

EE85 Series

CO₂ Transmitter and Switches for Duct Mounting

Duct mounted CO₂ transmitters and switches of the EE85 series are designed for HVAC applications. The CO₂ 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 CO₂ sensing element.

The operation in closed loop air stream avoids pollution of the CO₂ 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 ₂	
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 ₂ /°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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Outputs²⁾

Analogue Output

0...2000 / 5000 / 10000ppm	0 - 5V	-1mA < I _L < 1mA
	0 - 10V	-1mA < I _L < 1mA
	4 - 20mA	R _L < 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 ³⁾	< 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 ² (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)

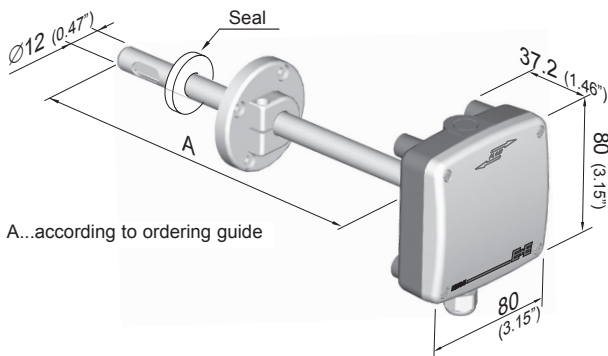
2) Versions with analog output can be provided with a passive temperature sensor. This is fitted in the filter cap.

3) warm up time for performance according to specification

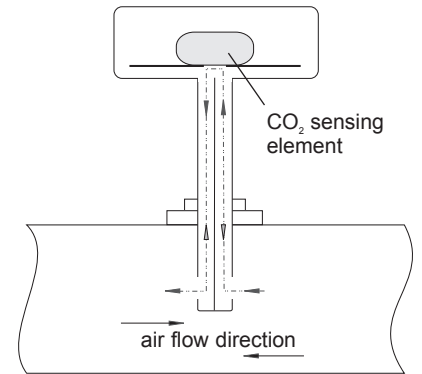
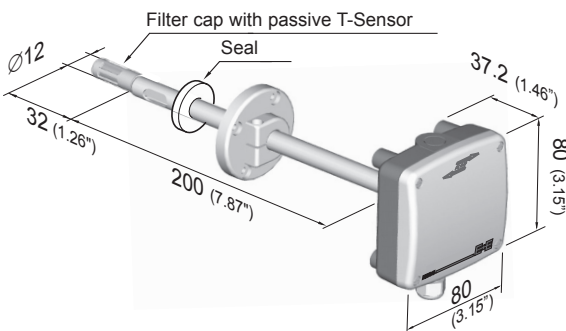


Dimensions (mm)

Operation Principle



A...according to ordering guide

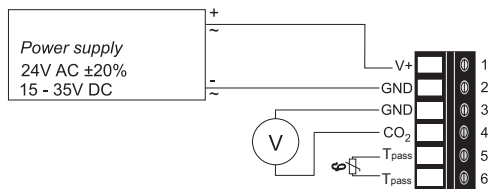


Connection Diagram

Analogue Output

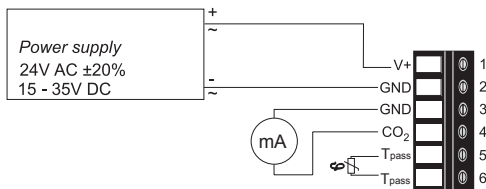
Analog Ausgang

EE85-xC2/3x



Passive T-Sensor optional.

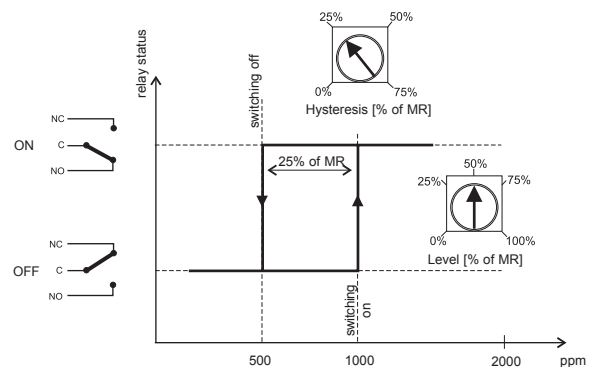
EE85-xC6x



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 ₂ (C)	0 - 5V (2)	Pt 100 DIN A (A)	50mm (2)
0...5000ppm (5)	CO ₂ + T _{passive} (CP)	0 - 10V (3)	Pt 1000 DIN A (C)	200mm ²⁾ (5)
0...10000ppm (10)		4 - 20mA (6)		
		switching output ¹⁾ (S)		
EE85-				

EE85-5C35

measuring range: 0...5000ppm
model: CO₂
output: 0 - 10V
probe length: 200mm

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