

EE850 CO₂ Humidity and Temperature Transmitter for Duct Mounting

The EE850 combines CO₂, relative humidity (RH) and temperature (T) in an innovative enclosure and it is ideal for demand controlled ventilation and building automation. Due to the CO₂ measuring range up to 10000 ppm and T working range -20...+60 °C (-4...+140 °F), the EE850 can be employed also in demanding climate and process control.

The EE850 incorporates the E+E dual wavelength NDIR CO₂ sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability. The RH sensing element is protected against dust, dirt and corrosion by the E+E proprietary coating.

A multiple point CO₂ and T factory adjustment procedure leads to excellent CO₂ measurement accuracy over the entire T working range.

Installed into a duct, a small amount of air flows through the divided probe to the CO₂ sensing cell located inside the transmitter enclosure and back into the duct. The RH and T sensing elements are placed inside the probe.

The CO₂, RH and T measured data as well as the calculated dew point temperature (Td) are available on various analogue outputs. Additionally, the EE850 features an optional passive T output. An optional adapter and the free EE-PCS configuration software facilitate easy configuration and adjustment of the EE850.



EE850

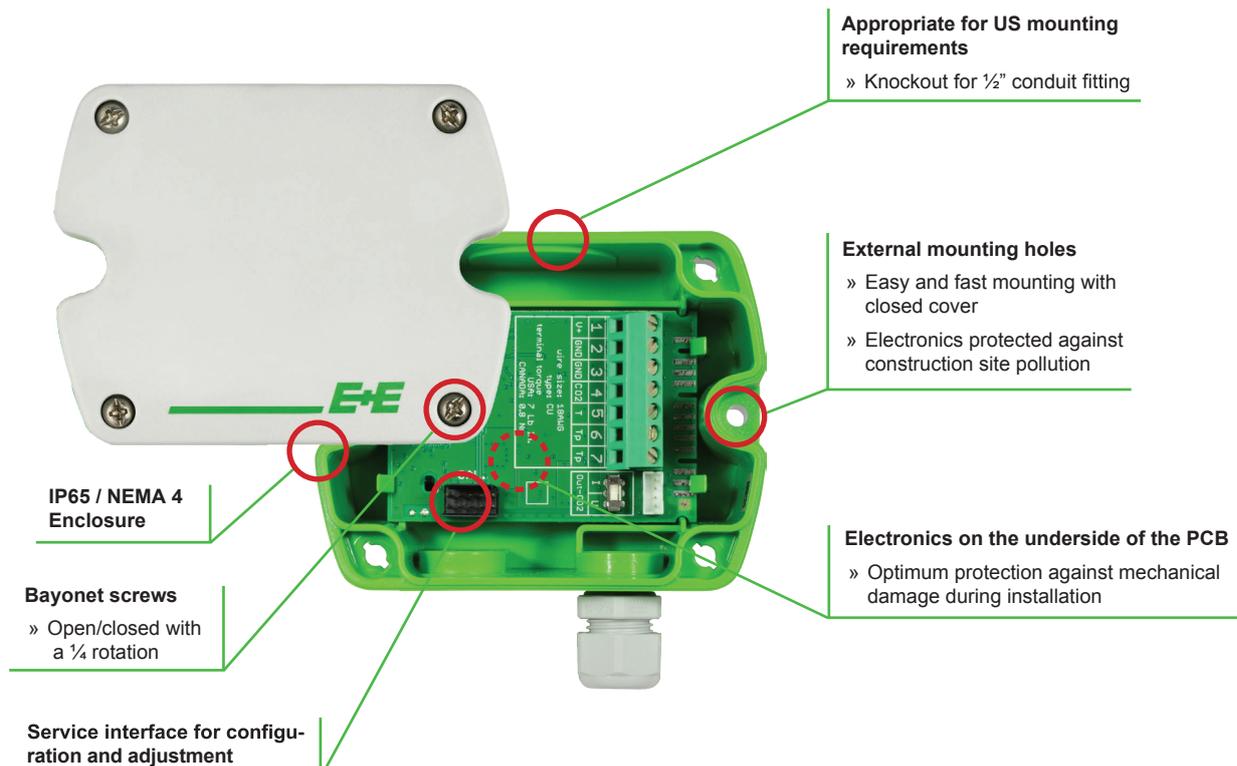
Typical Applications

Building automation
Demand controlled ventilation
Climate and process control

Key Features

CO₂ autocalibration for outstanding long-term stability
Temperature compensation
Excellent resistance to pollution

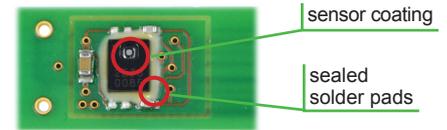
Features



Protective Sensor Coating

The E+E proprietary sensor coating is a hygroscopic layer applied to the active surface of the RH sensing element. The coating extends substantially the life-time and the measurement performance of the E+E sensor in corrosive environment.

Additionally, it improves the sensor's long term stability in dusty and dirty applications by preventing stray impedances caused by deposits on the active sensor surface.



EEH210 RH and T digital sensor, located inside the sensing probe.

Technical Data

Measuring Values

CO₂

Measurement principle dual wavelength non-dispersive infrared technology (NDIR)

Measuring range 0...2000 / 5000 / 10000 ppm

Accuracy at 25 °C (77 °F) 0...2000 ppm: < ± (50 ppm +2% of measured value)

and 1013 mbar (14.7 psi) 0...5000 ppm: < ± (50 ppm +3% of measured value)

0...10000 ppm: < ± (100 ppm +5% of measured value)

Response time T_{63} < 100 seconds at 3 m/s (590 ft/min) air speed in the duct

Temperature dependency typ. ± (1 + CO₂ concentration [ppm] / 1000) ppm/°C

-20...45 °C (-4...113 °F)

Calibration interval ¹⁾ > 5 years

Measuring interval approx. 15 seconds

Temperature

Working range -20...+60 °C (-4...+140 °F); see ordering guide for scaling

Accuracy at 20 °C (68 °F) ±0.3 °C (±0.54 °F)

Response time T_{63} < 50 seconds

Relative Humidity

Working range 0...95 % RH

Accuracy at 20 °C ± 3 % RH (20...80 % RH)

Response time T_{63} < 10 seconds

Outputs

Analogue Output

CO₂: 0...2000 / 5000 / 10000 ppm 0 - 5 V / 0 - 10 V -1 mA < I_L < 1 mA
4 - 20 mA R_L < 500 Ohm

T scale: according ordering guide 0 - 5 V / 0 - 10 V -1 mA < I_L < 1 mA

RH scale: 0-100 % RH

Passive T Output

2-wire T sensor type according ordering guide

Wire resistance (terminal - sensor) typ. 0.4 Ohm

General

Power supply (Class III)  24 V AC/DC ± 20 % 15 - 35 V DC

Current consumption average typ. 15 mA + output current
peak max. 350 mA for 0.3 seconds

Minimum air speed in the duct 1 m/s (196 ft/min)

Enclosure material polycarbonate, UL94V-0 approved

Protection class enclosure: IP65 / NEMA 4

probe: IP20

Cable gland M16 x 1.5

Electrical connection screw terminals max. 2.5 mm² (AWG 14)

Electromagnetic compatibility EN61326-1 EN61326-2-3 Industrial Environment
FCC Part 15 ICES-003 ClassB

Working and storage conditions -20...+60 °C (-4...+140 °F) 0...95 % RH (non-condensing)

1) under normal operating conditions



Ordering Guide

Model	CO ₂ CO ₂ + T CO ₂ + T + RH	EE850-		
		M10	M11	M12
CO ₂ range	0...2000 ppm 0...5000 ppm 0...10000 ppm	no code HR5000 HR1	no code HR5000 HR1	no code HR5000 HR1
Output	0-5 V 0-10 V 4-20 mA (only for M10)	A2 A3 A6	A2 A3	A2 A3
T sensor passive ¹⁾	Pt1000A NTC10k Ni1000, TK6180		TP3 TP5 TP9	
Probe length	50 mm (only for M10) 200 mm	L50 no code	no code	no code
Temperature	T [°C] T [°F]		no code MB2	no code MB2
Scale T low	0 value ²⁾		no code SBL value	no code SBL value
Scale T high	50 value ²⁾		no code SBH value	no code SBH value
Relative humidity / dew point	RH [%] Td [°C] Td [°F]			no code MC52 MC53
Scale RH/Td low	0 value ²⁾			no code SCL value
Scale RH/Td high	100 value ²⁾			no code SCH value

1) T-Sensor details see www.epluse.com/R-T_Characteristics.

2) the range Within -40...100 °C (-40...212 °F), span between the high and the low value ≥ 20 °C (36 °F)

Ordering Examples

EE850-M12HR5000A3MB2SBL32SBH140

Model: CO₂ + T + RH
CO₂ range: 0...5000 ppm
Output: 0-10 V
Probe length: 200 mm
Temperature: T °F
Scale T low: 32 °F
Scale T high: 140 °F
RH/Td: RH
Scale RH/Td low: 0 %
Scale RH/T high: 100 %

EE850-M10A6L50

Model: CO₂
CO₂ range: 0...2000 ppm
Output: 4-20 mA
Probe length: 50 mm