EE871 CO_2 Sensing Probe for the EE240 Wireless Sensor Network

The E+E CO_2 probe EE871 is designed for use in harsh, demanding applications. The measured data range of up to 10 000 ppm CO_2 is available on E2 digital interface. A multiple point CO_2 and temperature adjustment procedure leads to excellent CO_2 measurement accuracy over the entire temperature working range, ideal for use in agriculture or outdoors. EE871 incorporates the dual wavelength NDIR CO_2 sensor, which automatically compensates for ageing effects and is highly insensitive to pollution.

The IP65 enclosure and the replaceable filter offer excellent protection in harsh, polluted environment. With a special filter cap, the EE871 can be employed in applications with periodical H_2O_2 sterilization. The compact size, the M12 connector and the optional mounting flange allow for fast probe installation or replacement. With the optional radiation shield, EE871 can be also used outdoors.

An optional kit facilitates easy configuration and adjustment of EE871. The measurement interval can be set according to the application requirements, by this the average current consumption can be reduced to 120 µA for battery-operated devices.

Typical Applications

Greenhouses and livestock barns
Fruit and vegetable storage
Hatchers and incubators
Outdoor CO_2 monitoring
Data loggers and handhelds
Pharma, Biotech (H_2O_2 sterilization)

Key Features

Auto-calibration
Outstanding long-term stability
Temperature compensation
Very low current consumption
IP65 enclosure

Technical Data

Measured values

CO_2

Measuring principle	Dual wavelength (non-dispersive infrared technology) NDIR
Measurement range	0...2 000 ppm: < ± (50 ppm + 2 % from the measured value)
Accuracy at 25 °C and 1 013 mbar[1] (77 °F...14,69 psi)	0...5 000 ppm: < ± (50 ppm + 3 % from the measured value) 0...10 000 ppm: < ± (100 ppm + 5 % from the measured value)
Response time t_{63}	105 s with measured data averaging (smooth output) 60 s without measured data averaging
Temperature dependency (-20...45 °C) (-4...113 °F)	0...2 000 ppm: 0...5 000 ppm: typ. ± (1 + CO_2 concentration [ppm] / 1 000) ppm/°C 0...10 000 ppm:
Measurement interval	Adjustable from 15 s to 1 h (Factory setting: 15 s)

General

Digital interface	E2 (details: www.epluse.com)
Supply voltage	4.75 - 7.5 V DC
Average current consumption[2]	120 µA (at 1 h measurement interval)...4.3 mA (at 15 sec. measurement interval)
Current peak, max.	350 mA for 0.05 s
Enclosure / protection rating	Polycarbonate (PC) / enclosure IP65

1) For averaging output

Electrical connection	Connector M12x1
Cable length, max.	10 m (32.8 ft)
Electromagnetic compatibility (Industrial enviroment)	EN 61326-1 EN 61326-2-3
Operating conditions	-40...60 °C (-40...140 °F) 0...100 % RH (non-condensing) 85...110 kPa (12,33...15,95 psi)
Storage conditions	-40...60 °C (-40...140 °F) 0...100 % RH (non-condensing) 70...110 kPa (10,15...15,95 psi)

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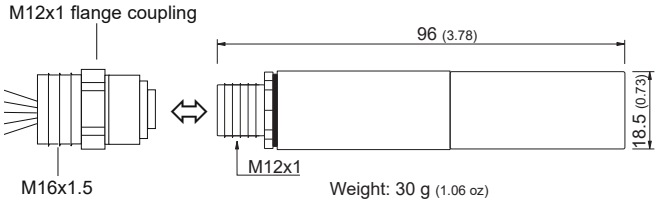
2) The average current consumption depends on the measurement interval

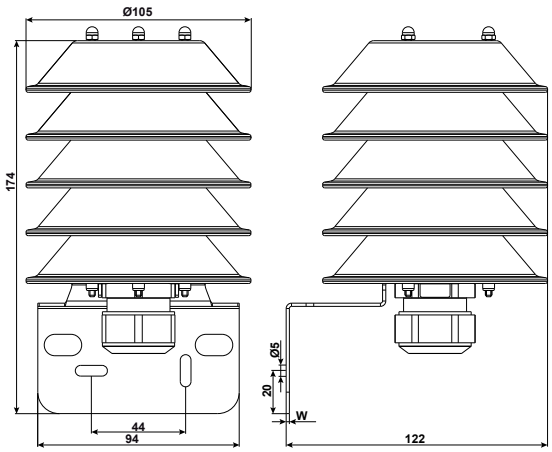
Dimensions (mm/inch)



Operation outdoors

For outdoor applications EE871 must be used with the radiation shield order no. HA010507, which protects the device against rain, snow, ice and solar radiation.

EE871 with radiation shield



Scope of Supply

- EE871 probe according to ordering guide
- Test report according to DIN EN 10204-2.2

Ordering Guide

		EE871
CO_2 Range	0...2000 ppm	HV1
	0...5000 ppm	HV2
	0...10000 ppm	HV3
Digital Output	E2	J2
Filter	PTFE	no code
	H_2O_2	F12

Ordering Example

EE871-HV3J2

CO_2 range:	0...10 000 ppm
Digital Output:	E2
Filter:	PTFE

Accessories (For further information, see data sheet “Accessories”)

Mounting flange	HA010212
M12x1 flanged coupling with 50mm (1,97") stranded wire	HA010705
E2 Test and configuration adapter	HA011010
E+E Product configuration software (Download: www.epluse.com/configurator)	EE-PCS
Connecting cable M12 - flying leads (1.5 m (4.9 ft) / 5 m (16.4 ft) / 10 m (32.8 ft))	HA0108**19/20/21**
T-Coupler M12 - M12	HA030204
M12 Connector for self assembly	HA010707
PTFE filter cap	HA010116
H_2O_2 filter cap	HA010122
Radiation shield	HA010507
Protection cap for the M12 cable socket	HA010781
Protection cap for the M12 plug of EE871	HA010782