Temperature - Limit Value Switch HART — TGS2

Characteristics

0630 - RTD PT100 - PROGRAMMABLE -

- Input RTD Pt100:	2-wire / -50...500 °C
- Thermocouple type K:	NiCr-Ni / -50...1200 °C
- Output:	Relay contact (NC or NO)
- Supply:	24 VDC
- Accuracy:	0,3% of nominal range
- Operating temperature:	-20...+80 °C
- Configuration:	HART interface, magnet
- Connection:	Terminal screws
- Protection:	IP20
- Dimensions:	Ø45x23 mm
- Casing:	Synthetics PA66

Technical Data

Input		
RTD Pt100:	Sensor:	1x RTD Pt100
	Connection:	2-wire
	Nominal range:	-50...500 °C
	Sensor current:	0,3 mA
Thermocouple:	Sensor:	Type K (NiCr-Ni)
	Nominal range:	-50...1200 °C
	Reference junction:	Compensation intern available
Output		
Switching contact:	NC or NO (selectable using jumper)	
Switching current:	1 A, 30 VDC at 40 °C	
	0,5 A, 60 VDC at 40 °C	
	0,3 A, 125 VAC at 40 °C	
Measuring Amplifier		
Accuracy:	±0,5 °C	
Switching delay:	0 s (standard), with setting via HART : 0...99,9 s	
Hysteresis:	0,1 °C (standard), with setting via HART : > 0,1 °C	
Damping:	0 s (standard), with setting via HART : 0...99,9 s	
Measuring rate:	10 measurements/s	
Response time:	20 ms	
Switching point:	100 °C (standard)	
Switching point setting:	per software (HART communication) / with magnet (recalibration)	
Switch-on delay time:	<5 s	
Signaling:	LED:	red
	Relay active:	LED lights up
	Relay inactive:	LED is dark
Adjustable Features		
Measuring amplifier:	With magnet:	Switching point setting (recalibration)
	With HART-tool:	Hysteresis, switching delay, switching point, damping

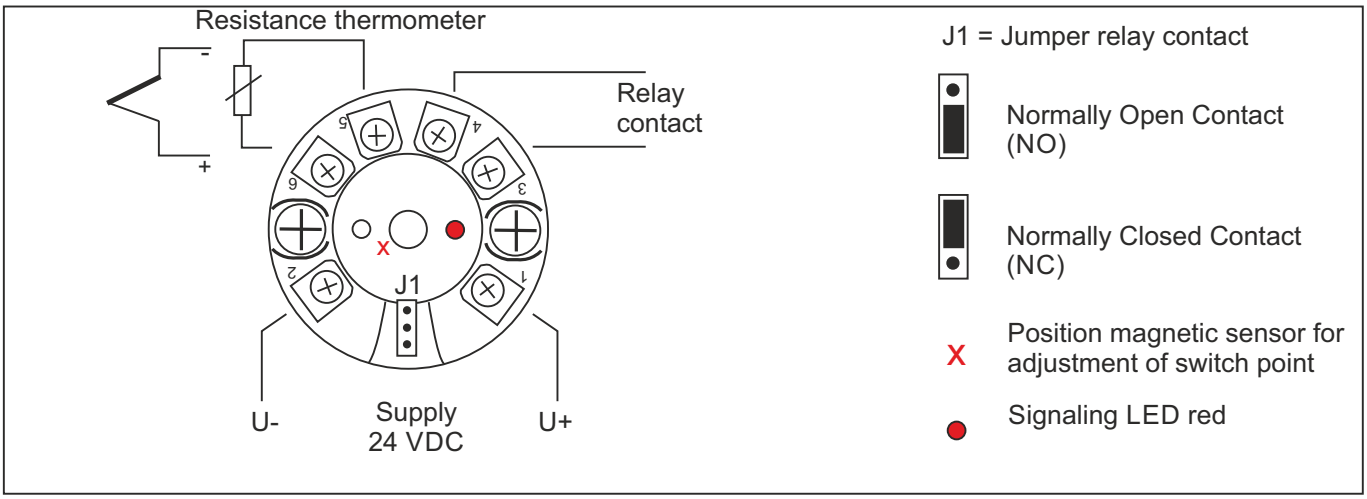
Applications

Suitable as cost-efficient limit value switch or as two-position controller (replacement for thermostats or thermoswitches). It can be used everywhere when inside an appropriate casing and can be adjusted for a measurement application using a magnet or HART communication.

Technical Data (Continued)

Environmental Conditions		
Temperature:	Operating range:	-20...+70 °C
	Storage:	-20...+85 °C
Humidity:	30...85% rH (40 °C, no condensation)	
Supply		
Voltage:	24 VDC ±5 V	
Reverse battery protection:	available (no function, no damage)	
Mechanics		
Casing:	Dimensions:	Ø45x23 mm
	Material:	Synthetics black (PA66)
Protection:	IP 20	
Electrical connection:	Terminal screws	
	Cross-sectional area:	1 mm²
	Strip length:	8 mm
Weight:	ca. 35 g	
EMC Conformity:	EN 61000-6-4, EN 61000-6-2	

Electrical Connection



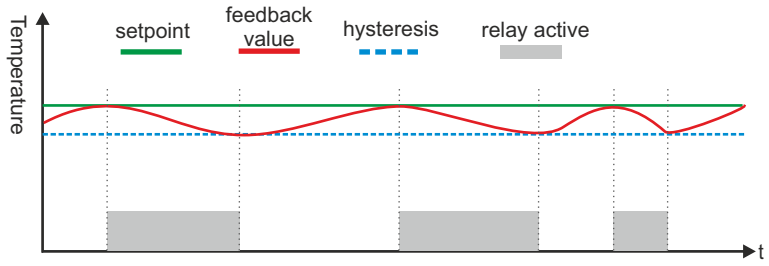
Setting of Switchpoint (Teaching)

- First, apply the temperature meant for switching the switching contact at the temperature sensor.
- When the temperature for switching the contact has been reached, operate the Hall-effect switch by using a magnet. Position of the Hall-effect switch: When viewing the device from the top, the J1 jumper relay contact faces down. The switch is left and above from the contact. See also the drawing above.
- After the Hall-effect switch has been operated successfully, the red LED on the right above from the jumper relay contact will blink 3 times. This means, the new switching value has been accepted.
- During standard operation, the LED shows the status of the switching contact:

LED glows:	Switching relay is active
LED is dark:	Switching relay is inactive

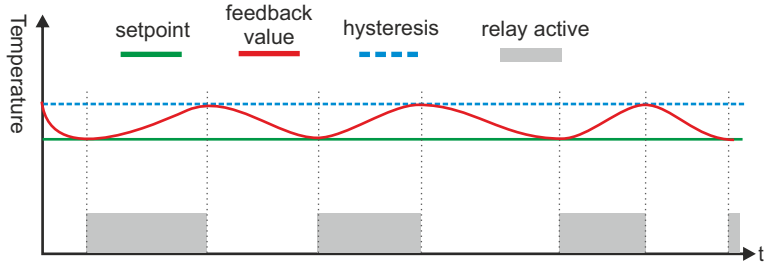
Relay Behavior

Behavior of Relay Maximum



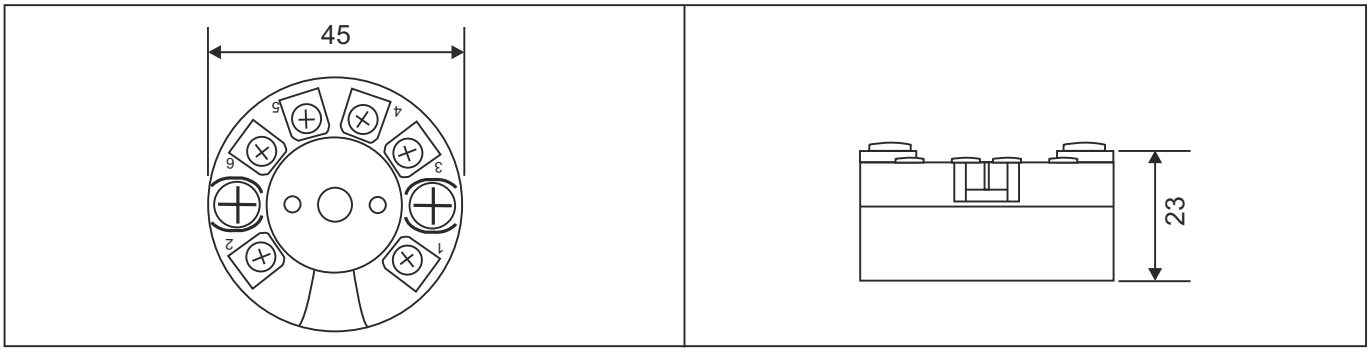
The relay becomes active, when the increasing feedback value has reached the setpoint and remains active until the feedback value has gone down to the adjusted value of hysteresis (feedback value becomes less than setpoint). Example closed loop: relay with break contact. The temperature increases, until the setpoint is reached. The relay operates (contact breaks, heating stops). The temperature decreases to the value of the adjusted hysteresis and the relay is released. The heating circuit is closed again and the temperature increases. Tip: when hysteresis is adjusted too small the relay possibly flutters.

Behavior of Relay Minimum



The relay becomes active, when the decreasing feedback value reaches the setpoint and remains active until the increasing feedback value reaches the adjusted value of hysteresis (feedback value is more than setpoint). Example closed loop: relay with make contact. The temperature increases until the feedback value reaches the value of the adjusted hysteresis. The relay releases (contact breaks, heating stops). The temperature goes down to the setpoint and the relay operates. The heating circuit is closed again and the temperature increases. Tip: when hysteresis is adjusted too small the relay possibly flutters.

Dimensions (in mm)



Order Code

T	E	X	X	X	X	X

Input:	Pt100, 2-wire	L
	Thermocouple type K	M
Output:	Relay contact NO	1
	Relay contact NC	2
Relay Behavior:	Maximum (switches at actual value > set value)	1
	Minimum (switches at actual value < set value)	2
Configuration:	Factory setting[1)]	1
	Custom (please specify)[2)]	2
Special Model:	No	1
	Yes (please specify)	2

1) Factory setting: Pt100: Switch point 100 °C, damping 0 s, hysteresis 0,1 °C, switching delay 0 s relay contact NO, Relay behavior minimum

2) Custom configuration: Please specify, for possible options see Technical Data

Accessories:

HART-Interface, USB, Software — Best.-No.: **1310-00220**

HART Communication

The HART-Tool is a graphical user interface for the ME series with menu-driven progam for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device.
Operating systems: Windows XP, Windows 7, 8.1 and 10.
Connection via HART interface (modem) with USB interface of a PC or hand-held HART communicator

Settings:
- Adjustment of output current
- Limits of measuring range
- 2-point calibration
- Simulation of output current
- Linear output signal
- Filter function
- HART address

Please note: When using communication via a HART modem, a communication resistance of 250 Ω has to be taken into account.