EE820

CO_2 Sensor for Demanding Applications

The EE820 CO_2 sensor is optimized for use in harsh, demanding applications, such as hatchers, incubators, life stock barns or greenhouses.

Outstanding Accuracy

A multiple point CO_2 and temperature factory adjustment procedure leads to excellent CO_2 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 CO_2 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.

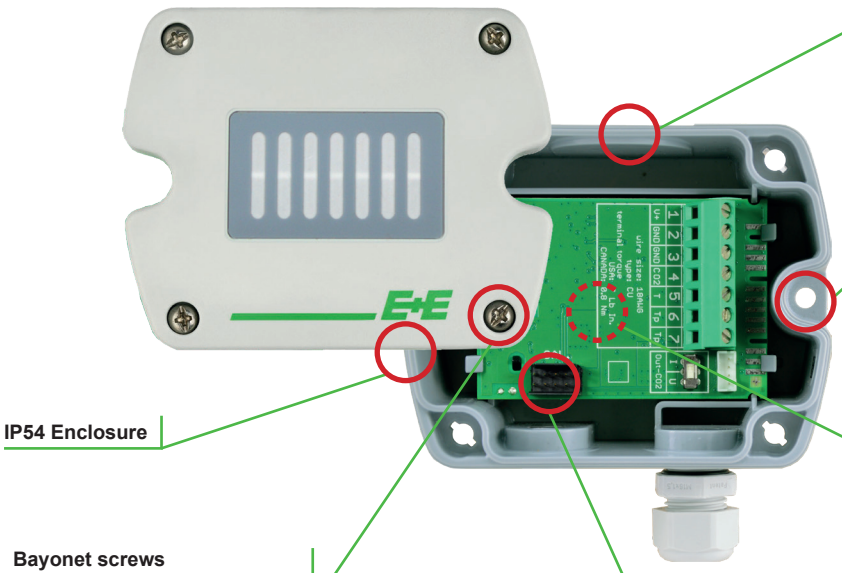
Analogue and Digital Outputs

The CO_2 measured data range up to 10 000 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



Appropriate for US mounting requirements
» Knockout for ½" conduit fitting

External mounting holes
» Easy and fast mounting with closed cover
» Electronics protected against construction site pollution

Electronics
» Optimum protection against mechanical damage during installation
» CO_2 autocalibration
» Temperature compensation
» Excellent resistance to pollution

Test report
» According DIN EN 10204 - 2.2

IP54 Enclosure

Bayonet screws
» Open/closed with a ¼ rotation

Service interface for configuration and adjustment

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:	< ± (50 ppm +2 % of mv)	mv = measured value
	0...5000 ppm:	< ± (50 ppm +3 % of mv)	
	0...10000 ppm:	< ± (100 ppm +5 % of mv)	
Response time t_{63}, typ.	300 s (standard)		
	140 s (fast, with forced air circulation module)		
Temperature dependency	typ. ± (1 + CO_2 concentration [ppm] / 1000) ppm/°C (-20...45 °C) (-4...113 °F)		
Sample rate	approx. 15 s		

Output

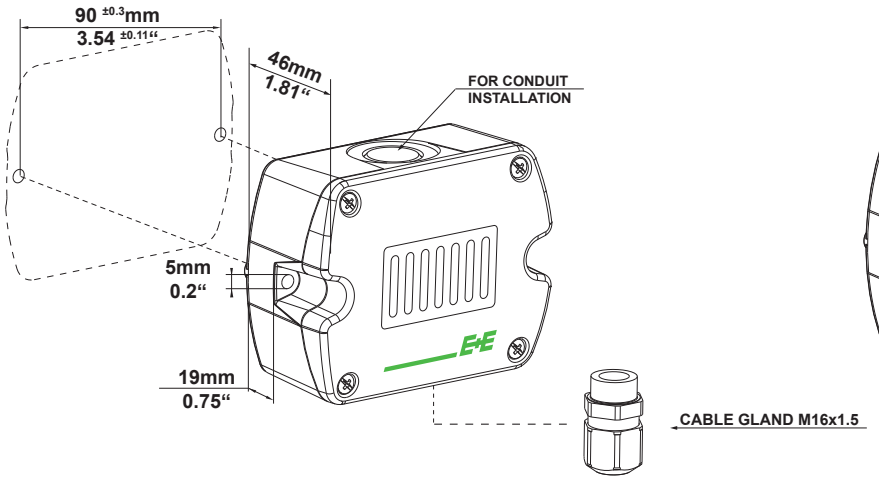
Analogue			
0...2000 / 5000 / 10000 ppm	0-5 / 0-10 V	-1mA < I_L < 1 mA	
	4-20 mA	R_L < 500 Ohm	R_L= load resistance
Digital Interface	RS485	EE820 = 1/10 unit load	
Protocol	Modbus RTU or BACnet MS/TP		

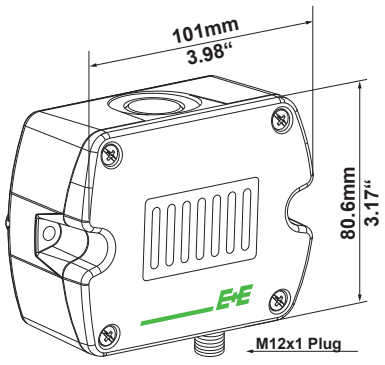
General

Supply voltage	24 V AC ±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)	< 5 min		
Enclosure material	Polycarbonate, UL94V-0 approved		
Protection class	IP54		
Electrical connection	Screw terminals 2.5 mm² or M12 plug		
Electromagnetic compatibility	EN61326-1	EN61326-2-3 Industrial Environment	CE
	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)





Mating M12x1 connector for self assembly is included in the scope of supply

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	
		0-10 V	A3	
		4-20 mA	A6	
		RS485		J3
	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
		57600 3)		BD8
		76800 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

CO_2 range:	0...2000 ppm
Output:	0-10 V
Electrical connection:	M12 plug
Response time:	standard

EE820-HV2J3E1AM4P1BD6

CO_2 range:	0...5000 ppm
Output:	RS485
Electrical connection:	M16 cable gland
Respnse time:	fast
Protocol:	Modbus RTU
Baud rate:	19200

Accessories (see data sheet „Accessories“)

USB configuration adapter	HA011066
Product configuration software	EE-PCS (free download: www.epluse.com/EE820)
Mating M12x1 connector for self assembly	HA010707
Connection cable M12x1 socket - flying leads	
- 1.5 m (3.3ft)	HA010819
- 5 m (16.4 ft)	HA010820
- 10 m (32.8 ft)	HA010821
Protective cap for female M12 connectors	HA010781
Protective cap for male M12 connectors	HA010782
Power supply adapter	V03

Support Literature

www.epluse.com/ee820