

TRS 5-40

Control Unit TRS 5-40

Description

The control unit TRS 5-40 together with the temperature sensors TRS 5-6x and the temperature transmitter TRV 5-40 constitutes a temperature monitoring system.

Two temperature sensors TRG 5-6x detect the temperature values which are then converted by the temperature transmitter TRV 5-40 and made available for the CAN bus in the form of a data telegram.

The CANopen protocol is used for the data transfer via CAN bus.

The control unit TRS 5-40 can be used

- as MIN and MAX temperature monitor in combination with the temperature transmitter TRV 5-40 and with one temperature sensor TRG 5-6x each and
- as temperature controller in combination with the temperature transmitter TRV 5-40 and with one temperature sensor TRG 5-6x (MIN or MAX)

The control unit TRS 5-40 is also available with two actual value outputs 4 - 20 mA.

The equipment combinations can be used for controlling or monitoring temperatures in steam boilers and (pressurised) hot water installations to TRD and EN 12952 and EN 12953.

Function

The control unit TRS 5-40 evaluates the data telegram coming from the temperature transmitter TRV 5-40 at regular intervals. This data telegram contains:

- Actual value and adjusted switchpoint for measuring channel 1,
- Actual value and adjusted switchpoint for measuring channel 2,
- Temperature in the housing of the temperature transmitter.

In addition, the following error messages are also included in the data telegram:

- Malfunction in the temperature sensor (sensor damaged, short circuit),
- Temperature in the housing of the temperature transmitter too high,
- Communication error.

The output relays 1 – 4 are assigned to the measuring channels 1 and 2 as follows:

- Measuring channel 1: Output relay 1
- Measuring channel 2: Output relays 2, 3 and 4.

To activate or de-activate the measuring channels and to set the functions use the code switch or the operating & display unit URB 2.

Use the operating & display unit URB 2 to set the MIN / MAX temperature switchpoints for the temperature control as well as to establish the actual value outputs.

If there is an error message relay(s) 1 and/or 4 will be de-energized.

Design

TRS 5-40

Plug-in unit in plastic case for installation in control cabinets. The terminals are externally accessible.

The plug-in unit can be snapped onto a 35 mm supporting rail TH 35, EN 60715.

External dimensions: 100 x 73 x 118

CAN bus

All devices (level, conductivity, temperature) are interconnected via CAN bus. The CANopen protocol is used for the data exchange between the equipment groups. All devices have an electronic address – the node ID. The four-core bus cable serves as power supply and data highway for high-speed data exchange. The control unit TRS 5-40 has already been configured at our works for operation with other GESTRA components and can be used straight away without having to set the node ID.

Technical Data

DIN registration number

TR / TW 118206

Input / Output

Interface for CAN bus to ISO 11898 CANopen with power supply 18 – 36 V DC, short-circuit protected.

Outputs

4 volt-free relay contacts

Contact material AgNi 0.15

Max. contact rating with switching voltages

24 V AC/DC, 115 V AC and 230 V AC:

Resistive / inductive 4 A.

Contactors must be provided with interference suppressors (RC combinations) as specified by the manufacturer.

2 Analog outputs 4 – 20 mA, load 500 Ω for actual value indication (optional)

Channel 1: e. g. inlet temperature

Channel 2: e. g. discharge temperature

Switching hysteresis

for MAX switchpoints –2 °C,

for MIN switchpoints +2 °C

Indicators and adjustors

2 test buttons for checking relays ,

4 LEDs for alarm and error messages,

1 LED Power,

1 LED Bus status,

1 10-pole code switch for setting the node ID,

the baud rate and the system configuration

Mains voltage

230 V +10 / –15 %, 50 – 60 Hz

115 V +10 / –15 %, 50 – 60 Hz (optional)

24 V +10 / –15 %, 50 – 60 Hz (optional)

Power consumption

10 VA

Protection

Housing: IP 40 to DIN EN 60529

Terminal strip: IP 20 to DIN EN 60529

Admissible ambient temperature

0 – 55 °C

Housing

Housing material: Base: polycarbonate, black;

Front panel: polycarbonat, grey

Conductor size: 1 x 4.0 mm² solid per wire or

1 x 2.5 mm² per stranded wire with sleeve to DIN 46228

or

2 x 1.4 mm² per stranded wire with sleeve to

DIN 46228; terminal strips can be detached

Fixing of housing: Mounting clip on supporting rail

TH 35, EN 60715

Weight

Approx. 0.8 kg

Control Unit TRS 5-40

Important Notes

Screened multi-core twisted-pair control cable **must** be used for the bus line, e. g. UNITRONIC® BUS CAN 2 x 2 x ...mm². RE-2YCYW-fl 2 x 2 x ...mm² can also be used. Max. length 125 m for 250 kBit/s. The bus **must** be wired in series. Start-type wiring is **not** permitted!

Control cable assemblies (cable with plug and connector) of various lengths are available as add-on equipment.

Guideline values for the cable length between two bus devices (length of segment) and for the conductor size in accordance with ISO 11898:

Length of segment [m]	Number of pairs and conductor size [mm ²]
up to 250	2 x 2 x 0.34
250 to 335	2 x 2 x 0.5
335 to 1000	2 x 2 x 0.75

To protect the switching contacts provide electric circuit with a (slow-blow) T 2.5 fuse.

Order & Enquiry Specification

GESTRA Temperature switch TRS 5-40 b plug-in unit in plastic case for installation in control cabinets.

MIN and MAX temperature monitor with one resistance thermometer TRG 5-6x per limit and temperature transmitter TRV 5-40 and temperature controller in combination with resistance thermometer TRG 5-6x (MIN or MAX) and temperature transmitter TRV 5-40

optional with 2 actual value outputs 4-20 mA for channel 1 and 2

Mains voltage..... V

Associated Equipment

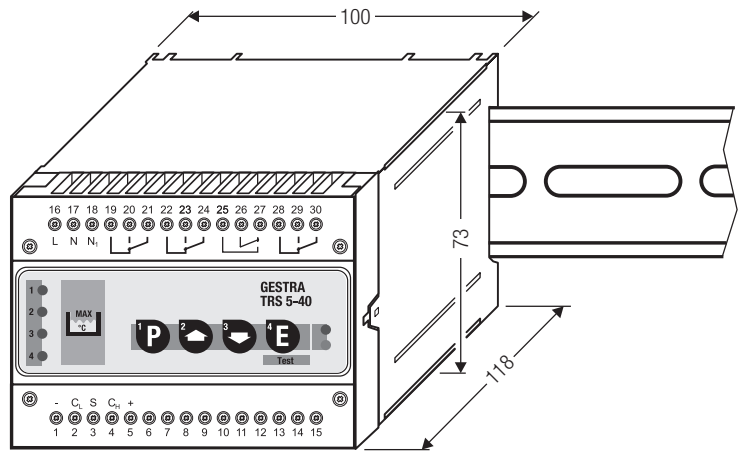
- Temperature transmitter TRV 5-40
- Resistance thermometer TRG 5-6x

ATEX (Atmosphère Explosible)

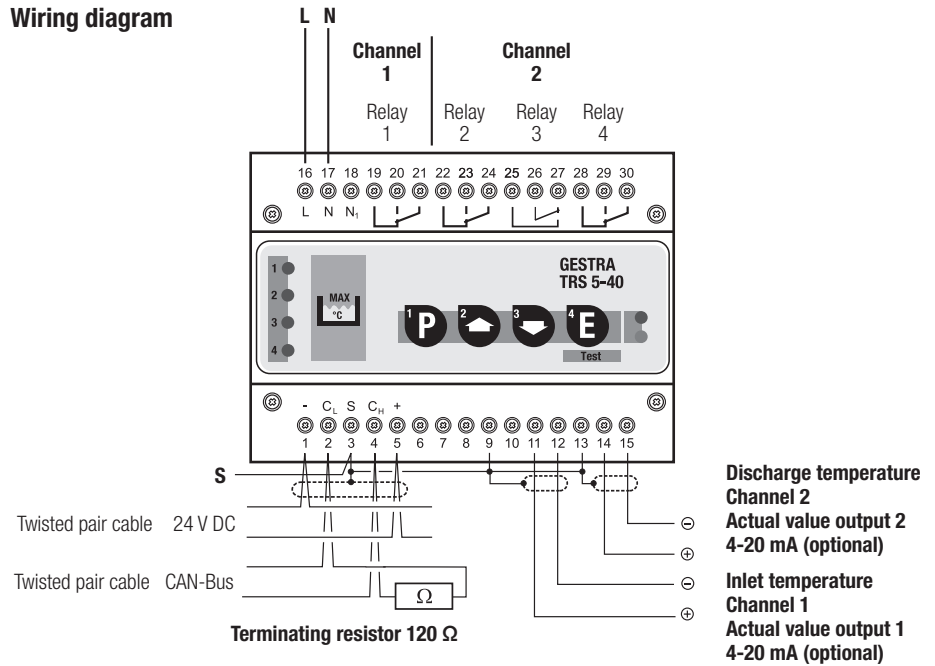
According to the European Directive 2014/34/EU the equipment **must not** be used in explosion risk areas.

Supply in accordance with our general terms of business.

Dimensions

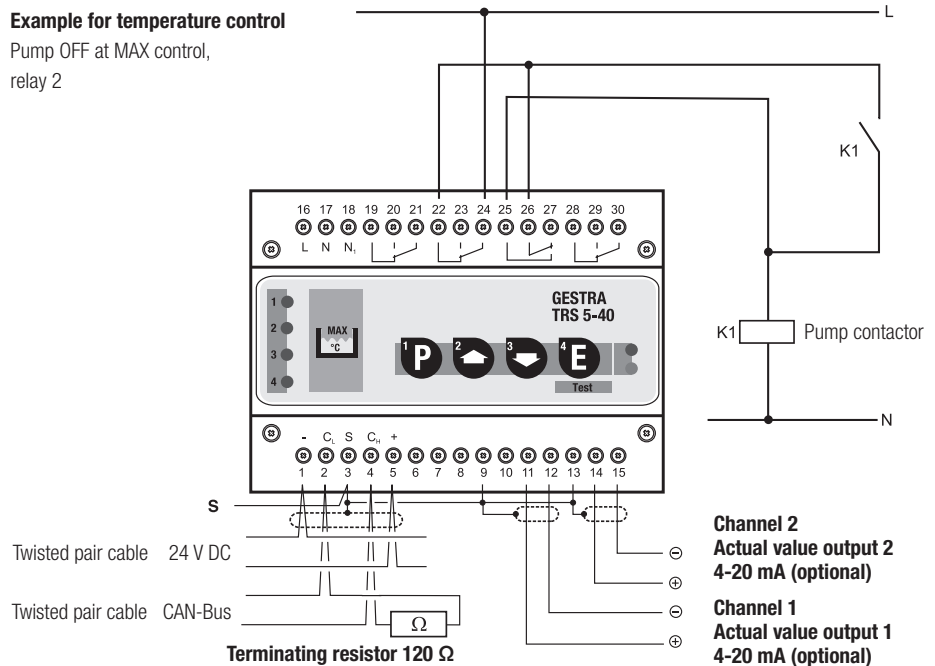


Wiring diagram



Example for temperature control

Pump OFF at MAX control, relay 2



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