

# EE850

## CO<sub>2</sub> and Temperature Transmitter for Duct Mounting

The EE850 is designed for use in building management applications. A multiple point CO<sub>2</sub> and temperature factory adjustment procedure leads to excellent CO<sub>2</sub> measurement accuracy over the entire temperature working range.

The EE850 incorporates the E+E dual wavelength NDIR CO<sub>2</sub> sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability.

Installed into a duct, a small amount of air will flow through the divided probe into the transmitter housing, where the CO<sub>2</sub> sensing cell is located, and back into the duct. The temperature sensor is located inside the probe.

The CO<sub>2</sub> concentration up to 10,000 ppm and the temperature are available on the voltage or current analogue outputs. The EE850 offers an additional option for a passive temperature sensor output with 2-wires connection. An optional kit facilitates easy configuration and adjustment of EE850.



EE850

### Typical Applications

**Building management**  
**Demand controlled ventilation**  
**Process control**

### Key Features

**CO<sub>2</sub> Autocalibration**  
**Outstanding long-term stability**  
**Temperature compensation**  
**Easy installation**  
**IP65 / NEMA 4 enclosure**

### Technical Data

#### Measuring Values

##### CO<sub>2</sub>

Measurement principle	dual wavelength non-dispersive infrared technology (NDIR)
Measuring range	0...2000 / 5000 / 10000 ppm
Accuracy at 25 °C (77 °F) and 1013 mbar (14.7 psi)	0...2000 ppm: < ± (50 ppm +2% of measured value) 0...5000 ppm: < ± (50 ppm +3% of measured value) 0...10000 ppm: < ± (100 ppm +5% of measured value)
Response time $\tau_{63}$	< 100 s at 3 m/s (590 ft/min) air speed in the duct
Temperature dependency	typ. ± (1 + CO <sub>2</sub> concentration [ppm] / 1000) ppm/°C (-20...45 °C) (-4...113 °F)
Calibration interval <sup>1)</sup>	>5 years
Sample rate	approx. 15 s

##### Temperature

Working range	-20...60 °C (-4...140 °F); scaling see ordering guide
Accuracy at 20 °C (68 °F)	±0.3 °C (±0.54 °F)
Response time $\tau_{63}$	< 50 s

#### Outputs

##### Analogue Output

CO <sub>2</sub> : 0...2000 / 5000 / 10000 ppm	$\left\{ \begin{array}{l} 0 - 5 / 0 - 10 \text{ V} \\ 4 - 20 \text{ mA} \end{array} \right.$	-1 mA < I <sub>L</sub> < 1 mA
T: according ordering guide		R <sub>L</sub> < 500 Ohm

##### Passive T-Output

2-wire	see ordering guide
Wires resistance (terminal - sensor)	typ. 0.4 Ohm

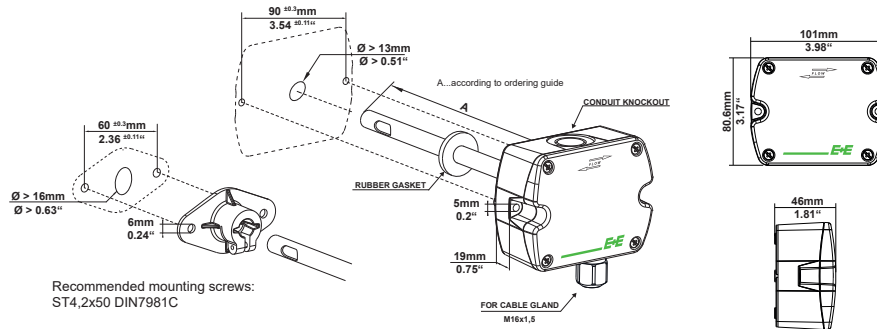
#### General

Supply voltage	24 V AC ±20%      15 - 35 V DC
Current consumption	typ. 15 mA + output current max. 350 mA for 0.3 s
Min. flow speed	1 m/s (196 ft/min) recommended
Housing 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 mm <sup>2</sup> (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)

<sup>1)</sup> under normal operating conditions

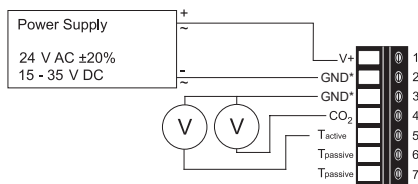


## Dimensions (mm/inch)

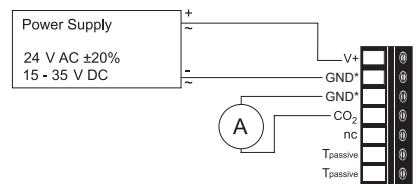


## Connection Diagram

### Voltage output



### Current output



\* Very important: for failure-free operation and performance according to the specs the supply GND and the measurement GND must be wired separately.

## Ordering Guide

### Voltage output

MODEL	OUTPUT	PASSIVE T-SENSOR <sup>1) 2)</sup>	PROBE LENGTH (see dimensions „A“)
CO <sub>2</sub> (C)	0-5V (2x)	Pt1000A (C)	50mm (1.97") <sup>3)</sup> (BP)
CO <sub>2</sub> +T (CT)	0-10V (3x)	NTC10k (E)	200mm (7.87") (FP)
		Ni1000, TK6180 (J)	
		none (x)	
<b>EE850-</b>			

### Current output

MODEL	OUTPUT	PASSIVE T-SENSOR <sup>2) 4)</sup>	PROBE LENGTH (see dimensions „A“)
CO <sub>2</sub> (C)	4-20mA (6x)	Pt1000A (C)	50mm (1.97") (BP)
		NTC10k (E)	200mm (7.87") (FP)
		Ni1000, TK6180 (J)	
		none (x)	
<b>EE850-</b>			

OUTPUT 1		OUTPUT 2 <sup>1)</sup>	
<b>CO<sub>2</sub>-SCALING</b>	<b>T-SCALING <sup>5)</sup></b>	<b>UNIT</b>	
0...2000ppm (002)	0...50 (T004)	°C (M)	
0...5000ppm (005)	-5...55 (T031)	°F (N)	
0...10000ppm (010)	0...40 (T055)		
	20...120 (T015)		
	32...122 (T076)		
	32...132 (T096)		

1) only available for CT model

2) T-Sensor details see [www.epluse.com/R-T\\_Characteristics](http://www.epluse.com/R-T_Characteristics)

3) only available with model C

4) only with 200 mm probe length

5) other scaling upon request

## Ordering Example

### EE850-CT3xCFP-002T031M

Model:	CO <sub>2</sub> + T	Output 1	
Analog:	0-10V	CO <sub>2</sub> Scaling:	0...2000ppm
Passive T-Sensor:	Pt1000A	Output 2	
Probe length:	200mm	T-Scaling:	-5..55 °C

## Accessories (see data sheet „Accessories“)

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E+E Product configuration adapter  
E+E Product configuration software  
Power supply adapter

see data sheet EE-PCA  
EE-PCS (free download: [www.epluse.com/EE850](http://www.epluse.com/EE850))  
V03

## Scope of Supply

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- EE850 transmitter according ordering guide
- Cable gland
- Mounting flange + seal
- Mounting materials
- Test report according to DIN EN10204 - 2.2

## Support Literature

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[www.epluse.com/EE850](http://www.epluse.com/EE850)