

Temperature Switch ETS 1700

Separate temperature probe

Display

4 switching outputs
Analogue output

Description:

The electronic temperature switch ETS 1700 is used mainly together with the temperature probe TFP 100, which was specially developed for tank mounting.

The 4-digit display can indicate the actual temperature, one of the switch points or the maximum temperature value.

The maximum temperature indicates the highest temperature which has occurred since the unit was switched on or was last reset.

The four switching outputs can be used to control heating and cooling processes in hydraulic systems, for example. Four switch and switch-back points which are independent of each other can be adjusted very simply via the key pad.

For integration into monitoring systems (e.g. with PLC), an analogue output (4 .. 20 mA or 0 .. 10 V) is also available.

Technical data:

Input data	
Measuring element	PT 100 (TFP 100)
Connection, separate temperature probe	Male connector 5 pole Binder series 423/723
Measuring range ¹⁾	0 .. +100 °C (+32 .. +212 °F)
Output data	
Switching outputs	4 relays with change-over contacts in 2 groups (common supply of each group connected) Switching current: 0.01 .. 2 A per switching output Switching voltage: 0.1 .. 250 V AC, 12 .. 32 V DC Switching capacity: 500 VA, 64 W (for inductive load, use varistors) Switching cycles (ohmic resistance): ≥ 20 million at minimum load ≥ 400000 at maximum load (typ.)
Analogue output, permitted load resistance	Selectable: 4 .. 20 mA load resist. max. 400 Ω 0 .. 10 V load resist. min. 2 kΩ corresponds in each case to 0 .. +100 °C
Accuracy (at room temperature)	≤ ± 1.0 °C (≤ ± 2.0 °F) (+error separate temperature probe)
Temperature drift (environment)	≤ ± 0.03 % FS / °C
Repeatability	≤ ± 0.25 % FS
Environmental conditions	
Operating temperature range	-25 .. +60 °C
Storage temperature range	-40 .. +80 °C
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance acc. to DIN EN 60068-2-6 (0 .. 500 Hz)	≤ 5 g
Shock resistance acc. to DIN EN 60068-2-27 (1 ms)	≤ 10 g
Protection class acc. to DIN EN 60529	IP 65
Other data	
Electrical connection	Plug-in terminal block, 14 pole
Supply voltage	22 .. 32 V DC
Residual ripple of supply voltage	≤ 10 %
Current consumption	~ 200 mA
Display	4-digit, LED, 7-segment, red, height of digits 13 mm
Weight	~ 800 g

Note: Reverse polarity protection of the supply voltage, overvoltage, override and short circuit protection are provided.

FS (Full Scale) = relative to complete measuring range

¹⁾ Depending on the fluid temperature range of the connected temperature sensor, the measuring range of the ETS 1700 may be reduced.

Setting options:

The microprocessor integrated into the ETS 1700 enables many useful extra functions in addition to the switching functions, when compared with a normal mechanical temperature switch. It is possible, for example, to activate switching delay times or to change the relay switching direction. All settings are made via the key pad.

Setting ranges of the switch points and switch-back hystereses:

- Switch point, relay 1 .. 4:
1.5 .. 100 % of the measuring span
- Switch-back point, relay 1 .. 4:
1 .. 99 % of the measuring span or alternatively
- Switch-back hysteresis 1 .. 4:
1 .. 99 % of the measuring span

Additional functions:

- Switching direction of the relays 1 .. 4 (N/C or N/O function)
- Switch-on delay, relays 1 .. 4 in the range 0.0 .. 900.0 seconds
- Switch-off delay, relays 1 .. 4 in the range 0.0 .. 900.0 seconds
- Switch-back mode (alternatively switch-back point or switch-back hysteresis)
- Display of the actual temperature, a switch point or the peak value
- Measuring range individually selectable in °C or °F
- Display of the measurement unit (°C, °F)
- Analogue output (4 .. 20 mA or 0 .. 10 V)
- Programming lock

Terminal assignment:

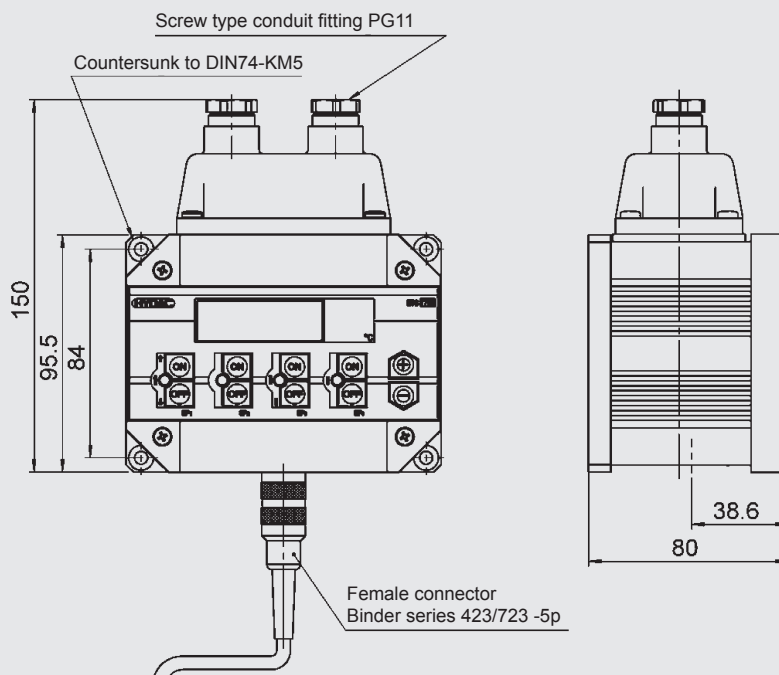
Device connection

Pin	
1	+U _B
2	0 V
3	Analogue output Signal +
4	Analogue output Signal - (0 V)
5	Relay 1 N/C
6	Relay 1 N/O
7	Centre relay 1 and 2
8	Relay 2 N/C
9	Relay 2 N/O
10	Relay 3 N/C
11	Relay 3 N/O
12	Centre relay 3 and 4
13	Relay 4 N/C
14	Relay 4 N/O

Probe connection

Pin	
1	+U _B
2	Signal +
3	n.c.
4	Signal -
5	0 V

Dimensions:



Model code:

ETS 1 7 0 X - 100 - 000

Type of sensor

0 = for PT 100 sensors

Display

1 = 4-digit display °C
2 = 4-digit display °F

Measuring range

0 .. +100 °C (+32 .. +212 °F)

Modification number

000 = standard

Accessories (supplied with instrument):

5 pole mating connector (Binder series 423/723 or Amphenol series C091A) to connect the separate temperature probe and a 3 m sensor cable (LIYCY 4 x 0.25 mm²)

Accessories available (not supplied with instrument)

Vibration mounts Part no.: 257492

Separate temperature probe:

- TFP 104 - 000 with male 4 pole, Binder series 714 M18 (including mating connector) Part no. 904696
- TFP 106 - 000 with male 4 pole M12x1 (mating connector not included) Part no.: 921330
- Tank installation sleeve for TFP 100 Part no.: 906170

More detailed information on accessories can be found in the Accessories brochure.

Note:

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department.

Subject to technical modifications.