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# Electronic Temperature Transmitter ETS 4500

## Description:

The ETS 4500 is a robust electronic temperature transmitter which is particularly suited to measuring temperature in hydraulic applications in industry.

Based on a silicon semiconductor device and corresponding evaluation electronics, the temperature sensor is designed to measure temperatures in the range -25 to +100 °C.

The sensor has analogue output signals of 4 .. 20 mA and 0 ..10 V available as standard for integration in modern control systems.

The pressure resistance up to 600 bar and excellent EMC characteristics make the ETS 4500 ideal for use in harsh conditions.

## Special features:

- Accuracy  $\leq \pm 2\%$  FS
- Ideal for industrial applications
- Robust design
- Excellent EMC characteristics
- Excellent long term stability
- Standard protection class IP 65 / IP 67



## Technical data:

| Input data   |  |
|--|--|
| Measuring principle                                      | Silicon semiconductor device   |
| Measuring range  | -25 .. +100 °C   |
| Probe length   | 10.7; 50; 100; 250; 350 mm   |
| Probe diameter   | 8 mm   |
| Pressure resistance                                      | 600 bar (probe length 10.7 mm)<br>125 bar (probe length 50 mm)<br>125 bar (probe length 100 mm)<br>125 bar (probe length 250 mm)<br>125 bar (probe length 350 mm)  |
| Mechanical connection                                    | G1/4 A DIN 3852  |
| Torque value   | 20 Nm  |
| Parts in contact with medium <sup>1)</sup>               | Mech. conn.: Stainless steel<br>Seal: FPM  |
| Output data  |  |
| Output signal, permitted load resistance                 | 4 .. 20 mA, 2 conductor<br>$R_{Lmax} = (U_B - 8 V) / 20 \text{ mA}$ [k $\Omega$ ]<br>0 .. 10 V, 3 conductor<br>$R_{Lmin} = 2 \text{ k}\Omega$  |
| Accuracy (at room temperature)                           | $\leq \pm 1.0\%$ FS typ.<br>$\leq \pm 2.0\%$ FS max.   |
| Temperature drift (environment)                          | $\leq \pm 0.02\%$ FS / °C  |
| Rise time to DIN EN 60751                                | $t_{50}: \sim 4 \text{ s}$<br>$t_{80}: \sim 8 \text{ s}$   |
| Environmental conditions                                 |  |
| Operating temperature range <sup>2)</sup>                | -40 .. +85 °C / -25 .. +85 °C  |
| Storage temperature range                                | -40 .. +100 °C   |
| Fluid temperature range <sup>2)</sup>                    | -40 .. +125 °C / -25 .. +125 °C  |
| CE mark  | EN 61000-6-1 / 2 / 3 / 4   |
| Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz | $\leq 25 \text{ g}$  |
| Protection class to IEC 60529                            | IP 65 (for male EN175301-803 (DIN 43650))<br>IP 67 (for male M12x1 male, when an IP 67 connector is used)  |
| Other data   |  |
| Electrical connection                                    | M12x1, 4 pole<br>EN 175301-803 (DIN 43650)   |
| Supply voltage   | 8 .. 32 V DC 2 conductor<br>12 .. 32 V DC 3 conductor  |
| Residual ripple of supply voltage                        | $\leq 5\%$   |
| Current consumption 3 conductor                          | $\sim 25 \text{ mA}$   |
| Weight   | $\sim 200 \text{ g}$ (probe length 10.7 mm)<br>$\sim 215 \text{ g}$ (probe length 50 mm)<br>$\sim 235 \text{ g}$ (probe length 100 mm)<br>$\sim 280 \text{ g}$ (probe length 250 mm)<br>$\sim 315 \text{ g}$ (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> Other seal materials on request

<sup>2)</sup> -25 °C with FPM seal, -40 °C on request

## Model code:

ETS 4 5 4 X - X - XXX - 000

### Mechanical connection

4 = G1/4 A DIN 3852 (male)

### Electrical connection

5 = Male, 3 pole + PE,  
EN 175301-803 (DIN 43650)  
(connector supplied)  
6 = Male M12x1, 4 pole  
(connector not supplied)

### Signal

A = 4 .. 20 mA, 2 conductor  
B = 0 .. 10 V, 3 conductor

### Probe length

010 = 10 mm  
050 = 50 mm  
100 = 100 mm  
250 = 250 mm  
350 = 350 mm

### Modification number

000 = Standard

### Note:

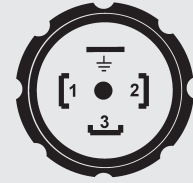
On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

### Accessories:

Appropriate accessories, such as electrical connectors can be found in the Accessories brochure.

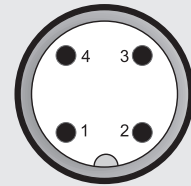
## Pin connections:

EN175301-803 (DIN 43650)



| Pin | ETS 4545-A | ETS 4545-B      |
|-----|------------|-----------------|
| 1   | Signal+    | +U <sub>B</sub> |
| 2   | Signal-    | 0V              |
| 3   | n.c.       | Signal          |
| ⊥   | Housing    | Housing         |

M12x1



| Pin | ETS 4546-A | ETS 4546-B      |
|-----|------------|-----------------|
| 1   | Signal+    | +U <sub>B</sub> |
| 2   | n.c.       | n.c.            |
| 3   | Signal-    | 0 V             |
| 4   | n.c.       | Signal          |

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