

TRS 5-52

## Temperature Switch

### TRS 5-52

#### Description

The temperature switch TRS 5-52 is used in conjunction with temperature sensors TRG 5-6.. as max. -min. limit switch, for instance in steam boilers and (pressurised) hot-water plants. The temperature switch detects and indicates a MIN and a MAX temperature.

The temperature switch TRS 5-52 is designed for use in conjunction with temperature sensors TRG 5-63, TRG 5-64, TRG 5-65, TRG 5-66, TRG 5-67 and TRG 5-68.

#### Function

A platinum resistance thermometer Pt 100 to EN 60751 is used as temperature sensor for the temperature switch TRS 5-52. A three-wire configuration is used for the electrical connection.

The temperature switch processes the temperature-dependent changes in resistance of the temperature sensor and during normal operation the seven-segment LED display shows the actual value.

The switchpoints for MIN and MAX temperature can be variably adjusted within the measuring range. When the MIN or MAX temperature is reached, the MIN or MAX output contact is switched over and MIN or MAX LED is illuminated.

Any error or malfunction that occurs in the temperature sensor, the electrical connection or the settings is indicated by the seven-segment LED display and will trigger a MIN and MAX alarm.

If an error occurs in the temperature switch TRS 5-52, only the MIN and MAX alarm is raised and the system is restarted.

Parameter settings can be changed or a MIN/MAX alarm be simulated by operating the rotary button.

For external temperature indication the equipment is optionally available with an actual-value output 4 - 20 mA.

#### Directives and standards

##### DIN EN 14597

The temperature switch TRS 5-52 in conjunction with temperature sensor TRG 5-6 is type approved according to DIN EN 14597.

DIN Registration number DIN TW 1232

DIN EN 14597 describes and specifies the requirements made on tests of temperature monitors.

##### LV (Low Voltage) Directive and EMC (Electromagnetic Compatibility)

The equipment meets the requirements of the Low Voltage Directive 2006/95/EC and the EMC Directive 2004/108/EC.

##### ATEX (Atmosphère Explosible)

According to the European Directive 94/9/EC the equipment must not be used in potentially explosive areas.

##### Note:

The temperature sensors TRG 5-63, TRG 5-64, TRG 5-65, TRG 5-66, TRG 5-67 and TRG 5-68 are simple items of electrical equipment as defined in EN 60079-11 section 5.7. According to the European Directive 94/9/EC the equipment must be equipped with approved Zener barriers if used in potentially explosive areas. Applicable in Ex zones 1, 2 (1999/92/EC). The equipment does not bear an Ex marking. The suitability of the Zener barriers is certified in a separate wiring diagram provided by the manufacturer.

##### UL/cUL (CSA) Approval

The equipment complies with the requirements of the following standards: UL 508 and CSA C22.2 No. 14-13, Standards for Industrial Control Equipment. File E243189.

#### Technical data

##### Supply voltage

24 VDC, + / -20 %

##### Fuse

external 0.5 A (semi-delay)

##### Power consumption

4 VA

##### Connecting the temperature sensor

1 input for temperature sensor TRG 5-63, TRG 5-64, TRG 5-65, TRG 5-66, TRG 5-67 and TRG 5-68, (platinum resistance thermometer Pt 100 to EN 60751), with 3 poles and screen.

##### Outputs

2 volt-free change-over contacts,

6 A 250 V AC / 30 V DC  $\cos \varphi = 1$ .

(MIN/MAX alarm, switchpoint adjustable).

Provide inductive loads with RC combinations according to manufacturer's specification to ensure interference suppression

1 analogue output 4-20 mA, max. load 500 ohm, e. g. for actual-value indication (optional).

##### Measuring range

0° C up to 600° C

##### Switching hysteresis

Switchpoint MAX temperature: -5 K, factory set.

Switchpoint MIN temperature: +5 K, factory set.

##### Indicators and adjusters

1 rotary button with integrated test button for MIN/MAX alarm and parameter settings,

1 four-digit seven-segment LED indication, green

2 red LEDs for MIN/MAX alarm,

##### Body

Housing material: base: polycarbonate, black

Front: polycarbonate, grey.

Terminal strips separately detachable.

Fixing of housing: Mounting clip on supporting rail TH 35, EN 60715

##### Electrical safety

Pollution degree 2.

##### Protection

Body: IP 40 to EN 60529

Terminal strip: IP 20 to EN 60529

##### Weight

approx. 0.2 kg

##### Ambient temperature

when system is switched on: 0 °C ... 55 °C

during operation: -10 °C ... 55 °C

##### Transport temperature

-20 °C ... +80 °C (< 100 hours), defrosting time of the de-energized equipment before it can be put into operation: 24 hours.

##### Storage temperature

-20 °C ... +70 °C, defrosting time of the de-energized equipment before it can be put into operation: 24 hours.

##### Relative humidity

max. 95%, no moisture condensation

# Temperature Switch TRS 5-52

## Important Notes

The temperature switch TRS 5-52 is clipped onto the support rail in the control cabinet.

The equipment is supplied with 24 V DC and fused with an external semi-delay fuse 0.5 A.

The power supply unit must be electrically isolated from dangerous contact voltages and must meet at least the requirements on double or reinforced isolation according to one of the following standards: DIN EN 50178, DIN EN 61010-1, DIN EN 60730-1 or DIN EN 60950.

To prevent the welding together of contacts provide an external slow-blow fuse T 2.5 A or 1.0 A (TRD 604, 72 hrs. operation) for the output contacts.

When switching off inductive loads, voltage spikes are produced that may impair the operation of control systems. Connected inductive loads must be provided with suppressors such as RC combinations as specified by the manufacturer.

To connect the temperature sensor TRG 5-... use screened multi-core control cable with a min. conductor size 0.5 mm<sup>2</sup>, e. g. LiYCY 4 x 0.5 mm<sup>2</sup>, max. length: 100 m.

Make sure that connecting cables between the equipment are segregated and run separately from power cables.

## Order & Enquiry Specification

### Temperature switch type TRS 5-52

GESTRA SPECTORmodule

Output: 2 volt-free change-over contacts MIN/MAX alarm

Indication: 7-segment LED display

Supply voltage: 24 V DC, 4 VA

Optional extras (please state when ordering):

1 actual value output 4-20 mA

## Key

- 1 Upper terminal strip
- 2 Lower terminal strip
- 3 Body
- 4 Supporting rail type TH 35, EN 60715
- 5 Connection of supply voltage **24 V DC** with fuse 0.5 A (semi-delay), provided on site
- 6 Actual value output 4-20 mA (optional)
- 7 Central earthing point (CEP) in control cabinet
- 8 Temperature sensor TRG 5-..., screen via cable gland
- 9 MIN output contact
- 10 MAX output contact

## Dimensions

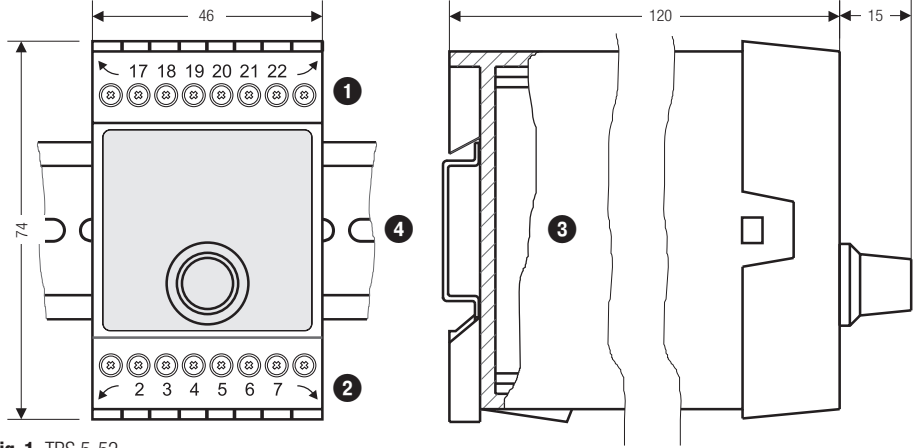


Fig. 1 TRS 5-52

## Electrical connection TRS 5-52

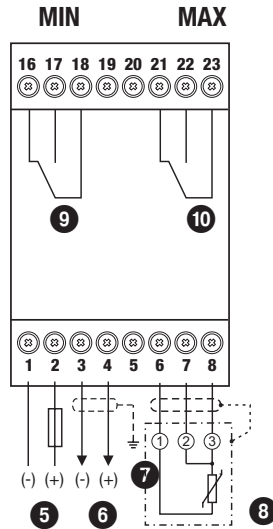


Fig. 2

Supply in accordance with our general terms of business.

## GESTRA AG

P. O. Box 10 54 60, D-28054 Bremen

Münchener Str. 77, D-28215 Bremen

Tel. 0049 (0) 421 / 35 03-0, Fax 0049 (0) 421 / 35 03-393

E-mail gestra.ag@flowserve.com, Web www.gestra.com



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