

EE820

CO₂ Sensor for Demanding Applications

The EE820 CO₂ sensor is optimized for use in harsh, demanding applications, such as hatchers, incubators, life stock barns or greenhouses.

Outstanding Accuracy

A multiple point CO₂ and temperature factory adjustment procedure leads to excellent CO₂ measurement accuracy over the entire temperature working range, so the EE820 can even be installed outdoors.

Long-term Stability

The EE820 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.

High Resistance to Pollution

With its robust, functional IP54 enclosure with a special filter the EE820 can be employed even in harsh environment.

Fast Response Time

The fast response time version of EE820 is fitted with a forced air circulation module installed behind the filter.

Analogue and Digital Outputs

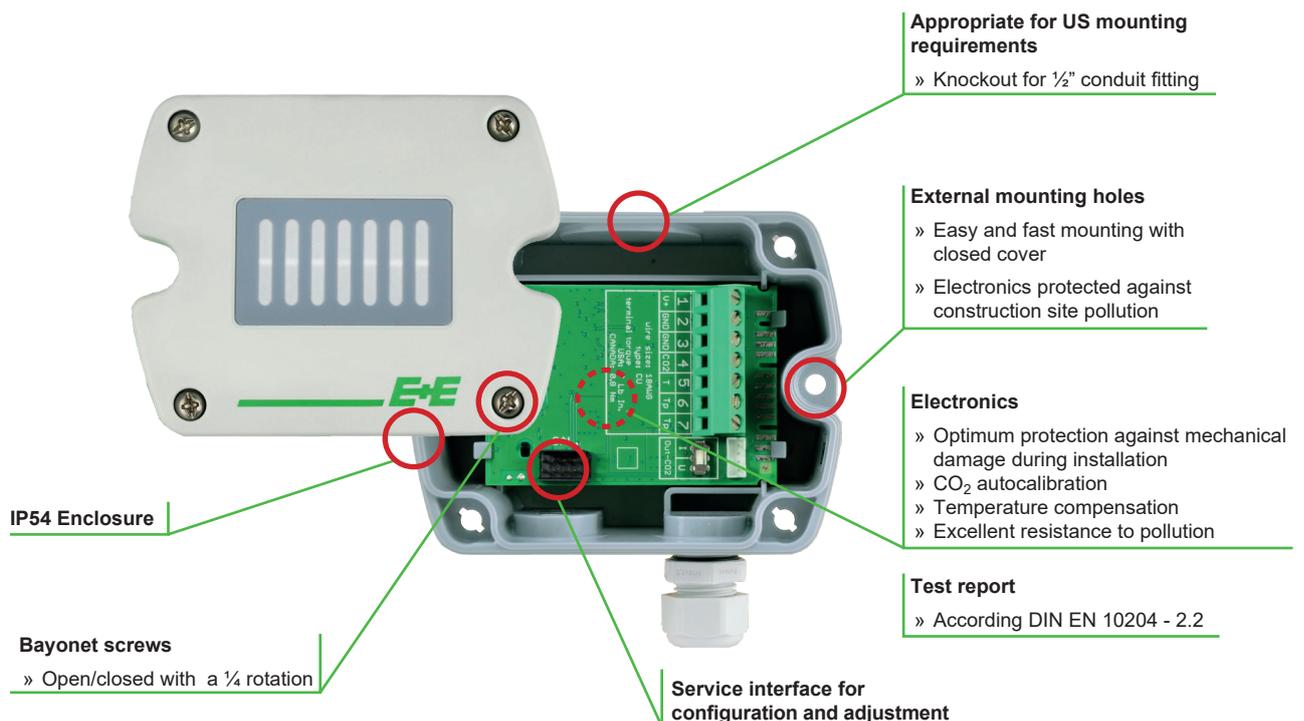
The CO₂ measured data range up to 10000 ppm is available on the analogue output (voltage / current) or on the RS485 interface with Modbus RTU or BACnet MS/TP protocol.

Easy Configuration and Adjustment

An optional adapter and the free EE-PCS Product Configuration Software facilitate the configuration and adjustment of the EE820.



Features



Technical Data

Measured values

Measuring principle	dual wavelength non-dispersive infrared technology (NDIR)	
Measurement range	0...2000 / 5000 / 10000 ppm	
Accuracy at 25 °C (77 °F) and 1013 mbar (14.7 psi)	0...2000 ppm: <math>< \pm (50 \text{ ppm} + 2 \% \text{ of mv})</math>	mv = measured value
	0...5000 ppm: <math>< \pm (50 \text{ ppm} + 3 \% \text{ of mv})</math>	
	0...10000 ppm: <math>< \pm (100 \text{ ppm} + 5 \% \text{ of mv})</math>	
Response time t_{63} , typ.	300 s (standard) 140 s (fast, with forced air circulation module)	
Temperature dependency	typ. $\pm (1 + \text{CO}_2 \text{ concentration [ppm]} / 1000) \text{ ppm}/^\circ\text{C}$ (-20...45 °C) (-4...113 °F)	
Sample rate	approx. 15 s	

Output

Analogue

0...2000 / 5000 / 10000 ppm	0-5 / 0-10 V	-1mA <math>< I_L < 1 \text{ mA}</math>	
	4-20 mA	$R_L < 500 \text{ Ohm}$	$R_L = \text{load resistance}$

Digital Interface

Protocol	RS485	EE820 = 1/10 unit load
	Modbus RTU or BACnet MS/TP	

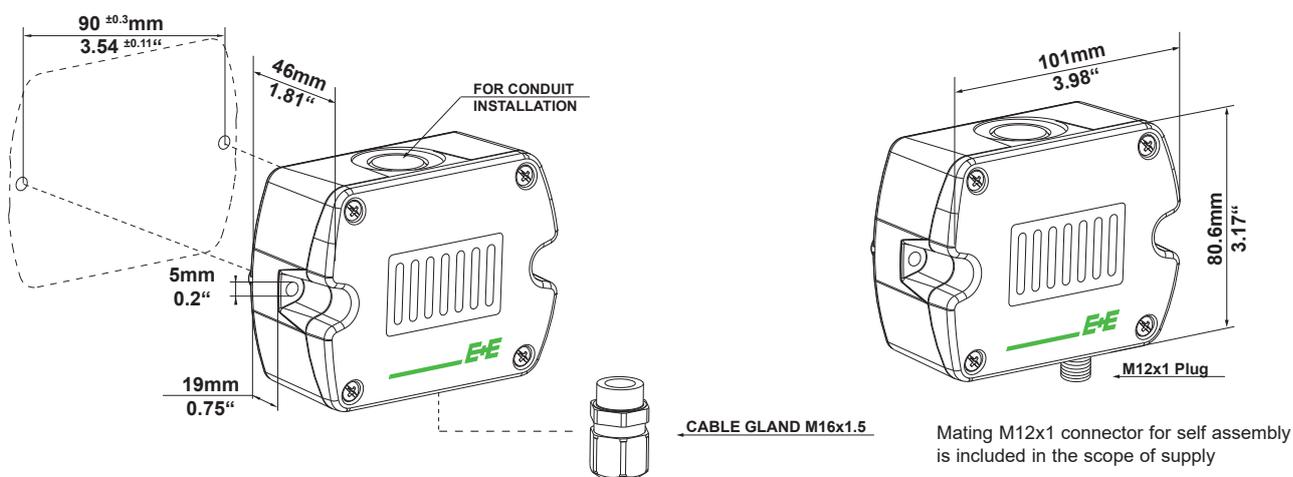
General

Supply voltage	24 V AC $\pm 20\%$	15 - 35 V DC
Current consumption, typ.	15 mA + output current, for standard response time 60 mA + output current, for fast response time	
Current peak, max.	350 mA for 0.3 s (analogue output) 150 mA for 0.3 s (RS-485 interface)	
Warm up time ¹⁾	<math>< 5 \text{ min}</math>	
Enclosure material	Polycarbonate, UL94V-0 approved	
Protection class	IP54	
Electrical connection	Screw terminals 2.5 mm ² or M12 plug	
Electromagnetic compatibility	EN61326-1	EN61326-2-3 Industrial Environment
	FCC Part 15	ICES-003 ClassB
Working conditions	-20...60 °C (-4...140 °F)	0...100 % RH (non-condensing)
Storage conditions	-20...60 °C (-4...140 °F)	0...95 % RH (non-condensing)



1) for performance according to specification

Dimensions (mm/inch)





Ordering Guide

		EE820-		
Hardware configuration	CO ₂ range	0...2000 ppm	HV1	
		0...5000 ppm	HV2	
		0...10000 ppm	HV3	
	Output	0-5 V	A2	J3
		0-10 V	A3	
4-20 mA		A6		
RS485				
Electrical connection	M16 cable gland	E1	E1	
	M12 plug	E9		
Response time	standard	no code		
	fast (with forced air circulation)	AM4		
Setup RS485	Protocol	Modbus RTU ¹⁾	P1	
		BACnet MS/TP ²⁾	P3	
	Baud rate	9600	BD5	
		19200	BD6	
		38400	BD7	
		57 600 ³⁾	BD8	
76 800 ³⁾	BD9			

1) Factory setting: Even Parity, Stopbits 1; Modbus Map and communication setting: See User Guide and Modbus Application Note at www.epluse.com/ee820.

2) Factory setting: No Parity, Stopbits 1; Product Implementation Conformance Statement (PICS) available at www.epluse.com/ee820.

3) Only for BACnet MS/TP.

Order Example

EE820-H1A3E9

CO₂ range: 0...2000 ppm
Output: 0-10 V
Electrical connection: M12 plug
Response time: standard

EE820-HV2J3E1AM4P1BD6

CO₂ range: 0...5000 ppm
Output: RS485
Electrical connection: M16 cable gland
Response time: fast
Protocol: Modbus RTU
Baud rate: 19200

Accessories (see data sheet „Accessories“)

USB configuration adapter
Product configuration software
Mating M12x1 connector for self assembly
Connection cable M12x1 socket - flying leads
- 1.5 m (3.3ft)
- 5 m (16.4 ft)
- 10 m (32.8 ft)
Protective cap for female M12 connectors
Protective cap for male M12 connectors
Power supply adapter

HA011066
EE-PCS (free download: www.epluse.com/EE820)
HA010707

HA010819
HA010820
HA010821
HA010781
HA010782
V03

Support Literature