

# EE210

## Humidity and Temperature Transmitter for Demanding Climate Control Applications

The EE210 transmitter by E+E Elektronik meets the highest requirements in demanding climate control applications. Besides highly accurate measurement of relative humidity and temperature, EE210 calculates dew point temperature, absolute humidity and mixing ratio.

EE210 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 EE210 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 setup the output scaling and perform one or two point adjustment humidity and temperature for humidity and temperature.

### Features

**Appropriate for US mounting requirements**  
 » Knockout for 1/2" 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 1/4 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

**Display**  
 » Selectable display layout  
 » Measurands freely selectable

**Smooth cover surface**  
 » No accumulation of dust in protruding edges

### Applications

- agriculture
- stables, incubators, hatcheries
- green houses
- storage rooms, cooling chambers
- indoor pools

## Technical data

### Measured values

#### Relative Humidity

Sensor	E+E Sensor HCT01-00D	
Analog output 0...100% RH	0-5 V	-1 mA < I <sub>L</sub> < 1 mA
	0-10 V	-1 mA < I <sub>L</sub> < 1 mA
	4-20 mA (two-wire)	R <sub>L</sub> ≤ 500 Ohm

Working range 0...100% RH

Accuracy (incl. hysteresis, non-linearity and repeatability)

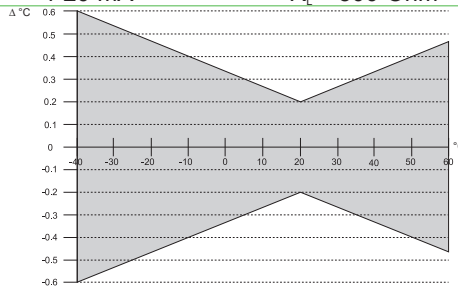
-15...40°C (5...104°F)	≤90% RH	±(1.3 + 0.3%*mv) % RH
-15...40°C (5...104°F)	>90% RH	± 2.3% RH
-40...60°C (0...140°F)		±(1.5 + 1.5%*mv) % RH

#### Temperature

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

Analog output <sup>1)</sup>	0-5 V	-1 mA < I <sub>L</sub> < 1 mA
	0-10 V	-1 mA < I <sub>L</sub> < 1 mA
	4-20 mA	R <sub>L</sub> ≤ 500 Ohm

T-Accuracy



### General

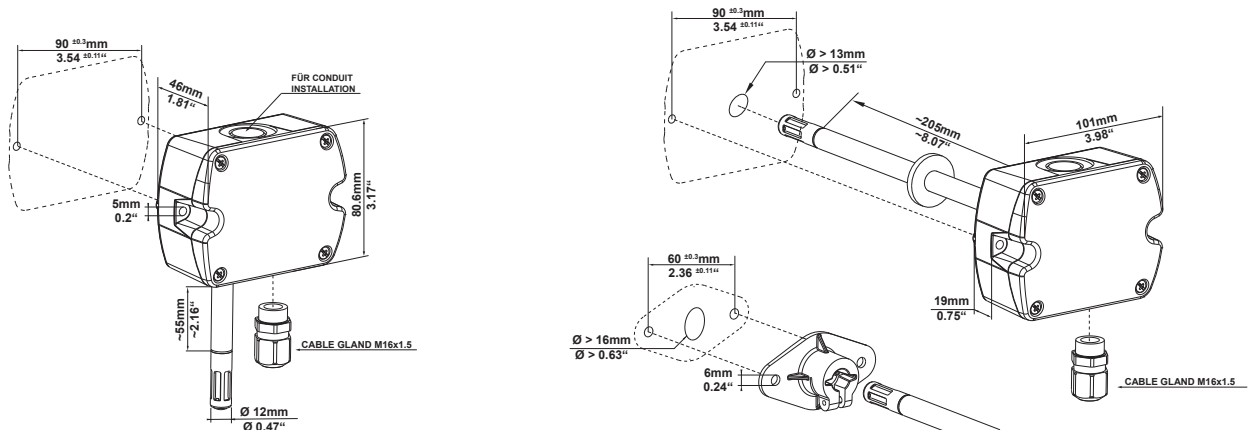
Power supply for 0-5 V / 0-10 V for 4-20 mA	15 - 35V DC <sup>2)</sup> or 24V AC ±20% 10V + R <sub>L</sub> x 20 mA < V+ < 30V DC
Current consumption (voltage output)	with DC power supply typ. 5mA with AC power supply typ. 13mA <sub>eff</sub>
Connection	Screw terminals, max. 1.5 mm <sup>2</sup>
Housing material	Polycarbonate, UL94V-0 approved
Protection class	IP65
Cable gland	M16 x 1.5
Sensor protection	E+E Coating
Electromagnetic compatibility	EN61326-1 EN61326-2-3
Temperature ranges	Operating temperature: -40...60°C (-40...140°F) Storage temperature: -40...60°C (-40...140°F)



<sup>1)</sup> Output scaling see Ordering Guide

<sup>2)</sup> USA & Canada: class 2 supply required, max. supply voltage 30V

### Dimensions (mm)

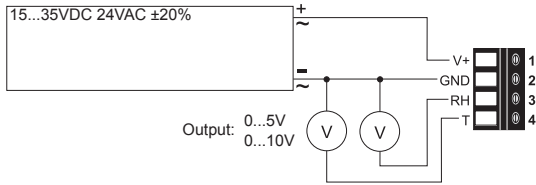


Typ A

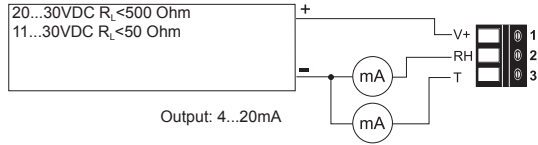
Typ B

## Connection diagram

### EE210-HT3



### EE210-HT6



## Ordering Guide

MODEL	ANALOG	DIGITAL	HOUSING	TYPE	DISPLAY <sup>1)</sup>	FILTER
humidity + temperature (HT)	0-5V (2) 0-10V (3) 4-20mA (6)	none (x)	polycarbonate (P)	wall mount (A) duct mount (B)	display <sup>4)</sup> (D) none (x)	membrane filter (B) stainless steel sintered filter (D)
<b>EE210-</b>						

OUTPUT 1	SCALING 1 <sup>3)</sup>	OUTPUT 2	SCALING 2 <sup>3)</sup>	UNIT
relative humidity <sup>2)</sup> (Uw)	-40...60 (002)	relative humidity <sup>2)</sup> (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 <sup>2)</sup> (Ex)	32...122 (076)	water vapour partial pressure <sup>2)</sup> (Ex)	32...122 (076)	
mixing ratio <sup>2)</sup> (Rx)	-40...140 (083)	mixing ratio <sup>2)</sup> (Rx)	-40...140 (083)	
absolute humidity <sup>2)</sup> (DV)		absolute humidity <sup>2)</sup> (DV)		
specific enthalpy <sup>2)</sup> (Hx)		specific enthalpy <sup>2)</sup> (Hx)		

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

2) Factory Scaling

relative humidity	0...100% RH	
water vapour partial pressure	0...200mbar	0...3psi
mixing ratio	0...425g/kg	0...2900gr/lb
absolute humidity	0...150g/m <sup>3</sup>	0...60gr/ft <sup>3</sup>
specific enthalpy	0...400kJ/kg	0...200BTU/lb

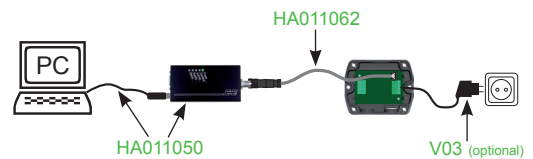
3) For Tx, TD und TF;  
other scaling upon request

4) Available from June 2014

## Accessories

**Configurations kit** for adjustment of humidity and temperature, for selecting physical quantities and for setting the output scaling, consisting of (for details see data sheet at [www.epluse.com/configurations-kit](http://www.epluse.com/configurations-kit)):

- configuration adapter (incl. USB cable for PC) HA011050
- cable for configuration adapter HA011062
- power supply for EE210 V03 (optional)
- configuration software: free of charge; download: [www.epluse.com/EE210](http://www.epluse.com/EE210)



## Order example

### EE210-HT6xPAxB-UwTx005M

Model: Humidity+Temperature Transmitter  
 Analog output: 4-20mA  
 Housing: polycarbonate  
 Type: wall mount  
 Display: none  
 Filter: membrane filter

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

