

## HYDAC INTERNATIONAL



### Description:

The ETS 3800 is a compact electronic temperature switch with a 4-digit display.

The model for separate temperature probe has a measuring range of -30 .. +150°C and is used primarily with the TFP 100 temperature probe which was specially developed for tank installation.

It is also possible, however, to use commercially available PT 100 temperature probes. Different output models with one or two switching outputs, and with the possible option of an additional analogue output signal, offer a variety of application possibilities.

The switching points and the associated switch-back points can be adjusted very quickly and easily using the keypad. For optimum adaptation to the particular application, the unit has many additional adjustment parameters (e.g. switching delay times, N/C / N/O function, etc.).

### Special features:

- Menu navigation according to VDMA
- 2 switching outputs, up to 1.2 A load per output
- Optional analogue output signal selectable (4 .. 20 mA / 0 .. 10 V)
- 4-digit display
- Display can be rotated in two axes for optimal alignment
- Switching / switch-back points and many useful additional functions can be set using keypad
- Display of temperature and unit of measurement in °C or °F

## Electronic Temperature Switch ETS 3800 for Separate Temperature Probe with Menu Navigation to VDMA

### Technical data:

Input data	
Measuring range <sup>1)</sup>	-30 .. 150 °C (-22 .. 302 °F)
Connection, separate temperature probe	Female cable connection M12x1, 4 pole
Output data	
Accuracy (display, analogue output)	± 1.0 % FS ( + PT100 error)
Temperature drift (environment)	≤ ± 0.015 % FS / °C max. zero point ≤ ± 0.015 % FS / °C max. range
Analogue output (optional)	
Signal	selectable: 4 .. 20 mA load ≤ 500 Ω 0 .. 10 V load min. 1 kΩ corresp. in each case to -30 .. +150 °C
Switch outputs	
Type	PNP transistor switching output
Switching current	max. 1.2 A per output
Switching cycles	> 100 million
Environmental conditions	
Ambient temperature range	-25 .. +80 °C (-25 .. +60 °C acc. to UL spec.)
Storage temperature range	-40 .. +80 °C
CE mark	EN 61000-6-1 / -2 / -3 / -4
UL mark <sup>2)</sup>	Certificate No.: E318391
Vibration resistance according to DIN EN 60068-2-6 (0 .. 500 Hz)	≤ 10 g
Shock resistance according to DIN EN 60068-2-29 (11 ms)	≤ 50 g
Protection class to IEC 60529	IP 67
Other data	
Supply voltage	9 .. 35 V DC (without analogue output) 18 .. 35 V DC (with analogue output) – limited energy – according to 9.3 UL 61010; Class 2; UL 1310/1585; LPS UL 60950
for use acc. to UL specifications	
Current consumption	≤ 2.455 A total ≤ 35 mA with inactive switching outputs ≤ 55 mA with analogue output and inactive switching outputs
Residual ripple of supply voltage	≤ 5 %
Display	4-digit, LED, 7-segment, red, height of digits 7 mm
Weight	~ 87 g (excluding connector and probe)

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

- FS (Full Scale)** = relative to complete measuring range  
Depending on the temperature range of the connected temperature sensor, the measurement range of the ETS 3800 may be reduced.
- <sup>1)</sup> Environmental conditions according to 1.4.2 UL 61010-1; C22.2 no. 61010-1
- <sup>2)</sup>

## Setting options:

All terms and symbols used for setting the ETS 3800 as well as the menu structure comply with the specifications in the VDMA Standard (VDMA 24574-2) for temperature switches.

The ETS 3800 can easily be adjusted via three push-buttons.

## Setting ranges for the switch outputs:

Measurement range	Lower limit of RP / FL	Upper limit of SP / FH
-30 .. +150 °C	-28.0 °C	150.0 °C
-22 .. +302 °F	-19 °F	302 °F

Measurement range	Min. difference betw. RP and SP & FL and FH	Increment*
-30 .. +150 °C	2.0 °C	0.5 °C
-22 .. +302 °F	3 °F	1 °F

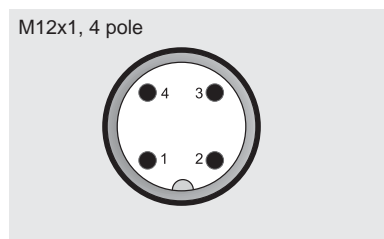
\* All ranges given in the table are adjustable by the increments shown.

SP = switch point  
RP = switch-back point  
FL = temperature window lower value  
FH = temperature window upper value

## Additional functions:

- Switching mode of the switching outputs adjustable (switching 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 0.00 .. 99.99 seconds
- Choice of display (current temperature, peak temperature, switching point 1, switching point 2, display off)

## Pin connections:



Pin	ETS 3866-2	ETS 3866-3
1	+U <sub>B</sub>	+U <sub>B</sub>
2	SP2	Analogue
3	0 V	0 V
4	SP1	SP1

## Model code:

ETS 3 8 6 6 - X - 000 - V00

### Type

8 = For separate temperature probe

### Mechanical connection

6 = Female cable connection M12x1, 4 pole

### Electrical connection

6 = Male M12x1, 4 pole

### Output

2 = 2 switching outputs

3 = 1 switching output and 1 analogue output

### Probe length in mm

000 = Separate temperature sensor

### Modification number

V00 = Menu navigation in accordance with VDMA (Standard 24574-2)

### Notes:

On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

### Accessories:

A male cable connector M12x1, 4 pole, to connect the separate temperature probe, and a 3 m sensor cable, LIYCY 4 x 0.25 mm<sup>2</sup> are supplied with the instrument.

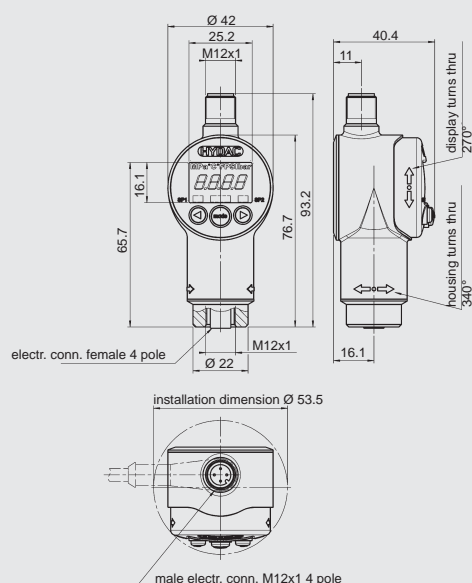
Other accessories, such as electrical connectors, splash guards, clamps for wall-mounting, etc. can be found in the Accessories brochure.

## Separate temperature probe:

(not supplied with the instrument)

- TFP 106 - 000 with male electr. conn. 4 pole M12x1 (connector not supplied) Part No.: 921330
- Tank installation sleeve for TFP 100 Part No.: 906170

## Dimensions:



## Note:

The information in this brochure relates to the operating conditions and applications described.

For applications or operating conditions not described, please contact HYQUIP. Subject to technical modifications.