

USER GUIDE

EE8915 – CO₂ Sensor for Railway Applications

Find this document and further product information on our website at www.epluse.com/ee8915.

SCOPE OF SUPPLY

- EE8915 sensor according ordering guide
- Test report according to DIN EN10204-2.2
- Quick guide
- Rubber gasket (only for duct mount)

CAUTION

The device shall not be exposed to extreme mechanical or thermal stress.

The EE8915 is not appropriate for safety, emergency stop or other critical applications where device malfunction or failure could cause injury to humans and other living beings.

CONNECTION DIAGRAM



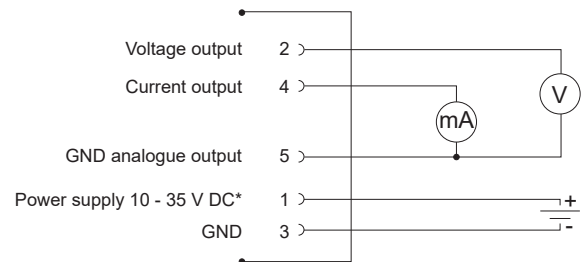
Important note:

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.

FIX INSTALLED CABLE

Core number	Function
1	10 - 35 V DC supply
2	GND supply
3	GND analogue output
4	Current output
5	Voltage output

M12 CONNECTOR



*The supply circuit must be fused with ≤ 8A

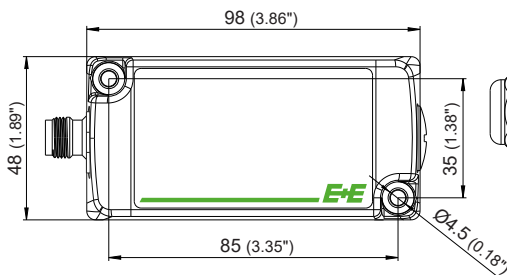
Very important: For failure-free operation and performance according to the specs, the GND supply and the GND analogue output must be wired separately.

Analogue outputs factory settings according ordering guide (see datasheet at www.epluse.com/ee8915):

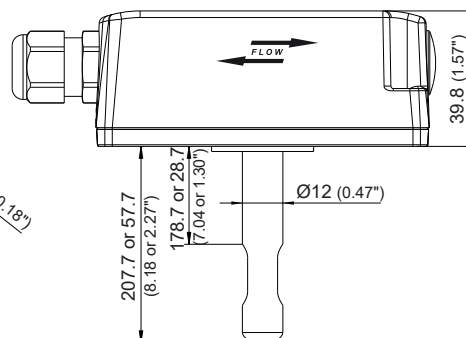
Order code	Voltage output	Current output
GA7	0 - 10 V	4 - 20 mA
GA11	0 - 5 V	0 - 20 mA

DIMENSIONS

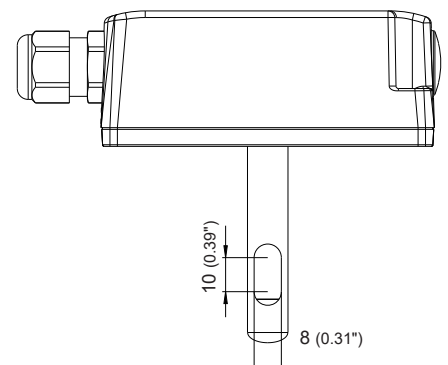
MODEL T1 (WALL MOUNT)



MODEL T2 (DUCT MOUNT 0°)



MODEL T27 (DUCT MOUNT 90°)



INSTALLATION

WALL MOUNT

Choose a location which minimizes the dust deposits on the filter.

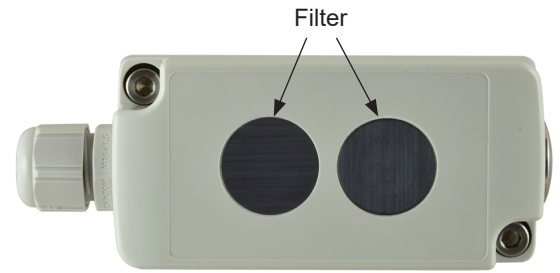
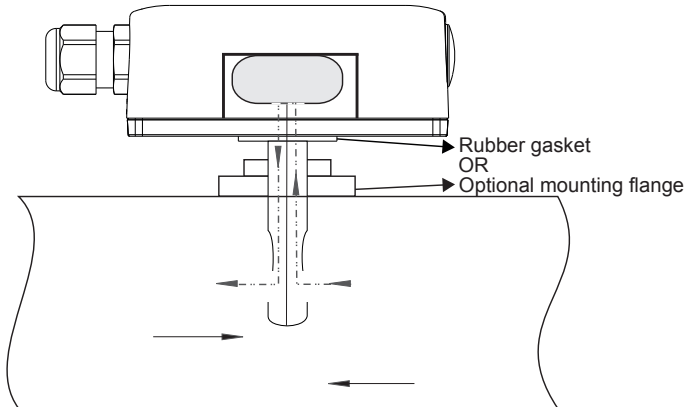
DUCT MOUNT

When correctly installed, a small amount of air will flow through the divided probe into the EE8915 enclosure, where the CO₂ sensing cell is located, and back into the duct.

Very important

For accurate measurement and response time according to specification:

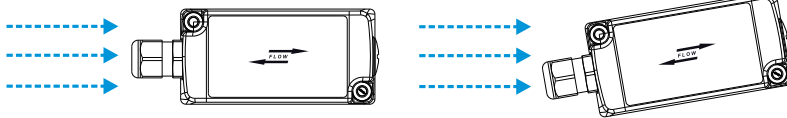
- Minimum air speed in the duct shall be 1 m/s (196 ft/m).
- The air flow shall be perpendicular to the opening holes on the head of probe.



MODEL T2

CORRECT

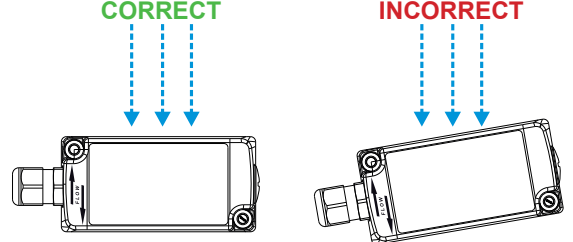
INCORRECT



MODEL T27

CORRECT

INCORRECT



SETUP AND ADJUSTMENT

The EE8915 is ready to use and does not require any configuration by the user. The factory setup of EE8915 corresponds to the type number ordered. For ordering guide please see data sheet at www.epluse.com/ee8915.

If needed, the user can change the factory setup by using the USB service interface and the EE-PCS, Product Configuration Software, free download at www.epluse.com/configurator.

One can change the CO₂ output signal, the scaling of the outputs and perform CO₂ adjustment.

It is possible to enable or disable the pressure compensation (factory setting: enabled) and the NAMUR error indication (factory setting: disabled).

The USB port (type Micro-B, smartphone standard) is located behind the access cover.



During setup or adjustment via USB service interface, the EE8915 requires external power supply.



EE-PCS PRODUCT CONFIGURATION SOFTWARE

1. Download the EE-PCS Product Configuration Software from www.epluse.com/configurator and install it on the PC.
2. Connect the E+E device to an USB port of the PC.
3. Start the EE-PCS software.
4. Follow the instructions on the EE-PCS opening page for scanning the ports and identifying the connected device.
5. Click on the desired setup or adjustment mode from the main EE-PCS menu on the left and follow the online instructions.

ERROR INDICATION ON THE ANALOGUE OUTPUT

The EE8915 features an error indication on the analogue output according to NAMUR recommendations (factory setting: disabled). The feature can be enabled with the EE-PCS Product Configuration Software, see above.

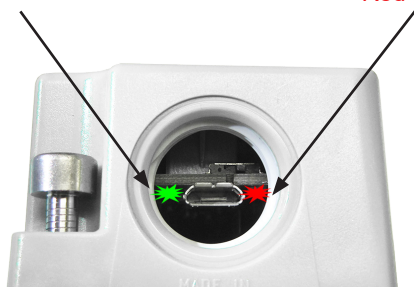
Output signal	NAMUR signal level
0 - 5 V	5.5 V
0 - 10 V	11 V
4 - 20 mA	21 mA
0 - 20 mA	21 mA

STATUS LEDs

The status LEDs are located behind the access cover.

Green LED

Red LED



Green LED

flashing = Normal operation

Red LED

off = Normal operation

on = Failure. Contact E+E after sales service.

flashing = Failure. Also indicated on the analogue output (NAMUR indication enabled). The failure might be temporary, caused for instance by overheating. If the flashing persists, contact E+E after sales service.

MAINTENANCE

Longer response time of the wall mount EE8915 is caused by duct deposits on the filter. Clean the filter by sweeping it gently with a soft, dry cloth!

TECHNICAL DATA

Measurands


CO₂

Measurement principle	Dual wavelength non-dispersive infrared technology (NDIR)
Measuring range	0...2 000 / 5 000 / 10 000 ppm
Accuracy at 25 °C (77 °F) and 1013 mbar (14.7 psi)	0...2 000 ppm: < ± (50 ppm + 2 % of mv) 0...5 000 ppm: < ± (50 ppm + 3 % of mv) 0...10 000 ppm: < ± (100 ppm + 5 % of mv) mv=measured value
Response time t ₆₃ (typ.)	Duct: < 100 s at 3 m/s (590 ft/min) air speed Wall: < 160 s
Temperature dependency (typ.)	± (1 + CO ₂ concentration [ppm] / 1000) ppm/°C, for -20...+45 °C (-4...+113 °F)
Residual pressure dependency ¹⁾	0.014% of mv / mbar (ref. to 1013 mbar), for -20...+45 °C (-4...+113 °F)
Measuring interval	Approx. 15 s

Outputs

CO ₂	0 - 5 V / 0 - 10 V	-1 mA < I _L < 1 mA
	0 - 20 mA / 4 - 20 mA	R _L < 500 Ohm

General

Power supply class III 	10 - 35 V DC ²⁾ 24 V DC nominal voltage U _n according to EN 50155
Current consumption (typ., @ 24 V supply)	Average: 10 mA + output current Peak: 105 mA for 0.3 s
Minimum air speed in the duct	1 m/s (196 ft/min)
Enclosure material	Polycarbonate, UL94V-0 approved
Protection rating enclosure	IP65/NEMA 4X
Service interface	USB, Micro B
Electrical connection	Connector M12x1 or cable with flying leads, max. 2 m (6.56 ft)
Electromagnetic compatibility	Railway standard: EN 50121-3-2:2016 EN 50121-1:2017 EN 61326-1 EN 61326-2-3 Industrial Environment FCC Part 15 ICES-003 Class B
Working and storage conditions	-40...+60 °C (-40...+140 °F) 0...95 %RH (non-condensing)



1) The pressure dependency of a non-compensated CO₂ sensor is 0.14% of mv / mbar

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

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 the receiver 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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