EE210 Outdoor

Humidity and Temperature Transmitter for Outdoor and Meteorological Applications

The EE210 Outdoor transmitter meets the highest requirements in demanding outdoor applications. It measures accurately the relative humidity and temperature, and calculates other parameters such as dew point, frost point or specific enthalpy.

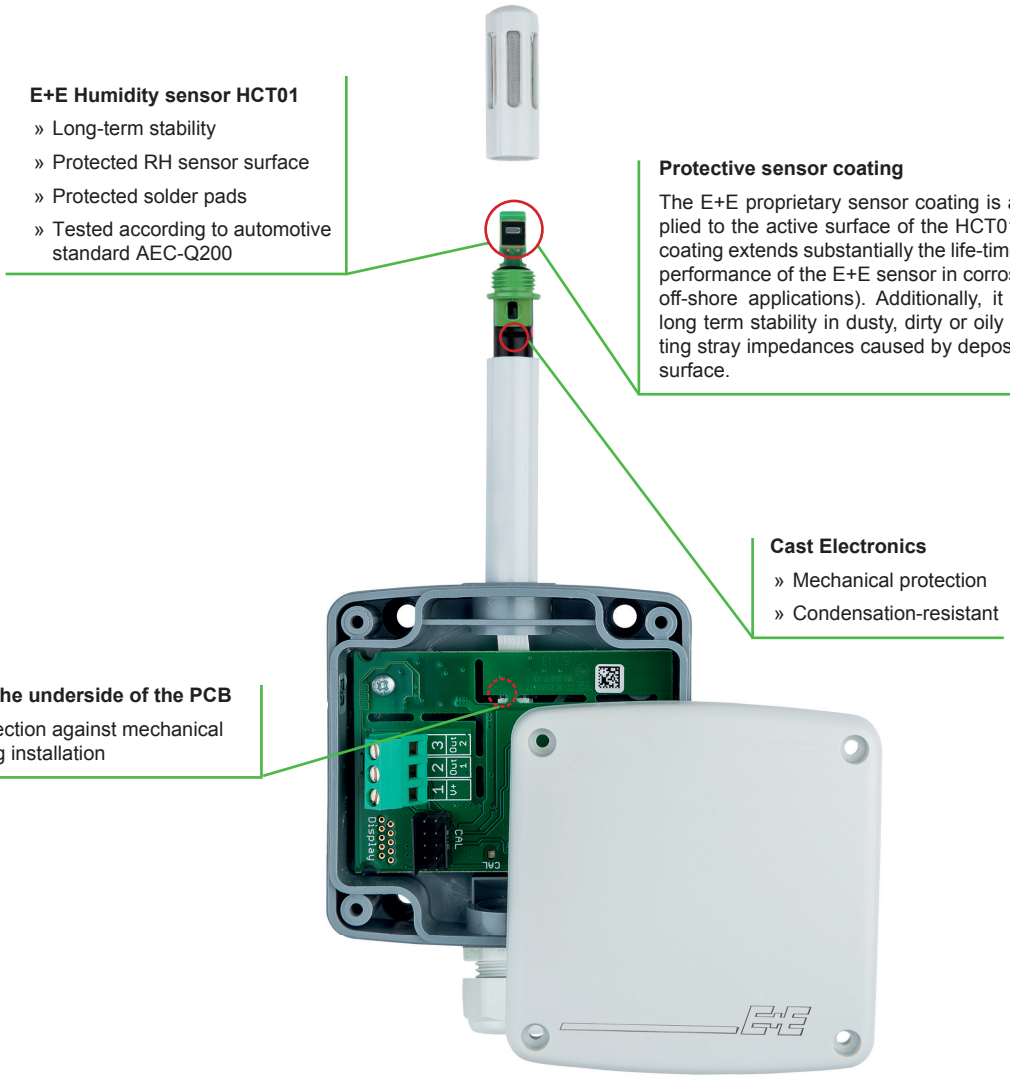
Excellent performance of EE210 Outdoor in polluted environment is ensured by the combination of completely encapsulated measurement electronics inside the sensing probe and long-term stable HCT01 sensor with the E+E proprietary protective coating.

Two of the measured and calculated values are available on the analogue voltage or current outputs. With an optional configuration kit the user can set the output scaling and perform one or two point adjustment for humidity and temperature.

The HA010501 radiation shield can be mounted onto a wall or a mast. It protects the sensing probe from solar radiation and precipitations while providing natural ventilation for short response time.

EE210 Outdoor with radiation shield

Features



E+E Humidity sensor HCT01

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

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.

Cast Electronics

- » Mechanical protection
- » Condensation-resistant

Electronics on the underside of the PCB

- » Optimum protection against mechanical damage during installation

Technical Data

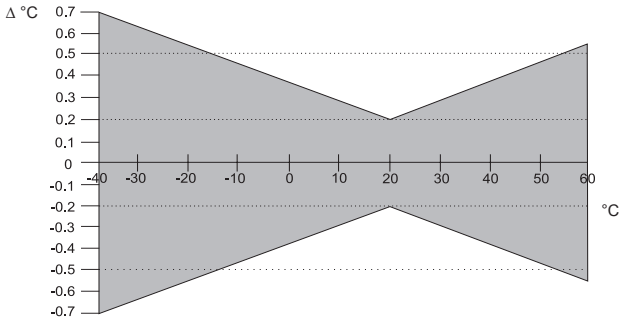
Measured Values

Relative Humidity

Sensor		E+E Sensor HCT01-00D
Working range		0...100% RH
RH accuracy [1]		
-15...40°C (5...104°F)	≤ 90% RH	± (1.6 + 0.005*measured value) % RH
-15...40°C (5...104°F)	≥ 90% RH	± 3 % RH
-40...60°C (0...140°F)		± (2.3 + 0.008*measured value) % RH
Temperature dependence electronics		0.06% RH/°C

Temperature

Sensor	Pt1000 (tolerance class B, DIN EN 60751) integrated in HCT01
T-accuracy [1]	



Outputs

Analog output	0-10 V	-1 mA < I_L < 1 mA
(RH: 0...100%; T: see ordering guide)	4-20 mA (two-wire)	250 ≤ R_L ≤ 500 Ohm

General

Power supply	
for 0-10 V	15 - 35V DC[2] or 24V AC ±20%
for 4-20 mA	24V DC ±10%
Current consumption	
Voltage output	DC supply typ. 3.3mA AC supply typ. 34mA
Current output	DC supply max. 40mA
Connection	Screw terminals, max. 1.5 mm²
Housing material	Polycarbonate
Protection class	IP65
Cable gland	M16 x 1.5
Sensor protection	E+E Coating
Electromagnetic compatibility	EN61326-1 EN61326-2-3 Industrial Environment FCC Part 15 Class B ICES-003 Issue 5 Class B
Temperature ranges	Operating temperature: -40...60°C (-40...140°F) Storage temperature: -40...60°C (-40...140°F)

CE

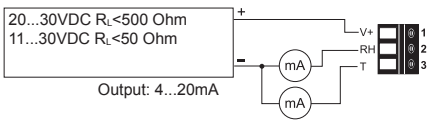
Radiation Shield

Material	Polystyrene

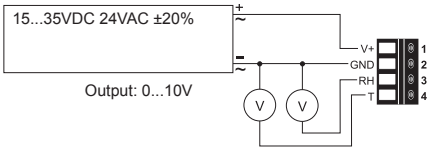
1) At 24V and 250 Ohm incl. hysteresis, non-linearity and repeatability
2) USA & Canada: class 2 supply required, max. supply voltage 30V

Connection Diagram

EE210-HT6x

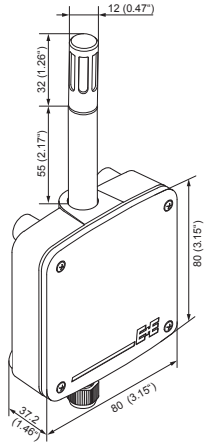


EE210-HT3x

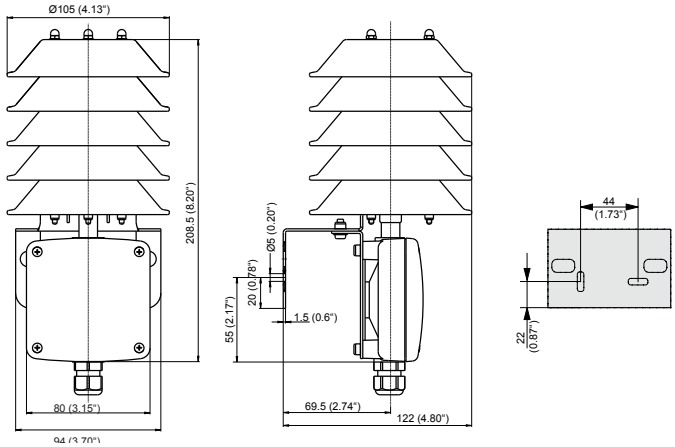


Dimensions (mm/inch)

EE210 Outdoor



Radiation shield HA010501 (ordered separately)



Ordering Guide

MODEL		ANALOGUE[1]		TYPE		FILTER	
humidity + temperature	(HT)	0-10V	(3x)	Outdoor	(Q)	metal grid	(C)
		4-20mA	(6x)				
EE210-							

Analogue outputs setup

OUTPUT 1		SCALING 1[2]		OUTPUT 2		SCALING 2[2]		UNIT	
relative humidity[1]	(Uw)	-40...60	(002)	relative humidity[1]	(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)	32...122	(076)	frost point temperature	(TF)	32...122	(076)		
specific enthalpy[1]	(Hx)	-40...140	(083)	specific enthalpy[1]	(Hx)	-40...140	(083)		
water vapour partial pressure[1]	(Ex)			water vapour partial pressure[1]	(Ex)				
mixing ratio[1]	(Rx)			mixing ratio[1]	(Rx)				
absolute humidity[1]	(DV)			absolute humidity[1]	(DV)				

1) 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

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

Order Examples

Position 1:

EE210-HT6xQC/UwTx002M

Model:	Humidity+Temperature Basic Device
Analog output:	4-20mA
Housing:	Outdoor
Filter:	metal grid
Output scaling 1:	relative humidity
Scaling 1:	0...100% RH
Output scaling 2:	temperature
Scaling 2:	-40...60°C
Unit:	metric

Position 2:

HA010501

Radiation shield for EE210 Outdoor

Scope of Supply

- EE210 Transmitter according ordering guide
- Cable gland
- Mounting screws
- Inspection certificate according to DIN EN10204 - 3.1

Accessories

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