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GMM111 Carbon Dioxide Module

The Vaisala CARBOCAP® Carbon Dioxide Module GMM111 is a CO_2 measurement module with flow-through aspiration.

Features/Benefits

- Compact CO_2 module with flow-through aspiration
- Ideal for control of CO_2 concentrations in incubators
- Incorporates Vaisala CARBOCAP®, the silicon based NDIR sensor with unique internal referencing
- Advanced single-beam, dual wavelength measurement with no moving parts
- Measurement range options 0 ... 5 %, 0 ... 10 % and 0 ... 20 % CO_2
- Excellent long-term stability

GMM111

The Vaisala CARBOCAP® Carbon Dioxide Module GMM111 is designed especially for control of biological processes where high CO_2 concentrations are used. It has 3 optional measurement ranges 0 ... 5/10/20 % CO_2. The GMM111 is a flow-through model and has barbed connectors for attaching the in and out flow tubes. As the module is not mounted in the chamber, the chamber can be heatsterilized without removing the module.

The Vaisala CARBOCAP® CO_2 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 CO_2 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.

The true internal reference measurement of Vaisala CARBOCAP® CO_2 transmitters provides years of stable CO_2 measurements.

Technical Data

Performance

CO_2 measurement range	0 ... 5 %, 0 ... 10 % or 0 ... 20 %
Accuracy (including repeatability, non-linearity and calibration uncertainty)	±(1.5% of range + 3 % of reading)
Long-term stability	±5 % FS/2 years
Response time T_{90}	1 min at 0.5 l/min flow
Flow rate dependence	
< 1 l/min flow	no effect
1 ... 10 l/min flow	4 % of reading/ l/min
Temperature dependence, typical	-0.3 % of reading/°C
Pressure dependence, typical	+0.15 % of reading/hPa
Warm-up time	1 min, 10 min for full specifications
Product lifetime	> 10 years

Operating Environment

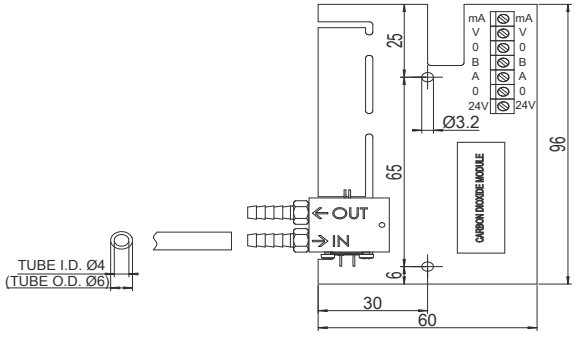
Temperature	+5 ... +55 °C (+41 ... +131 °F)
Humidity	0 ... 99 % RH non-condensing
Pressure	700 ... 1200 hPa
Gas flow	
operating range	< 10 l/min
recommended range	0.2 ... 0.8 l/min
Electromagnetic compatibility	
Complies with EMS Standard EN61326-1, Generic Environment	

Inputs and Outputs

Outputs	4 ... 20 mA, 0 ... 10 V
	RS485, 2-wire, non-isolated
Operating voltage	24 V (±20 %) AC/DC
Power consumption	<2 W

Dimensions

Dimensions in mm



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

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