Electronic temperature switch TC400 with LED-display

two switching outputs or with one switching and one analogue output

Description

The temperature switch TC400 measures and displays temperature and has one or two switching outputs as well as an optional analogue output. The temperature set points, the reset points, the switching functions and the measuring range of the optional analogue output are easy to adjust via two buttons. All these features and the wide range of measuring ranges between –200 and +600 °C cover the majority of temperature measuring and switching tasks.

Different process connections, which are also available as adjustable screw connections, underline the variability of the TC400. For fast response times a version with tapered stem is also available.

All wetted parts as well as the housing are made of stainless steel. If used outdoors, we recommend the optional cap AZM90X101010.

Features

- Compact dimensions
- Simple handling
- Short delivery times
- Service-friendly
- Customized solutions

Temperatur ranges

- -50 to +125 °C
- -50 to +200 °C
- 0 to +400 °C
- 0 to +600 °C
- -200 to +600 °C

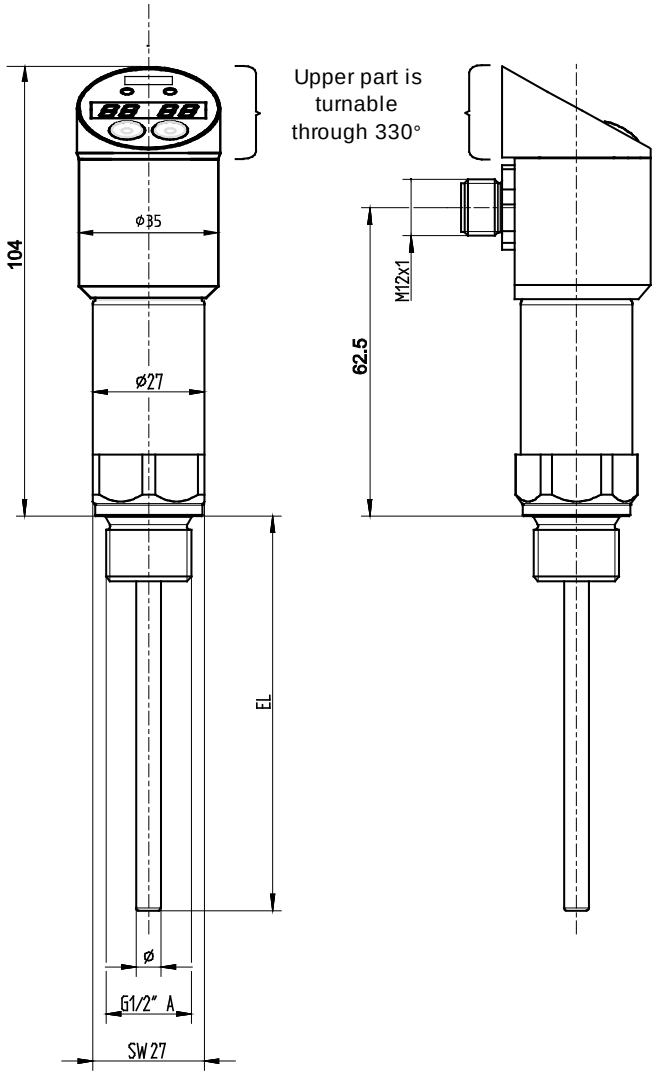
Applications

- Mechanical engineering
- Heating and cooling circuits
- Air conditioning technology
- Plant construction

Technical data

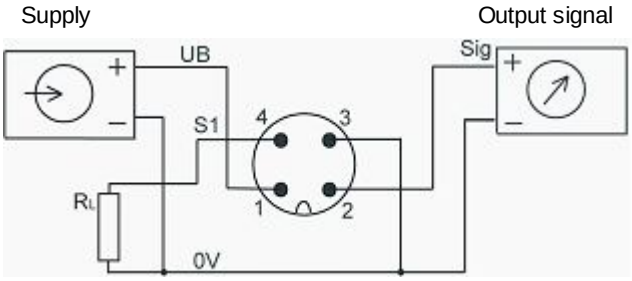
	TC400	
Model No.	**S5400** – PT100 2-wire with two switching outputs **S5410** – PT100 2-wire with one switching output and one analogue output	
Temperature ranges	-50 to +125 °C (standard) -50 to +200 °C 0 to +400 °C 0 to +600 °C -200 to +600 °C	
Measurement units	°C or F (selectable)	
Sensor	PT100 class B (standard) PT100 class A	
Supply voltage	12 ... 30 V DC , overload and reverse polarity protection ripple < 10%	
Power consumption	≤ 50 mA, without load current	
Process connections		
Fixed thread	G1/2 A, G1/4 A, G3/8 A, G3/4 A, 1/2NPT, 1/4NPT	
Compression fitting	G1/2 A, G3/8 A, G1/4 A, 1/2NPT other connections on request	
Materials		
Process connection	Stainless steel 1.4571 (316Ti); other materials or coatings on request	
Housing	Stainless steel, display unit: plastics	
Stem and working pressure		
Standard	stem length (EL) ≥ 25 mm:	∅6 x 0.75 mm (up to 40 bar)
Optional	EL ≥ 25 mm:	∅8 x 1.75 mm (up to 100 bar)
	EL ≥ 25mm:	Special parts made of solid material (up to 500 bar)
Fast response time version with tapered stem for up to 12 bar and temperature ≤ 400 °C	EL = 25 mm:	∅3 x 0.25 mm
	EL: 50 … 100 mm:	∅6 x 0.25 mm with taper to ∅3 x 0.25 mm
	EL > 100 mm:	∅8 x 1.75 mm with taper to ∅6 x 0.25 mm and taper to ∅3 x 0.25 mm
Outputs	2 switch outputs PNP or 1 switch output PNP and 1 x analogue output 4-20 mA	
Switched outputs		
Switching function	adjustable normally closed (NC) or normally open (NO) contact	
Switching rating	100 mA per switch output	
Adjustment	programmable via the display	
- Set point	0.1 ° steps withhin temperature range	
- Reset point	0.1 ° steps from beginning temperature range until (set point – 0.1 °)	
Analogue output		
Signal	4…20 mA programmable in 0.1 ° steps, span at least 20 % of the temp.-range	
Load resistance	Dependent on the supply voltage; the relevant formula is $R = \frac{U_{Supply} - 7}{0.022} \frac{V}{A}$	
Display	4 digit 7-segment LED display, red, 7.6 mm high	
Accuracy	Switching output, analogue output and display: Accuracy of PT100 + 0.25 % of the temperature range	
Reproducibility	0.05 %	
Electrical connection	Round connector M12x1; 4-pin gold-plated contacts	
Temperature ranges		
Storage	-30 ... +80 °C	
Ambient	-25 ... +70 °C	
T_K	0.1 % of measuring range per 10 K	
EMC to IEC / EN 61 326	IEC 61000 / 4 / 2 ESD: B IEC 61000 / 4 / 3 HF radiated: A IEC 61000 / 4 / 4 Burst: A IEC 61000 / 4 / 5 Surge: A IEC 61000 / 4 / 6 HF mains borne: A	
Protection class	IP65 according to IEC 529	
Weight	Approx. 0.3 kg depending on stem	

Dimension drawing

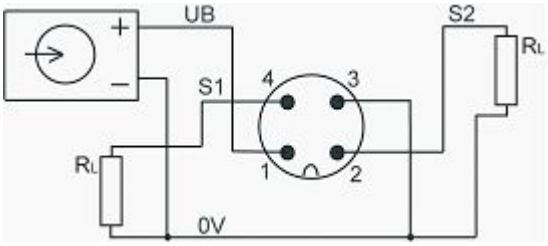


Electrical connection

TC400 with one switching output and one analogue output



TC400 with two switching outputs

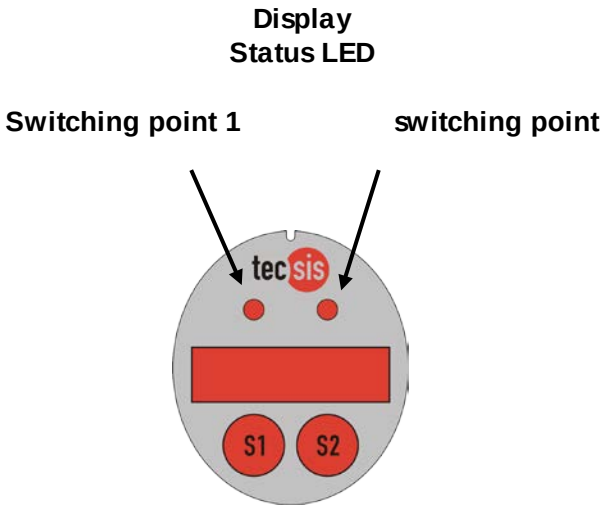


Signal	Plug	Colour cable (optional)
Supply: UB	1	Brown
Supply: 0V	3	Blue
Switching output 1	4	Black
Switching output 2 or analogue output	2	White

For media temperatures higher than 125 °C, we recommend a min. extension length of 50 mm or an adjustable screw connection. For the temperature range up to 400 °C the extension length is min. 50 mm and for the temperature range up to 600 °C the extension length is min. 100 mm.

Programming

You will find a detailed programming description in the operating instructions, which are enclosed to each product.



Subject to technical alterations