

—
your partner
in sensor
technology.

+ Datasheet EE471

Temperature Sensor with Remote Probe



EE471

Temperature Sensor with Remote Probe

The EE471 temperature sensor with remote probe reliably measures the temperature (T) in applications with space restrictions and is optimized for building automation, HVAC and process control.

Analogue, Digital and Passive Outputs

The measured data of the temperature is available at the voltage or current output, as well as on the RS485 interface with Modbus RTU or BACnet MS/TP protocol. In addition, EE471 features sensing elements for passive T measurement.

Easy Installation

The design with remote probe is appropriate for installations where electronic shall be protected against high temperature or strong vibrations. Product specific information for the remote probe is printed all along the cable. The optionally available innovative immersion well is suitable for measurement in liquids and allows the sensor to be replaced quickly and safely.

Configurable and Adjustable

An optional adapter and the free EE-PCS Product Configuration Software facilitate the setup and adjustment of the EE471.



EE471 temperature sensor with remote probe

Features



Enclosure

- Protection rating: IP65/Nema 4X
- Polycarbonate (PC)

External mounting holes

- Mounting with closed cover
- Protection against construction site pollution
- Easy and fast mounting



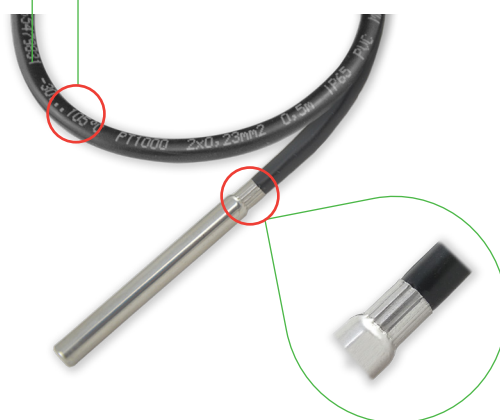
Bayonet screws

- Open/close with a 1/4 rotation

Remote probe

Cable

- Productspezifische information



Star pressing

- Protection rating: IP67/NEMA 4

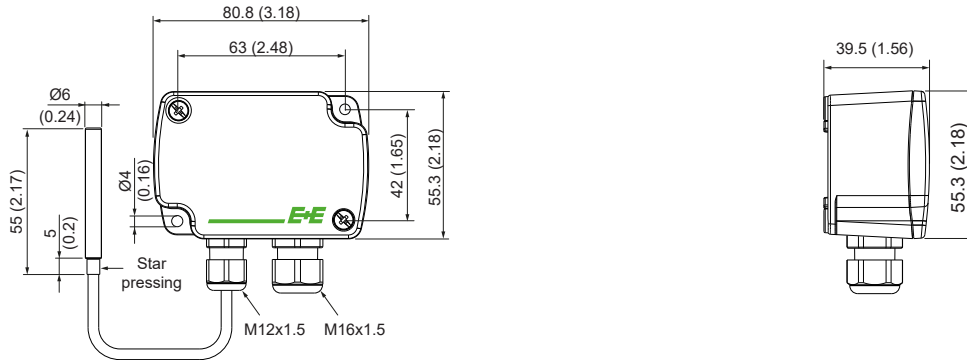
Test report

According to DIN EN 10204-2.2

Dimensions

Values in mm (inch)

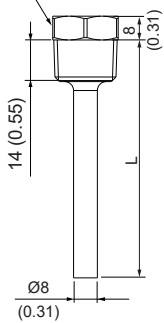
Enclosure



Immersion well

(not included in the scope of supply)

Width across flats: 22 (0.87)



Length (L) in mm	Length (L) in inch
50	1.97
100	3.94
135	5.31
285	11.22

Technical Data

Measurands

Temperature (T) - Active

Measuring range	Remote probe	-30 °C...+105 °C (-22...+221 °F)
Accuracy @ 20 °C (68 °F)		±0,3 °C (±0.54 °F)

Temperature (T) - Passive

Measuring range	-30 °C...+105 °C (-22...+221 °F)		
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

Outputs

Analogue

Analogue output	0 - 10 V 4 - 20 mA (2-wire)	0 < I _L < 1 mA R _L ≤ 500 Ω	I _L = load current R _L = load resistance
------------------------	--------------------------------	---	---

Digital




Digital interface	RS485 (EE471 = 1 Unit Load)
Protocol Factory settings Supported Baud rates Measured data types	Modbus RTU Baud rate see order information, parity even, 1 stop bit, Modbus address 66 9600, 19200 und 38400 FLOAT32 and INT16
Protocol Factory settings Supported Baud rates	BACnet MS/TP Baud rate see order information, BACnet address 66 9600, 19200, 38400, 57600, 76800 und 115200

T Sensor Passive

Sensor connection	2-wire connection, wire resistance see section Additional Information
Measuring current, typ.	<1 mA (according to technical data of the specific T sensing element)

Technical Data

General

Power supply class III  USA & Canada: Class 2 supply necessary, max. voltage 30 V DC for output RS485 and 0 - 10 V for output 4 - 20 mA	15 - 35 V DC or 24 V AC $\pm 20\%$ 10 V DC + $R_L \times 20 \text{ mA} < V+ < 35 \text{ V DC}$ R_L = load resistance
Current consumption, typ. Analogue RS485	5 mA (DC) / 12 mA _{rms} (AC) 3.5 mA (DC) / 12 mA _{rms} (AC)
Electrical connection	Screw terminals 2x max. 2.5 mm ² (AWG14)
Cable glands	M16x1.5 / M12x1.5 / UL94 V-2
Insulation resistance (remote probe) @20 °C (68 °F)	>100 MΩ
Response time t₆₃ Duct sensor at 3 m/s (590 ft/min) air velocity Immersion sensor in liquid water bath	<1 min <30 s
Humidity working range	5...95 %RH, non-condensing
Temperature working range	Remote probe Electronics -30 °C...+105 °C (-22...+221 °F) -30 °C...+70 °C (-22...+158 °F)
Storage conditions	-30 °C...+70 °C (-22...+158 °F) 5...95 %RH, non-condensing
Material	Enclosure Polycarbonate (PC), UL94 V-0 approved Cable Polyvinylchloride (PVC) Sensor sleeve Stainless steel (1.4571 / 316Ti)
Protection rating	Enclosure IP65/NEMA 4X Remote probe IP67/NEMA 4
Electromagnetic compatibility	EN 61326-1 EN 61326-2-3 Industrial environment FCC Part15 Class B ICES-003 Class B
Conformity	 

Additional Information

Wire Resistance / Temperature Offset

(relevant only for passive output EE471-M7)

Probe cable length	Wire resistance	Temperature offset for Pt100 ^{*)}
0.5 m (1.64 ft)	0.086 Ω	0.22 °C (0.396 °F)
2 m (6.56 ft)	0.344 Ω	0.88 °C (1.584 °F)
3 m (9.84 ft)	0.516 Ω	1.32 °C (2.376 °F)
5 m (16.4 ft)	0.860 Ω	2.2 °C (3.960 °F)
10 m (32.8 ft)	1.72 Ω	4.4 °C (7.920 °F)

^{*)} For high-resistance T sensors ($R \geq 1000 \Omega$) the temperature offset is negligible.

Ordering Guide

Feature	Description	Code		
Hardware Configuration		EE471-		
	Model	Aktive	M3	
		Passive	M7	
	Output	0 - 10 V	A3	
		4 - 20 mA	A6	
		RS485		J3
	T sensor passive ¹⁾ (R-T-characteristics see www.epluse.com/ee451)	Pt100 DIN B		TP2
		Pt1000 DIN B		TP4
	Probe cable length	0.5 m (1.6 ft)	K0.5	
		2 m (6.6 ft)	K2	
3 m (9.8 ft)		K3		
5 m (16.4 ft)		K5		
10 m (32.8 ft)		K10		
Software Setup - Outputs	Output (T) measurand	Temperature [°C]	No code	
		Temperature [°F]	MA2	
	Output (T) scaling low	0	No code	
		Value (within the working range)	SAL Value	
	Output (T) scaling high	50	No code	
		Value (within the working range)	SAH Value	
	Protocol	Modbus RTU ²⁾		P1
		BACnet MS/TP ³⁾		P3
	Baud rate	9600		BD5
		19200		BD6
38400			BD7	
57600 (for BACnet only)			BD8	
76800 (for BACnet only)			BD9	
115200 (for BACnet only)			BD10	

- 1) Other passive sensor types are available on request from a minimum order quantity of 100 pcs.
- 2) Factory settings: Parity even, stop bit 1. Modbus Map and communication setting: see User Guide and Modbus Application Note at www.epluse.com/ee471.
- 3) Product Implementation Conformance Statement (PICS) available at www.epluse.com/ee471.

Order Examples

EE471-M3J3K3P3BD7

Feature	Code	Description
Model	M3	Aktive
Output	J3	RS485
Probe cable length	K3	3 m (9.8 ft)
Protocol	P3	BACnet MS/TP
Baud rate	BD7	38 400

EE471-M7TP4K5

Feature	Code	Description
Model	M7	Passive
T sensor passive	TP4	Pt1000 DIN B
Probe cable length	K5	5 m (16.4 ft)

Accessories

For further information see datasheet [Accessories](#).

Description	Code				
Product configuration adapter for analogue output	See datasheet EE-PCA				
USB configuration adapter for digital output	HA011066				
E+E Product Configuration Software (free download: www.epluse.com/configurator)	EE-PCS				
Power supply adapter	V03				
Conduit Adapter, M16x1.5 auf 1/2"	HA011110				
Mounting flange	HA401101				
Cable gland (M12x1.5; -40...+100 °C (-40... +212 °F); UL94-V0)	HA403101				
Hose clamp (for pipe mounting of remote probe)	HA402101				
Hose clamp bundle, metal, 330 mm (13"), 5 pcs.	HA402102				
Immersion well - thread R ½" ISO ¹⁾	Length in mm (inch)	50 (1.97")	100 (3.94")	135 (5.31")	285 (11.22")
	Brass	HA400101	HA400104	HA400102	HA400103
	Stainless steel	HA400201	HA400204	HA400202	HA400203
Immersion well - thread ½" NPT ¹⁾	Length in mm (inch)	50 (1.97")	100 (3.94")	135 (5.31")	285 (11.22")
	Brass	HA400111	HA400114	HA400112	HA400113
	Stainless steel	HA400211	HA400214	HA400212	HA400213

1) For further information see datasheet www.epluse.com/ee431.



Company Headquarters &
Production Site

E+E Elektronik Ges.m.b.H.
Langwiesen 7
4209 Engerwitzdorf | Austria
T +43 7235 605-0
F +43 7235 605-8
info@epluse.com
www.epluse.com

Subsidiaries

E+E Sensor Technology (Shanghai) Co., Ltd.
T +86 21 6117 6129
info@epluse.cn

E+E Elektronik France SARL
T +33 4 74 72 35 82
info.fr@epluse.com

E+E Elektronik Deutschland GmbH
T +49 6171 69411-0
info.de@epluse.com

E+E Elektronik India Private Limited
T +91 990 440 5400
info.in@epluse.com

E+E Elektronik Italia S.R.L.
T +39 02 2707 86 36
info.it@epluse.com

E+E Korea Co., Ltd.
T +82 31 732 6050
info.kr@epluse.com

E+E Elektronik Corporation
T +1 847 490 0520
info.us@epluse.com

Version v1.12 | 09-2023
Modification rights reserved



—
your partner
in sensor
technology.

www.epluse.com