



Mounting- and Operating Instructions

ZMF-200e-IR

CO₂ Sensor



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1. Scope of Delivery

- CO2 Sensor ZMF-200e-IR
- Mounting- and operating instructions

2. Product description

The ZMF-200e-IR is a carbon dioxide CO2 sensor, designed solely for measuring the carbon dioxide concentration in the ambient air, under the operating conditions mentioned below. The device is available in different measuring ranges and has an internal error monitoring. The measurement of the carbon dioxide CO2 concentration takes place via the optical measuring principle NDIR (non-dispersive infrared absorption measurement). With the integrated 4...20mA output signal, the measurement signals can be evaluated by a downstream device.

The sensor unit is located in a stainless steel housing and is mounted on a diffusion opening. The cable entry is realized via cable glands. The device is powered via 12...24 V DC and can be mounted on the wall.

3. Product features

3.1. Measurement principle

The CO2 sensor ZMF-200e-IR measures the absolute CO2 concentration in the ambient air quickly and accurately with a dual-beam infrared photometer (NDIR). The measuring range is linear.

3.2. Measurement ranges

The sensor measures the CO2 concentration in the ambient air in the range of 0...5000ppm. Other measuring ranges up 100vol% are available on request:

0... 2.000 ppm	0,2 vol %
0... 5.000 ppm	0,5 vol %
0... 10.000 ppm	1,0 vol %
0... 20.000 ppm	2,0 vol %
0... 50.000 ppm	5,0 vol %
0... 200.000 ppm	20,0 vol %
0... 1.000.000 ppm	100,0 vol %

3.3. Functions

- usable as a CO2 sensor with 4...20mA signal output

3.4. Technical specifications

Dimensions (LxWxH): 115,6x60x27 mm

Further technical specifications are given in the product specific data sheet on our website www.zila.de.

3.5. Operational- and environmental conditions

- operating temperature range: -40...+60 °C
- storage temperature range: -40...+85 °C
- relative humidity: 0 to 95% (non-condensing)
- air pressure: 800...1200 mbar

3.6. Standard and guidance



The CO2 sensor ZMF-200e-IR is consistent with the requirements of the following European standards:

- EN 50270 (EMC Directive)
- EN 61508:2010 (part 1 to 7)
- EN 50402:2017

The declaration of conformity to the ZMF-200e-IR can be found on our website www.zila.de.

4. General instructions

CAUTION: Poisoning with carbon dioxide (CO₂) is life threatening!



CAUTION: Under certain circumstances, the CO₂ sensor ZMF-200e-IR cannot measure the CO₂ concentration in the ambient air (power failure). Users and operators of plants are in charge of personnel safety and security according to applicable laws.



- Read the instructions carefully
- Keep the instructions
- Mounting, commissioning and electrical connection allowed for experts only
- Repairing is only allowed for experts only
- The mentioned international protection marking is only guaranteed when the device is built-in correctly and the electrical cables are proper connected
- Only operate the device with the correct power supply
- Modification of the device is forbidden and releases the ZILA GmbH of any guarantee and liability

5. Mounting and Commissioning

5.1. Mounting

The ZMF-200e-IR has to be mounted on a solid, flat and dry wall. The ambient conditions must be adhered.

When mounting outside, a protection against direct weather influences is necessary.

The device must be installed protected against splash water and condensate.

Carbon dioxide CO₂ is heavier than air and sinks to the ground. When using the ZMF-200e-IR for personal protection, mounting at ground level is recommended.

5.2. Electrical connection

Cable connection

White	V+ (12...24 V)
Brown	GND
Green	Output (4...20 mA)

5.3. Commissioning

Since the CO₂ sensor ZMF-200e-IR is a sensitive measuring device, an appropriately cautious handling of the device is recommended.

Ensure prior to installation and commissioning, that the environmental conditions are suitable for the use of the device.

Make sure that the CO₂ sensor is connected correctly and that the power supply is switched on.

6. Calibration

A calibration of the device is not necessary with standard applications. An expert may perform a calibration if required. In SIL2 applications we recommend annual calibration of the sensor with a certified test gas.

7. Maintenance

Thanks to the NDIR technology, the CO2 sensor ZMF-200e-IR is maintenance free.

Depending on the application, a regular calibration of the device is advised.

8. Support

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