



## Electronic Temperature Switch ETS 3200 for Tank Installation

### Description:

The ETS 3200 is a compact electronic temperature switch with digital display.

With its integrated temperature probe, the ETS 3200 is particularly suitable for direct tank installation and is available in various lengths.

Different output models with one or two switching outputs, optionally with an additional analogue output signal, offer a variety of application possibilities.

The switching points and the associated hystereses can be adjusted very quickly and easily using the keypad.

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

### Special features:

- 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
- Optimum alignment - display can be rotated in two planes (axes)
- Switching / switch-back points and many useful additional functions can be set using the keypad.
- Display of temperature and unit of measurement in °C or °F

### Technical data:

|                                                        |                                                                                                                                          |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input data</b>                                      |                                                                                                                                          |
| Measuring range                                        | -25 .. 100 °C (-13 ... 212 °F)                                                                                                           |
| Probe lengths                                          | 100; 250; 350 mm                                                                                                                         |
| Pressure resistance                                    | 50 bar                                                                                                                                   |
| Mechanical connection                                  | G1/2 A DIN 3852                                                                                                                          |
| Torque value                                           | 45 Nm                                                                                                                                    |
| Parts in contact with medium                           | Mech. conn.: Stainless steel<br>Seal: FPM                                                                                                |
| <b>Output data</b>                                     |                                                                                                                                          |
| Accuracy (display, analogue output)                    | ≤ ± 1.0 °C (≤ ± 2.0 °F)                                                                                                                  |
| Temperature drift (environment)                        | ≤ ± 0.015 % FS / °C max. zero point<br>≤ ± 0.015 % FS / °C max. range                                                                    |
| <b>Analogue output (optional)</b>                      |                                                                                                                                          |
| Signal                                                 | selectable:<br>4 .. 20 mA ohmic resist. max. 500 Ω<br>0 .. 10 V ohmic resistance min. 1 kΩ<br>corresponds in each case to -25 .. +100 °C |
| <b>Switch outputs</b>                                  |                                                                                                                                          |
| Type                                                   | PNP transistor switching outputs                                                                                                         |
| Switching current                                      | max. 1.2 A per output                                                                                                                    |
| Switching cycles                                       | > 100 million                                                                                                                            |
| Rise time to DIN EN 60751                              | t <sub>50</sub> : 8 s<br>t <sub>90</sub> : 15 s                                                                                          |
| <b>Environmental conditions</b>                        |                                                                                                                                          |
| Ambient temperature range                              | -25 .. +80 °C<br>(-25 ... +60°C acc. to UL spec.)                                                                                        |
| Storage temperature range                              | -40 .. +80 °C                                                                                                                            |
| Fluid temperature range <sup>1)</sup>                  | -40 .. +100 °C / -25 .. +100 °C                                                                                                          |
| CE mark                                                | EN 61000-6-1 / 2 / 3 / 4                                                                                                                 |
| UL mark <sup>2)</sup>                                  | Certificate No. E318391                                                                                                                  |
| Vibration resistance to DIN EN 60068-2-6 (0 .. 500 Hz) | ≤ 10 g                                                                                                                                   |
| Shock resistance to DIN EN 60068-2-29 (11 ms)          | ≤ 50 g                                                                                                                                   |
| Protection class to IEC 60529                          | IP 67                                                                                                                                    |
| <b>Other data</b>                                      |                                                                                                                                          |
| Supply voltage                                         | 9 .. 35 V DC without analogue output<br>18 .. 35 V DC with analogue output                                                               |
| for use acc. to UL spec.                               | - limited energy - according to<br>9.3 UL 61010; Class 2;<br>UL 1310/1585; LPS UL 60950                                                  |
| Current consumption                                    | max. 2.455 A total<br>max. 35 mA with inactive switching outputs<br>max. 55 mA with inactive switching outputs and analogue output       |
| Residual ripple of supply voltage                      | ≤ 5 %                                                                                                                                    |
| Display                                                | 4-digit, LED, 7 segment, red, height of digits 7 mm                                                                                      |
| Weight                                                 | ~ 150 g (probe length 100 mm)<br>~ 185 g (probe length 250 mm)<br>~ 210 g (probe length 350 mm)                                          |

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

<sup>1)</sup> -25 °C with FPM seal, -40 °C on request

<sup>2)</sup> Environmental conditions according to 1.4.2 UL 61010-1; C22.2 No 61010-1

## Setting options:

All the settings available on the ETS 3200 are combined in 2 easy-to-navigate menus. To prevent unauthorised adjustment of the instrument, a programming lock can be set.

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

Switching point function

| Unit | Switching point | Hysteresis   | Increment* |
|------|-----------------|--------------|------------|
| °C   | -23.0 .. 100.0  | 1.0 .. 123.5 | 0.5        |
| °F   | -9 .. 212       | 2 .. 222     | 1          |

Window function

| Unit | Lower switch value | Upper switch value | Increment* |
|------|--------------------|--------------------|------------|
| °C   | -23.0 .. 97.5      | -22.0 .. 98.5      | 0.5        |
| °F   | -9 .. 208          | -7 .. 209          | 1          |

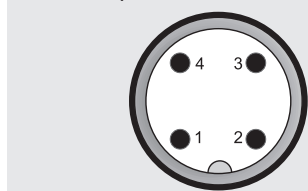
\* All ranges given in the table are adjustable by the increments shown.

## 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)
- Switch-on and switch-off delay adjustable from 0.00 .. 99.99 seconds
- Choice of display (actual temperature, peak temperature, switching point 1, switching point 2, display off)

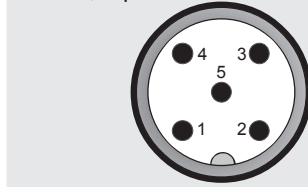
## Pin connections:

M12x1, 4 pole



| Pin | ETS 3226-2      | ETS 3226-3      |
|-----|-----------------|-----------------|
| 1   | +U <sub>B</sub> | +U <sub>B</sub> |
| 2   | SP 2            | Analogue        |
| 3   | 0 V             | 0 V             |
| 4   | SP 1            | SP 1            |

M12x1, 5 pole



| Pin | ETS 3228-5      |
|-----|-----------------|
| 1   | +U <sub>B</sub> |
| 2   | Analogue        |
| 3   | 0 V             |
| 4   | SP 1            |
| 5   | SP 2            |

## Model code:

ETS 3 2 2 X - X - XXX - 000

### Mechanical connection

2 = G1/2 A DIN 3852 (male)

### 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"

### Probe length in mm

100; 250; 350

### Modification number

000 = Standard

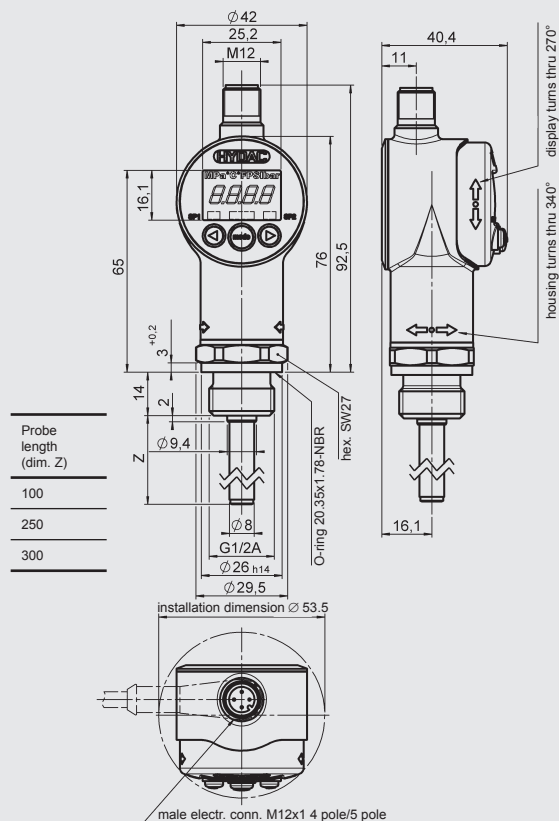
### Note:

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

### Accessories:

Appropriate accessories, such as electrical connectors, protective sleeves for tank mounting, splash guards, etc. can be found in the Accessories brochure.

## Dimensions:



### 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.

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