

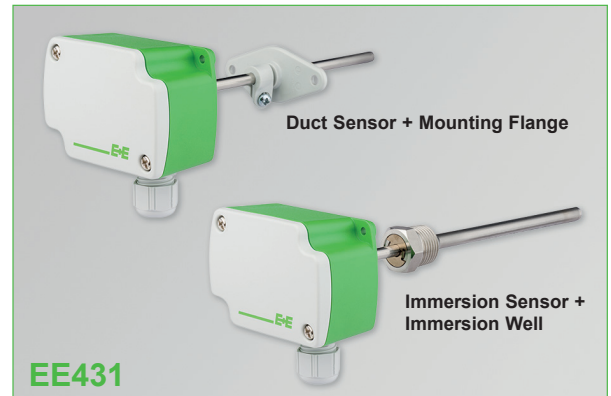
EE431

Duct / Immersion Temperature Sensor

The EE431 temperature sensor is used for air temperature measurement in heating, ventilation and air conditioning systems. It can be installed either with mounting flange or via external mounting holes at the enclosure (duct sensor). For temperature measurement in liquids the temperature sensor EE431 is mounted with an immersion well (immersion sensor).

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 IP65 housing and the mounting concept allow for fast and easy installation.



Features



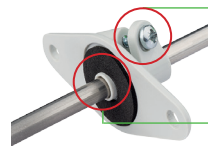
External mounting holes

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

Bayonet screws

- » Open/closed with a 1/4 rotation

Mounting flange



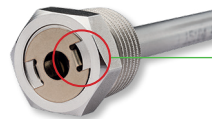
Fixation via clamping

- » No direct screwing onto probe
- » Inclined screw for easy installation

Special sealing

- » Foam gasket for good tightness
- » No scratching of probe due to alignment notch

Immersion well



Innovative mounting spring

- » For securing the probe inside the well

Typical Applications

Building automation
 Process and climate control
 Measurement in air and liquids



Technical Data

Active output

Operating temperature	duct sensor (probe): -40 °C...+110 °C (-40 °F...+230 °F) immersion sensor (probe): -40 °C...+150 °C (-40 °F...+302 °F) electronics: -40 °C...+70 °C (-40 °F...+158 °F)
Sensing element	Pt1000 (class A, DIN EN60751)
Output	0-10 V -1 mA < I _L < 1 mA 4-20 mA (two-wire) R _L < 500 Ω
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 V DC + R _L x 20 mA < V+ < 35 V DC
Current demand	DC: typ. 5 mA AC: typ. 12 mA _{eff}
Electromagnetic compatibility	EN61326-1, EN61326-2-3 industrial environment

Passive output

Operating temperature (probe)	-40 °C...+110 °C (-40 °F...+230 °F) -40 °C...+150 °C (-40 °F...+302 °F) for immersion sensor with Pt and Ni T-sensors
Sensing element types	see ordering guide
Measurement current	typ. < 1 mA ¹⁾
T-Sensor connection	two-wire
Electrical connection	screw terminal, 2x max. 2.5 mm ² (0.004 in ²)

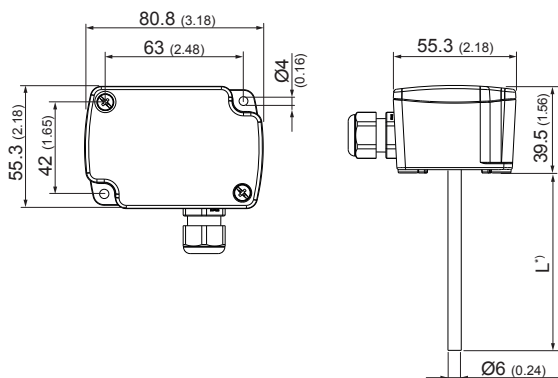
1) according technical data of the specific T-sensors

General

Insulation resistance (probe)	> 100 MΩ at 20 °C (68 °F)		
Response time τ_{63}	< 1 min, duct sensor at 3 m/s (590 ft/min) air velocity < 30 s, immersion sensor in liquid water bath		
Probe pipe material	stainless steel (1.4571 / 316Ti)		
Immersion well material	brass (nickel-plated) or stainless steel (pipe: 1.4571 / 316Ti, turned part: 1.4404 / 316L)		
pressure rating	PN 15 bar (218 psi), brass PN 25 bar (363 psi), stainless steel		
permissible inflow velocity	m/s (ft/min)	50 mm (1.97 ")	135 mm (5.31 ")
	brass	26 m/s (5118 ft/min)	6 m/s (1181 ft/min)
	stainless steel	29 m/s (5708 ft/min)	9 m/s (1771 ft/min)
Enclosure material	polycarbonate, UL94-V0 approved, T-range: -40 °C...+110 °C (-40 °F...+230 °F)		
Protection class	IP65 / NEMA 4		
Cable gland	M16x1.5, UL94-V2		
Storage temperature	-30 °C...+70 °C (-22 °F...+158 °F)		
Working and storage humidity range	5 % rh...95 % rh, no condensation		

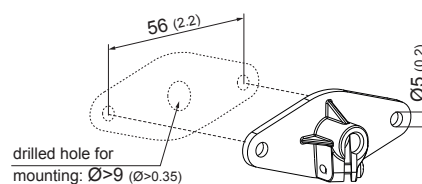
Dimensions in mm (inch)

Temperature Sensor



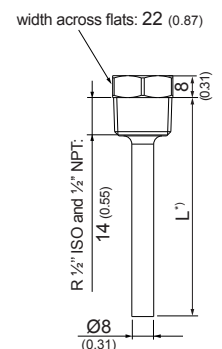
Mounting Accessories

Mounting flange



^{*)} Length according to ordering guide

Immersion well

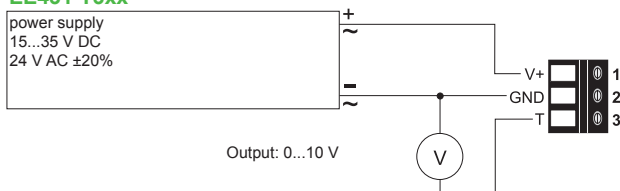


Connection Diagram

Active output

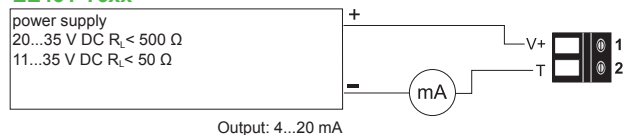
EE431-T3xx

power supply
15...35 V DC
24 V AC $\pm 20\%$



EE431-T6xx

power supply
20...35 V DC $R_L < 500 \Omega$
11...35 V DC $R_L < 50 \Omega$



Passive output

EE431-Txx



Ordering Guide

Position 1 - Temperature Sensor

MODEL	ANALOGUE OUTPUT	T-SENSOR PASSIVE ¹⁾	PROBE LENGTH	HOUSING	DESIGN
Temperature (T)	0-10 V (3x) 4-20 mA (6x) none (xx)	Pt100 DIN B (B) Pt1000 DIN B (D) NTC10k (L) NTC1.8k (G) Ni1000 TK6180 DIN B (J) Ni1000 TK5000 DIN B (T) Active output (x)	65 mm (2.56 ") (C) 150 mm (5.91 ") (E) 300 mm (11.81 ") (G)	Standard (P)	Standard (O)
EE431-					

1) not relevant for active (analogue) output

Setup - Analogue outputs

SCALING ²⁾	UNIT
-40...60 (002)	metric (M)
-20...80 (024)	non-metric (N)
0...50 (004)	
0...100 (005)	
32...212 (075)	
-40...140 (083)	

2) other scaling upon request

Position 2 - Mounting Accessories

For Duct Sensor:

MOUNTING FLANGE
HA401101

For Immersion Sensor:

IMMERSION WELL - THREAD: R 1/2" ISO			
Length	50 mm (1.97 ")	135 mm (5.31 ")	285 mm (11.22 ")
brass	HA400101	HA400102	HA400103
stainless steel	HA400201	HA400202	HA400203

IMMERSION WELL - THREAD: 1/2" NPT			
Length	50 mm (1.97 ")	135 mm (5.31 ")	285 mm (11.22 ")
brass	HA400111	HA400112	HA400113
stainless steel	HA400211	HA400212	HA400213

Order Example

Passive Output

Position 1:

EE431-TxxLEPO

Model: Temperature
 T-Sensor passive: NTC10k
 Probe Length: 150 mm (5.91 ")
 Housing: Standard
 Design: Standard

Position 2:

HA400102

Immersion well - brass, R 1/2" ISO, 135 mm (5.31 ")

Active Output

Position 1:

EE431-T3xxCPO/004M

Model: Temperature
 Analogue output: 0-10 V
 Probe Length: 65 mm (2.56 ")
 Housing: Standard
 Design: Standard
 Scaling: 0...50 °C
 Unit: metric

Position 2:

HA400201

Immersion well - stainless steel, R 1/2" ISO, 50 mm (1.97 ")

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](#)