**WARNING**
Before working on the device, power it off as well as all connected equipment.

**WARNING**
The device must be powered off before connecting to peripheral devices or PC. Switch on the power supply only after the wiring has been completed.

**CAUTION**
The program runs after transferring it to the relay. It is recommended to transfer the program before wiring the relay.
Otherwise ensure that all peripheral devices are disconnected from relay outputs before transferring the program.

## 1. Specification

*Table 1 General specification*

| | | |
|---|---|---|
| Power supply | | 24 (9…30) V DC |
| Power consumption, max. | | 4 W |
| Galvanic isolation | | 1500 V / 1 s |
| Inputs | Digital | 8 |
| | Analog | 4 |
| Outputs | Digital | 8 |
| | Analog | — |
| Network interface | | RS-485 |
| | Protocol | Modbus-RTU, Modbus-ASCII |
| | Mode | Master/Slave |
| | Baud rate | 9.6…115.2 kbit/s |
| | Galvanic isolation | 1500 V / 1 s |
| Extension modules | | none |
| Real-time clock accuracy | | ± 3 s/day |
| Dimensions (with terminal blocks) | | 88 × 108 × 58 mm |
| Mounting | | DIN-rail (35 mm) |
| Weight | | approx. 250 g |

*Table 2 Digital inputs*

| | |
|---|---|
| Logical 1 | 8.5…30 V / 2…5 mA |
| Logical 0 | -3…+5 V / 0…15 mA |
| Pulse length, min. | 2 ms |
| Response time, max. | 30 ms |
| Galvanic isolation | in groups of 4 (1-4, 5-8) |
| between inputs groups | 1780 V / 1 s |
| against other circuits | 2830 V / 1 s |

*Table 3 Analog inputs*

| | |
|---|---|
| Galvanic isolation | no |
| ADC resolution | 12 bit |
| **Analog mode** | |
| Input signal | 0-10 V, 4-20 mA |
| Input voltage, max. | 30 V |
| Input resistance for 0-10 V input | 61 kΩ |
| Basic error | ±0.5 % |
| Temperature influence | ±0.5 % / 10 °C |
| **Digital mode** | |
| Nominal input voltage | 24 V DC |
| Logical 1/0 switching threshold (adjustable in ALP) | 2.5…10 V |
| Logical 0/1 switching threshold (adjustable in ALP) | 3…10.5 V |
| Pulse length, min. | 5 s |
| Signal frequency, max. | 100 Hz |

*Table 4 Digital outputs*

| | | |
|---|---|---|
| Type | | relay (NO) |
| Galvanic isolation | | individual |
| between outputs | | 1780 V |
| against other circuits | | 2830 V |
| Switching capacity AC | | 5 A, 250 V AC (resistive load) |
| Switching capacity DC | | 3 A, 30 V DC |
| Load current at 5 V DC, min. | | 10 mA |
| Service life, electrical | 3 A, 30 V DC | 100 000 switching cycles |
| | 5 A, 250 V AC (resistive load) | 200 000 switching cycles |

*Table 5 Programming*

| | | |
|---|---|---|
| Software | | ALP |
| Interface | | Micro-USB |
| Memory | ROM | 128 kB |
| | RAM | 16 kB |
| | Retain | 1 kB |
| | Network variables | 128 Byte |
| Program execution cycle, min. | | 1 ms |

## 2. Operating conditions

The device is designed for natural convection cooling.
The following environmental conditions must be observed:

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

*Table 6 Operating conditions*

| Condition | Permissible range |
|---|---|
| Operating temperature | -40…+55 °C |
| Relative humidity | up to 80 % (at +25 °C, non-condencing) |
| Attitude | up to 2000 m above sea level |
| Appliance class | II |
| IP code | IP20 |
| EMC immunity | conforms to IEC 61000-6-2 |
| EMC emission | conforms to IEC 61000-6-4 |

## 3. Installation

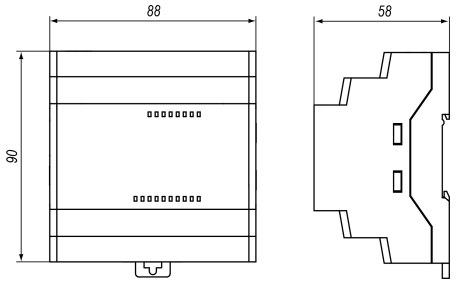



*Fig. 1 Dimensions*

Installation:

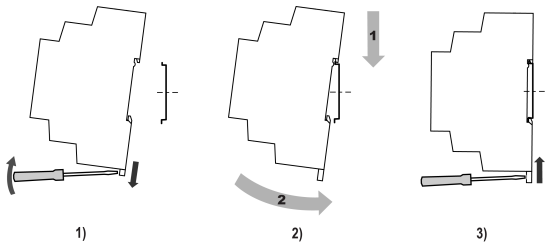



*Fig. 2*

1. Place the device on a DIN rail as shown in *Fig. 2*.
2. Press the device firmly against the DIN rail in the direction of arrow 2 until the latch locks.
3. Wire the device using the supplied terminal blocks.

Removing:

1. Take off the terminal blocks without disconnecting wires.
2. Insert a screwdriver into the eyelet of the slide interlock.
3. Loosen the slide interlock and then remove the relay from the DIN rail.

PR100 is equipped with plug-in terminal blocks which enable quick replacement of the device without disconnecting the existing wiring.

## 4. Digital inputs wiring

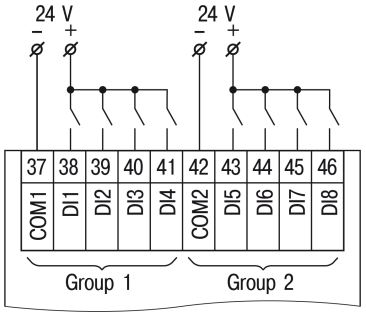



*Fig. 3 Switch contacts*

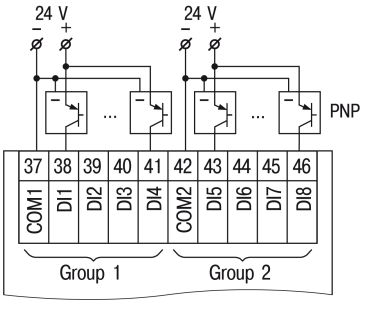



*Fig. 4 3-wire sensors with PNP transistor outputs*


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### 5. Analog inputs wiring

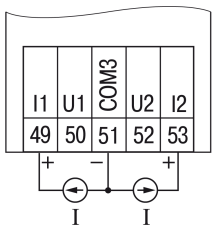



*Fig. 5 Current signals (4-20 mA)*

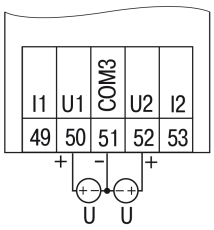



*Fig. 6 Voltage signals (0-10 V)*

### 6. Output wiring

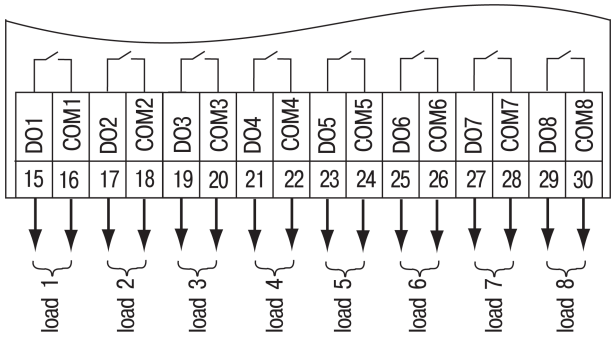



*Fig. 7 Relay outputs*

### 7. Connection to PC

The programming socket is located under the cover (see *sect. 9*). To connect the device to PC, use a standard microUSB-B to USB-A cable.

### 8. RS485 interface

Use terminating resistors if necessary.

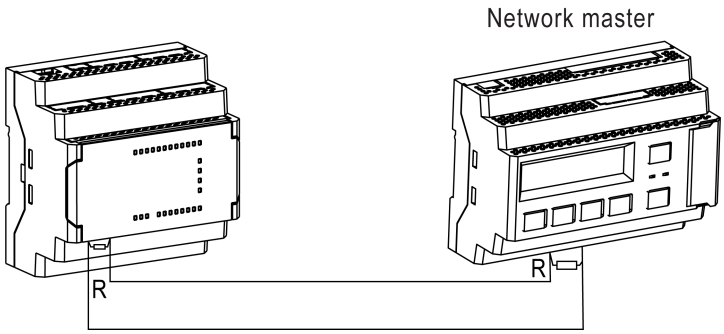



*Fig. 8 PR100 as Slave*

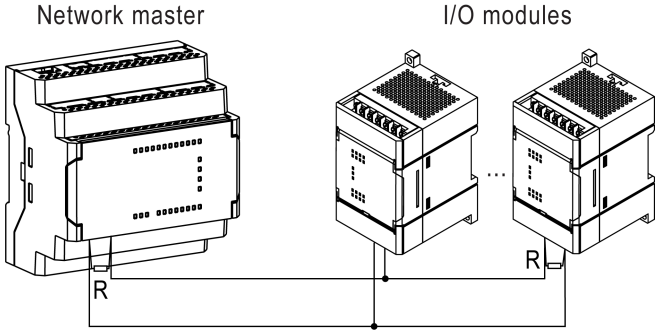



*Fig. 9 PR100 as Master*

### 9. Controls and interfaces

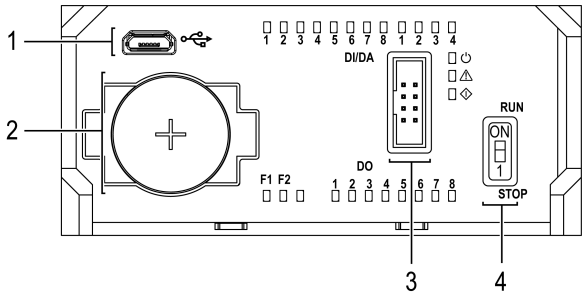



*Fig. 10*

Under the front cover:

1. MicroUSB programming socket
2. RTC battery
3. Service interface
4. Run / Stop switch

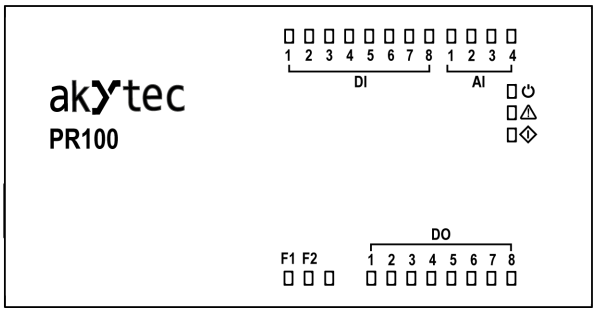



*Fig. 11 Front view*

*Table 7 Indication*

| LED | Color | State | Description |
|---|---|---|---|
| ⏻ | green | ON | Power on |
| ⚠ | red | ON | – program checksum error<br>– retain memory error<br>– system error |
| | | flashing | Overheating |
| **F1** | green | ON | Programmable |
| **F2** | green | ON | |
| **DI1…DI8** | green | ON | Logical 1 on input |
| **AI1…AI4** | green | ON | Logical 1 on input (digital mode only) |
| **DO1…DO8** | green | ON | Output is on |
| ⏼ | red | ON | 24 V DC power off, powered over USB, program stopped |
| | green | ON | 24 V DC power on, program runs |
| | red / green | red – ON<br>green – fast flashing | 24 V DC power on, program is being transferred to device |

### 10. Scope of delivery

| | |
|---|---|
| PR100 | 1 |
| Short guide | 1 |
| Terminal blocks (set) | 1 |

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