

USER'S GUIDE

EE210 Outdoor - Humidity and Temperature Sensor for Outdoor and Meteorological Applications

GENERAL

The EE210 Outdoor sensor is designed for measurements in demanding outdoor applications and is equipped with the HCT01 humidity and temperature sensor from E+E Elektronik.

For use in special applications do not hesitate to contact E+E Elektronik or a local distributor.

CAUTION

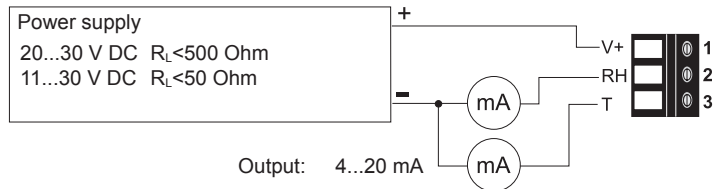
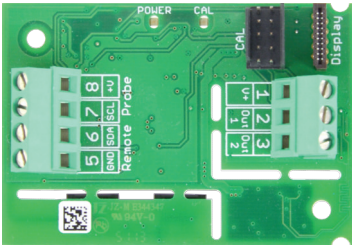
- For precise measurements in outdoor applications, the EE210 Outdoor must be mounted in a radiation shield (HA010501).
- The sensor and mainly the sensing head shall not be exposed to extreme mechanical stress.
- The sensor must be operated with the filter cap on at all times. Do not touch the sensors inside the sensing head.
- While replacing the filter cap (because of pollution for instance) against an original E+E spare one please take very good care to not touch the sensors.

SCOPE OF SUPPLY

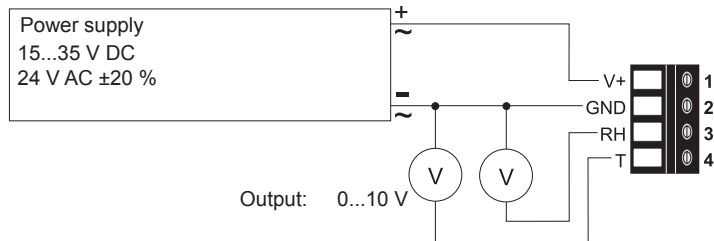
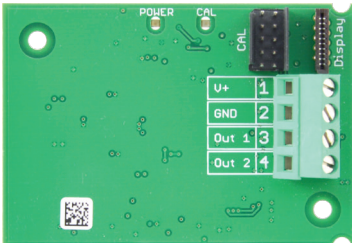
- EE210 Outdoor sensor according ordering guide
- Cable gland
- Mounting screws
- Inspection certificate according to DIN EN 10204 - 3.1

CONNECTION DIAGRAM

EE210-HT6



EE210-HT3



LED INDICATION

Green LED

Information during normal operation

- on = everything OK
- flashing = the main board does not recognize the measurement electronics inside the RH probe
- off = no power supply or main board failure

Blue LED

Information during setup with the optional USB configuration adapter HA011066 and the EE-PCS Product Configuration Software

- on = USB stick connected to PC, no communication with EE-PCS
- flashing = communication in progress with EE-PCS
- off = USB stick not connected to PC

TECHNICAL DATA

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Measured Values

Relative Humidity

Working range 0...100 % RH

RH accuracy ¹⁾²⁾

-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

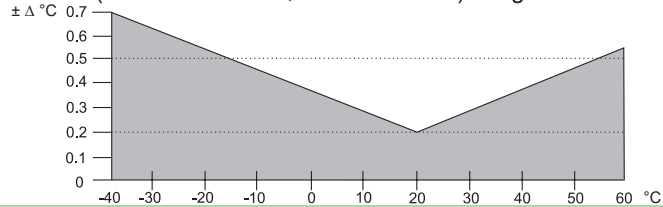
-40...60 °C (0...140 °F) ± (2.3 + 0.008*measured value) % RH

Temperature dependence electronics 0.06 % RH/°C

Temperature

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

T-accuracy ¹⁾



Outputs

Analogue 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 - 35 V DC³⁾ or 24 V AC ±20 %
 for 4-20 mA 24 V DC ±10 %

Current consumption Voltage output DC supply typ. 3.3 mA
 AC supply typ. 34 mA

Current output DC supply max. 40 mA

Electrical connection Screw terminals, max. 1.5 mm²

Housing material Polycarbonate

Protection class IP65

Cable gland M16 x 1.5

Electromagnetic compatibility EN61326-1 EN61326-2-3 Industrial Environment
 FCC Part 15 Class B ICES-003 Issue 5 Class B



Temperature ranges Working: -40...60 °C (-40...140 °F)
 Storage: -40...60 °C (-40...140 °F)

Radiation Shield

Material Polystyrene

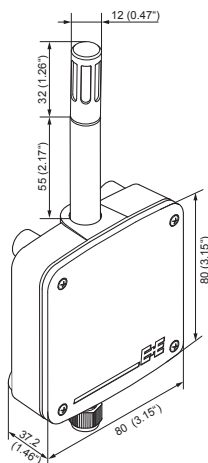
1) At 24 V and 250 Ohm incl. hysteresis, non-linearity and repeatability

2) Traceable to intern. standards, administrated by NIST, PTB, BEV,... The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

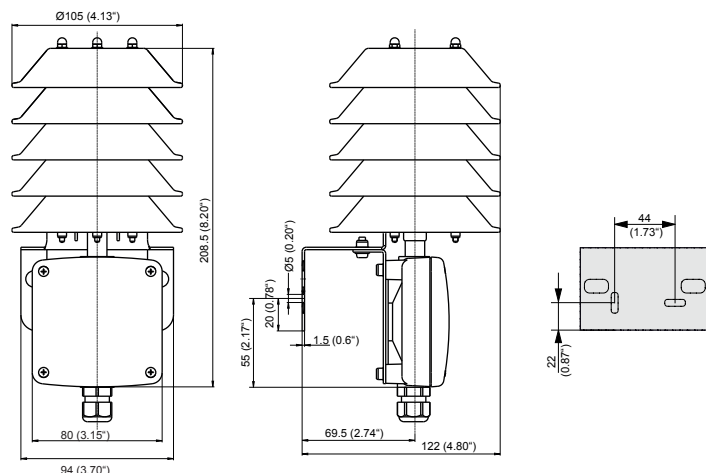
3) USA & Canada: class 2 supply required, max. supply voltage 30 V

DIMENSIONS MM / INCH

EE210 Outdoor



Radiation shield HA010501 (ordered separately)

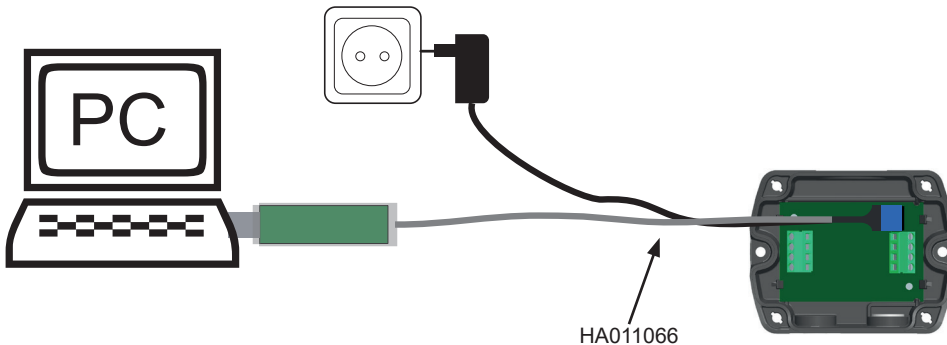


SETUP AND ADJUSTMENT

The EE210 Outdoor is ready to use and does not require any configuration by the user. The factory setup of EE210 Outdoor corresponds to the type number ordered. For ordering guide please see data sheet at www.epluse.com/EE210-outdoor. If needed, the user can change the factory setup by using the USB configuration adapter (cod HA011066) and the EE-PCS, Product Configuration Software.

The user can change the scaling and the analogue output signal, the digital settings and perform RH and T adjustment.

Note: The EE210 Outdoor may not be connected to any additional power supply when using the USB configuration adapter HA011066.



EE-PCS PRODUCT CONFIGURATION SOFTWARE

1. Download the EE-PCS Product Configuration Software from www.epluse.com/configurator and install it on the PC.
2. Connect the E+E device to the PC using the USB configuration adapter.
3. Start the EE-PCS software.
4. Follow the instructions on the EE-PCS opening page for scanning the ports and identifying the connected device
5. Click on the desired setup or adjustment mode from the main EE-PCS menu on the left and follow the online instructions of the EE-PCS

MAINTENANCE

Humidity calibration and adjustment:

Depending on the application and the requirements of certain industries, there might arise the need for periodical humidity calibration (comparison with a reference) or adjustment (bringing the device in line with a reference).

- Calibration and adjustment at E+E Elektronik
Calibration and/or adjustment can be performed in the E+E Elektronik calibration laboratory. For information on the E+E capabilities in ISO or accredited calibration please see www.eplusecal.com.
- Calibration and adjustment by the user
Depending on the level of accuracy required, the humidity reference can be:
 - Humor 20 Humidity Calibrator, please see www.epluse.com.
 - Omniport30 handheld device, please see www.epluse.com/omniport30.
 - Calibrated salt solutions, please see www.epluse.com/EE210-outdoor.

Temperature calibration and adjustment:

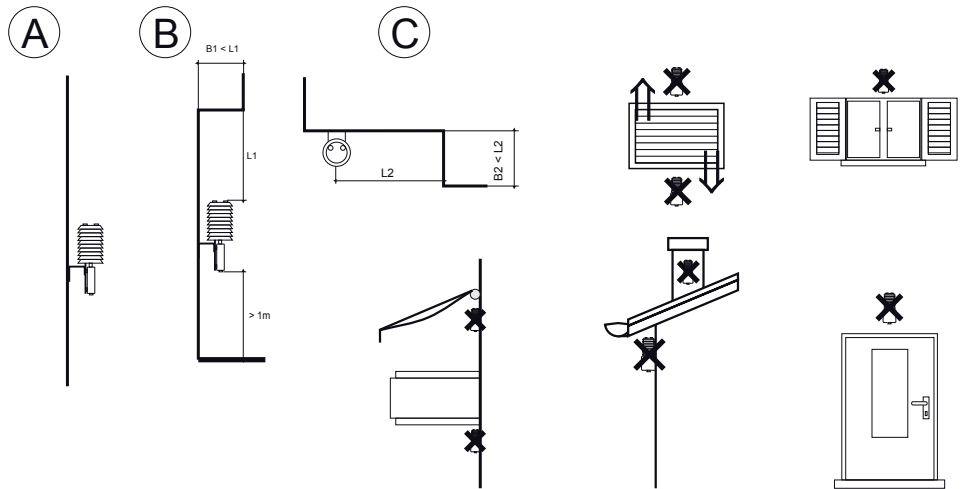
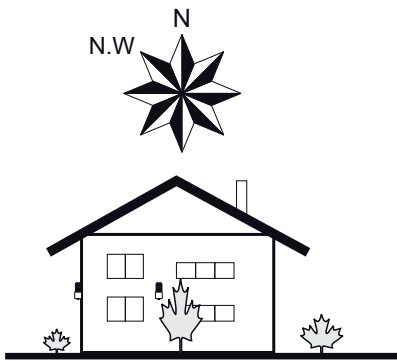
Due to the outstanding protection of the Pt1000 temperature sensing element integrated in the E+E HCT01 sensor, a drift of the T measurement is rather unlikely. If adjustment seems necessary, although the user can perform a one or two point T adjustment with USB configuration adapter and EE-PCS against a reference of his choice, it is highly recommended to return the device to the manufacturer for this. The reasons rest on the difficulty of an accurate T calibration in the air. The calibration shall take into account the self-heating of EE210 Outdoor with closed enclosure, in its real mounting position and in continuous operation, the impact of the output current and of the probe orientation to the self-heating, as well as the cooling effect of the air circulation in a climate chamber possibly used for calibration.

When employed in dusty, polluted environment:

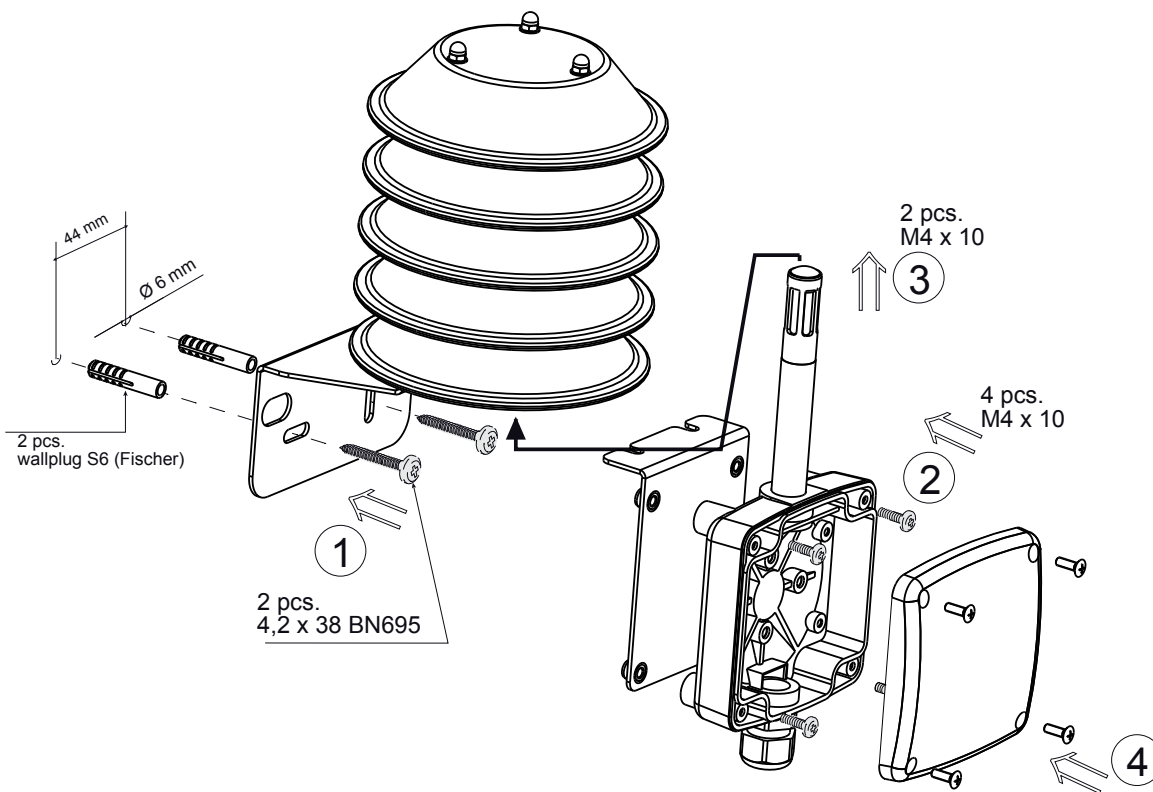
- The filter cap shall be replaced once in a while with an E+E original one. A polluted filter cap causes longer response time of the device.
- If needed, the sensing head can be cleaned. For cleaning instructions please see www.epluse.com/EE210-outdoor.

RADIATION SHIELD (optional)

Mounting position



Mounting instruction



INFORMATIONEN

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