

EE165

Humidity and Temperature Transmitter for Pharma Applications

The EE165 transmitter by E+E Elektronik meets the highest requirements in pharma applications. Besides highly accurate measurement of relative humidity and temperature, EE165 calculates dew point temperature, absolute humidity and mixing ratio.

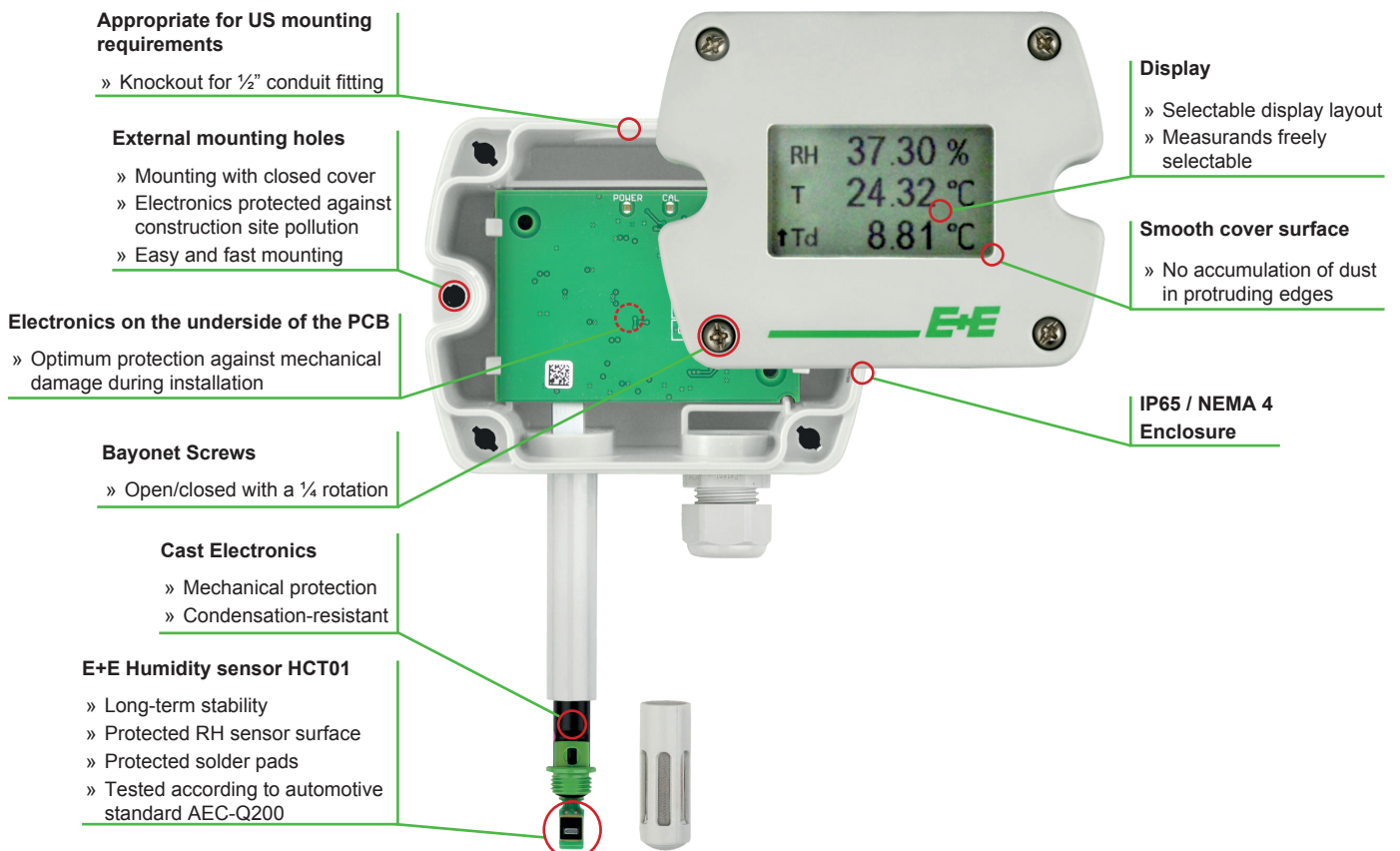
EE165 is available as wall or duct mounted. The enclosure minimizes installation costs and provides outstanding protection against contamination and condensation. Two of the measured and calculated values are available on the analogue voltage or current outputs, while up to three values can be shown simultaneously on the optional display.

Excellent performance of EE165 in polluted, aggressive environment is ensured by the combination of completely protective encapsulated measurement electronics inside the sensing probe and the long-term stable HCT01 sensor with E+E proprietary coating.

With an optional configuration kit the user can set output scaling and perform one or two point adjustment for humidity and temperature.



Features



Applications

- Pharma industry

Technical Data

Measured Values

Relative Humidity (RH)

Sensor E+E Sensor HCT01-00D

Working range 0...100% RH

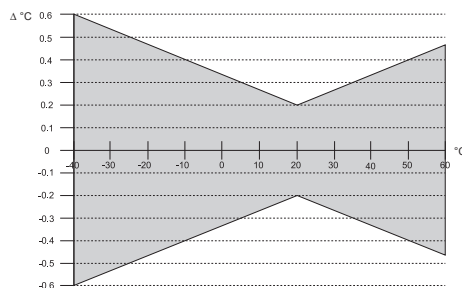
RH accuracy

(incl. hysteresis, non-linearity and repeatability) $\pm 2\%$ RH

Temperature (T)

Sensor Pt1000 (tolerance class B, DIN EN 60751) integrated in HCT01

T-accuracy



Outputs

Analog output

(RH: 0...100%; T: see ordering guide)

0-5 V / 0-10 V

$-1\text{ mA} < I_L < 1\text{ mA}$

4-20 mA (two-wire)

$R_L \leq 500\text{ Ohm}$

General

Power supply

for 0-5 V / 0-10 V / RS485

15 - 35V DC¹⁾ or 24V AC $\pm 20\%$

for 4-20 mA

$10\text{V} + R_L \times 20\text{ mA} < V+ < 30\text{V DC}$

Current consumption

Voltage output

DC supply typ. 3.3mA; with display typ. 3.6mA

AC supply typ. 34mA; with display typ. 37mA

Current output

DC supply max. 40mA

Display

1, 2 or 3 lines, user configurable

Connection

Screw terminals, max. 1.5 mm²

Housing material

Polycarbonate, UL94V-0 (with Display UL94HB) approved

Protection class

IP65 / NEMA 4

Cable gland

M16 x 1.5

Sensor protection

E+E Coating

Electromagnetic compatibility

EN61326-1 EN61326-2-3

Industrial Environment

Temperature ranges

Operating: $-40\text{...}60\text{°C}$ ($-40\text{...}140\text{°F}$)

Storage: $-40\text{...}60\text{°C}$ ($-40\text{...}140\text{°F}$)

Temperature ranges with display

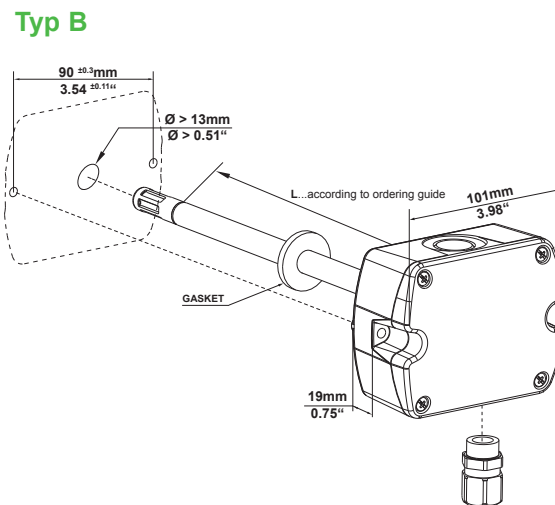
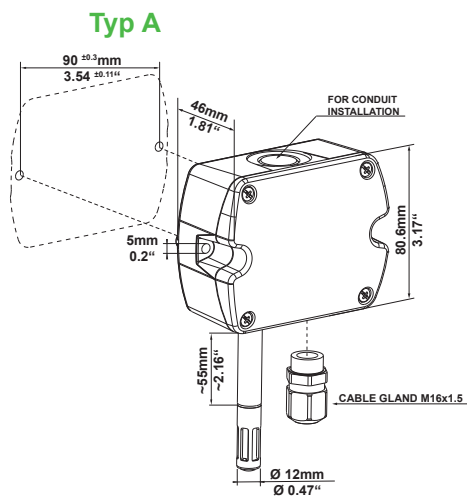
Operating: $-20\text{...}50\text{°C}$ ($-4\text{...}122\text{°F}$)

Storage: $-20\text{...}60\text{°C}$ ($-4\text{...}140\text{°F}$)



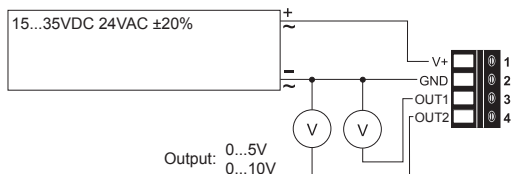
¹ USA & Canada: class 2 supply required, max. supply voltage 30V

Dimensions (mm/inch)

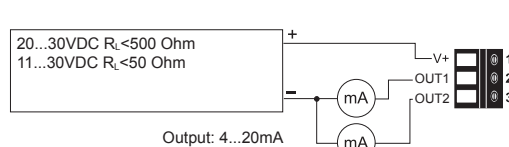


Connection Diagram

EE165-HT3



EE165-HT6



Ordering Guide

MODEL	ANALOGUE	DIGITAL	HOUSING	TYPE	PROBE LENGTH ¹⁾	DISPLAY ²⁾	FILTER
humidity + (HT)	0-5V (2)	none (x)	standard (P)	wall mount (A)	50mm (1.97") (B)	display (D)	membrane (B)
temperature	0-10V (3)			duct mount (B)	200mm (7.87") (F)	none (x)	stainless steel sintered (D)
	4-20mA (6)						
EE165-							

Outputs setup

OUTPUT 1	SCALING 1 ⁴⁾	OUTPUT 2	SCALING 2 ⁴⁾	UNIT
relative humidity ³⁾ (Uw)	-40...60 (002)	relative humidity ³⁾ (Uw)	-40...60 (002)	metric (M)
temperature (Tx)	-10...50 (003)	temperature (Tx)	-10...50 (003)	non-metric (N)
dew point temperature (TD)	0...50 (004)	dew point temperature (TD)	0...50 (004)	
frost point temperature (TF)	0...100 (005)	frost point temperature (TF)	0...100 (005)	
water vapour partial pressure ³⁾ (Ex)	32...122 (076)	water vapour partial pressure ³⁾ (Ex)	32...122 (076)	
mixing ratio ³⁾ (Rx)	-40...140 (083)	mixing ratio ³⁾ (Rx)	-40...140 (083)	
absolute humidity ³⁾ (DV)		absolute humidity ³⁾ (DV)		
specific enthalpy ³⁾ (Hx)		specific enthalpy ³⁾ (Hx)		

1) Selectable probe length only for duct mount version available; see dimensions

2) **Factory setup:** The display shows the measurands selected for output 1 and output 2.

3) **Factory Scaling**

relative humidity	0...100% RH	
water vapour partial pressure	0...200mbar	0...3psi
mixing ratio	0...400g/kg	0...2800gr/lb
absolute humidity	0...150g/m³	0...60gr/ft³
specific enthalpy	0...400kJ/kg	0...200BTU/lb

4) For Tx, TD and TF; other scaling upon request

Order Examples

EE165-HT3xPAxxB-UwTx005M

Model: Humidity+Temperature Transmitter
Analog output: 0-10V
Housing: standard
Type: wall mount
Display: none
Filter: membrane

Output scaling 1: relative humidity
Scaling 1: 0...100% RH
Output scaling 2: temperature
Scaling 2: 0...100°C
Unit: metric

Accessories

Product configuration adapter [see data sheet EE-PCA](#)
Product configuration software [EE-PCS](#) (free download: www.epluse.com/EE165)
Power supply adapter [V03](#) (see data sheet Accessories)

Scope of supply

EE165 WALL MOUNT (TYP A):

- EE165 Transmitter according ordering guide
- 1 x Cable gland
- Mounting kit
- Inspection certificate according to DIN EN10204 - 3.1

EE165 DUCT MOUNT (TYP B):

- EE165 Transmitter according ordering guide
- 1 x Cable gland
- Mounting flange
- Mounting kit
- Inspection certificate according to DIN EN10204 - 3.1