

# USER GUIDE

## EE871 – CO<sub>2</sub> Sensing Probe for the EE240 Wireless Sensor Network

### GENERAL

The E+E CO<sub>2</sub> probe EE871 is designed for use in harsh, demanding applications. It incorporates the dual wavelength NDIR CO<sub>2</sub> sensor, which compensates for ageing effects, is highly insensitive to pollution and stands for outstanding long term stability.

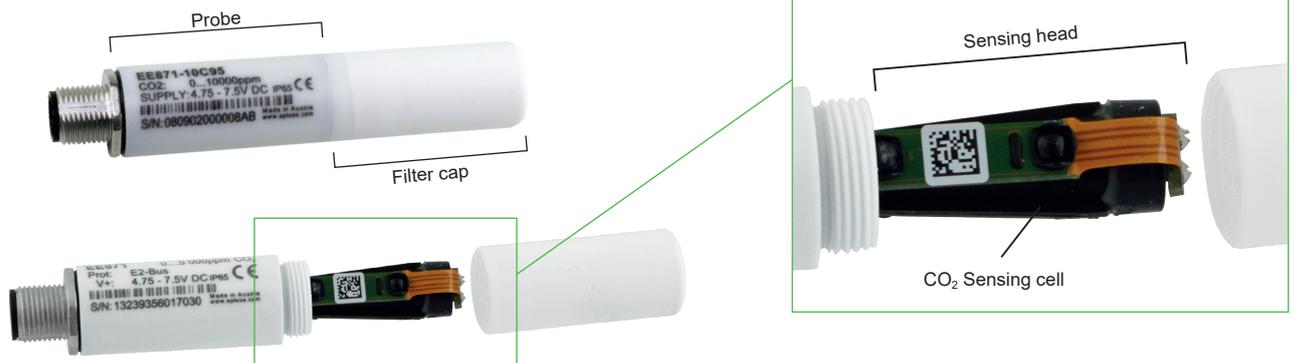
A multiple point CO<sub>2</sub> and temperature factory adjustment leads to excellent CO<sub>2</sub> measurement accuracy over the entire temperature working range.

The measured data range of up to 10000 ppm CO<sub>2</sub> is available on E2 digital interface.

For use in special applications do not hesitate to contact E+E Elektronik or a local distributor.

### CAUTION

- The device shall not be exposed to extreme mechanical stress. The sensing head and mostly the sensing cell might not be exposed to any mechanical stress.



- The device must be operated with the filter cap on at all times. Do not touch the sensing cell or electronics inside the sensing head.
- A long response time indicates a dirty filter cap, as it might happen in polluted applications. Do not attempt to clean the filter cap; it would only cause its clogging. Replace the filter cap by an E+E original one, order no. HA010116.
- While replacing the filter cap take utmost care to not touch the sensing cell and the electronics.
- This device is not appropriate for safety, emergency stop or other critical applications where device malfunction or failure could cause injury to human beings.

### CONNECTION DIAGRAM

### DIMENSIONS mm (inch)



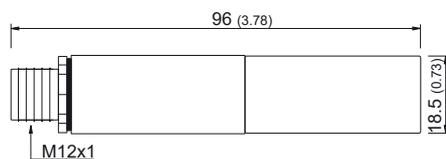
**Important note:**

The manufacturer cannot be held responsible for personal injuries or damage to property as a result of incorrect handling, installation, wiring, power supply and maintenance of the device.



	E2
1...	GND
2...	+UB
3...	DATA
4...	CLOCK

E2	
GND	brown
+UB	white
DATA	blue
CLOCK	black
Shielding	grey



Weight: 30 g (1.06 oz)

## TECHNICAL DATA

(Modification rights reserved)

### Measurands

#### CO<sub>2</sub>

Measurement principle	Dual wavelength (non-dispersive infrared technology) NDIR
Measuring range	0...5000 ppm: <math>\pm (50 \text{ ppm} + 3 \% \text{ from the measured value})</math>
Accuracy at 25 °C and 1013 mbar <sup>1)</sup> (77 °F...14,69 psi)	0...10000 ppm: <math>\pm (100 \text{ ppm} + 5 \% \text{ from the measured value})</math>
Response time t <sub>63</sub>	105 s with measured data averaging (smooth output) 60 s without measured data averaging
Temperature dependency, typ. (-20...45 °C) (-4...113 °F)	$\pm (1 + \text{CO}_2 \text{ concentration [ppm]} / 1000) \text{ ppm}/^\circ\text{C}$
Transmission interval	Adjustable from 1 s to 1 h by the EE242 base station

### General

Digital interface	E2 (details: <a href="http://www.epluse.com">www.epluse.com</a> )
Power supply class III  <sup>2)</sup>	4.75 - 7.5 V DC
Average current consumption <sup>3)</sup>	120 $\mu\text{A}$ (at 1 h transmission interval)...4.3 mA (at 15 sec. transmission interval)
Current peak, max.	350 mA for 0.05 s
Enclosure/protection rating	Polycarbonate (PC)/enclosure IP65
Filter cap	PTFE
Electrical connection	Connector M12x1
Cable length, max.	10 m (32.8 ft)
Electromagnetic compatibility (Industrial environment)	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)



1) For averaging output.

2) USA & Canada class 2 supply required, max. supply voltage 30 V DC.

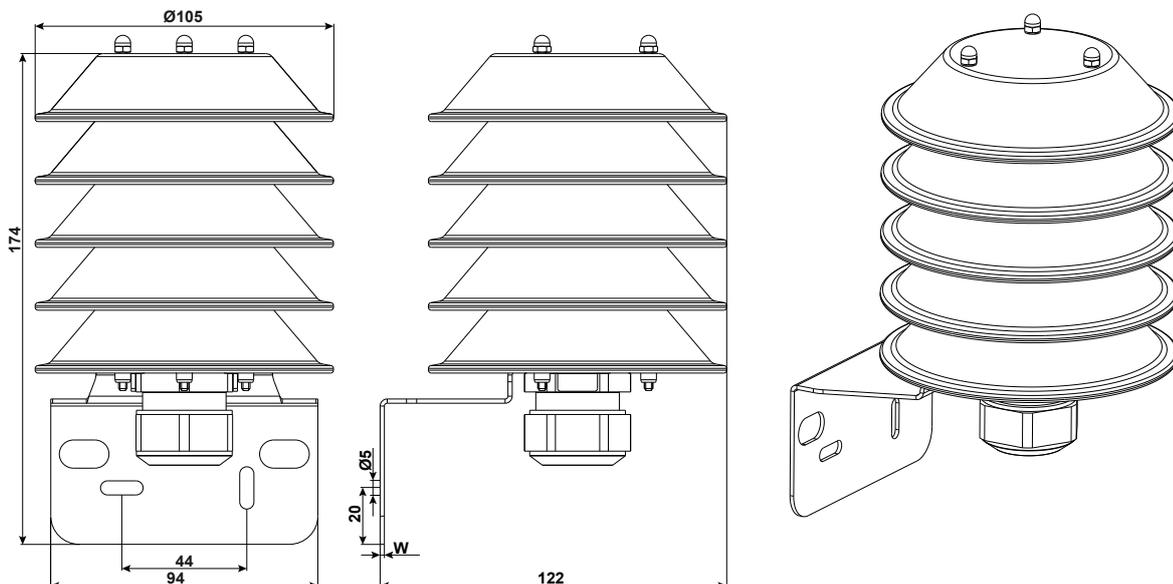
3) The average current consumption depends on the measurement interval.

## E2 INTERFACE

For communication with EE871 via E2 interface please see the support literature at [www.epluse.com/ee240](http://www.epluse.com/ee240).

## 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.



## REPLACEMENT PARTS / ACCESSORIES

For further information, see data sheet „Accessories“

Mounting flange	HA010212
Connecting cable M12 - flying leads (1.5 m (59.06") / 5 m (196.85") / 10 m (393.70"))	HA010819/20/21
PTFE filter cap	HA010116
Radiation shield	HA010507
Protection cap for the M12 cable socket	HA010781
Protection cap for the M12 plug of EE871	HA010782

## SCOPE OF SUPPLY

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

### USA

#### FCC notice:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the installation manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which thereceiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### CANADIAN

#### ICES-003 Issue 5:

CAN ICES-3 B / NMB-3 B

## INFORMATION

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