

EE870

Modular CO₂ Transmitter for Demanding Applications

The modular E+E CO₂ transmitter EE870 is designed for easy integration into OEM equipment for demanding applications. EE870 consists of a CO₂ sensing probe, a conversion board and a connection cable.

The interchangeable CO₂ probe incorporates the dual wavelength NDIR CO₂ sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability. A multiple point CO₂ and temperature adjustment leads to excellent measurement accuracy over the entire temperature working range, ideal for use in agriculture and outdoors.

The IP65 enclosure of probe and the replaceable PTFE filter offer excellent protection in harsh, polluted environment. The compact size, the M12 connector and the optional mounting flange allow for fast probe installation, replacement or removal during the cleaning of the site, for instance a stable or an incubator. With the optional radiation shield, the probe can be also installed outdoors.

The measured data range of up to 5 % CO₂ (50,000 ppm) is available on the analog outputs of the conversion board. Several voltage and current ranges can be selected with jumpers. Additionally, the data is available on the Modbus RTU interface, which can be configured by the user with DIP switches on the board. An optional kit facilitates easy configuration and adjustment of the probe.



EE870

Typical Applications

- Greenhouses and livestock barns
- Fruit and vegetable storage
- Hatchers and incubators
- Outdoor CO₂ monitoring

Key Features

- Auto-calibration
- Outstanding long-term stability
- Temperature compensation
- Interchangeable probe
- Analogue and Modbus RTU outputs

Technical Data

Digital CO₂ Probe EE871

Measuring principle	Dual wavelength (non-dispersive infrared technology) NDIR	
Measurement range / Accuracy at 25 °C and 1013 mbar ¹⁾ (77 °F...14,69 psi)	0...2000 ppm:	< ± (50 ppm + 2 % from the measured value)
	0...5000 ppm:	< ± (50 ppm + 3 % from the measured value)
	0...10,000 ppm:	< ± (100 ppm + 5 % from the measured value)
	0...3 %:	< ± (1,5 % from full scale + 2 % from the measured value)
	0...5 %:	
Response time t ₉₀	105 s with measured data averaging (smooth output) 60 s without measured data averaging	
Temperature dependency (-20...45 °C) (-4...113 °F)	0...2000 ppm:	
	0...5000 ppm:	typ. ± (1 + CO ₂ concentration [ppm] / 1000) ppm/°C
	0...10,000 ppm:	
	0...3 %:	typ. -0,3 % from the measured value/°C
	0...5 %:	
Housing / Protection class	Plastic PC / Housing IP65	
Cable length	max. 10 m (32 ft)	
Electromagnetic compatibility (Industrial environment)	EN61326-1 EN61326-2-3	



Conversion Board

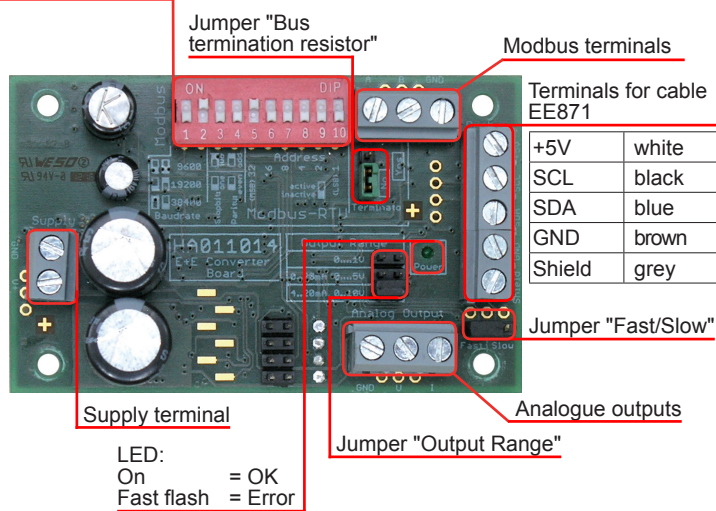
Supply voltage	10-35 V DC / 10-28.8 V AC
Supply current	120 mA at 24 V DC / 300 mA at 10 V DC
Protection class	IP00

1) For averaging output

Electrical connection	screw terminal size: 2.5 mm ²	
Analog outputs	0-1 V; 0-5 V; 0-10 V	-1 mA < I _L < 1 mA
selectable by jumpers	0-20 mA; 4-20 mA	R _L < 500 Ohm
Resolution	12 bit	
Response time t ₉₀	60 s or 105 s selectable by jumpers	
Modbus RTU	setup with dip-switches (see operation manual)	
Temperature dependence	Voltage:	typ. ±0.2 mV/°C (0 – 1V)
		typ. ±0.5 mV/°C (0 – 5V)
		typ. ±0.6 mV/°C (0 – 10V)
	Current:	typ. ±1 µA / °C
EE870 Operating conditions	-40...60 °C (-40...140 °F)	0...100 % RH (not condensating) 85...110 kPa (12.33...15.95 psi)
EE870 Storage condition	-40...60 °C (-40...140 °F)	0...100 % RH (not condensating) 70...110 kPa (10.15...15.95 psi)

Connection

Modbus Dip-switch

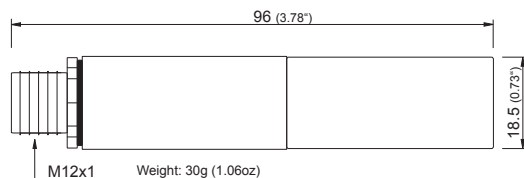


* Very important:

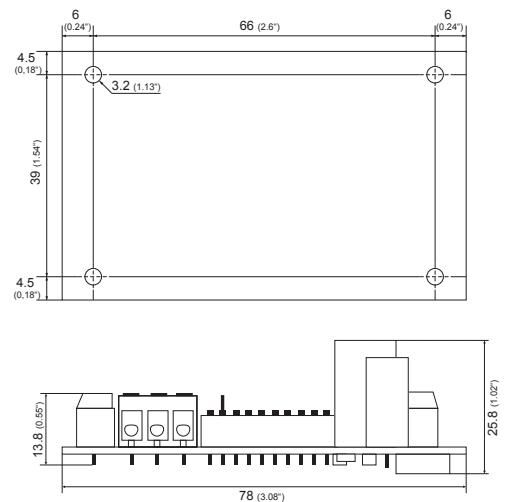
for failure-free operation and performance according to the specs the supply GND and the measurement GND must be wired separately.

Dimensions (mm/inch)

Digital CO₂ Probe EE871



Conversion Board

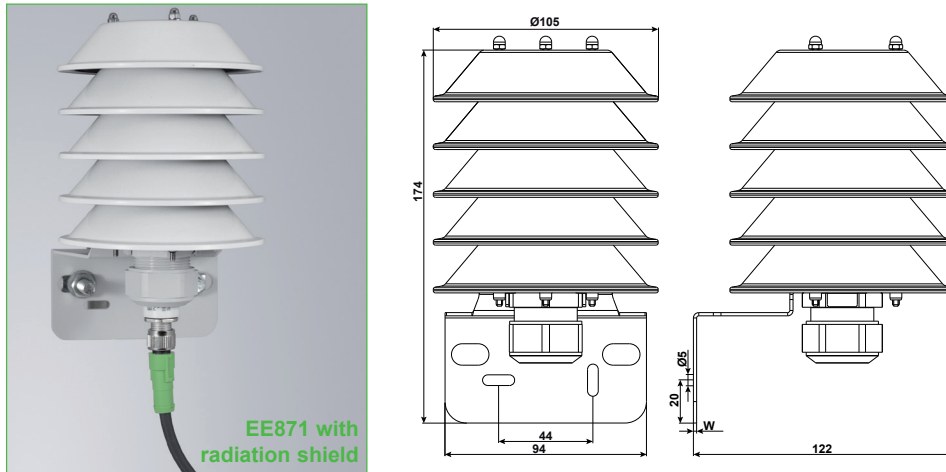


Scope of Supply

- EE871 probe according to ordering guide
- Test report according to DIN EN10204 - 2.2 for EE871
- Conversion board HA011014
- Connecting cable HA0108xx
- Operation manual
- Test report according to DIN EN10204 - 2.2 for conversion board

Operation outdoors

For outdoor applications, the probe of EE870 must be used with the radiation shield order no. HA010507, which protects the device against rain, snow, ice, and solar radiation. The converter board must be protected IP65 (NEMA4) or better.



EE871 with radiation shield

Ordering Guide

		EE870
CO ₂ range	0...2000 ppm	HR2000
	0...5000 ppm	HR5000
	0...10,000 ppm	HR1
	0...3 %	HR3
	0...5 %	HR5
Cable length	1 m	no code
	2 m	KL200
	5 m	KL500
	10 m	KL1000

Ordering Example

EE870-HR2000KL500

CO₂ range: 0...2000 ppm
 Cable length: 5 m

EE870-HR5

CO₂ range: 0...5 %
 Cable length: 1 m

Accessories (see data sheet "Accessories")

Replacement probe EE871-HRxJ2	see data sheet EE871
Cable M12 - flying leads (1 m (39.37") / 2 m (78.74") / 5 m (196.85") / 10 m (393.70"))	HA010809/10/11/12
Mounting flange for probe	HA010212
Radiation shield	HA010507
PFTE Filter cap	HA010116
Protection cap for the M12 cable socket	HA010781
Protection cap for the M12 probe plug	HA010782

Support Literature

www.epluse.com/EE870