E+E ELEKTRONIK® Ges.m.b.H.
YOUR PARTNER IN SENSOR TECHNOLOGY

EE451

Wall Mounted Temperature Sensor for Indoor and Outdoor

E+E sensors EE451 are used for temperature measurement in heating, ventilation and air conditioning systems enabling weather-dependent temperature regulation.

In addition to active outputs 0-10 V or 4-20 mA various types of sensing elements such as Pt1000, NTC10k or Ni1000 are available for passive temperature measurement.

The innovative enclosure concept (IP65) with a mounting bracket allows for easy installation and unbiased detection of ambient temperature.

The optional adapter EE-PCA and the free configuration software EE-PCS facilitate the adjustment and setup of the active temperature sensors.

EE451

Active Type   Passive Type
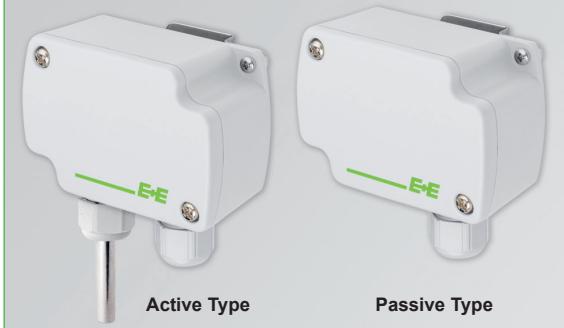
Features

External mounting holes
» Mounting with closed cover
» Protection against construction site pollution

Bayonet screws
» Open/closed with a ¼ rotation

Mounting bracket
» Distance to wall for correct measurement of ambient temperature

CE   RoHS compliant

Technical Data

Active Output

Sensing element	Pt1000 (class A, DIN EN60751)
Output	0-10 V $-1 \text{ mA} < I_L < 1 \text{ mA}$
	4-20 mA (two-wire) $R_L < 500 \text{ }\Omega$
Accuracy	±0.3 °C (±0.54 °F) at 20 °C (68 °F)
Supply voltage (Class III)	
for 0-10 V	15-35 V DC or 24 V AC ±20%
for 4-20 mA	$10 \text{ V DC} + R_L \times 20 \text{ mA} < V+ < 35 \text{ V DC}$
Current demand	DC: typ. 5 mA
	AC: typ. 12 mA_{eff}
Electromagnetic compatibility	EN61326-1, EN61326-2-3
	industrial environment

Passive Output

Types of T-Sensors

Sensor Type	Nominal Resistance	Sensitivity	Standard
Pt100 DIN B	R_0: 100 Ω	TC: 3.850×10^{-3}/°C	DIN EN 60751
Pt1000 DIN B	R_0: 1000 Ω	TC: 3.850×10^{-3}/°C	DIN EN 60751
NTC10k	R_{25}: 10 kΩ ± 0.5 %	$B_{25/85}$: 3989 K ($B_{25/50}$: 3950 K ± 1.0 %)	-
NTC1.8k	R_{25}: 1.8 kΩ ± 0.2 K	$B_{25/85}$: 3500 K ± 1.0 %	-
Ni1000 TK6180 DIN B	R_0: 1000 Ω	TC: 6180 ppm/K	DIN 43760
Ni1000 TK5000 DIN B	R_0: 1000 Ω	TC: 5000 ppm/K	DIN 43760

|	
Measurement current	typ. < 1 mA[1]
T-Sensor connection	two-wire
Electrical connection	screw terminal, 2x max. 2.5 mm² (0.004 in²)

1) according technical data of the specific T-sensors

General

Operating temperature	-40 °C…+70 °C (-40 °F...+158 °F)
Enclosure material	polycarbonate, UL94-V0 approved
Protection class	IP65 / NEMA 4
Cable gland	M16x1.5, UL94-V2
Mounting bracket material	stainless steel (corr. 1.4301 / 304)
Storage temperature	-30 °C…+70 °C (-22 °F...+158 °F)
Storage humidity range	5 % rh...95 % rh, no condensation

Dimensions in mm (inch)

Housing passive type
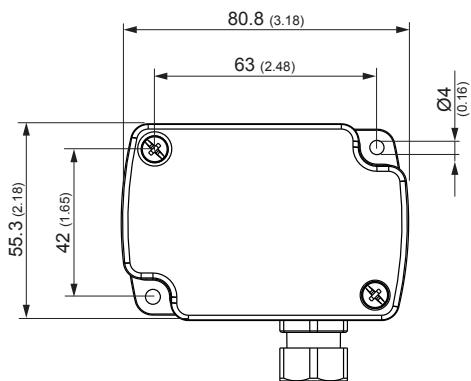
### Housing active type
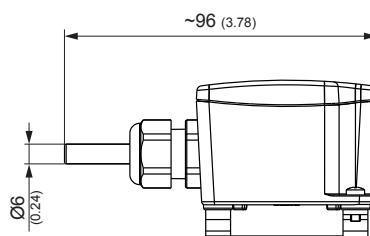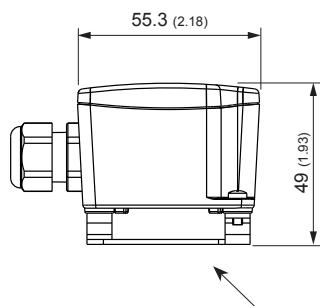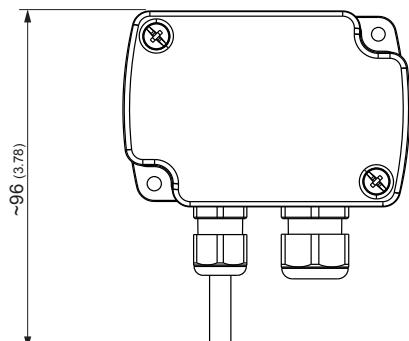
mounting bracket (included in the scope of supply)

Mounting

cross-head screw M3x8 A2
(within the scope of supply)
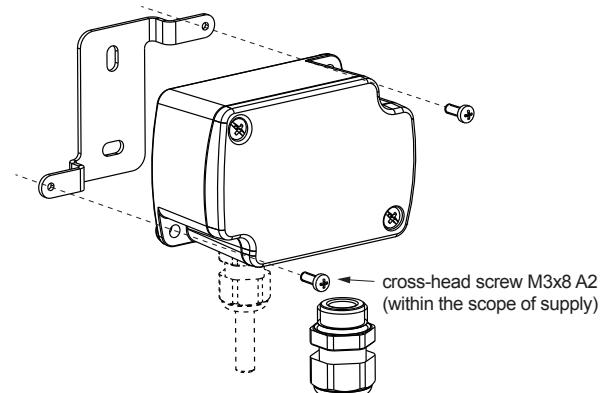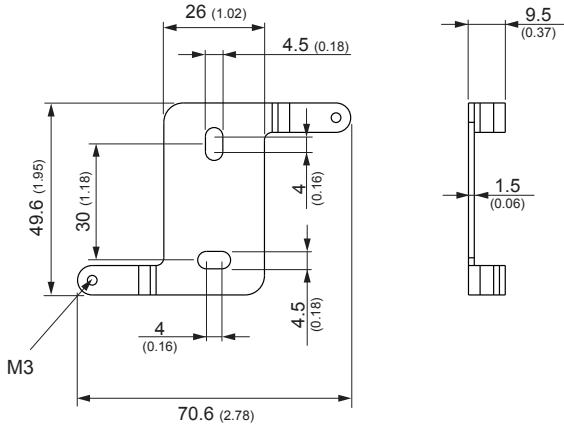
Mounting Bracket

Connection Diagram

Active Output

EE451-T3xx

| power supply |
| 15...35 V DC |
| 24 V AC ±20% |

+ ~ −

V+ 1
GND 2
T 3

Output: 0...10 V

EE451-T6xx

| power supply |
| 20...35 V DC R_L < 500 Ω |
| 11...35 V DC R_L < 50 Ω |

+ − mA

V+ 1
T 2

Output: 4...20 mA
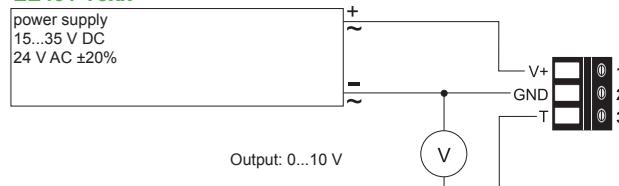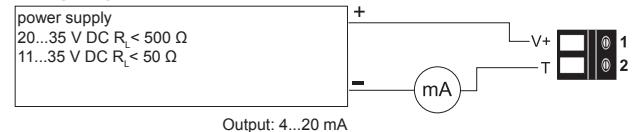
Passive Output

EE451-Txx

Scope of Supply

- EE451 Temperature sensor according to ordering guide
- Cable gland
- Mounting bracket
- Two self-adhesive labels for configuration changes (see user guide at www.epluse.com/relabeling)
- Test report according to DIN EN10204 - 2.2 (for active output only)

Ordering Guide

MODEL		ANALOGUE OUTPUT		T-SENSOR PASSIVE[1]		SCALING[2] (analogue output only)		UNIT (analogue output only)	
Temperature	(T)	0-10 V	(3x)	Pt100 DIN B	(BPO)	-40...60	(002)	°C	(M)
		4-20 mA	(6x)	Pt1000 DIN B	(DPO)	-30...70	(008)	°F	(N)
		none	(xx)	NTC10k	(LPO)	0...50	(004)		
				NTC1.8k	(GPO)	0...100	(005)		
				Ni1000 TK6180 DIN B	(JPO)	32...212	(075)		
				Ni1000 TK5000 DIN B	(TPO)	-40...140	(083)		
				Analogue output	(xPO)				
EE451-									

1) T-Sensor details see www.epluse.com/R-T_Characteristics
2) other scaling upon request

Order Example

Passive Output

EE451-TxxLPO

| Model: | Temperature |
| T-Sensor passive: | NTC10k |

Active Output

EE451-T3xxPO/008M

Model:	Temperature
Analogue Output:	0-10 V
Scaling:	-30...70 °C

Accessories

Product configuration adapter	see data sheet EE-PCA
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