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# Datasheet EE8915

**CO<sub>2</sub> Sensor for Railway Applications**



# EE8915

## CO<sub>2</sub> Sensor for Railway Applications

EE8915 measures reliably CO<sub>2</sub> concentration in harsh environment and complies with the relevant railway standards.

### Outstanding Accuracy and Long-Term Stability

A multiple point CO<sub>2</sub> and temperature (T) adjustment procedure leads to excellent CO<sub>2</sub> measurement accuracy over the entire T working range -40...+60 °C (-40...+140 °F).

The active compensation with on-board sensors leads to best CO<sub>2</sub> measurement accuracy independently of weather conditions, altitude or temperature. The E+E dual wavelength non-dispersive infrared (NDIR) measurement principle compensates automatically for ageing effects and is highly insensitive to pollution.

### Versatile and Suitable for Demanding Applications

EE8915 is available for wall and duct mounting. The innovative design enables the combination of short response time and high protection class. The CO<sub>2</sub> measured data is available as voltage and current output signals.

Due to the compliance with tough railway standards, the EE8915 stands for excellent performance even under challenging conditions in any process and climate control application.

### Configurable and Adjustable

The free EE-PCS product configuration software and the USB connection enable particularly user-friendly configuration and adjustment.



EE8915 wall mount with M12 plug



EE8915 duct mount with fix installed cable

# Features

## Enclosure

- IP65 protection rating
- UL94 V-0 approved material
- Easy mounting without opening the device

## Output configuration

- Voltage and current output
- M12 connector or fix installed cable
- User configurable and adjustable
- USB configuration interface



## Measurement performance

- E+E dual wavelength NDIR auto calibration
- T and p compensation with on-board sensors
- CO<sub>2</sub> range 0...2000/5000/10000 ppm
- T range -40...+60 °C (-40...+140 °F)
- Short response time

## Test report according

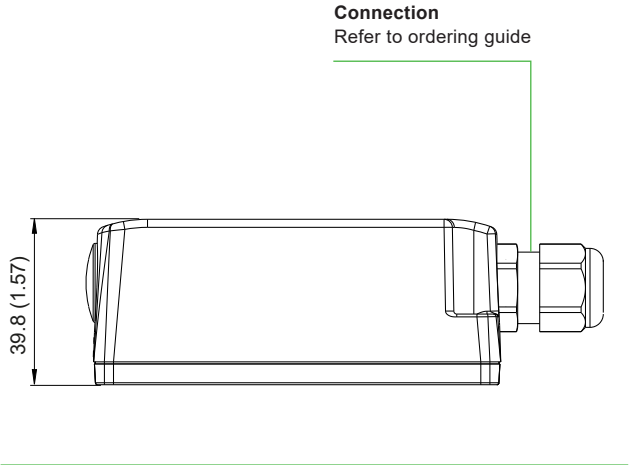
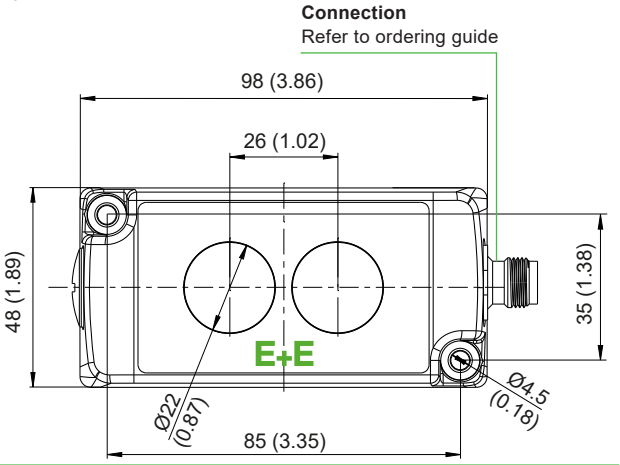
According to DIN EN 10204-2.2

# Dimensions

Values in mm (inch)

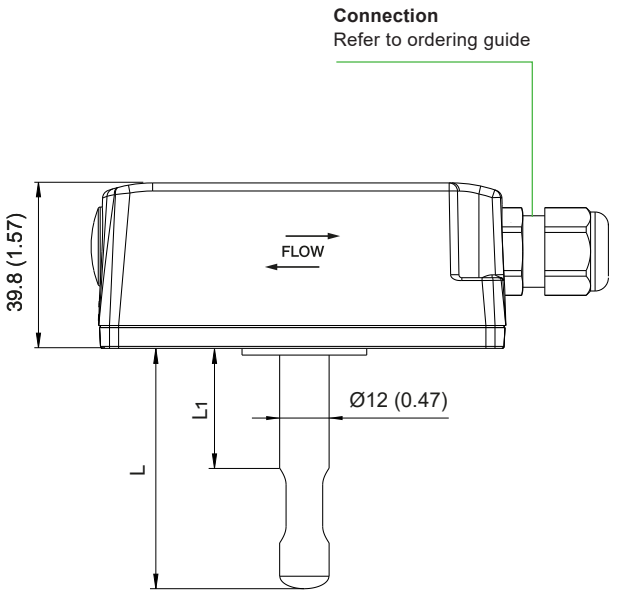
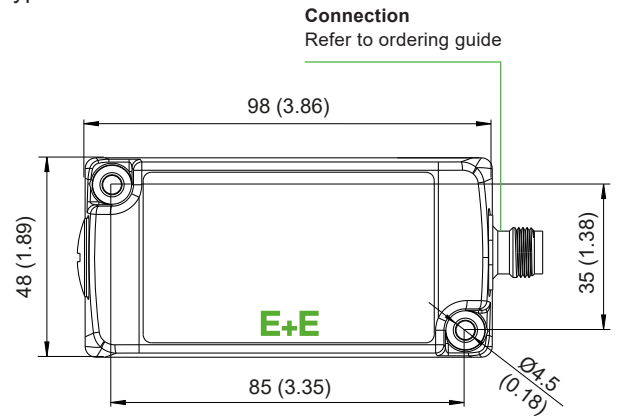
## Wall mount

Type T1



## Duct mount

Type T2



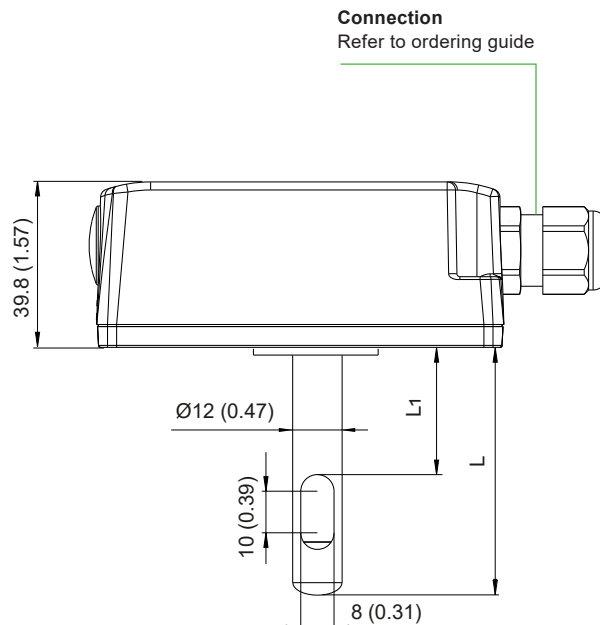
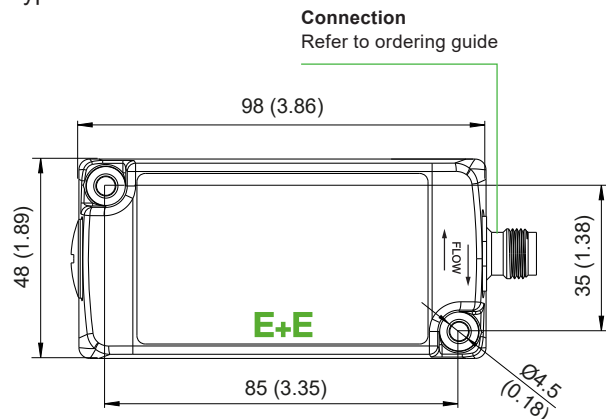
L in mm (inch)	L <sub>1</sub> in mm (inch)
207.7 (8.18)	178.7 (7.04)
57.7 (2.27)	28.7 (1.30)

# Dimensions

Values in mm (inch)

## Duct mount with 90° rotated probe

Type T27



L in mm (inch)	L <sub>1</sub> in mm (inch)
207.7 (8.18)	178.7 (7.04)
57.7 (2.27)	28.7 (1.30)

# Technical Data

## Measurands

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

<b>Measurement principle</b>	Dual wavelength non-dispersive infrared technology (NDIR)
<b>Measurement range</b>	0...2000 / 5000 / 10000 ppm
<b>Accuracy</b> @ 25 °C (77 °F) and 1013 mbar (14.7 psi)	<div> <div>0...2000 ppm</div> <div>0...5000 ppm</div> <div>0...10000 ppm</div> </div> <div> <div>&lt; ±(50 ppm + 2 % of mv)</div> <div>&lt; ±(50 ppm + 3 % of mv)</div> <div>&lt; ±(50 ppm + 5 % of mv)</div> </div> <div>mv = measured value</div>
<b>Temperature dependency, typ.</b> , in the range of -20...45 °C (-4...113 °F)	<div>±(1 + mv / 1000) ppm/°C</div> <div>±0.556*(1 + mv / 1000) ppm/°F</div> <div>mv = measured value</div>
<b>Residual pressure dependency<sup>1)</sup></b> , in the range of -20...45 °C (-4...113 °F), related to 1013 mbar	<div>0.014 % of mv / mbar</div> <div>0.965 % of mv / psi</div> <div>mv = measured value</div>
<b>Response time t<sub>63</sub>, typ.</b>	<div>Duct mount</div> <div>Wall mount</div> <div>&lt;100 s at 3 m/s (590 ft/min) air speed</div> <div>&lt;160 s</div>
<b>Measuring interval</b>	15 s

1) Pressure dependence of a sensor without pressure correction: 0.14 % mv/mbar.

# Technical Data




## Outputs

### Analogue

<b>CO<sub>2</sub></b> <sup>1)</sup>	0 - 5 V or 0 - 10 V and 0 - 20 mA or 4 - 20 mA	-1 mA < I <sub>L</sub> < 1 mA  R <sub>L</sub> ≤ 500 Ω	I <sub>L</sub> = load current  R <sub>L</sub> = load resistor
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1) Voltage and current output signals are simultaneously available.

## General

<b>Power supply</b> class III  USA & Canada: Class 2 supply necessary, max. voltage 30 V DC	10 - 35 V DC 24 V DC nominal voltage U <sub>n</sub> according to EN 50155		
<b>Current consumption</b> , typ. @ 24 V DC/AC	<b>Average</b> <b>Peak</b>	10 mA + output current 105 mA for 0.3 s	
<b>Minimum air speed in the duct</b>	1 m/s (196 ft/min)		
<b>Electrical connection</b>	Connector M12x1 or cable with flying leads, max. 2 m (6.56 ft)		
<b>Working and storage conditions</b>	-40...+60 °C (-40...+140 °F) 0...95 %RH, non-condensing		
<b>Enclosure</b>	<b>Material</b> <b>Protection rating</b>	Polycarbonate, UL94 V-0 approved IP65/NEMA 4X	
<b>Electromagnetic compatibility</b>	Railway standard: EN 50121-3-2:2016 EN 50121-1:2017 EN 61326-1 EN 61326-2-3 Industrial environment FCC Part15 Class B ICES-003 Class B		
<b>Conformity</b>	 		
<b>Configuration and adjustment</b>	<b>Software</b> <b>Interface</b>	EE-PCS Product Configuration Software (free download: <a href="http://www.epluse.com/configurator">www.epluse.com/configurator</a> ) Micro USB	

## Compliance with Railway Standards

- EN 50155:2021 Electronic equipment used on rolling stock
- EN 50121-1:2017 Electromagnetic compatibility - general
- EN 50121-3-2:2016 Electromagnetic compatibility - rolling stock
- EN 61373:2010 Rolling stock equipment - shock and vibration tests
- EN 50125-1 Environmental conditions for equipment - rolling stock on - board equipment
- EN 45545-2 Fire protection on railway vehicles
- EN 50306 Railway rolling stock cables having special fire performance

# Ordering Guide

Feature		Description	Code	
Hardware Configuration			EE8915-	
	Type	Wall mount	T1	
		Duct mount		T2
		Duct mount with 90° rotated probe		T27
	CO <sub>2</sub> measuring range	0...2000 ppm	HV1	
		0...5000 ppm	HV2	
		0...10000 ppm	HV3	
	Electrical connection	M12 plug	E4	
		Cable	E8	
	Probe length	50 mm (1.97")		L50
		200 mm (7.87")		L200
SW Setup	Cable length <sup>1)</sup>	0.5 m (1.64 ft)	KL50	
		2 m (6.56 ft)	KL200	
	Output <sup>2)</sup>	Output 1: 0 - 10 V	Output 2: 4 - 20 mA	GA7
		Output 1: 0 - 5 V	Output 2: 0 - 20 mA	GA11

1) For cable version E8 only.

2) Voltage and current output signals are simultaneously available.

## Order Example

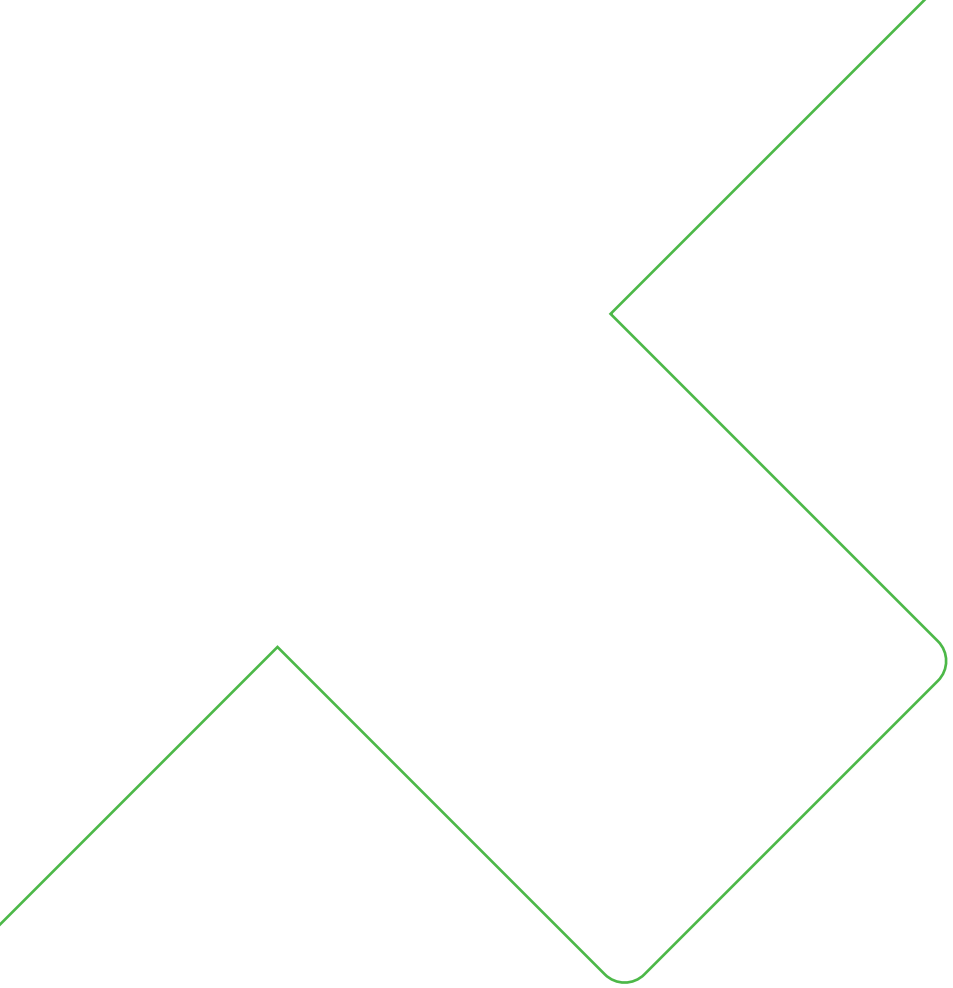
EE8915-T1HV2E8KL50GA7

Feature	Code	Description
Type	T1	Wall mount
CO <sub>2</sub> measuring range	HV2	0...5000 ppm
Electrical connection	E8	Cable
Cable length	KL50	0.5 m (1.64 ft)
Output	GA7	Output 1: 0 - 10 V Output 2: 4 - 20 mA

## Accessories

For further information refer to the [Accessories](#) datasheet.

Description	Code
Plastic mounting flange, light grey, Ø12mm (0.47")	HA010202
M12 cable connector for self assembly, 5 pin	HA010708
Connection cable M12x1 Socket 5 Poles / Free cable ends	
1.5 m	HA010819
5 m	HA010820
10 m	HA010821
Protection cap for M12 socket	HA010781
Protection cap for M12 plug	HA010782



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