

EE451

Датчик температуры для настенного монтажа (применение внутри помещений и снаружи)

The EE451 wall mounted sensor measures reliably the temperature (T) indoors and outdoors, is optimized for building automation, HVAC, process control and enables weather-dependent temperature regulation.

Analogue, Digital and Passive Outputs

The T measured data is available on the voltage or current output, as well as on the RS485 interface with Modbus RTU or BACnet MS/TP protocol. In addition, EE451 features a wide choice of sensing elements for passive T measurement.

Easy Installation

The compact and robust enclosure allows for easy and fast installation and unbiased detection of ambient temperature.

Configurable and Adjustable

An optional adapter and the free EE-PC Product Configuration Software facilitate the setup and adjustment of the EE451.



Active Type

Passive Type

Features



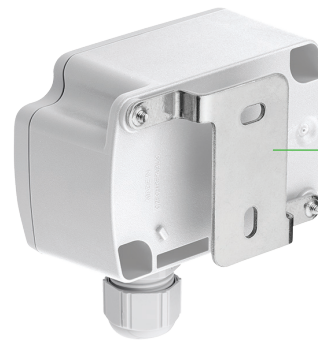
External mounting holes

- » Mounting with closed cover
- » Protection against construction site pollution

Bayonet screws

- » Open/closed with a ¼ rotation

IP65 / NEMA 4



Mounting bracket

- » Distance to wall for correct measurement of ambient temperature

Test report according to
 DIN EN 10204 – 2.2



Technical Data

Active Output

| | | | |
|--------------------------------|---|---------------------------------------|--------------------------------|
| Sensing element | Pt1000 class A, DIN EN60751 | | |
| Analogue output | 0-10 V | -1 mA <math>I_L < 1 \text{ mA}</math> | |
| | 4-20 mA (two-wire) | $R_L < 500 \Omega$ | $R_L = \text{load resistance}$ |
| Digital interface | RS485 with max. 32 unit load devices on one bus | | |
| Protocol | Modbus RTU or BACnet MS/TP | | |
| Accuracy | $\pm 0.3 \text{ }^\circ\text{C}$ ($\pm 0.54 \text{ }^\circ\text{F}$) at $20 \text{ }^\circ\text{C}$ ($68 \text{ }^\circ\text{F}$) | | |
| Supply voltage (Class III) | 15-35 V DC or 24 V AC $\pm 20\%$ | for RS485 and 0-10 V output | |
| | 10 V DC + $R_L \times 20 \text{ mA} < V+ < 35 \text{ V DC}$ | for 4-20 mA output | |
| Current demand (typ.) analogue | 5 mA (DC) / 12 mA _{eff} (AC) | | |
| RS485 | 3.5 mA (DC) / 12 mA _{eff} (AC) | | |
| Electromagnetic compatibility | EN61326-1, EN61326-2-3 industrial environment | | |

Passive Output

| T sensing elements | Sensor Type | Nominal Resistance | Sensitivity | Standard |
|--------------------|---------------------|---|--|--------------|
| | Pt100 DIN B | $R_0: 100 \Omega$ | TC: $3.850 \times 10^{-3}/^\circ\text{C}$ | DIN EN 60751 |
| | Pt1000 DIN B | $R_0: 1000 \Omega$ | TC: $3.850 \times 10^{-3}/^\circ\text{C}$ | DIN EN 60751 |
| | NTC1.8k | $R_{25}: 1.8 \text{ k}\Omega \pm 0.2 \text{ K}$ | $B_{25/85}: 3500 \text{ K} \pm 1.0 \%$ | - |
| | NTC2.2k | $R_{25}: 2.252 \text{ k}\Omega \pm 0.2 \text{ K}$ | $B_{25/85}: 3977 \text{ K} \pm 0.3 \%$ | - |
| | NTC10k B3950 | $R_{25}: 10 \text{ k}\Omega \pm 0.5 \%$ | $B_{25/85}: 3989 \text{ K}$ ($B_{25/50}: 3950 \text{ K} \pm 1.0 \%$) | - |
| | NTC10k B3435 | $R_{25}: 10 \text{ k}\Omega \pm 1 \%$ | $B_{25/85}: 3435 \text{ K}$ | - |
| | KTY81-210 | $R_{25}: 1980-2020 \Omega$ | - | - |
| | Ni1000 TK6180 DIN B | $R_0: 1000 \Omega$ | TC: 6180 ppm/K | DIN 43760 |
| | Ni1000 TK5000 DIN B | $R_0: 1000 \Omega$ | TC: 5000 ppm/K | DIN 43760 |

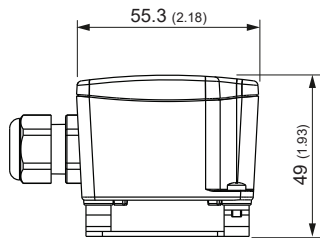
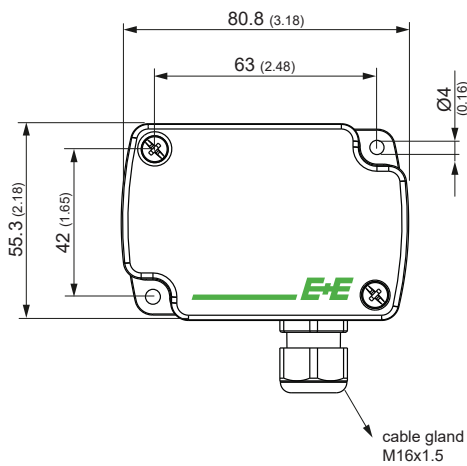
| | |
|---------------------|--|
| Measurement current | typ. < 1 mA (according technical data of the specific T-sensing element) |
| T-Sensor connection | two-wire |

General

| | |
|------------------------------|---|
| Operating temperature | -40...+70 °C (-40...+158 °F) |
| Enclosure material | polycarbonate, UL94-V0 approved |
| Protection class | IP65 / NEMA 4 |
| Cable gland | M16x1.5, UL94-V2 |
| Electrical connection | screw terminal, max. 2.5 mm ² (0.004 in ²) |
| Mounting bracket material | stainless steel (corr. 1.4301 / 304) |
| Storage temperature | -30...+70 °C (-22...+158 °F) |
| Working and storage humidity | 5...95 % RH, non condensing |

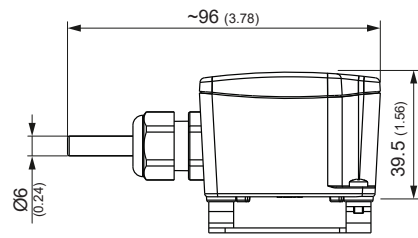
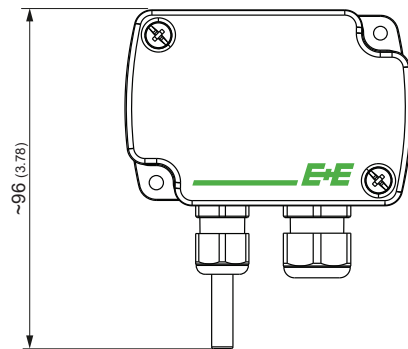
Dimensions mm (inch)

Passive output

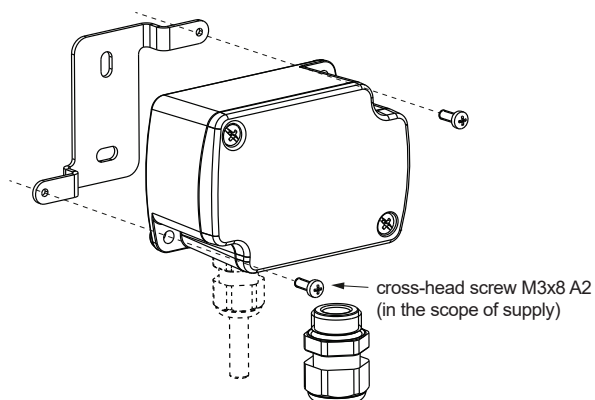


mounting bracket (included in the scope of supply)

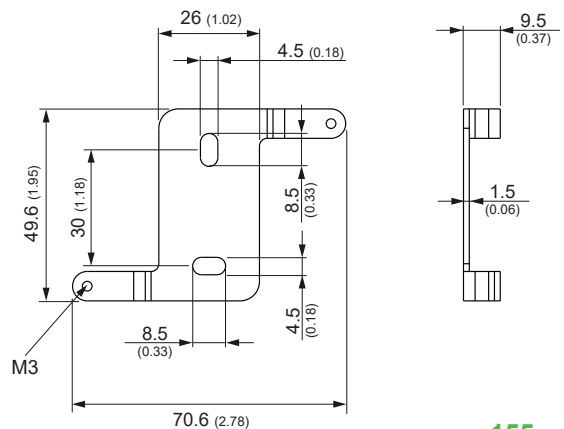
Active output



Mounting



Mounting Bracket



Ordering Guide

| | | EE451- | | | |
|------------------------|--|--|----------------------|---------------------------------|--|
| Hardware Configuration | Model | active passive | M3 | | M7 |
| | Output | 0-10 V 4-20 mA RS485 | A3 A6 | J3 | |
| | T-sensor passive (see www.epluse.com/R-T_Characteristics) | Pt100 DIN B Pt1000 DIN B NTC 1.8k Ni1000, TK6180 DIN B NTC 10k, B3950 KTY81-210 NTC 10k, B3435 Ni1000, TK5000 DIN B NTC 2.2k | | | TP2 TP4 TP7 TP9 TP11 TP13 TP14 TP19 TP21 |
| Setup Outputs | Unit | °C °F | no code MA2 | | |
| | Scale T low | 0 value (within working range) | no code SAL value | | |
| | Scale T high | 50 value (within working range) | no code SAH value | | |
| | Protocol | Modbus RTU ¹⁾ BACnet MS/TP ²⁾ | | P1 P3 | |
| | Baud rate | 9.600 19.200 38.400 57.600 ³⁾ 76.800 ³⁾ | | BD5 BD6 BD7 BD8 BD9 | |

1) Factory setting: Even parity, Stopbits 1. Modbus Map and communication setting: see User Guide and Modbus Application Note at www.epluse.com/ee451

2) Factory setting: No parity, Stopbits 1. Product Implementation Conformance Statement (PICS) available at www.epluse.com/ee451

3) Only for BACnet MS/TP

Order Example

EE451-M3J3P3BD7

Model: active
 Output: RS485
 Protocol: BACnet MS/TP
 Baud rate: 38.400

EE451-M7TP11

Model: passive
 T-sensor passive: NTC 10K, B3950

Accessories

Product configuration adapter

- for analogue output
- for digital output - USB configuration adapter

see data sheet EE-PCA

HA011066

Product configuration software

EE-PCS (free download: www.epluse.com/configurator)

Power supply adapter

V03 (see data sheet Accessories)

Conduit adapter, M16x1.5 to 1/2"

HA011110