

USER GUIDE

EE871 – CO₂ Sensing Probe for the EE240 Wireless Sensor Network

GENERAL

The E+E CO₂ probe EE871 is designed for use in harsh, demanding applications. It incorporates the dual wavelength NDIR CO₂ sensor, which compensates for ageing effects, is highly insensitive to pollution and stands for outstanding long term stability.

With a special filter cap, the probe can be employed in applications with periodical H₂O₂ sterilization, see „Replacement Parts / Accessories“.

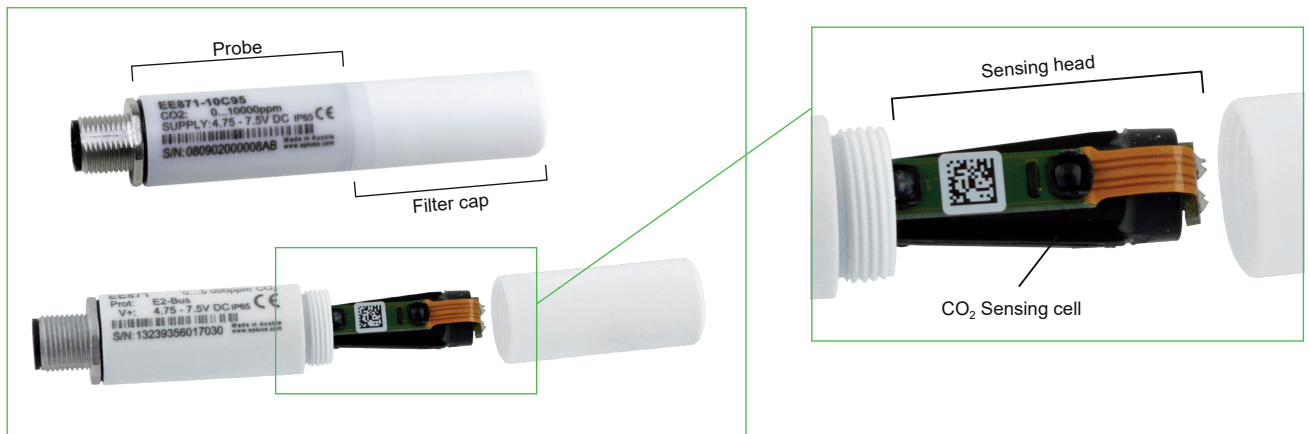
A multiple point CO₂ and temperature factory adjustment leads to excellent CO₂ measurement accuracy over the entire temperature working range.

The measured data range of up to 5 % CO₂ (50000 ppm) is available on E2 digital interface.

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

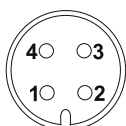
CAUTION

- 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.



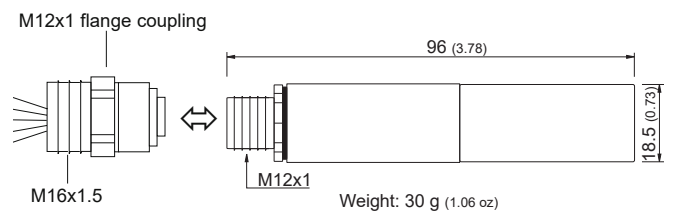
- The device must be operated with the filter cap on at all times. Do not touch the sensing cell or electronics inside the sensing head.
- A long response time indicates a dirty filter cap, as it might happen in polluted applications. Do not attempt to clean the filter cap; it would only cause its clogging. 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



	E2	E2	
1...	GND	GND	brown
2...	+UB	+UB	white
3...	DATA	DATA	blue
4...	CLOCK	CLOCK	black
		Shielding	grey

DIMENSIONS mm (inch)



TECHNICAL DATA

(Modification rights reserved)

Measured values

CO₂

Measuring principle	Dual wavelength (non-dispersive infrared technology) NDIR	
Measurement range	0...2000 ppm:	< ± (50 ppm + 2 % from the measured value)
Accuracy at 25 °C and 1 013 mbar ¹⁾ (77 °F...14,69 psi)	0...5000 ppm:	< ± (50 ppm + 3 % from the measured value)
	0...10000 ppm:	< ± (100 ppm + 5 % from the measured value)
	0...3 %:	< ± (1,5 % from full scale + 2 % from the measured value)
	0...5 %:	< ± (1,5 % from full scale + 2 % 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...2000 ppm:	
	0...5000 ppm:	typ. ± (1 + CO ₂ concentration [ppm] / 1000) ppm/°C
	0...10000 ppm:	
	0...3 %:	
	0...5 %:	typ. -0,3 % from the measured value/°C
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
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)



2) 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.

SETUP AND ADJUSTMENT

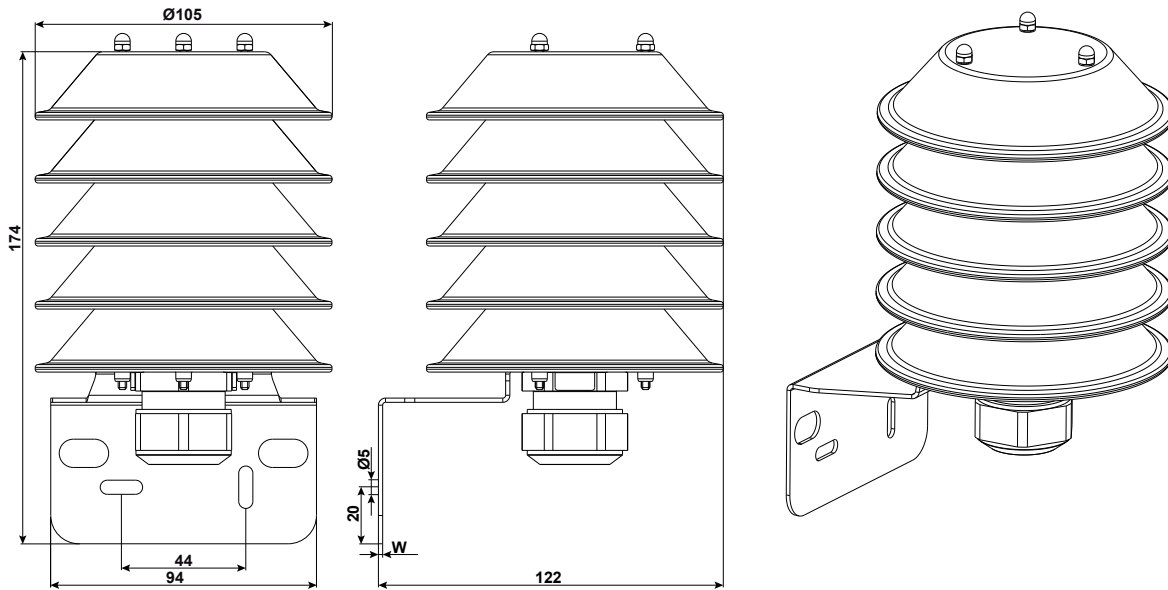
The EE871 probe is ready to use and does not require any configuration by the user. The factory setup of EE871 corresponds to the type number ordered. For ordering guide please see data sheet at www.epluse.com/EE240.

For changing the factory setup, please use the optional E2 Test and Configuration Adapter HA011010, see data sheet "Accessories" at www.epluse.com/EE240 and the E+E Product Configuration Software EE-PCS.

The E+E Product Configuration Software EE-PCS is available for free download at www.epluse.com/configurator.

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
M12x1 flanged coupling with 50 mm (1,97") stranded wire
Modbus configuration adapter
E2 Test and configuration adapter
E+E Product configuration software

Connecting cable M12 - flying leads (1.5 m (59.06") / 5 m (196.85") / 10 m (393.70"))
T-Coupler M12 - M12
M12 Connector for self assembly
PTFE filter cap
H₂O₂ filter cap
Radiation shield
Protection cap for the M12 cable socket
Protection cap for the M12 plug of EE871

HA010212
HA010705
HA011012
HA011010
EE-PCS
(Download: www.epluse.com/Configurator)
HA010819/20/21
HA030204
HA010707
HA010116
HA010122
HA010507
HA010781
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

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