EE461

Temperature Cable Sensor

Cable sensors for passive temperature measurement in the air and technical gases are used in heating, ventilation and air conditioning as well as in process control.
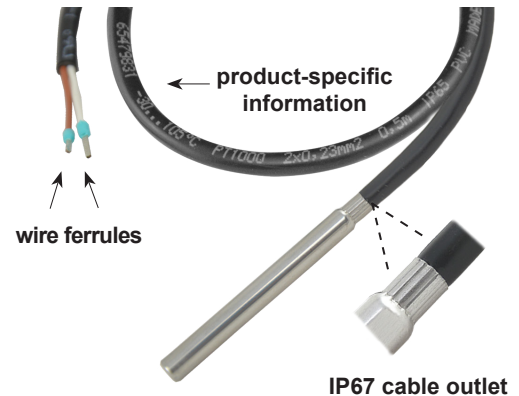
For temperature measurement in liquids, the EE461 cable sensor is mounted with an immersion well.
Several types of sensing elements are available, such as Pt100, Pt1000, Ni1000 and NTC.

The IP6/NEMA4X protection class is made possible by the innovative star pressing of the sensor sleeve.

The EE461 is available with 2-wire and 4 wire connection. Product specific information printed all along the cable allows for easy identification of the sensing element type.

product-specific information

wire ferrules

IP67 cable outlet

Typical Applications

Building automation
Process and climate control

Features

Protection rating IP67/NEMA 4X
2- and 4-wire connection

Technical Data

Operating temperature	-30...+105 °C (-22...+221 °F)
T sensors	*(see table below)*

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
NTC2.2k	R_{25}: 2.252 kΩ ± 1%	$B_{25/85}$: 3977 K ± 0.3 %	-
NTC10k B3950	R_{25}: 10 kΩ ± 0.5 %	$B_{25/85}$: 3989 K ($B_{25/50}$: 3950 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
T sensor connection	2-wire, 2x 0.22 mm² (2x 0,0003 inch²), wire resistance 0.172 Ω/m (0.052 Ω/ft)
	4-wire, 4x 0.22 mm² (4x 0,0003 inch²)
Insulation resistance	> 100 MΩ at 20 °C (68 °F)
Response time τ_{63}	< 1 min, at 3 m/s (590 ft/min) air velocity
	< 30 s, with immersion well in liquid water bath
Sensor sleeve material	Stainless steel (1.4571 / 316Ti)
Cable material	PVC
Protection rating	IP67/NEMA 4X
Storage temperature	-30…+70 °C (-22...+158 °F)
Working and storage humidity range	5...95 %RH (non-condensing)

Dimensions
Values in mm (inch)

55 (2.17)

5 (0.2)

Ø6 (0.24)

star pressing

CE

RoHS compliant
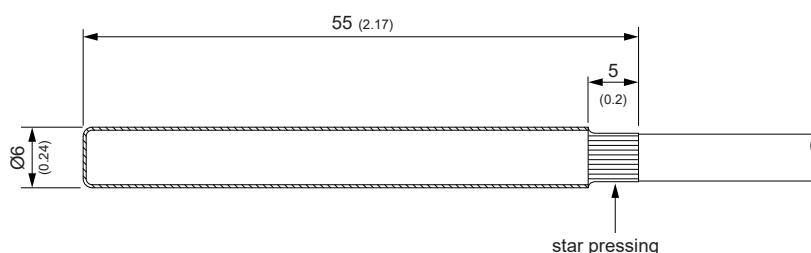
Ordering Guide

WIRE		T SENSOR[1]		CABLE LENGTH	
2-wire connection	(no code)	Pt100 DIN B	(TP2)	0.5 m (1.6 ft)	(K0.5)
		Pt1000 DIN B	(TP4)	2 m (6.6 ft)	(K2)
		NTC2.2k	(TP21)	3 m (9.8 ft)	(K3)
		NTC10k B3950	(TP11)	5 m (16.4 ft) [2]	(K5)
		Ni1000 TK6180 DIN B	(TP9)	6 m (19.7 ft) [3]	(K6)
		Ni1000 TK5000 DIN B	(TP19)		
EE461-					

1) T sensor details see www.epluse.com/R-T_Characteristics
   Other passive sensor types are available on request from a minimum order quantity of 100 pcs.
2) Only available with PT1000 DIN B T-sensor
3) Only available with NTC10k B3950 T-sensor

WIRE		T SENSOR		CABLELENGTH	
4-wire connection	(W4)	Pt100 DIN A	(TP1)	2 m (6.6 ft)	(K2)
		Pt100 DIN B	(TP2)	5 m (16.4 ft)	(K5)
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Order Example

EE461-TP4K2

Wire:	2-wire connection
T sensor	Pt1000 DIN B
Cable Length:	2 m (6.6 ft)

EE461-W4TP1K5

Wire:	4-wire connection
T sensor:	Pt100 DIN A
Cable Length:	5 m

Mounting Accessories

Immersion well - Thread: R ½" ISO

Length	50 mm (1.97")	100 mm (3.94")	135 mm (5.31")	285 mm (11.22")
Brass	HA400101	HA400104	HA400102	HA400103
Stainless steel	HA400201	HA400204	HA400202	HA400203

Immersion well - Thread: ½" NPT

Length	50 mm (1.97")	100 mm (3.94")	135 mm (5.31")	285 mm (11.22")
Brass	HA400111	HA400114	HA400112	HA400113
Stainless steel	HA400211	HA400214	HA400212	HA400213

For further information please see datasheet EE431.

Mounting with immersion well:

1. → 2. →

1. The spring inside the well must be removed and replaced by a standard M12x1.5 cable gland (not included in the scope of supply).
2. Insert the cable sensor and fix it by fastening the cable gland.

Please observe the operating temperature range of the cable gland!

Cable gland (M12x1.5, -40...+100 °C / -40... +212 °F, UL94 V-0)   HA403101
Hose clamp (for pipe mounting)   HA402101

Connection Diagram
(for 4-wire connection)

white   white   red   red