EE160

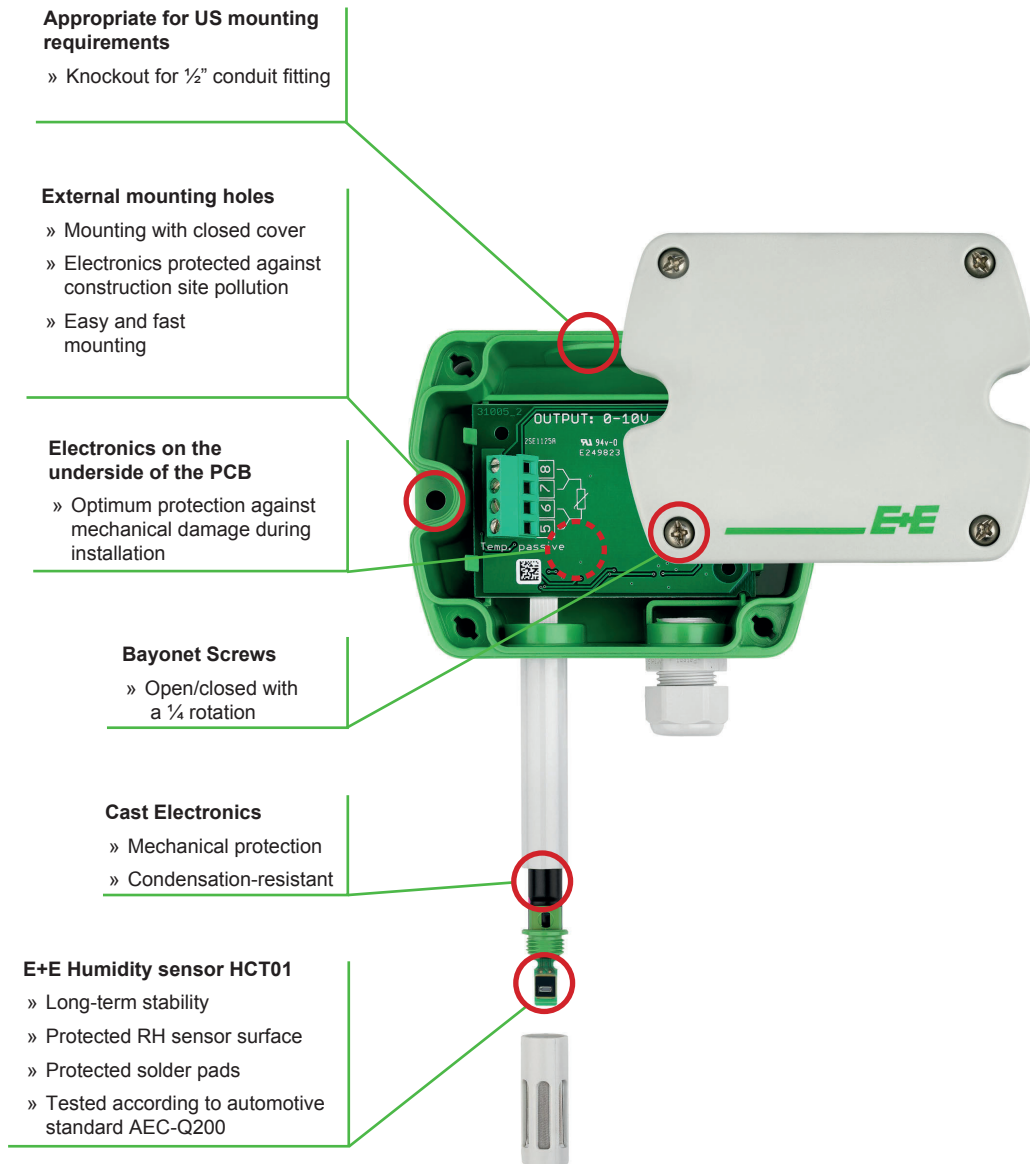## Humdity and Temperatur transmitter for HVAC Applications

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 ±2.5%RH and is available for wall or duct-mounted with current, voltage or Modbus RTU output.

EE160

The configuration equipment allows user setup for the output scaling and for the interface parameters, as well as humidity and temperature adjustment of the sensor.

Appropriate for US mounting requirements
» Knockout for ½" conduit fitting

External mounting holes
» Mounting with closed cover
» Electronics protected against construction site pollution
» Easy and fast mounting

Electronics on the underside of the PCB
» Optimum protection against mechanical damage during installation

Bayonet Screws
» Open/closed with a ¼ rotation

Cast Electronics
» Mechanical protection
» Condensation-resistant

E+E Humidity sensor HCT01
» Long-term stability
» Protected RH sensor surface
» Protected solder pads
» Tested according to automotive standard AEC-Q200

Technical data

Measured values

Relative Humidity

Sensor	E+E Sensor HCT01-00D
Analog output 0...100% RH	0-10 V $\quad$ -1 mA $< I_L <$ 1 mA oder
	4-20 mA (two-wire) $\quad$ $R_L <$ 500 Ohm
Digital output	RS485
Working range	10...95% RH
Accuracy at 20°C	±2.5% RH
Temperature dependency	typ. ±0.03% RH/°C

Temperature

Sensor	Pt1000 (tolerance class B, DIN EN 60751)
Analog output[1]	0-10 V
	4-20 mA
Digital output	RS485
T-Accuracy at 20°C	±0.3°C
passive T-output	see ordering code

General

Power supply	
$\quad$ for 0 - 10 V / RS485	15 - 35V DC or 24V AC ±20%
$\quad$ for 4 - 20 mA	10V + R_L x 20 mA $< U_v <$ 35V DC
Current consumption	
$\quad$ Analog	with DC power supply typ. 5mA
	with AC power supply typ. 13mA$_{eff}$
$\quad$ Digital	with DC power supply typ. 15mA
	with AC power supply typ. 25mA$_{eff}$
Connection	Screw terminals, max. 1.5 mm²
Housing material	Polycarbonate, UL94V-0 approved
Protection class	IP65
Cable gland	M16 x 1.5
Sensor protection	membrane filter
Electromagnetic compatibility	EN61326-1
	EN61326-2-3
Temperature ranges	Operating temperature: $\quad$ -15...60°C (5...140°F)
	Storage temperature: $\quad$ -25...60°C (-13...140°F)

CE

[1] Output scaling see Ordering Guide

Dimensions (mm)

Type A

Type B

Connection diagram

EE160-HT3xxx
15...35VDC 24VAC ±20%
output 0...10V

EE160-HT6xxx
20...35VDC R$_L$<500 Ohm
11...35VDC R$_L$<50 Ohm
output 4...20 mA

EE160-HTx3xx
15...35VDC 24VAC ±20%
output
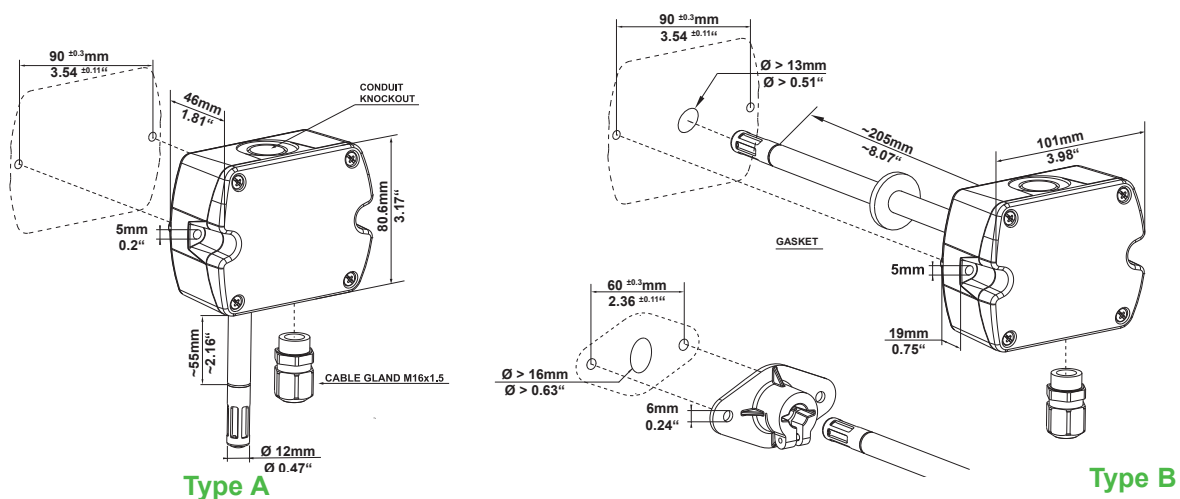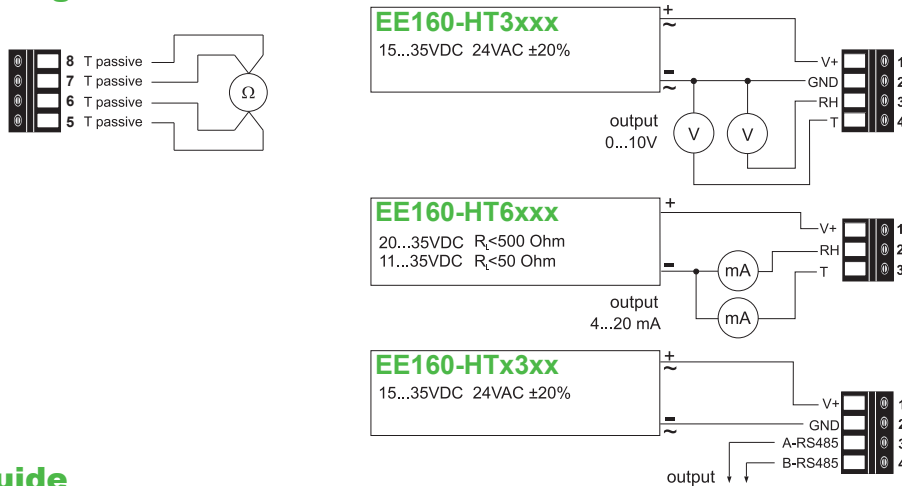
Ordering Guide

Hardware configuration

MODEL		ANALOG[1]		DIGITAL[1]		PASSIVE T-SENSOR[2]		HOUSING		TYPE		FILTER	
humidity + temperature	(HT)	0-10V	(3)	RS485	(3)	Pt 100 DIN A	(A)	polycarbonate (P)		wall mount	(A)	membrane filter	(B)
		4-20mA	(6)	none	(x)	Pt 1000 DIN A	(C)			duct mount	(B)		
		none	(x)			NTC 10k	(E)						
						none	(x)						

EE160-

Analogue outputs setup

OUTPUT SCALING		SCALING[3]			UNIT	
temperature	(Tx)	°C		°F	metric	(M)
		-20...80 (024)		32...122 (076)	non-metric	(N)
		-40...60 (002)		-40...140 (083)		
		-10...50 (003)		0...140 (085)		
		0...50 (004)		20...120 (015)		

Digital output setup

PROTOCOL		BAUDRATE		PARITY		STOPBITS		UNIT	
modbus	(1)	9600	(A)	odd	(O)	1 stopbit	(1)	metric	(M)
		19200	(B)	even	(E)	2 stopbit	(2)	non-metric	(N)
		38400	(C)	no parity	(N)				

[1] a combination of analog and digital version is not possible [2] analogue version only [3] other scaling upon request

Accessories

Configuration equipment: The configuration equipment allows user setup for the output scaling and for the interface parameters, as well as humidity and temperature adjustment of the sensor.

Position 1:
- configuration adapter (incl. USB cable for PC)   HA011050
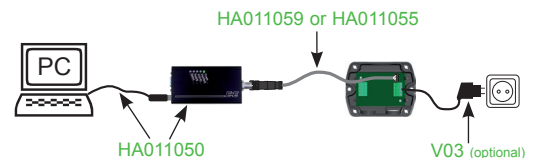
Position 2:
- for EE160 analog: cable for configuration adapter   HA011059
- for EE160 digital: cable for configuration adapter   HA011055

Position 3:
- configuration software: free of charge; download: www.epluse.com/EE160

Position 4 - optional:
- power supply for EE160   V03

HA011059 or HA011055

HA011050

V03 (optional)

Order example

Analog output

EE160-HT6xAPAB-Tx003M

Model:	humidity + temperature transmitter
Analog output:	4-20mA
Passive T-Sensor:	Pt 100 DIN A
Housing:	polycarbonate
Type:	wall mounting
Filter:	membrane filter
Output scaling:	temperature
Scaling:	-10...50°
Unit:	metric

Digital output

EE160-HTx3xPBB-1AE1N

Model:	humidity + temperature transmitter
Digital output:	RS485
Housing:	polycarbonat
Type:	duct mounting
Filter:	membrane filter
Protocol:	Modbus
Baudrate:	9600
Parity:	even
Stopbits:	1
Unit:	non-metric

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