

GMM112 Carbon Dioxide Module for HVAC Applications



The Vaisala CARBOCAP® Carbon Dioxide Module GMM112 is a basic CO₂ measurement module.

Features/Benefits

- Compact, OEM module for demand-controlled ventilation and other CO₂ 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

Most of us spend 90% of our time indoors. Consequently, good indoor air quality is important to our wellbeing. All human beings produce carbon dioxide gas by respiration, thus the carbon dioxide level can be used as an indicator for indoor human presence. A high CO₂ level is a sign of poor ventilation and often an indication of other unpleasant odors in the air. In many buildings the ventilation need varies throughout the day. Demand controlled ventilation is an economical way to ensure good air quality.

The Vaisala CARBOCAP® CO₂ sensors have been proven to be accurate and durable. They have an excellent long-term stability, which decreases maintenance. The

superior performance of Vaisala CARBOCAP® sensors results largely from the stable reference provided by the electrically tunable Fabry-Perot Interferometer (FPI).

The tunable FPI filter measures CO₂ absorption, and simultaneously a reference wavelength. This internal reference measurement compensates effectively for any changes in the optical path, such as light source intensity changes and contamination. In the HVAC market, this type of reference measurement is a unique feature to Vaisala CARBOCAP® products, distinguishing them from competitors' comparative products that do not have a reference measurement at all, or have an indirect reference measurement,

which is based on an assumed background CO₂ levels. In buildings with around-the-clock occupancy (e.g. hospitals, work-places, residential buildings, retirement homes), the assumed background CO₂ level reference is simply not applicable. The true internal reference measurement of Vaisala CARBOCAP® CO₂ transmitters provides years of stable CO₂ measurements.

The GMM112 Carbon Dioxide Module is designed especially for DCV (Demand Controlled Ventilation) applications with three optional CO₂ measurement ranges of 0...2000 ppm, 0...5000 ppm and 0...10000 ppm.

Technical data

Performance

| | |
|---|---|
| CO ₂ -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

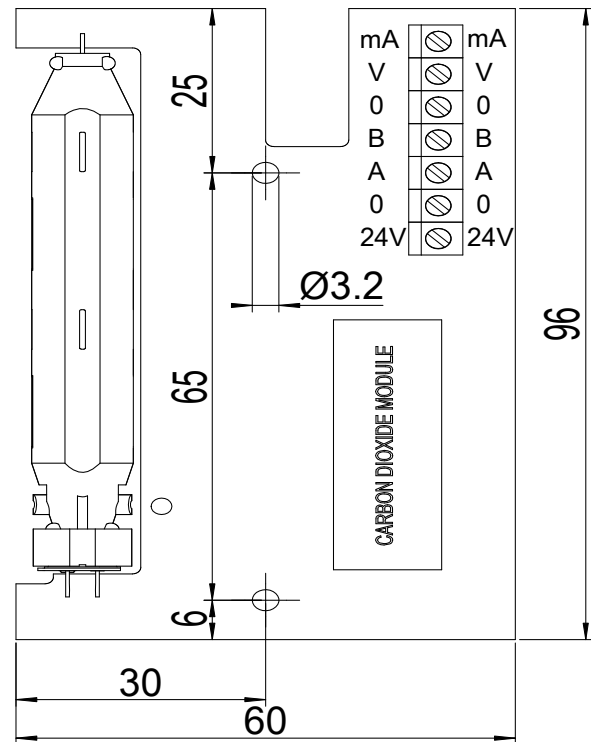
| | |
|-------------------------------|---|
| Temperature | -5 ... +45 °C (23 ... 113 °F) |
| Humidity | 0 ... 85 % RH |
| Pressure | 700 ... 1200 hPa |
| Electromagnetic compatibility | Complies with EMS standard EN61326-1:1997 + Am1:1998, Generic Environment |

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



VAISALA

For more information, visit www.vaisala.com or contact us at sales@vaisala.com

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