1. Safety

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

2. 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 1 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

3. Specifications

Table 2 General specification

Device		PRM-230.2	PRM-24.2
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
Analog inputs		4	
Digital outputs		4	
Internal bus	Frequency	2.25 MHz	
	Packet rate	4000 packet/s	
	Number of modules, max.	2	
Programming software		akYtec ALP	
IP code		IP20	
Dimensions		88 × 90 × 58 mm	
Mounting		DIN rail (35 mm)	
Weight, max.		400 g	

Table 3 Analog inputs (AI)

ADC resolution	12 bit
Sampling time, max.	1 ms
Galvanic isolation	no
Analog mode 1 (Linear input)	
Input signal	0-10 V, 4-20 mA
Input resistance for 0-10 V input	10 kΩ
Basic error	±0.5 %
Temperature influence per each 10 °C	0.5 of basic error
Analog mode 2 (Temperature sensors)	
Input signal	see *Tab. 4*
Measurement range	0…300 kΩ
Least significant bit value, max.	1 °C
Basic error 0…150 kΩ	±1.0 %
Basic error 151…300 kΩ	±2.0 %
Basic error RTD, NTC and PTC	±1.5 %
Temperature influence per each 10 °C	0.5 of basic error
Digital mode	
Nominal input voltage	24 V DC
HIGH/LOW threshold (adjustable in ALP)	1…8 V
LOW/HIGH threshold (adjustable in ALP)	2…9 V
Input current	2…15 mA
Pulse length, min.	5 ms
Signal frequency, max.	100 Hz

Table 4 Sensors (analog mode 2)

Sensor	Measurement range
RTD	
Pt 500 (α = 0.00385 °C⁻¹)	–200…+850 °C
500P (α = 0.00391 °C⁻¹)	–200…+850 °C
Cu 500 (α = 0.00426 °C⁻¹)	–50…+200 °C
500M (α = 0.00428 °C⁻¹)	–180…+200 °C
Ni500 (α = 0.00617 °C⁻¹)	–60…+180 °C
Cu 1000 (α = 0.00426 °C⁻¹)	–50…+200 °C
1000M (α = 0.00428 °C⁻¹)	–180…+200 °C
Pt 1000 (α = 0.00385 °C⁻¹)	–200…+850 °C
1000P (α = 0.00391 °C⁻¹)	–200…+850 °C
Ni 1000 (α = 0.00617 °C⁻¹)	–60…+180 °C
Thermistors / NTC	
B57861S series, 2 kΩ, $B_{25/100}$ = 3560K	–55…+100 °C
B57861S series, 3 kΩ, $B_{25/100}$ = 3988K	–55…+125 °C
B57861S series, 5 kΩ, $B_{25/100}$ = 3988K	–35…+140 °C
B57861S series, 10 kΩ, $B_{25/100}$ = 3988K	–35…+155 °C
B57861S series, 30 kΩ, $B_{25/100}$ = 3964K	–20…+155 °C
B57861S series, 50 kΩ, $B_{25/100}$ = 3760K	–10…+155 °C
NTC 3435, 10 kΩ	–40…+105 °C
NTC 3977, 10 kΩ	–40…+125 °C
Thermistors / PTC	
KTY82-110	–55…+150 °C
KTY82-120	
KTY82-121	
KTY82-122	
KTY82-150	
KTY82-151	

Table 5 Digital outputs (DO)

Type		relay (NO)
Switching capacity	AC	5 A, 250 V AC and cos(φ) > 0.95 (resistive load)
	DC	3 A, 30 V DC (resistive load)
Load current at 5 V DC, min.		10 mA
Service life, electrical		200 000 switching cycles: 5 A, 250 V AC 50 000 switching cycles: 7 A, 250 V AC 100 000 switching cycles: 3 A, 30 V DC (resistive load)
Galvanic isolation		2300 V

4. Galvanic isolation

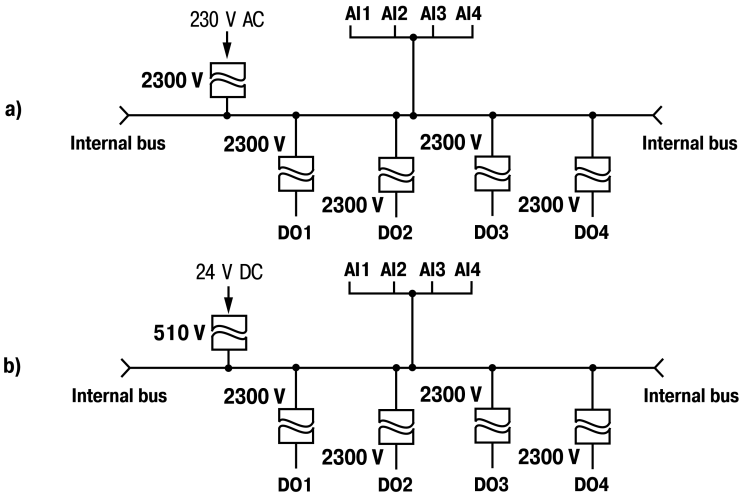


Fig. 1 – Galvanic isolation PRM-230.2 (a) and PRM-24.2 (b)

5. Terminal block layout

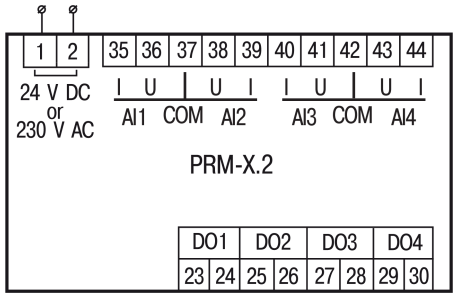


Fig. 2 – Terminal block layout

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6. Analog input wiring

NOTICE
Before connecting analog sensors, ensure the input signal selected in configuration corresponds to the connected one. Wrong signal can cause the device damage. The COM terminals are internally connected.

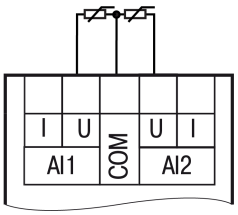


Fig. 3 – RTD wiring

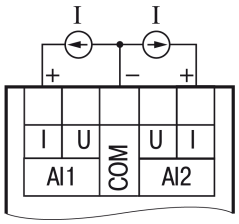


Fig. 4 – I sensor wiring

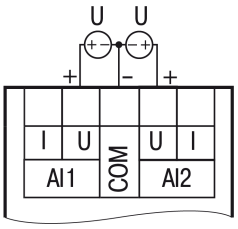


Fig. 5 – U sensor wiring

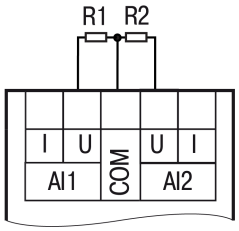


Fig. 6 – Resistance sensor wiring

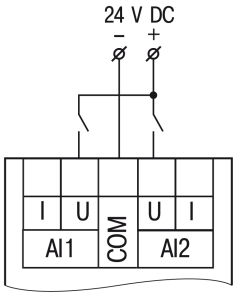


Fig. 7 – Switch contact wiring

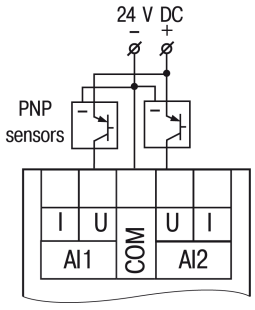


Fig. 8 – 3-wire sensors with PNP output

7. Digital output wiring

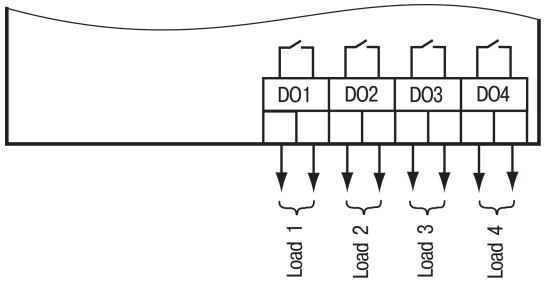


Fig. 9 – Relay output wiring

8. Internal bus

CAUTION
The device must be powered off before connecting to internal bus or I/O devices.

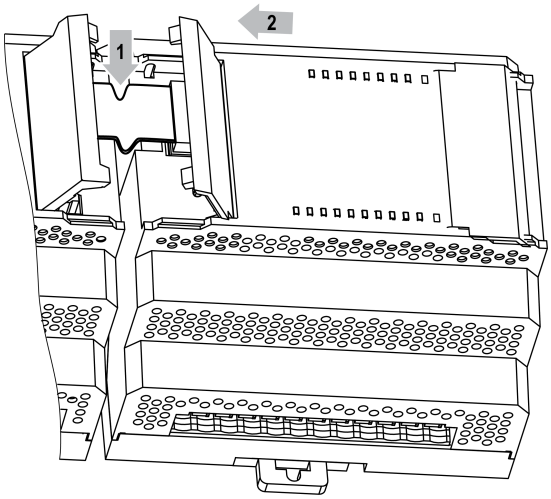


Fig. 10 – Internal bus connection

9. Dimensions

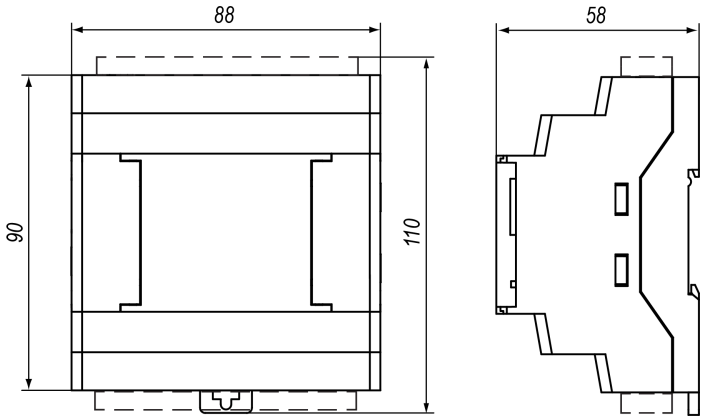
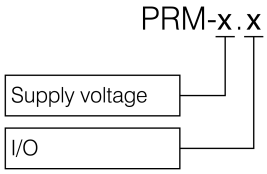


Fig. 11 – Dimensions

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	2	4 AI, 4 DO

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