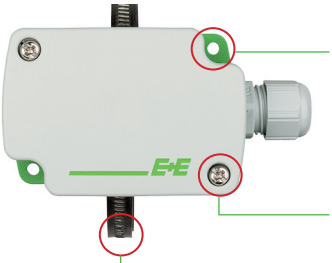
EE441

Strap-on Temperature Sensor

EE441 strap-on sensors are used for temperature measurement on round ducts and pipes.
Typical applications are heating systems (warm and cold water pipes) and solar collectors. 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.
The optional adapter EE-PCA and the free configuration software EE-PCS facilitate the adjustment and setup of the active temperature sensors.

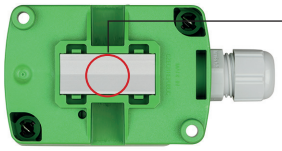
Features



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

Bayonet screws
» Open/closed with a ¼ rotation

Hose clamp
» Installation on pipes



Aluminium contact surface
» Very good thermal transfer
» Fast response time

CE RoHS compliant

Technical Data

Active Output

Operating temperature	-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 (contact area)	-40 °C…+110 °C (-40 °F...+230 °F)

Types of T-Sensors

Sensor Type	Nominal Resistance	Sensitivity	Standard
Pt100 DIN B	R_0: 100 Ω	TC: 3.850 x 10^{-3}/°C	DIN EN 60751
Pt1000 DIN B	R_0: 1000 Ω	TC: 3.850 x 10^{-3}/°C	DIN EN 60751
NTC1.8k	R_{25}: 1.8 kΩ ± 0.2 K	$B_{25/85}$: 3500 K ± 1.0 %	-
NTC2.2k	R_{25}: 2.252 kΩ ± 0.2 K	$B_{25/85}$: 3977 K ± 0.3 %	-
NTC10k B3950	R_{25}: 10 kΩ ± 0.5 %	$B_{25/85}$: 3989 K ($B_{25/50}$: 3950 K ± 1.0 %)	-
NTC10k B3435	R_{25}: 10 kΩ ± 1 %	$B_{25/85}$: 3435 K	-
KTY81-210	R_{25}: 1980-2020 Ω	-	-
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

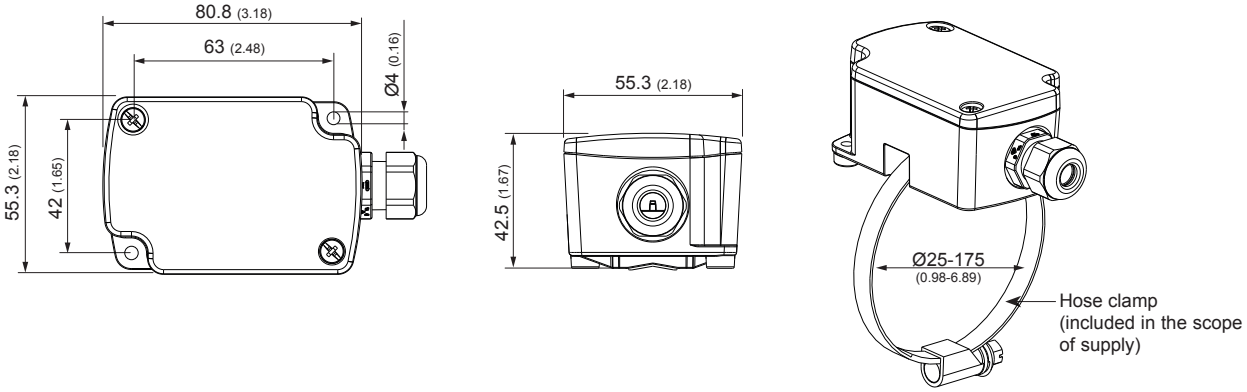
Measurement current	typ. < 1 mA[1)]
T-Sensor connection	two-wire
Electrical connection	screw terminal, 2x max. 2.5 mm^2 (0.004 in^2)

1) according technical data of the specific T-sensors

General

Insulation resistance	> 100 MΩ at 20 °C (68 °F)
Response time τ_{63}	< 1 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
Hose clamp material	stainless steel (corr. 1.4301 / 304)
Storage temperature	-30 °C…+70 °C (-22 °F...+158 °F)
Working and storage humidity range	5 % rh...95 % rh, no condensation

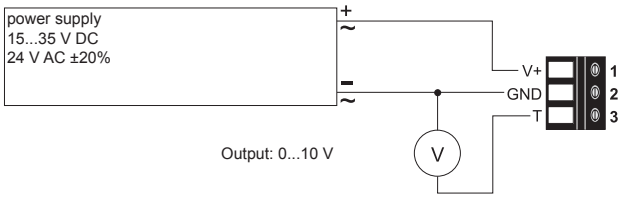
Dimensions in mm (inch)



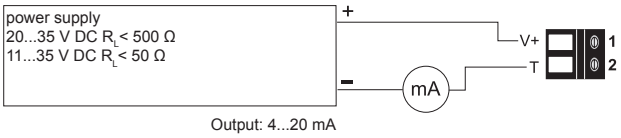
Connection Diagram

Active Output

EE441-T3xx



EE441-T6xx



Passive Output

EE441-Txx

Scope of Supply

- EE441 Temperature sensor according to ordering guide
- Cable gland
- Hose clamp
- 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)

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

Ordering Guide

MODEL		OUTPUT		DESIGN		SCALING[2] (analogue output only)		UNIT (analogue output only)	
Temperature	(T)	**Analogue**		Standard	(PO)	-40...60	(002)	°C	(M)
		0-10 V	(3xx)			-20...80	(024)	°F	(N)
		4-20 mA	(6xx)			0...50	(004)		
		T-Sensor passive[1]				0...100	(005)		
		Pt100 DIN B	(xxB)			32...212	(075)		
		Pt1000 DIN B	(xxD)			-40...140	(083)		
		NTC1.8k	(xxG)						
		NTC2.2k	(xxV)						
		NTC10k B3950	(xxL)						
		NTC10k B3435	(xxO)						
		KTY81-210	(xxN)						
		Ni1000 TK6180 DIN B	(xxJ)						
		Ni1000 TK5000 DIN B	(xxT)						
EE441-									

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

Order Example

Passive Output

EE441-TxxDPO

Model:	Temperature
Output:	Pt1000 DIN B
Design:	Standard

Active Output

EE441-T3xxPO/024M

Model:	Temperature
Output:	0-10 V
Desgin:	Standard
Scaling:	-20...80
Unit:	°C