

HYDAC INTERNATIONAL



Temperature Switch ETS 320

Integrated temperature probe

Display

Up to 2 switching outputs
Analogue output

4

Description:

The ETS 320 is a compact electronic temperature switch with a 3-digit display.

Pressure-resistant to 600 bar with an integrated 18 mm temperature probe, this model can be installed directly inline or on the hydraulic block and has a measuring range of -25 ... +100 °C.

Different output models with one or two switching outputs, and with the possible option of an additional 4 ... 20 mA analogue output signal, offer a variety of application possibilities.

The switch points and the associated hystereses can be adjusted very quickly and easily using the key pad.

For optimum adaptation to the particular application, the instrument has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function).

Technical data:

Input data	
Measuring range	-25 ... +100 °C (-13 ... +212 °F)
Probe length	18 mm
Probe diameter	6 mm
Pressure resistance	600 bar
Mechanical connection	G1/2 A ISO 1179-2
Tightening torque, recommended	45 Nm
Parts in contact with fluid	Mech. connection: Stainless steel Seal: FKM
Output data	
Switching outputs	1 or 2 PNP transistor outputs Switching current: max. 1.2 A per switching output Switching cycles: > 100 million
Analogue output, permitted load resistance	4 ... 20 mA; load resist. max. 400 Ω corresponds to -25 ... +100 °C
Accuracy (at room temperature)	± 1.0 °C (± 2.0 °F)
Temperature drift (environment)	± 0.015 % FS / °C max.
Response time acc. to DIN EN 60751	t ₅₀ : 3 s t ₉₀ : 9 s
Repeatability	± 0.5 % FS max.
Environmental conditions	
Operating temperature range	-25 ... +80 °C (-13 ... +176 °F)
Storage temperature range	-40 ... +80 °C (-40 ... +176 °F)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance acc. to DIN EN 60068-2-6 (0 ... 500 Hz)	≤ 10 g
Shock resistance acc. to DIN EN 60068-2-27 (11 ms)	≤ 50 g
Protection class acc. to DIN EN 60529 ¹⁾	IP 65
Other data	
Supply voltage	20 ... 32 V DC
Residual ripple of supply voltage	≤ 5 %
Current consumption	~ 100 mA without switching output
Display	3-digit, LED, 7-segment, red, height of digits 8.4 mm
Weight	~ 300 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⁾ With mounted mating connector in corresponding protection class

Setting options:

All settings available on the ETS 320 are grouped in two easy-to-navigate menus. In order to prevent unauthorised adjustment of the device, a programming lock can be set.

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

Switch point function

Unit	Switch point	Hysteresis	Increment*
°C	-22.0 .. 100.0	1.0 .. 123.0	1.0
°F	-10.0 .. 212.0	1.0 .. 223.0	1.0

Window function

Unit	Lower switch value	Upper switch value	Increment*
°C	-23.0 .. 99.0	-22.0 .. 100.0	1.0
°F	-11.0 .. 211.0	-10.0 .. 212.0	1.0

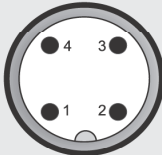
* All ranges given in the table can be adjusted by the increments shown.

Additional functions:

- Switching mode of the switching outputs adjustable (switch point function or window function)
- Switching direction of the switching outputs adjustable (N/C or N/O function)
- Switch-on and switch-off delay adjustable from 0 .. 750 seconds
- Choice of display (actual temperature, peak temperature, switch point 1, switch point 2, display off)

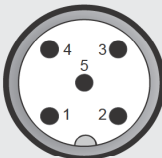
Pin connections:

M12x1, 4 pole



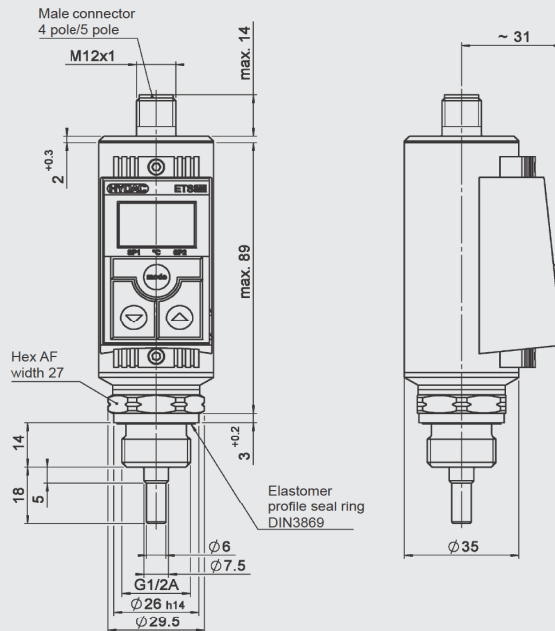
Pin	ETS 326-2	ETS 326-3
1	+U _B	+U _B
2	SP2	Analogue
3	0 V	0 V
4	SP1	SP1

M12x1, 5 pole



Pin	ETS 328-5
1	+U _B
2	Analogue
3	0 V
4	SP1
5	SP2

Dimensions:



Model code:

ETS 3 2 X - X - 100 - X00

Mechanical connection

2 = G1/2 A ISO 1179-2

Electrical connection

6 = male M12x1, 4 pole
only possible on output models "2" and "3"
8 = male M12x1, 5 pole
only possible on output model "5"

Output

2 = 2 switching outputs
only in conjunction with electrical connection type "6"
3 = 1 switching output and 1 analogue output
only in conjunction with electrical connection type "6"
5 = 2 switching outputs and 1 analogue output
only in conjunction with electrical connection type "8"

Measuring range

-25 .. +100 °C (-13 .. +212 °F)

Modification number

000 = display in °C
400 = display in °F

Accessories:

Appropriate accessories, such as mating connectors and clamps for wall-mounting etc., 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.