

## GMM112 Carbon Dioxide Module for HVAC Applications



The Vaisala CARBOCAP® Carbon Dioxide Module GMM112 is a basic CO<sub>2</sub> measurement module.

The Vaisala CARBOCAP® Carbon Dioxide Module GMM112 is a compact module for measuring ppm (parts per million) levels of carbon dioxide. The GMM112 module is designed for indoor use in demand controlled ventilation and other applications requiring carbon dioxide control.

The GMM112 has three optional ranges to select from: 0...2 000 ppm, 0...5 000 ppm and 0...10 000 ppm. The selectable analog (current and voltage) and digital outputs make it easy to integrate to various control systems. The GMM112 modules are easy to install and need practically no maintenance.

### Proven Performance with the Vaisala CARBOCAP® Sensor

The GMM112 module includes Vaisala CARBOCAP® carbon dioxide sensor, a silicon-based infrared (IR) absorption sensor. The excellent long-term stability of the CARBOCAP® sensor results from its unique measurement technology. The sensor features an electrically tunable Fabry-Perot Interferometer for built-in reference measurement. The sensor not only measures CO<sub>2</sub> absorption but also a reference, which makes it possible to compensate for potential light intensity variations and

### Features/Benefits

- Compact OEM module for demand controlled ventilation and other CO<sub>2</sub> measurement applications
- Incorporates Vaisala CARBOCAP®, the silicon based NDIR sensor with unique internal referencing
- Advanced, single-beam, dual wavelength measurement with no moving parts
- Excellent long-term stability
- Ideal for ventilation control in all types of occupied spaces

contamination and dirt accumulation in the optical path, making the sensor extremely stable over time.

CARBOCAP sensor has no need for any compensation algorithms that are used in more simple sensors to compensate for their drift. In applications with constant elevated levels of carbon dioxide and in buildings with around-the-clock occupancy (e.g. hospitals, manufacturing facilities, residential buildings, and retirement homes) the compensations based on assumed background carbon dioxide level simply do not work.

# Technical Data

## Performance

CO <sub>2</sub> -measurement range	0 ... 2000 ppm
	0 ... 5000 ppm
	0 ... 10000 ppm
Accuracy (including repeatability, non-linearity and calibration uncertainty)	± (2 % of range + 2 % of reading)
Long-term stability	± 5 % of range/5 years
Response time T90	1 min
Temperature dependence, typical	-0,35 % of reading / °C
Pressure dependence, typical	+0,15 % of reading/hPa
Warm-up time	1 min, 10 min for full specification
Product lifetime	> 10 years

## Operating Environment

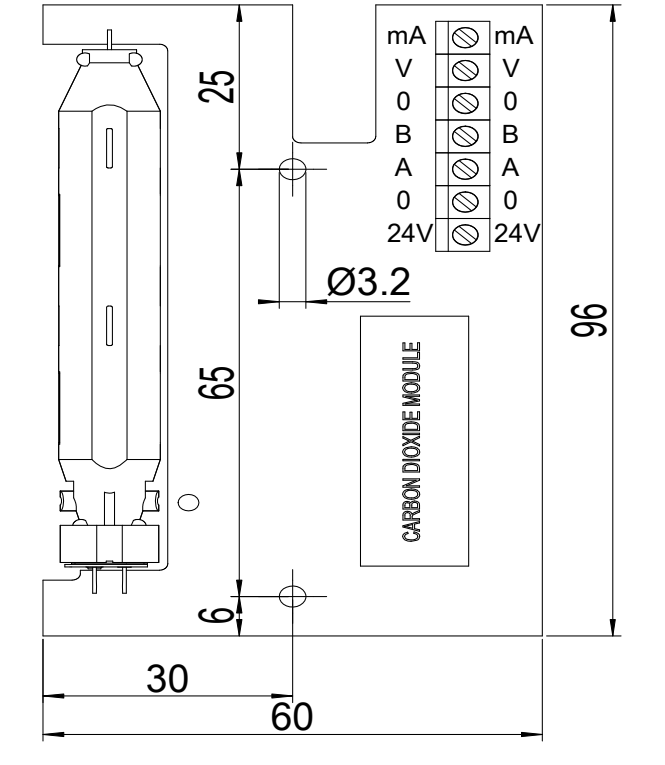
Temperature	-5 ... +45 °C (23 ... 113 °F)
Humidity	0 ... 85 %RH
Pressure	700 ... 1200 hPa
Electromagnetic compatibility	Complies with EMS standard EN61326-1:1997 + Am1:1998, Generic Environment

## Inputs and Outputs

Operating voltage	24 V (±20 %) AC/DC
Power consumption	<2 W
Outputs	4 ... 20 mA, 0 ... 10 V, RS-485, 2-wire, non-isolated

## Dimensions

Dimensions in mm



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