

USER'S GUIDE

EE850 – CO₂ and Temperature Transmitter for Duct Mounting

GENERAL

The EE850 transmitters are designed for the measurement of carbon dioxide (CO₂) and temperature (T) in HVAC applications. It 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.

EE850 is available with CO₂ output only (0-10V or 4-20mA), with CO₂ and T active outputs (0 – 10V) or with CO₂ and T active outputs (0-10V) and an additional passive T output.

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

CAUTION

- The transmitter shall not be exposed to extreme mechanical or thermal stress.

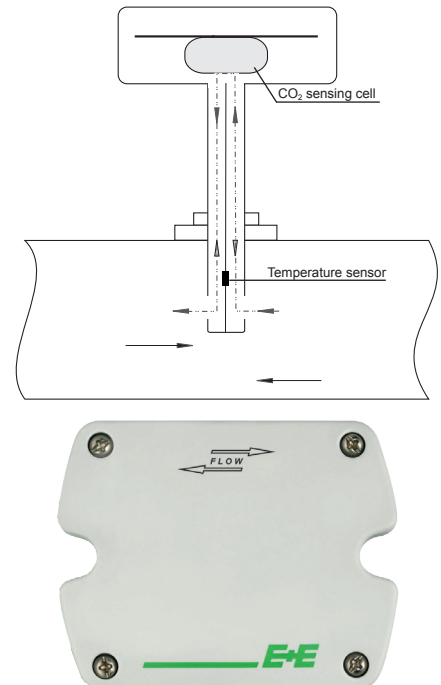
OPERATION PRINCIPLE

Installed into a duct, a small amount of air will flow through the divided probe into the EE850 transmitter housing, where the CO₂ sensing cell is located, and back into the duct. The temperature sensor is located inside the probe.

Very important

For accurate measurement the cover of EE850 as well as the cable outlet – cable gland or conduit adapter - must be tightly closed. This is essential for avoiding ingress of air other than from the duct into the EE850 enclosure, which would falsify the measurement.

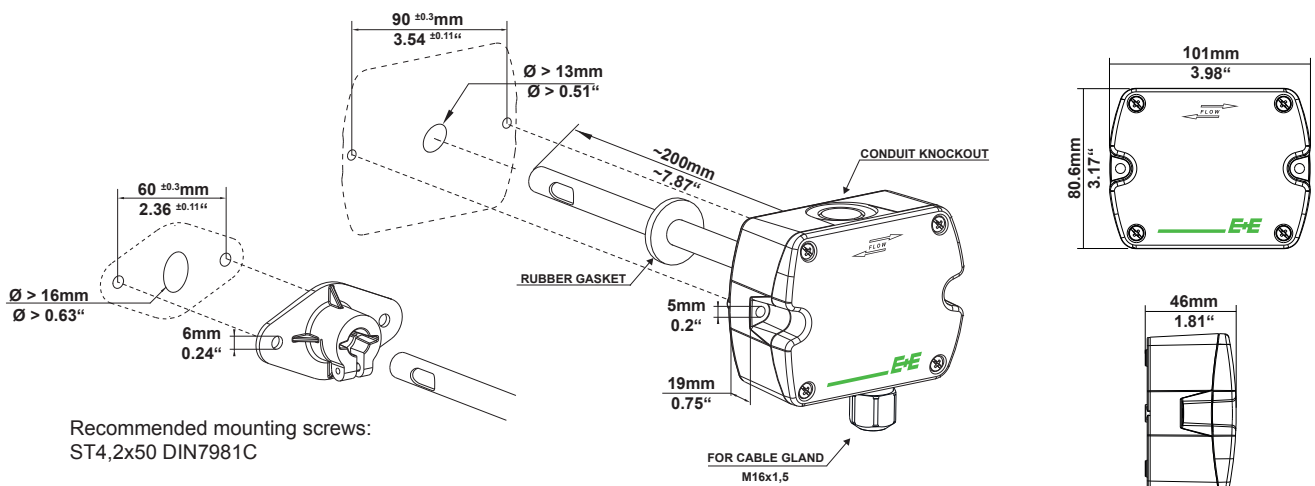
The direction of the air flow in the duct shall correspond to the direction indicated with arrows on the cover of EE850.



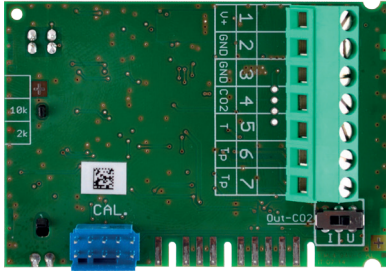
INSTALLATION

EE850 with cable gland: Use a matching wrench to install the cable gland (in the scope of supply) onto the EE850 enclosure. While doing this the blind will knock open. Do not use other, pointed, tools to knock open the blind in order to avoid damaging the electronics inside the enclosure.

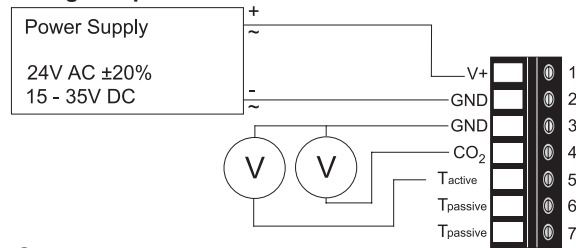
EE850 with conduit connection for the North American market: use a flat screwdriver to knock open the blind, carefully, in order to avoid damaging the electronics inside the enclosure. The conduit adapter is not included in the scope of supply.



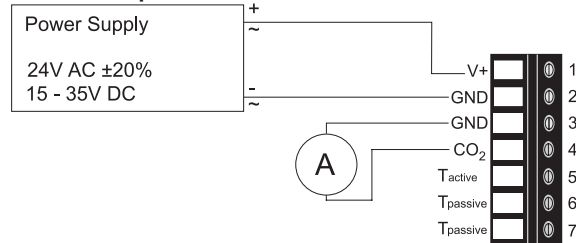
CONNECTION DIAGRAM



Voltage output



Current output



TECHNICAL DATA

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Measuring Values

CO₂

Measurement principle	dual wavelength non-dispersive infrared technology (NDIR)
Measuring range	0...2000 / 5000 / 10000ppm
Accuracy at 25°C (77°F) and 1013mbar (14.7psi)	0...2000ppm: < ± (50ppm +2% of measured value) 0...5000ppm: < ± (50ppm +3% of measured value) 0...10000ppm: < ± (100ppm +5% of measured value)
Response time τ_{63}	< 100s at 3m/s (590ft/min) air speed in the duct
Temperature dependency	typ. 1ppm CO ₂ /°C (-20...45°C) (-4...113°F)
Sample rate	approx. 15s

Temperature

Working range	0...50°C (32...122°F)
Accuracy at 20°C (68°F)	±0.3°C (±0.54°F)
Response time τ_{63}	< 50s

Outputs

Analogue Output

CO ₂ : 0...2000 / 5000 / 10000ppm	{ 0 - 5 / 0 - 10V -1mA < I _L < 1mA
T: according ordering guide	{ 4 - 20mA R _L < 500 Ohm

Passive T-Output

2-wire connection, sensor type according ordering guide

General

Supply voltage	24V AC ±20% 15 - 35V DC
Current consumption	typ. 15mA + output current max. 0.5A for 0.3s
Warm up time ¹⁾	< 5 min (for CO ₂ only)
Min. flow speed	1m/s (196ft/min) recommended
Housing material	Polycarbonate, UL94V-0 approved
Protection class	Enclosure: IP65, probe: IP20
Cable gland	M16 x 1.5
Electrical connection	screw terminals max. 2.5 mm ² (AWG 14)
Electromagnetic compatibility	EN61326-1EN61326-2-3 Industrial Environment FCC Part 15ICES-003 ClassB
Working conditions	0...50°C (32...122°F) 0...95% RH (non-condensing)
Storage conditions	-20...60°C (-4...140°F) 0...95% RH (non-condensing)

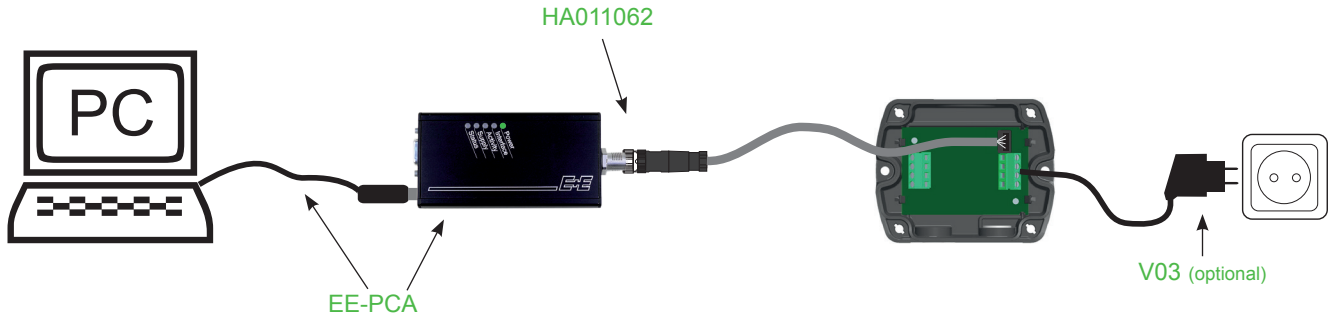
1) for performance according to specification



SETUP AND ADJUSTMENT

The EE850 transmitter is ready to use and does not require any configuration by the user. The factory setup of EE850 corresponds to the type number ordered. For ordering guide please see data sheet at www.epluse.com/EE850

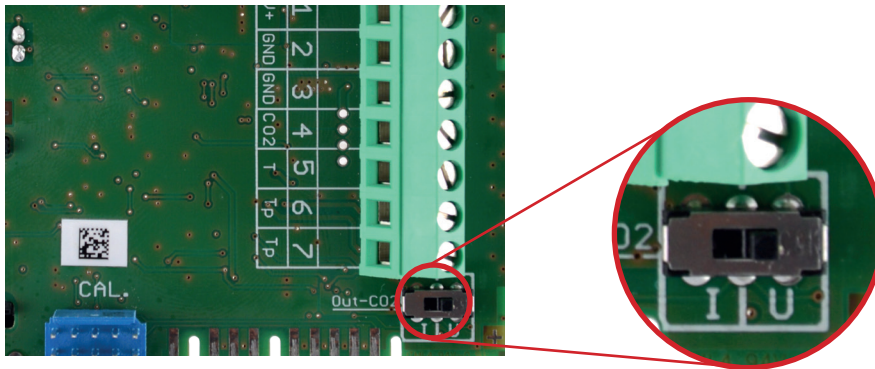
If needed, the user can change the factory setup by using the optional Product Configuration Adapter EE-PCA and the Product Configuration Software EE-PCS. One can change the CO₂ output signal, the scaling of the outputs and perform CO₂ and T adjustment/calibration.



Changing the CO₂ output signal:

The output signal can be changed from voltage to current or vice-versa. (The T output can only be voltage)

Set the output signal selection switch to I for current 4 - 20mA output or to U for voltage 0 - 10V output. The original CO₂ output range does not change and the calibration data remains valid.



Example:

Factory setup: voltage output (U), output scale: 0 - 10V = 0 - 5000ppm

User setup (after setting the output signal selection switch to I): current output (I), output scale: 4 - 20mA = 0 - 5000ppm.

Changing the CO₂ and T output scale:

The scaling of the output can be changed by using EE-PCA and EE-PCS.

Example:

The initial scaling of the outputs is:

CO₂: 0 - 10V = 0 - 5000 ppm

T: 0 - 10V = 0 - 50 °C

The output scale after the change is:

CO₂: 0 - 10V = 400 - 4000 ppm

T: 0 - 10V = 40 - 100 °F

Important:

- After changing the factory setup (output signal and/or output scale) the original type number on the EE820 identification label loses its validity; it does not match any longer the device setup.
- The return to factory setup function of EE-PCS restores the original adjustment/calibration of the device, but does not affect the user setup for output signal and output scale.

For EE-PCA product data sheet please see www.epluse.com/EE850

The EE-PCS Product Configuration Software is available for free download at www.epluse.com/configurator.

INFORMATION

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