

EE160

Humidity and Temperature Transmitter for HVAC Applications

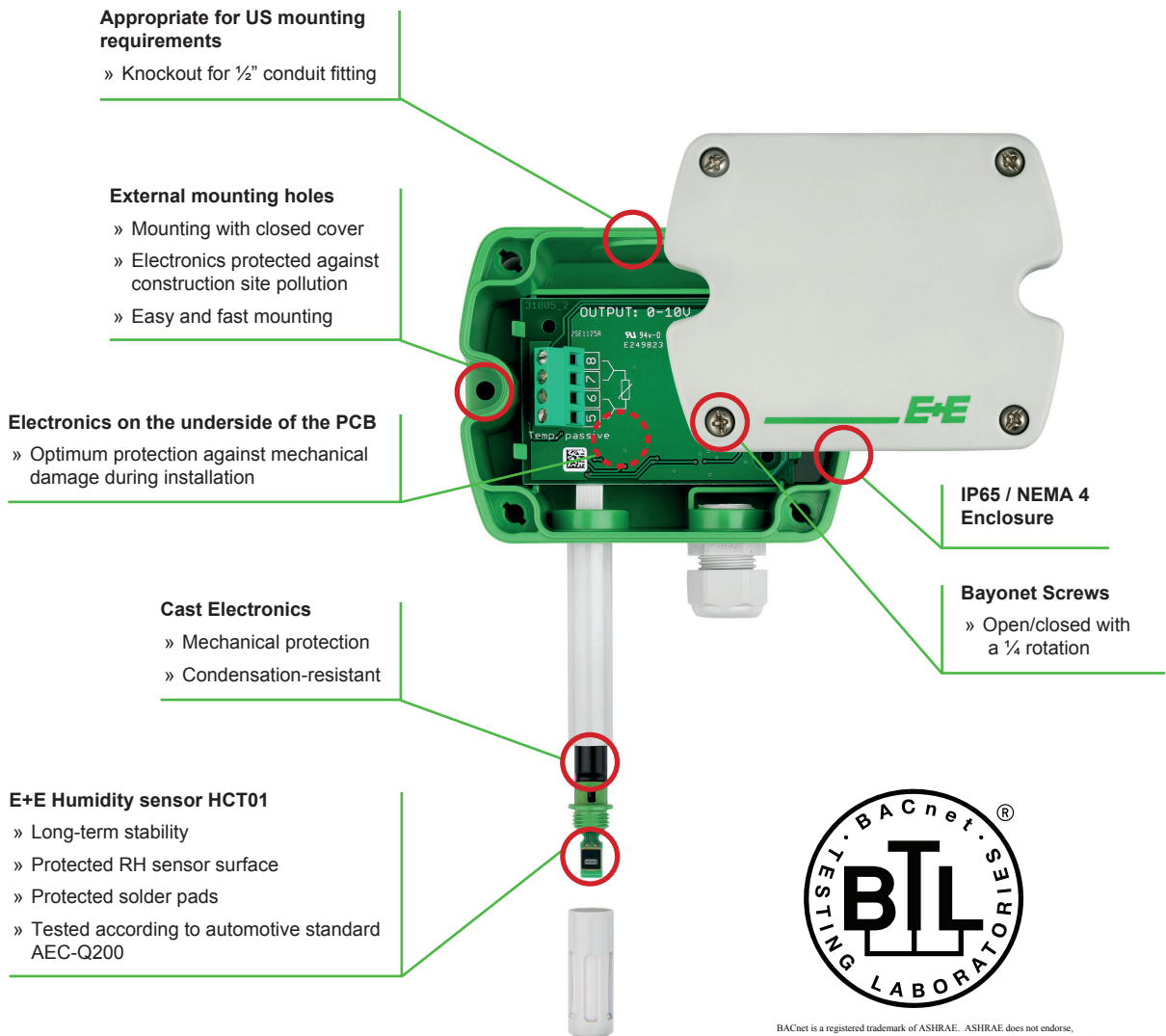
Specially designed for HVAC, the EE160 sensor by E+E Elektronik is a cost-effective, highly accurate and reliable solution for measuring relative air humidity and temperature. The enclosure minimizes installation costs and provides outstanding protection against contamination and condensation, thus ensuring flawless operation.

The EE160 employs the new humidity/temperature E+E sensor element HCT01 with excellent long term stability and resistance against pollutants. In combination with a long calibration experience, the EE160 provides a measurement accuracy of $\pm 2.5\%$ RH and is available for wall or duct-mounted with current, voltage BACnet MS/TP or Modbus RTU output.



A configurator makes it possible to freely select the scaling of the temperature output and configure the RS485 parameters. The configurator software, which is free of charge, allows additionally for an on-site adjustment of the humidity and temperature.

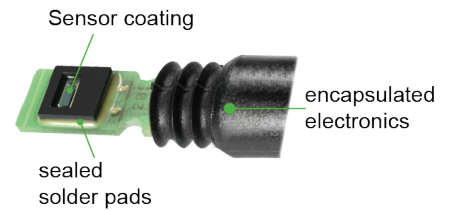
Features



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Protective Sensor Coating

The E+E proprietary sensor coating is a hygroscopic layer applied to the active surface of the HCT01 sensing element. The coating extends substantially the life-time and the measurement performance of the E+E sensor in corrosive environment (salts, off-shore applications). Additionally, it improves the sensor's long term stability in dusty, dirty or oily applications by preventing stray impedances caused by deposits on the active sensor surface.



Technical data

Measured values

Relative Humidity

Sensor	E+E Sensor HCT01-00D
Working range	10...95 % RH
Accuracy ¹⁾ at 20°C	±2.5 % RH
Temperature dependency	typ. ±0.03 % RH/°C

Temperature

Sensor	Pt1000 (tolerance class B, DIN EN 60751)
T-Accuracy at 20°C	±0.3 °C

Outputs

Analogue output	0-10 V	-1 mA < I _L < 1 mA or
(RH: 0...100%; T: see ordering guide)	4-20 mA (two-wire)	R _L < 500 Ohm

Digital output	RS485 (BACnet MS/TP or Modbus RTU) max. 32 EE160 in one bus
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Passive T-sensor

4-wire	see ordering guide
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General

Power supply	
for 0 - 10 V / RS485	15 - 35V DC or 24V AC ±20 %
for 4 - 20 mA	10V + R _L x 20 mA < U _v < 35V DC

Current consumption

Analogue	with DC power supplytyp. 5 mA
	with AC power supplytyp. 13 mA _{eff}
Digital	with DC power supplytyp. 15 mA
	with AC power supplytyp. 25 mA _{eff}

Connection	Screw terminals, max. 1.5 mm ²
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Housing material	Polycarbonate, UL94V-0 approved
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Protection class	IP65 / NEMA 4
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Cable gland	M16 x 1.5
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Sensor protection	membrane filter
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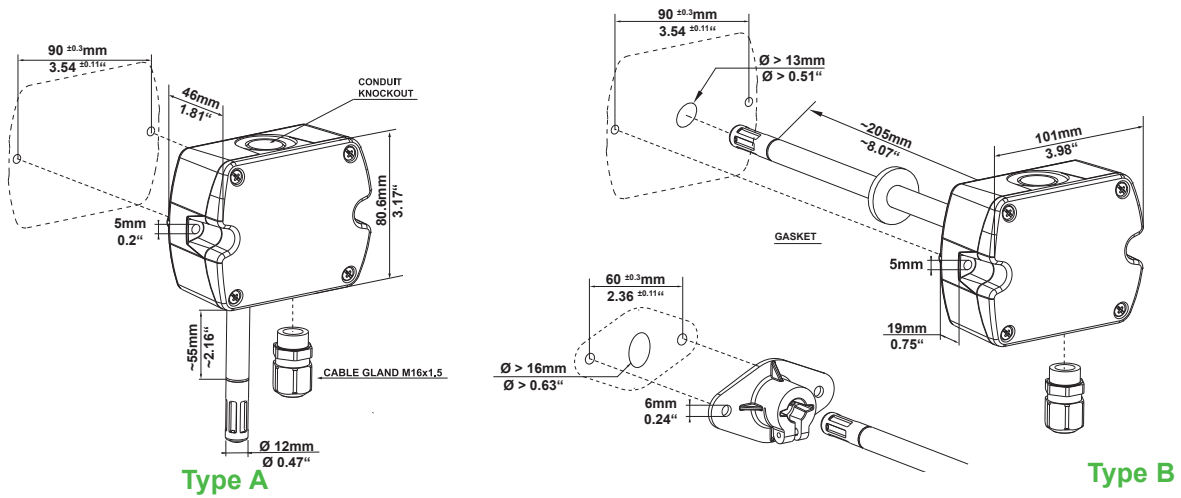
Electromagnetic compatibility	EN61326-1
	EN61326-2-3

Temperature ranges	Operating temperature: -40...60 °C (-40...140 °F)
	Storage temperature: -20...60 °C (-4...140 °F)

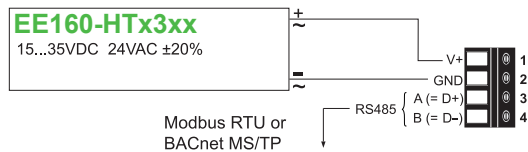
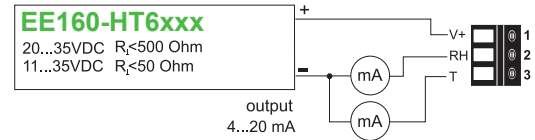
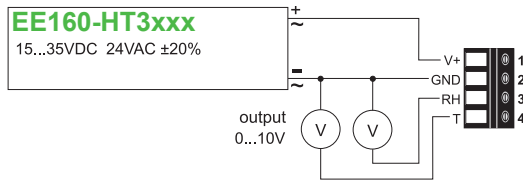


1) Traceable to intern. standards, administrated by NIST, PTB, BEV...
The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation).
The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

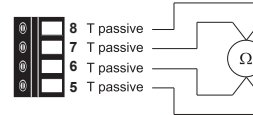
Dimensions (mm)



Connection diagram



T-passive connection for HT3xxx/HT6xxx



Ordering Guide

Hardware configuration

MODEL	OUTPUT	PASSIVE T-SENSOR ¹⁾	TYPE	FILTER
humidity + temperature	(HT) 0-10 V (3x) 4-20 mA (6x) RS485 (x3)	Pt 100 DIN A (A) Pt 1000 DIN A (C) NTC 10k (E) Ni1000, TK6180 (J) none (X)	wall mount (PA) duct mount (PB)	membrane filter (B)
EE160-				

Analogue outputs setup

OUTPUT SCALING	SCALING ²⁾	UNIT
temperature (Tx)	-20...80 °C (024) -40...60 (002) -10...50 (003) 0...50 (004)	metric (M) non-metric (N)
	32...122 (076) -40...140 (083) 0...140 (085) 20...120 (015)	°F

Digital output setup

PROTOCOL	BAUDRATE	PARITY	STOPBITS	UNIT
Modbus RTU ³⁾ (1)	9600 (A)	odd (O)	1 stopbit (1)	metric (M)
BACnet MS/TP ⁴⁾ (3)	19200 (B) 38400 (C) 57600 ⁵⁾ (D) 76800 ⁵⁾ (E) 115200 ⁵⁾ (F)	even (E) no parity (N)	2 stopbit (2)	non-metric (N)

1) Only with output 3x, 6x / T-Sensor details see www.epluse.com/R-T_Characteristics
 2) Other scaling upon request
 3) Modbus Map and setup instructions: See User Guide and Modbus Application Note at www.epluse.com/EE160
 4) Product Implementation conformance Statement (PICS) available at www.epluse.com/EE160
 5) Only for BACnet

Order example

Analogue output

EE160-HT6xAPAB-Tx003M

Model: humidity + temperature transmitter
 Output: 4-20 mA
 Passive T-Sensor: Pt 100 DIN A
 Type: wall mount
 Filter: membrane filter

Output scaling: temperature
 Scaling: -10...50 °C
 Unit: metric

Digital output

EE160-HTx3xPBB-1AE1N

Model: humidity + temperature transmitter
 Output: RS485
 Type: duct mount
 Filter: membrane filter

Protocol: Modbus
 Baudrate: 9600
 Parity: even
 Stopbits: 1
 Unit: non-metric

Accessories

Product configuration adapter
 Product configuration software
 Power supply adapter
 Protection cap for 12 mm probe

[see data sheet EE-PCA](#)

[EE-PCS](#) (free download: www.epluse.com/EE160)

[V03](#) (see data sheet Accessories)

[HA010783](#)

Scope of supply

Model	EE160 Wall mount (Type A)	EE160 Duct mount (Type B)	Additionally for all EE160 with RS485 interface
EE160 Transmitter according ordering guide	✓	✓	
Cable gland	✓	✓	✓
Mounting kit	✓	✓	
Mounting flange		✓	
Inspection certificate according to DIN EN10204 - 3.1	✓	✓	
Quick Guide - EE160 RS485 Setup			✓