

TEMPERATURE LIMIT SWITCH WITH HART



Type: **TGS2**

- Pt100 –50 ... 500 °C
- TYPE K –50 ... 1200 °C
- RELAY CONTACT, NO OR NC
- SET BY HART OR MAGNET



ORDER CODE

Code	Field	Meaning
EKMF	series	Temperature Limit Switch TGS2
L · M	input	Pt100, 2-wire · thermocouple type K
1 · 2	output	relay contact NO · relay contact NC
1 · 2	relay behaviour	maximum, switches above the set point · minimum, switches below it
1 · 2	configuration	factory setting · customized, please specify
1 · 2	special model	no · yes, please specify

Factory setting: Pt100, switching point 100 °C, damping 0 s, hysteresis 0.1 °C, switching delay 0 s, relay contact NO, relay behaviour minimum.



OVERVIEW

The TGS2 does not transmit, it switches. It takes one Pt100 in two-wire connection over -50 to 500 °C or a thermocouple of type K over -50 to 1200 °C and drives a relay contact — normally open or normally closed, selected by the jumper J1 in the device. That makes it an inexpensive limit switch or a two-point controller, a replacement for a thermostat or a bimetal switch. The switching point is set in two ways: over HART with the graphical tool, together with hysteresis, switching delay and damping, or without any tool by holding a magnet to the marked spot while the sensor sees the wanted temperature — the red LED blinks three times when the new value has been taken. In normal operation that LED shows the state of the contact. The case is the same round PA66 housing as the transmitters of this family, $\varnothing 45 \times 23\text{ mm}$ and IP20.

MEASUREMENT AND SWITCHING	DEVICE AND CONNECTION
• Pt100, 2-wire, $-50 \dots 500\text{ °C}$ • Thermocouple type K, $-50 \dots 1200\text{ °C}$ • Cold junction compensated internally • Relay contact NO or NC, jumper J1 • 1 A at 30 V DC · 0.3 A at 125 V AC • Accuracy $\pm 0.5\text{ °C}$, measuring rate 10 per s • Hysteresis and delay set over HART • Switching point also set by magnet	• Supply $24\text{ V DC} \pm 5\text{ V}$ • Reverse polarity protection • Case synthetics PA66, black • Dimensions $\varnothing 45 \times 23\text{ mm}$, approx. 35 g • Terminal screws, conductor to 1 mm^2 • Protection class IP20 • Operating temperature $-20 \dots +70\text{ °C}$ • EN 61000-6-4 and EN 61000-6-2



TECHNICAL DATA

INPUT

Pt100	1 x Pt100 · 2-wire · nominal range –50 ... 500 °C · sensor current 0.3 mA
Thermocouple	type K (NiCr-Ni) · nominal range –50 ... 1200 °C
Cold junction	compensated inside the device
Accuracy	± 0.5 °C · 0.3 % of the range

BEHAVIOUR AND SETTING

Measuring rate	10 measurements per s · response time 20 ms
Switch-on delay	< 5 s
Damping	0 s as delivered · 0 ... 99.9 s over HART
Setting by HART	switching point, hysteresis, switching delay, damping
Setting by magnet	switching point — recalibration to the temperature present at that moment
Relay behaviour	maximum: active above the set point · minimum: active below it

SWITCHING OUTPUT

Contact	relay, normally open or normally closed, selected by jumper J1
Switching current	1 A at 30 V DC · 0.5 A at 60 V DC · 0.3 A at 125 V AC, each at 40 °C
Switching point	100 °C as delivered
Hysteresis	0.1 °C as delivered · larger values over HART
Switching delay	0 s as delivered · 0 ... 99.9 s over HART
Signalling	red LED — lit while the relay is active

ENVIRONMENT AND SUPPLY

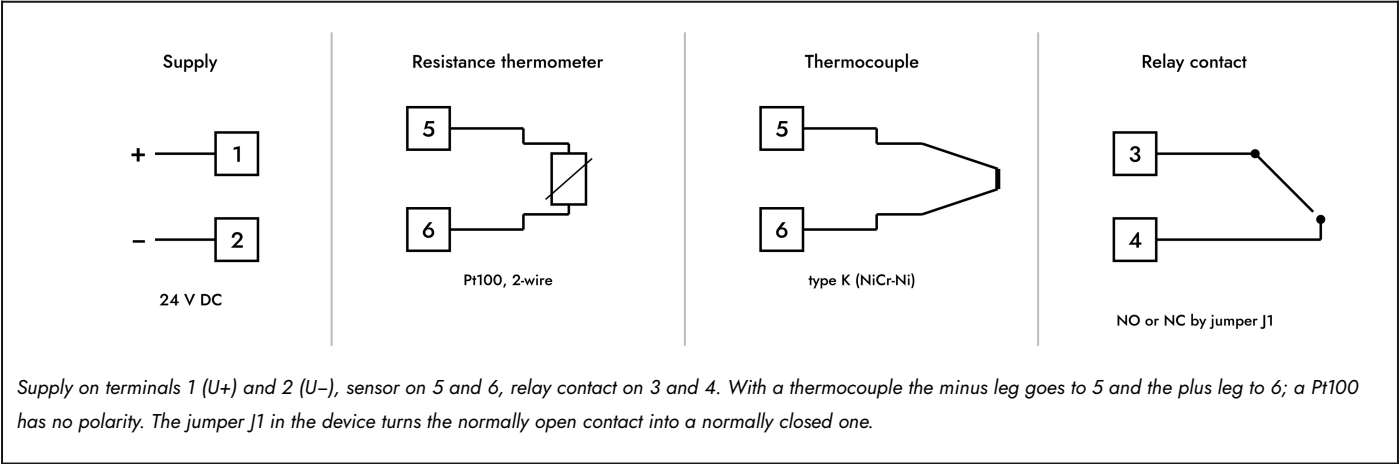
Operating temperature	–20 ... +70 °C
Storage temperature	–20 ... +85 °C
Air humidity	5 ... 85 % rH at 40 °C, no condensation
Supply voltage	24 V DC ± 5 V
Reverse polarity	protected — no function, no destruction

MECHANICS

Case	synthetics PA66, black · Ø 45 x 23 mm
Protection class	IP20
Electrical connection	terminal screws · conductor cross section 1 mm ² · stripping length 8 mm
Weight	approx. 35 g
Conformity	EN 61000-6-4 · EN 61000-6-2



ELECTRICAL CONNECTION



ACCESSORIES

HART interface	USB interface with software for commissioning, configuration, signal analysis and documentation; Windows
Magnet	sets the switching point without any tool — hold it to the marked spot while the sensor sees the wanted temperature

With a HART modem the communication resistor of 250 Ω has to be taken into account.

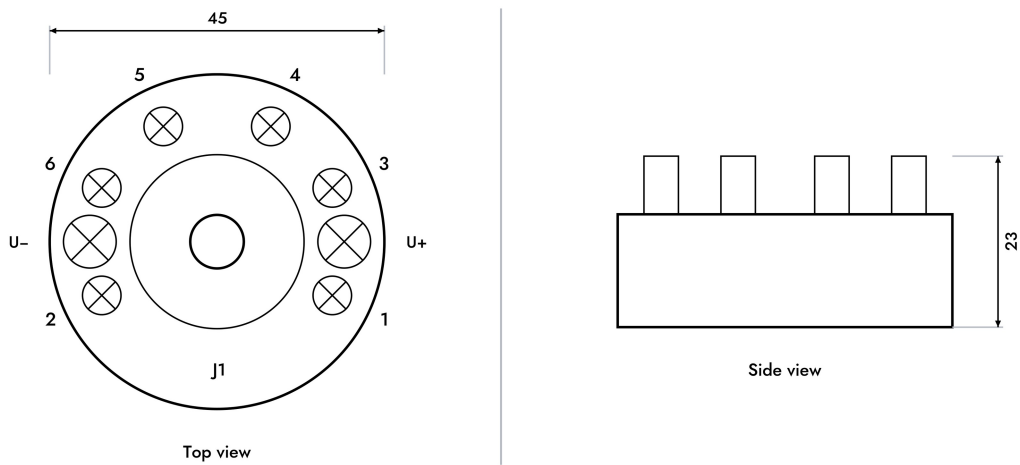
COMPLIANCE

 IP20	Protection class	IP20 to IEC 60529 — mounted in the connection head
	Case material	synthetics PA66, black

The manufacturer names EN 61000-6-4 and EN 61000-6-2 under conformity. The characteristics on page 1 of the manufacturer document give an operating temperature of -20 ... 80 °C while the technical data give -20 ... +70 °C; this sheet states the value of the technical data.



DIMENSIONS (mm)



Drawn by octogon from the manufacturer document; dimensioned are the two values the document gives, $\varnothing$ 45 and 23 mm. The position of the terminals follows the top view of the document, the outline is schematic.

