Datasheet EE8915

CO_2 Sensor for Railway Applications

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EE8915 measures reliably CO_2 concentration in harsh environment and complies with the relevant railway standards.

Outstanding Accuracy and Long-Term Stability

A multiple point CO_2 and temperature (T) adjustment procedure leads to excellent CO_2 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_2 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_2 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_2 range 0...2 000 / 5 000 / 10 000 ppm
- T range -40...+60 °C (-40...+140 °F)
- Short response time

Test report according

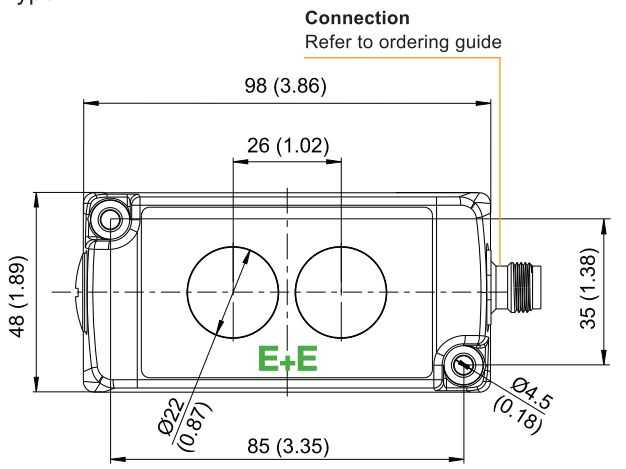
According to DIN EN 10204-2.2

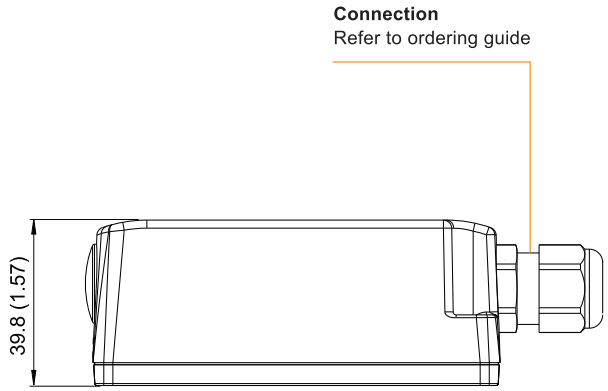
Dimensions

Values in mm (inch)

Wall mount

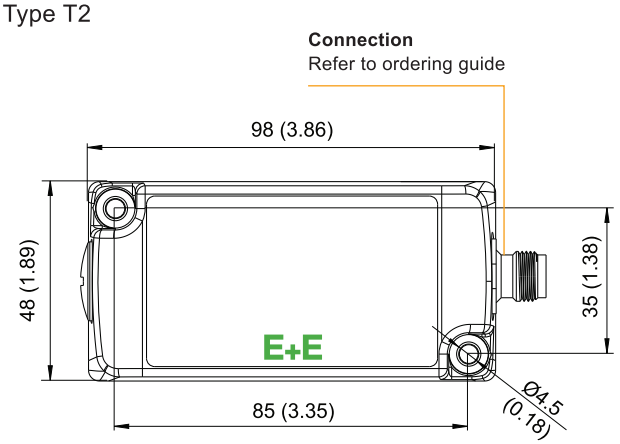
Type T1

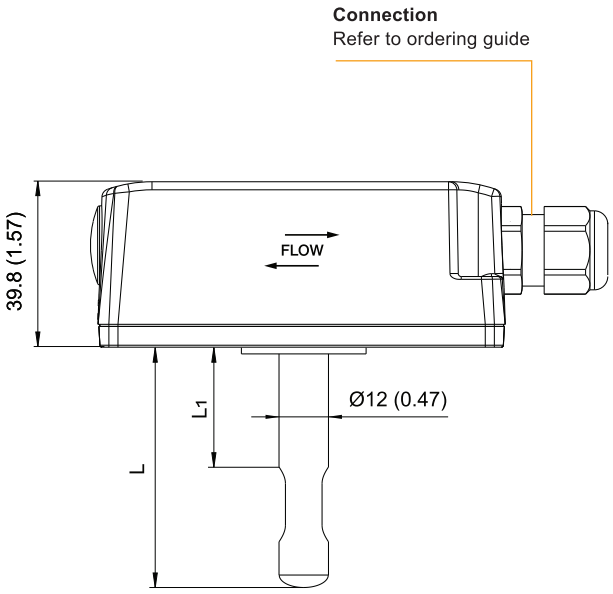




Duct mount

Type T2





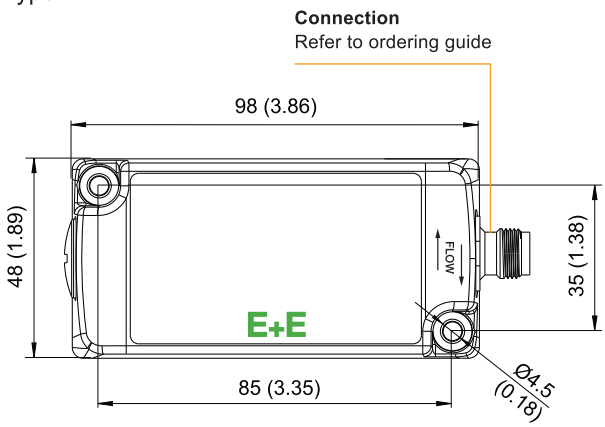
L in mm (inch)	L_1 in mm (inch)
207.7 (8.18)	178.7 (7.04)
57.7 (2.27)	28.7 (1.30)

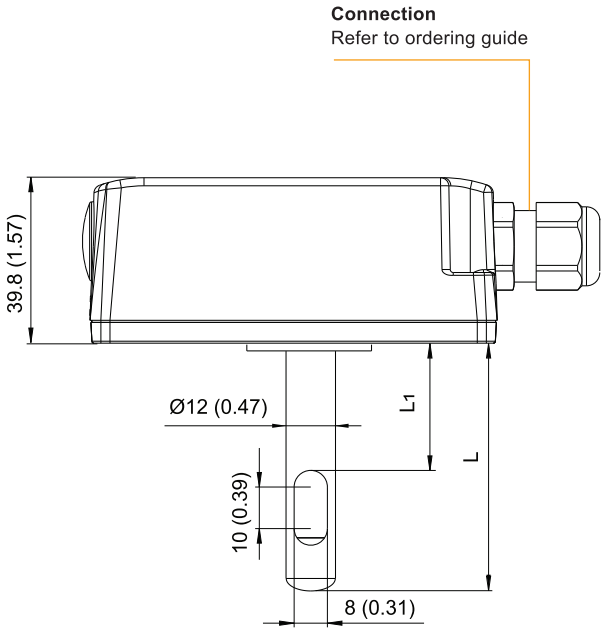
Dimensions

Values in mm (inch)

Duct mount with 90° rotated probe

Type T27





L in mm (inch)	L_1 in mm (inch)
207.7 (8.18)	178.7 (7.04)
57.7 (2.27)	28.7 (1.30)

Technical Data

Measurands

CO_2

Measurement principle	Dual wavelength non-dispersive infrared technology (NDIR)	
Measurement range	0...2 000 / 5 000 / 10 000 ppm	
Accuracy @ 25 °C (77 °F) and 1 013 mbar (14.7 psi) **0...2 000 ppm** **0...5 000 ppm** **0...10 000 ppm**	 < ±(50 ppm +2 % of mv) < ±(50 ppm +3 % of mv) < ±(50 ppm +5 % of mv)	 mv = measured value
Temperature dependency, typ., in the range of -20...45 °C (-4...113 °F)	±(1 + mv / 1 000) ppm/°C ±0.556*(1 + mv / 1 000) ppm/°F	mv = measured value
Residual pressure dependency[1)] in the range of -20...45 °C (-4...113 °F), related to 1 013 mbar	0.014 % of mv / mbar 0.965 % of mv / psi	mv = measured value
Response time t_{63}, typ. **Duct mount** **Wall mount**	<100 s at 3 m/s (590 ft/min) air speed <160 s	
Measuring intervall	15 s	

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

Technical Data

Outputs

Analogue

CO_2[1)]	0 - 5 V or 0 - 10 V and 0 - 20 mA or 4 - 20 mA	-1 mA < I_L < 1 mA R_L ≤ 500 Ω	I_L = load current R_L = load resistor

1) Voltage and current output signals are simultaneously available.

General

Power supply class III USA & Canada: Class 2 supply necessary, max. voltage 30 V DC		10 - 35 V DC 24 V DC nominal voltage U_n according to EN 50155
Current consumption, typ. @ 24 V DC/AC	**Average** **Peak**	10 mA + output current 105 mA for 0.3 s
Minimum air speed in the duct		1 m/s (196 ft/min)
Electrical connection		Connector M12x1 or cable with flying leads, max. 2 m (6.56 ft)
Working and storage conditions		-40...+60 °C (-40...+140 °F) 0...95 %RH, non-condensing
Enclosure	**Material** **Protection rating**	 Polycarbonate, UL94 V-0 approved IP65 / NEMA 4X
Electromagnetic compatibility		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
Conformity		CE UKCA
Configuration and adjustment	**Software** **Interface**	EE-PCS Product Configuration Software (free download: www.epluse.com/configurator) 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 stuck 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
				EE8915-
Hardware Configuration	Type	Wall mount		T1
		Duct mount		T2
		Duct mount with 90° rotated probe		T27
	CO_2 measuring range	0...2 000 ppm		HV1
		0...5 000 ppm		HV2
		0...10 000 ppm		HV3
	Electrical connection	M12 plug		E4
		Cable		E8
	Probe length	50 mm (1.97“)		L50
		200 mm (7.87”)		L200
	Cable length[1]	0.5 m (1.64 ft)		KL50
		2 m (6.56 ft)		KL200
SW Setup	Output[2]	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_2 measuring range	HV2	0...5 000 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 assemply, 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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