25 %
	TC	±0.5 %
	I/U signals	±0.25 %
Temperature influence per each 10 °C		0.5 of basic error
Sampling time for one input, max.	RTD	0.8 s
	TC	0.6 s
	I/U signals	0.6 s
Analog input resistance, min.		10 kΩ
External resistance for current measurement		45-50 Ω
Galvanic isolation		—

Table 3 Analog outputs (AO)

Signal types for actuator control		0-20 mA 4-20 mA 0-24 mA 0-5 V 0-10 V
DAC resolution		12 bit
Basic error		±0.5 %
Temperature influence per each 10 °C		0.25 of basic error
Galvanic isolation between outputs		510 V
Voltage supply (external, each output separately)		15-30 V DC
Output load (max.)	4-20 mA	300 Ω
Output load (min.)	0-10 V	1000 Ω

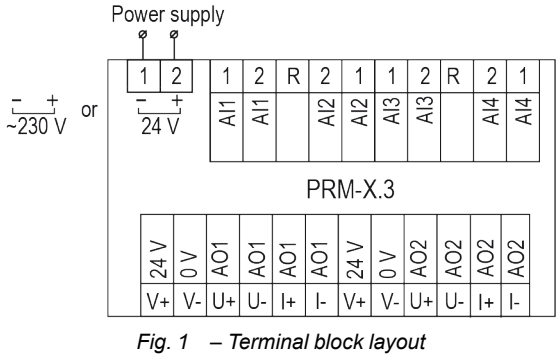


Fig. 1 – Terminal block layout

Table 4 Sensors and input signals

Sensor or input signal	Measurement range	Accuracy
Resistive signals		
0 … 3950 Ω	0…100%	±0.25 %
Direct voltage signal		
-50-50 mV	0…100%	±0.25 %
Standard I/U signals		
0-1 V	0…100 %	±0.25 %
0-5 mA	0…100 %	
0-20 mA	0…100 %	
4-20 mA	0…100 %	
RTD		
Cu 50 (α = 0.00426 °C^{-1})*	–50…+200 °C	±0.25 %
Cu 50 (α = 0.00428 °C^{-1})	–180…+200 °C	
Pt 50 (α = 0.00385 °C^{-1})	–200…+850 °C	
Pt 50 (α = 0.00391 °C^{-1})	–200…+850 °C	
Cu 100 (α = 0.00426 °C^{-1})	–50…+200 °C	
Cu 100 (α = 0.00428 °C^{-1})	–180…+200 °C	
Pt 100 (α = 0.00385 °C^{-1})	–200…+850 °C	
Pt 100 (α = 0.00391 °C^{-1})	–200…+850 °C	
Ni 100 (α = 0.00617 °C^{-1})	–60…+180 °C	
Pt 500 (α = 0.00385 °C^{-1})	–200…+850 °C	
Pt 500 (α = 0.00391 °C^{-1})	–200…+850 °C	
Cu 500 (α = 0.00426 °C^{-1})	–50…+200 °C	
Cu 500 (a = 0.00428 °C^{-1})	–180…+200 °C	
Ni 500 (α = 0.00617 °C^{-1})	–60…+180 °C	
Cu 1000 (α = 0.00426 °C^{-1})	–50…+200 °C	
Cu 1000 (α = 0.00428 °C^{-1})	–180…+200 °C	
Pt 1000 (α = 0.00385 °C^{-1})	–200…+850 °C	
Pt 1000 (α = 0.00391 °C^{-1})	–200…+850 °C	
Ni 1000 (α = 0.00617 °C^{-1})	–60…+180 °C	
TC		
L	–200 … +800 °C	±0.5 % (± 0.25 %)**
J	–200 … +1200 °C	
N	–200 … +1300 °C	
K	–200 … +1360 °C	
S	–50 … +1750 °C	
R	–50 … +1750 °C	
T	–250 … + 400 °C	
B	+200 … +1800 °C	
A-1	0 … + 2500 °C	
A-2	0 … +1800 °C	
A-3	0 … +1800 °C	

NOTE
**** Temperature coefficient of resistance (α) is determined by the formula:*** $\alpha = \frac{R_{100} - R_0}{R_0 \cdot 100\ °C}$***, where R_{100}, R_0 are RTD performance curve resistance values at 100 °C and 0 °C correspondingly. The coefficient value is rounded to the fifth significant figure.***
*****Accuracy without cold junction correction.***

3. Environmental conditions

The device is designed for natural convection cooling. It should be taken into account when choosing the installation site.
The following environment conditions must be observed:

- clean, dry and controlled environment, low dust level
- closed non-hazardous areas, free of corrosive or flammable gases

Table 5 Environmental conditions

Conditions	Permissible range
Ambient operating temperature	-20…+55°C
Storage temperature	-20…+55°C
Relative humidity	up to 80% (non-condensing)
Altitude	up to 2000 m above sea level
EMC immunity	conforms to IEC 61000-6-2
EMC emission	conforms to IEC 61000-6-4

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4. RTD wiring

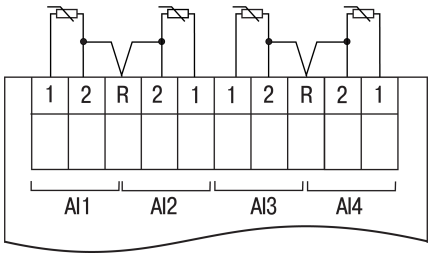


Fig. 2 – Resistance thermometer wiring

5. TC wiring

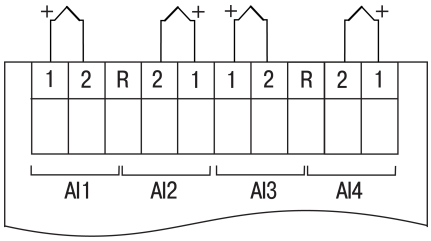


Fig. 3 – Thermocouple wiring

NOTE
Cold junction compensation (CJC) is provided.
The cold junction temperature sensor is built in next to the terminal block.

NOTICE
Do not use a TC with not insulated hot junction. It can damage the module.

6. I/U sensors wiring

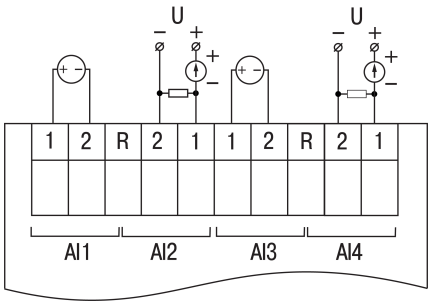


Fig. 4 – I/U sensors wiring

7. Resistance sensor wiring

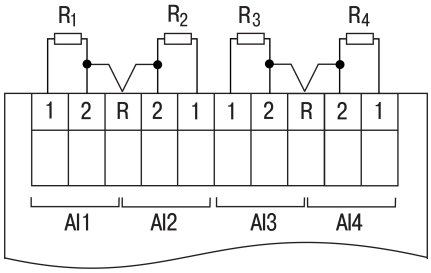


Fig. 5 – Resistance sensor wiring

8. Output wiring

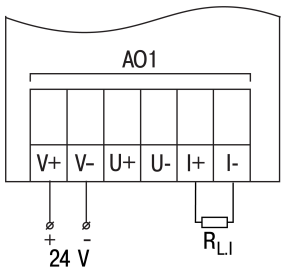


Fig. 6 – Current output wiring

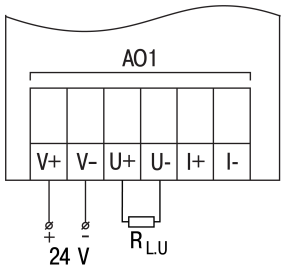


Fig. 7 – Voltage output wiring

9. Dimensions

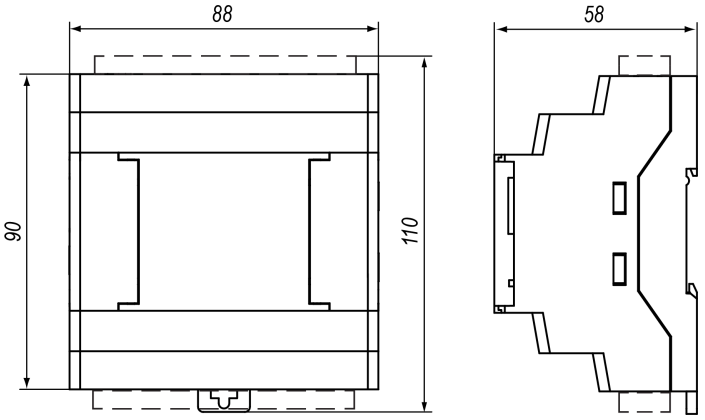
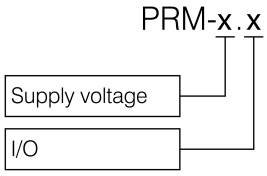


Fig. 8 – Dimensions

10. Scope of delivery

PRM	1
Short guide	1
Cable	1
Terminals blocks (set)	1

11. Ordering information



Supply voltage	230	230 (90…264) V AC
	24	24 (19…30) V DC
I/O	3	4 AI, 2 AO

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