

# EE85 Series

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

Duct mounted CO<sub>2</sub> transmitters and switches of the EE85 series are designed for HVAC applications. The CO<sub>2</sub> sensing element uses the Non-Dispersive Infrared Technology (NDIR). A patented auto-calibration procedure compensates for drift caused by the aging of the sensing element and guarantees outstanding long term stability.

Installed into a duct a small flow of air will be established by convection through the probe into the transmitter housing and back into the duct. Inside the transmitter housing the air will diffuse through a membrane into the CO<sub>2</sub> sensing element.

The operation in closed loop air stream avoids pollution of the CO<sub>2</sub> sensor.

Measuring ranges of 0...2000/5000/10000ppm correspond to an analogue interface of 0 - 5/10V or 4 - 20mA. Selectively a switching output with adjustable switching point and hysteresis is available. The instruments can be easily positioned in the duct with the standard mounting flange.



### Typical Applications

building management for residential and office areas  
 ventilation control

### Features

very simple installation  
 compact housing  
 auto-calibration  
 measuring ranges: 0...10000ppm  
 analogue or switching output

### Technical Data

#### Measuring Values

CO <sub>2</sub>	
Measurement principle	Non-Dispersive Infrared Technology (NDIR)
Sensing element	E+E Dual Source Infrared System
Measuring range	0...2000 / 5000 / 10000ppm
Accuracy at 25°C (77°F) and 1013mbar	0...2000ppm: < ± (50ppm +2% of measuring value) 0...5000ppm: < ± (50ppm +3% of measuring value) 0...10000ppm: < ± (100ppm +5% of measuring value)
Response time $\tau_{63}^{1)}$	< 195s
Temperature dependence	typ. 2ppm CO <sub>2</sub> /°C
Long term stability	typ. 20ppm / year
Sample rate	approx. 15s

#### Temperature (passive output)

Type of T-Sensor	please see ordering guide
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#### Outputs<sup>2)</sup>

##### Analogue Output

0...2000 / 5000 / 10000ppm	0 - 5V	-1mA < I <sub>L</sub> < 1mA
	0 - 10V	-1mA < I <sub>L</sub> < 1mA
	4 - 20mA	R <sub>L</sub> < 500 Ohm

##### Switching Output

Max. switching voltage	50V AC / 60V DC
Max. switching load	0.7A at 50V AC      1A at 24V DC
Min. switching load	1mA at 5V DC
Contact material	Ag+Au clad

#### General

Supply voltage	24V AC ±20%	15 - 35V DC
Current consumption	typ. 10mA + output current max. 0.5A for 0.3s	
Warm up time <sup>3)</sup>	< 5 min	
Housing / protection class	PC / housing: IP65, probe: IP20	
Cable gland	M16 x 1.5	cable Ø 4.5 - 10 mm (0.18 - 0.39")
Electrical connection	screw terminals max. 1.5 mm <sup>2</sup> (AWG 16)	
Electromagnetic compatibility	EN61326-1	FCC Part 15
	EN61326-2-3	ICES-003 ClassB
Working temperature and conditions	-20...60°C (-4...140°F)	0...95% RH (not condensating)
Storage temperature and conditions	-20...60°C (-4...140°F)	0...95% RH (not condensating)

1) minimum flow speed 1m/s (200ft/min)

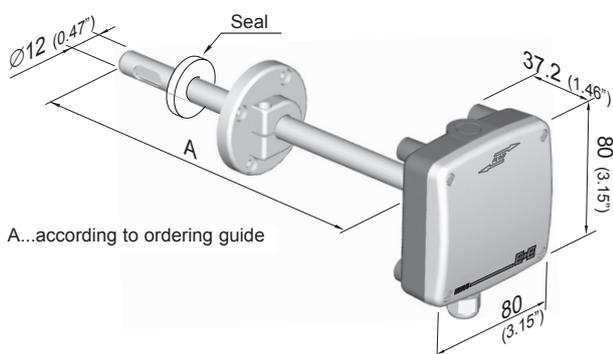
2) Versions with analog output can be provided with a passive temperature sensor. This is fitted in the filter cap.

3) warm up time for performance according to specification

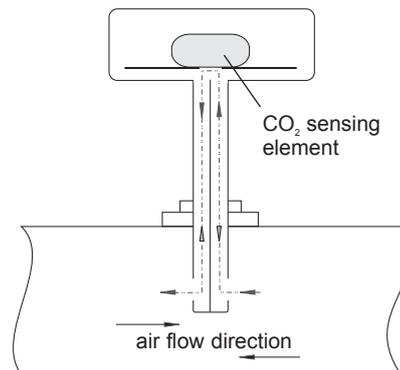
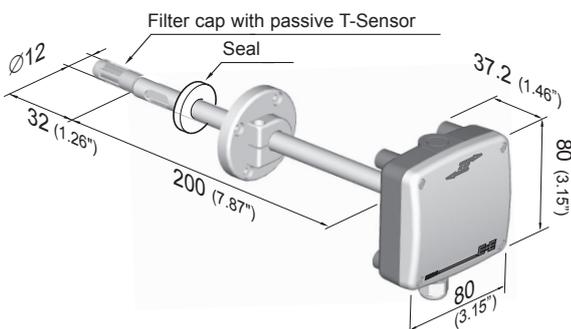


## Dimensions (mm)

## Operation Principle



A...according to ordering guide

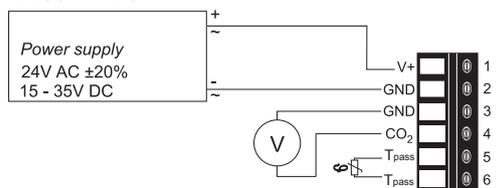


## Connection Diagram

### Analogue Output

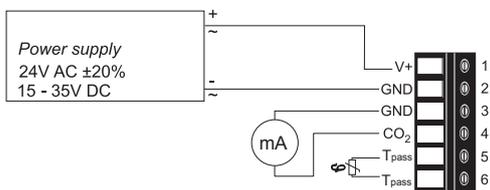
#### Analog Ausgang

#### EE85-xC2/3x



Passive T-Sensor optional.

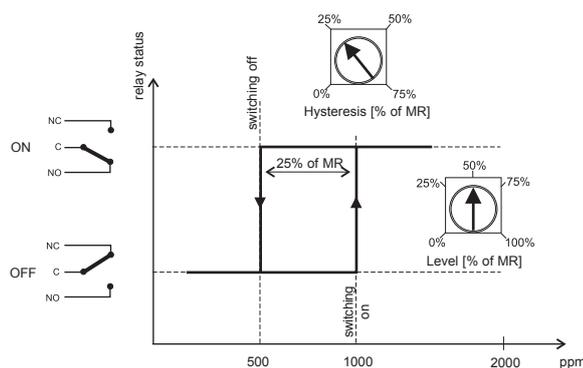
#### EE85-xC6x



Passive T-Sensor optional.

### Switching Output

#### EE85-xCSx



## Ordering Guide

## Order Example

MEASURING RANGE	MODEL	OUTPUT	T-SENSOR (only passive)	PROBE LENGTH (see dimensions "A")
0...2000ppm (2)	CO <sub>2</sub> (C)	0 - 5V (2)	Pt 100 DIN A (A)	50mm (2)
0...5000ppm (5)	CO <sub>2</sub> + T <sub>passive</sub> (CP)	0 - 10V (3)	Pt 1000 DIN A (C)	200mm <sup>2)</sup> (5)
0...10000ppm (10)		4 - 20mA (6)		
		switching output <sup>1)</sup> (S)		
<b>EE85-</b>				

#### EE85-5C35

measuring range: 0...5000ppm  
model: CO<sub>2</sub>  
output: 0 - 10V  
probe length: 200mm

1) Switching output (S) only available for model C  
2) Version CP only possible with 200mm (7.87").