8-channel on-off controller

DANGER

Dangerous voltage
Electric shock could kill or seriously injure.
All electrical connections must be performed by a fully qualified electrician.
Ensure that the mains voltage matches the voltage marked on the nameplate!
Ensure that the device is provided with its own power supply line and electric fuse!
Switch on the power supply only after the wiring of the device has been completely performed.

Ordering information

TRM138-H7.XXXXXXXX

Output type

Output type 1…8:

R	-	Relay (4 A, 230 V AC / 24 V DC)
I	-	4-20 mA
S	-	Solid state relay (50 mA, 4…6 V DC)
T	-	NPN transistor (400 mA, 60 V DC)
U	-	0-10 V (outputs 5…8 only)

Various types of outputs should be indicated in the order key only in the certain sequence: I -> S -> T -> R -> U

Specifications

Table 1

Power supply	230 (90…264) V AC; 50 (47…63) Hz
Integrated voltage source	24±3 V DC, 150 mA
Analog Inputs	8
Sampling time each input, max	0.6 s
Serial interface	RS485
Baud rate	2.4…115.2 kbit/s
Dimensions	169 x 144 x 50 mm
Weight	approx. 450 g

Table 2 Sensor cables

Sensor type	Cable length, max	Resistance (one wire), max	Cable type
RTD	100 m	15 ohm	Equal length and cross-section, (2- or 3-wire)
TC	20 m		Compensation cable
Standard signal (current or voltage)	100 m	100 ohm	2-wire

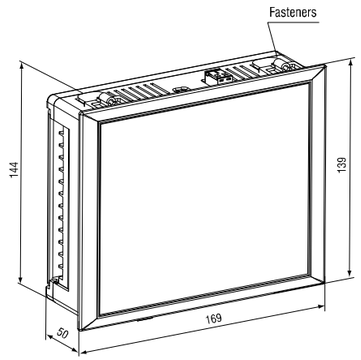


Fig. 1 Dimensions

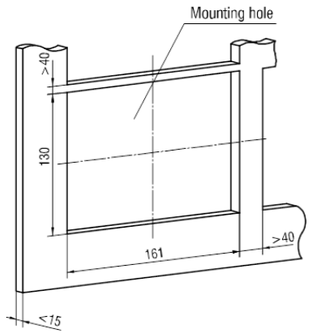


Fig. 2 Mounting cutout

Mounting procedure:

- Prepare the mounting cutout according to Fig. 2
- The mounting enclosure must provide a clean, dry and controlled environment
- Make sure that the device is provided with the mounting seal
- The seal contact surface must be clean and smooth, so that the protection IP54 can be provided
- Fit the device into the cutout
- Insert the 4 fastening clips into the slots on the top and the bottom of the device
- Insert the screws and tighten them to fix the device

Wiring

- The layout of terminal blocks is shown in Fig. 3 and the terminal assignments in Table 3
- Ensure that the device is provided with its own power supply line and electric fuse I = 1 A
- Connect the power supply to the terminals L / N
- The inputs should be wired in accordance with Fig. 4...10
- The outputs should be wired in accordance with Fig. 11...19
- The maximum conductor cross-section is 1.5 mm²
- Disabled inputs (parameter „Sensor type“ = OFF) should be short-circuited according to Fig. 10

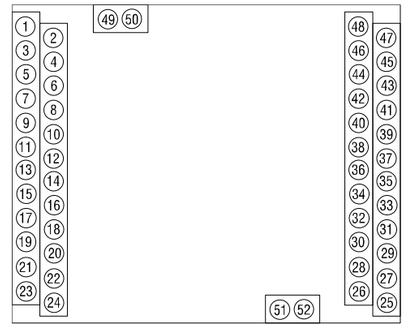


Fig. 3 Layout of terminal blocks

Table 3 Terminal assignment

Terminal	Signal	Terminal	Signal	Terminal	Signal
1	Output 1-3 (–)	19	Output 8-2 (+)	37	Input 4-3
2	Output 1-2 (+)	20	Output 8-1	38	Input 3-3
3	Output 2-3 (–)	21	not connected	39	Input 4-2
4	Output 2-2 (+)	22	not connected	40	Input 3-2
5	Output 3-3 (–)	23	Power supply (N)	41	Input 4-1
6	Output 3-2 (+)	24	Power supply (L)	42	Input 3-1
7	Output 4-3 (–)	25	Input 8-3	43	Input 2-3
8	Output 4-2 (+)	26	Input 7-3	44	Input 1-3
9	Output 5-3 (–)	27	Input 8-2	45	Input 2-2
10	Output 5-2 (+)	28	Input 7-2	46	Input 1-2
11	Output 5-1	29	Input 8-1	47	Input 2-1
12	Output 6-3 (–)	30	Input 7-1	48	Input 1-1
13	Output 6-2 (+)	31	Input 6-3	49	RS485 D+
14	Output 6-1	32	Input 5-3	50	RS485 D-
15	Output 7-3 (–)	33	Input 6-2	51	–24 V voltage source
16	Output 7-2 (+)	34	Input 5-2	52	+24 V voltage source
17	Output 7-1	35	Input 6-1		
18	Output 8-3 (–)	36	Input 5-1		

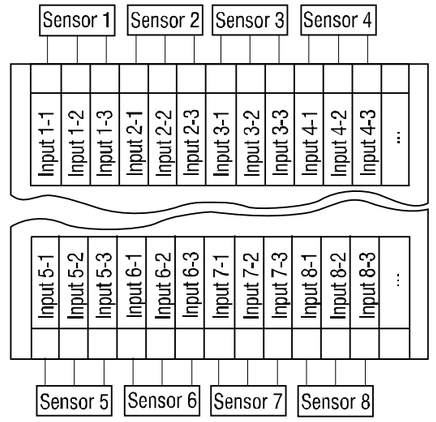


Fig. 4 Input connections

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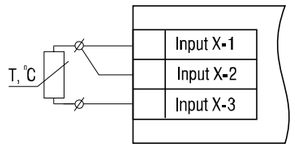


Fig. 5 RTD sensor wiring

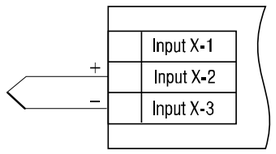


Fig. 6 TC sensor wiring

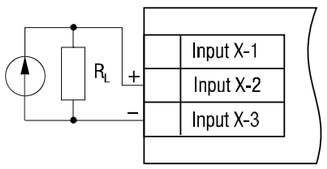


Fig. 7 4-20 mA sensor wiring

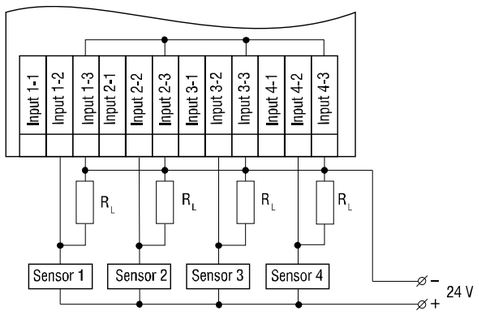


Fig. 8 4-20 mA sensor group wiring (example)

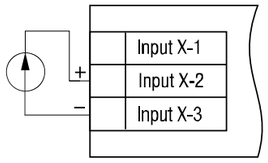


Fig. 9 0-1 V sensor wiring

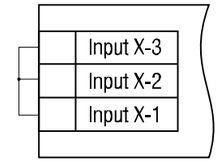


Fig. 10 Short-circuiting of a disabled input

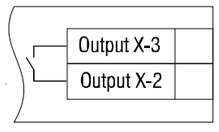


Fig. 11 Relay output Q1…Q4

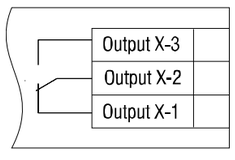


Fig. 12 Relay output Q5…Q8

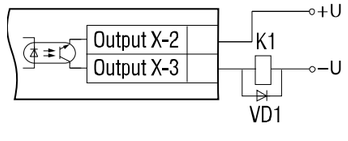


Fig. 13 NPN transistor outputs Q1…Q4

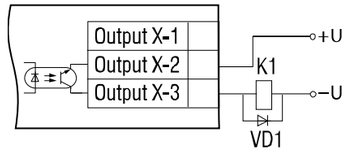


Fig. 14 NPN transistor outputs Q5…Q8

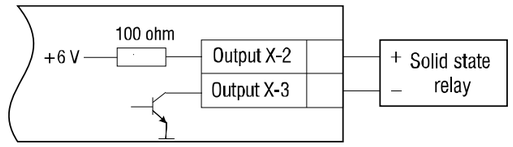


Fig. 15 SSR outputs Q1…Q4

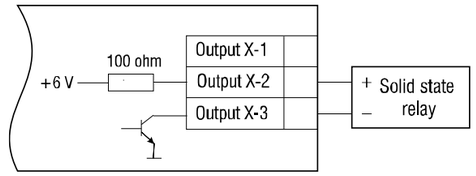


Fig. 16 SSR outputs Q5…Q8

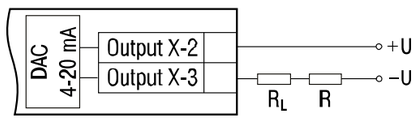


Fig. 17 4-20 mA outputs Q1…Q4

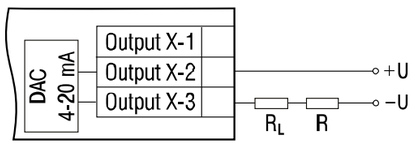


Fig. 18 4-20 mA outputs Q5…Q8

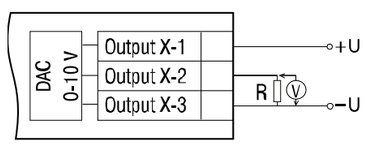


Fig. 19 0-10 V outputs Q5…Q8

▶ **NOTICE** | ***To measure a current signal a shunt resistor R_L = 100 ohm (±1%) should be connected in parallel.***

▶ **NOTICE** | ***If an external voltage source is used, the voltage must not exceed 30V***

▶ **NOTICE** | ***The output 0-10 V is designed for minimal load resistance of 2 kohm.***

Maintenance:

The maintenance includes:

- cleaning of the housing and terminal blocks from dust, dirt and debris
- checking the fastening of the device
- checking the wiring (connecting leads, fastenings, mechanical damage).

The device should be cleaned with a damp cloth only. No abrasives or solvent-containing cleaners may be used. The safety information in section 3 must be observed when carrying out maintenance.

Transportation and storage:

Pack the device in such a way as to protect it reliably against impact for storage and transportation. The original packaging provides optimum protection.

If the device is not taken immediately after delivery into operation, it must be carefully stored at a protected location. The device should not be stored in an atmosphere with chemically active substances.

Permitted storage temperature: -25...+60 °C

Relative humidity: up to 80% (at +25°C, non-condensing)

▶ **NOTICE** | ***Transport damage, completeness***
The device may have been damaged during transportation.
Check the device for transport damage and completeness!
Report the transport damage immediately to the shipper and akYtec GmbH!

Scope of delivery:

–	TRM138	1
–	Short guide	1
–	Mounting kit	1
–	Gasket	1
–	USB stick with software and documentation	1

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akYtec GmbH · Vahrenwalder Str. 269 A · 30179 Hannover · Germany
Tel: +49 (0) 511 16 59 6720 · www.akytec.de

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000