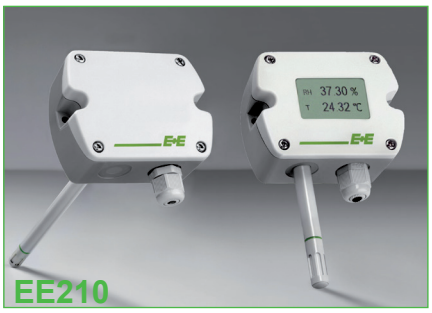
EE210

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 ½" conduit fittin

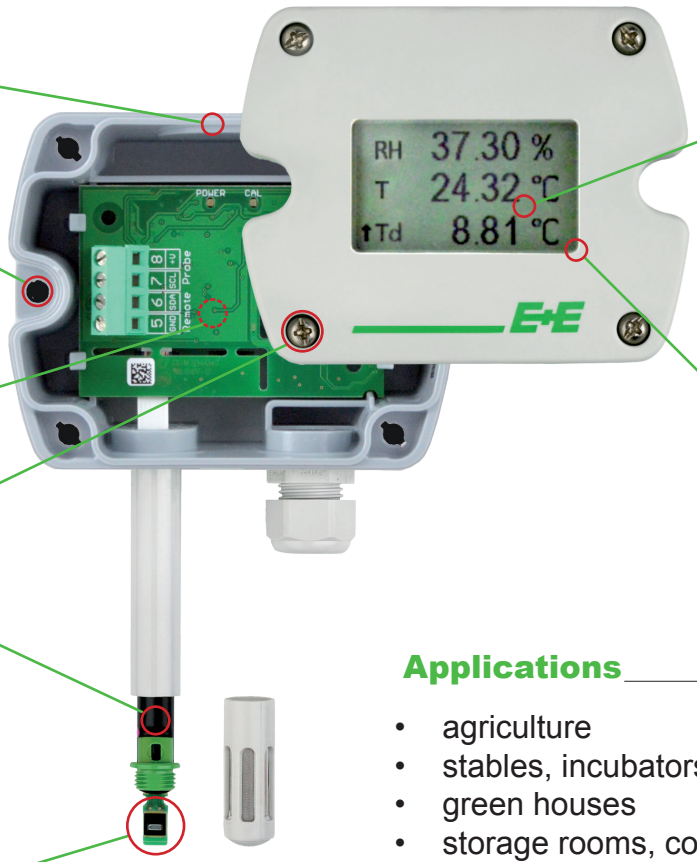
External mounting holes
» Mounting with closed cover
» Electronics protected against construction site pollution
» Easy and fast mounting

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



Display
» Selectable display layout
» Measurands freely selectable

Smooth cover surface
» No accumulation of dust in protruding edges

Applications

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

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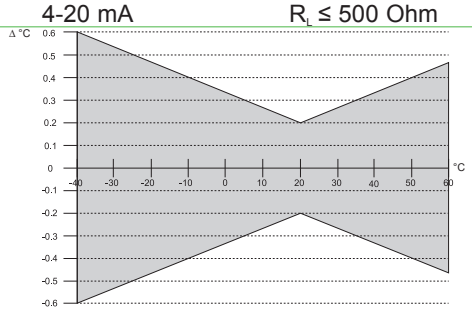
Technical data

Measured values

Relative Humidity

Sensor	E+E Sensor HCT01-00D	
Analog output 0...100% RH	0-5 V	-1 mA < I_L < 1 mA
	0-10 V	-1 mA < I_L < 1 mA
	4-20 mA (two-wire)	R_L ≤ 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

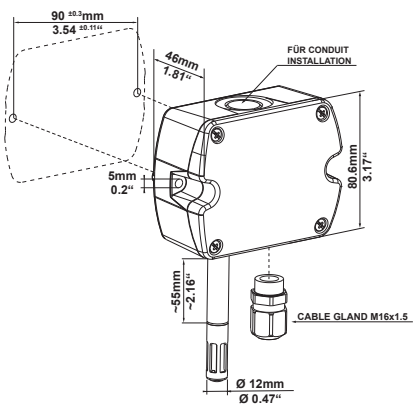
Sensor	Pt1000 (tolerance class B, DIN EN 60751) integrated in HCT01	
Analog output[1)]	0-5 V	-1 mA < I_L < 1 mA
	0-10 V	-1 mA < I_L < 1 mA
	4-20 mA	R_L ≤ 500 Ohm
T-Accuracy		

General

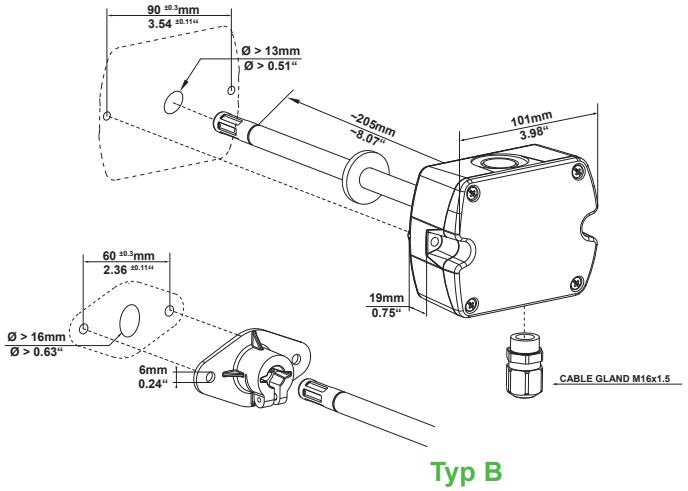
Power supply		
for 0-5 V / 0-10 V	15 - 35V DC[2)] or 24V AC ±20%	
for 4-20 mA	10V + R_L x 20 mA < V+ < 30V DC	
Current consumption (voltage output)	with DC power supply typ. 5mA	
	with AC power supply typ. 13mA_{eff}	
Connection	Screw terminals, max. 1.5 mm^2	
Housing material	Polycarbonate, UL94V-0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

[1)] Output scaling see Ordering Guide
[2)] USA & Canada: class 2 supply required, max. supply voltage 30V

Dimensions (mm)



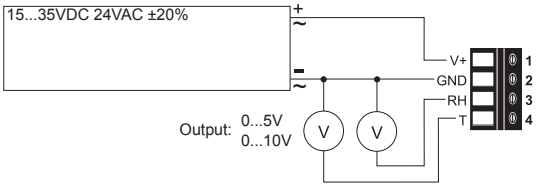
Typ A



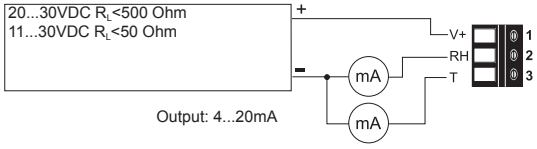
Typ B

Connection diagram

EE210-HT3



EE210-HT6



Ordering Guide

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humidity + temperature (HT)	0-5V (2)	none (x)	polycarbonate (P)	wall mount (A)	display[4] (D)	membrane filter (B)
	0-10V (3)			duct mount (B)	none (x)	stainless steel sintered filter (D)
	4-20mA (6)					
EE210-						

o UTPUT 1	SCAI ING 1[3]	o UTPUT 2	SCAI ING 2[3]	UNIT
relative humidity[2] (Uw)	-40...60 (002)	relative humidity[2] (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[2] (Ex)	32...122 (076)	water vapour partial pressure[2] (Ex)	32...122 (076)	
mixing ratio[2] (Rx)	-40...140 (083)	mixing ratio[2] (Rx)	-40...140 (083)	
absolute humidity[2] (DV)		absolute humidity[2] (DV)		
specific enthalpy[2] (Hx)		specific enthalpy[2] (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/m³	0...60gr/ft³
specific enthalpy	0...400kJ/kg	0...200BTU/lb

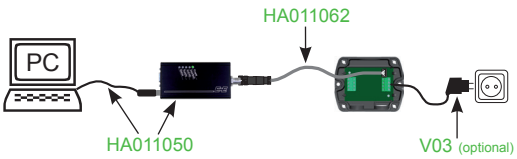
3) For Tx, TD und TF; other scaling upon request

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):

- 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



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

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