

EE8915

CO₂ Sensor for Railway Applications

EE8915 measures reliably CO₂ concentration in harsh environment and complies with the relevant railway standards.

Outstanding Accuracy

A multiple point CO₂ and temperature (T) adjustment procedure leads to excellent CO₂ measurement accuracy over the entire T working range -40...+60 °C (-40...+140 °F).

Long Term Stability

The E+E dual wavelength non-dispersive infrared (NDIR) measurement principle compensates automatically for ageing effects and is highly insensitive to pollution.

Pressure and Temperature Compensation

The active compensation with on-board sensors leads to best CO₂ measurement accuracy independent of temperature, altitude or weather conditions.

Versatility

EE8915 is available for wall and duct mounting. The innovative design enables the combination of short response time and high protection class. The CO₂ measured data is available simultaneously as voltage and current output signal.

Suitable for Demanding Applications

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.

User Configurable and Adjustable

The free EE-PCS Product Configuration Software facilitates the configuration and adjustment of the EE8915.



Features

Enclosure

- » IP65 protection class
- » UL94V-0 approved material
- » M12 connector or fix installed cable
- » Easy mounting without opening the device

Output configuration

- » Voltage and current output
- » User configurable and adjustable
- » USB service interface



Test report according
 DIN EN 10204 - 2.2

Measurement performance

- » E+E dual wavelength NDIR, auto calibration
- » T and p compensation with on-board sensors
- » CO₂ range 0...2000/5000/10000 ppm
- » T range -40...+60 °C (-40...+140 °F)
- » Short response time

Compliance with railway standards

- » EN50155:2007 Electronic equipment used on rolling stock
- » EN50125-1:1999 Environmental conditions for equipment - rolling stock and on-board equipment
- » EN50121-3-2:2006 Electromagnetic compatibility – rolling stock
- » EN50121-1:2006 Electromagnetic compatibility – general
- » EN61373:2011 Rolling stock equipment - shock and vibration tests
- » EN45545-2 Fire protection on railway vehicles
- » EN50306 Railway rolling stock cables having special fire performance

Technical Data

Measurands



CO₂

Measurement principle	dual wavelength non-dispersive infrared technology (NDIR)	
Measuring range	0...2000 / 5000 / 10000 ppm	
Accuracy at 25 °C (77 °F) and 1013 mbar (14.7 psi)	0...2000 ppm: < ± (50 ppm +2% of mv)	
	0...5000 ppm: < ± (50 ppm +3% of mv)	
	0...10000 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	
Current consumption (typ.)	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 class enclosure	IP65 / NEMA 4	
Service interface	USB, Micro B	
Electrical connection	connector M12x1 or cable with flying leads, max. 3 m (9.85 ft)	
Electromagnetic compatibility	railway standard: EN50121-3-2:2006 EN50121-1:2006	
		EN61326-1 EN61326-2-3 Industrial Environment FCC Part 15 ICES-003 ClassB
Working and storage conditions	-40...+60 °C (-40...+140 °F)	0...95 % RH (non-condensing)

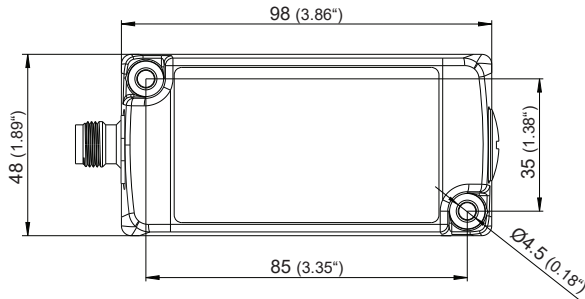
1) The pressure dependency of a non-compensated CO₂ sensor is 0.14% of mv / mbar

Compliance with Railway Standards

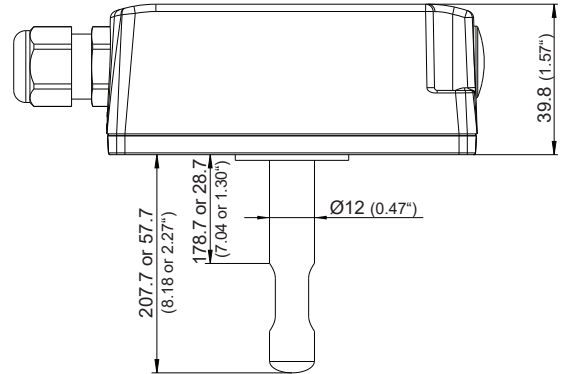
- » **EN50155:2007** Electronic equipment used on rolling stock
- » **EN50125-1:1999** Environmental conditions for equipment - rolling stock and on-board equipment
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Dimensions in mm (inch)

Wall mount



Duct mount



Ordering Guide

		EE8915-	
Hardware configuration	Model	wall mount duct mount	T1 T2
	CO ₂ measuring range	0...2000 ppm	HV1
		0...5000 ppm	HV2
		0...10000 ppm	HV3
	Connection	M12 plug cable	E4 E8
	Probe length (only for duct mount T2)	50 mm (1.97") 200 mm (7.87")	L50 L200
Cable length (only for cable version E8)	0.5 m (1.64 ft)	KL50	
	1 m (3.28 ft)	KL100	
	2 m (6.56 ft)	KL200	
	3 m (9.84 ft)	KL300	
SW-Setup	Output 1)	output 1: 0-10 V, output 2: 4-20 mA	GA7
		output 1: 0-5 V, output 2: 0-20 mA	GA11

1) EE8915 features simultaneously a voltage and current output

Order Example

EE8915-T1HV2E8KL100GA7

Model: wall mount
 CO₂ measuring range: 0...5000 ppm
 Connection: cable
 Cable length: 1 m (3.28 ft)
 Output: output 1: 0-10 V
 output 2: 4-20 mA

Accessories

Plastic mounting flange Ø12mm (0.47")	HA010202
M12 cable connector for self assembly, 5 pin	HA010708
Connection cable, 5 pin M12 socket - flying leads	1.5 m (3.3 ft) HA010819
	5 m (16.4 ft) HA010820
	10 m (32.8 ft) HA010821
Protection cap for M12 female connector	HA010781
Protection cap for M12 male connector	HA010782