

GMM11/12 CO₂ Modules for OEM Applications



Carbon dioxide (CO₂) gas concentration is an important consideration in many industrial and agricultural applications, such as in breweries and wineries as well as in optimizing crop yield and quality of cultivated plants and mushrooms. CO₂ gas can also be used in food packaging to extend the storage and shelf life of fresh products. Excessive levels of CO₂, however, are a safety hazard and can cause headache, unconsciousness or even death.

Reliable and accurate CO₂ measurement is therefore essential in living and working spaces, greenhouses and mushroom farms as well as in laboratories and process industry, food packaging or freezing plants. It can also be incorporated into equipment, such as incubators, fermentors and multigas analyzers.

RELIABLE SENSING TECHNIQUE

The detector used in the GMM11/12 modules is a single beam non dispersive infrared gas sensor. This technique makes the sensor highly gas specific. It is not sensitive to other gases, including water vapor, nor is its performance affected by

high concentrations of CO₂. The sensor is accurate and has an excellent long term stability.

VERSATILE SOLUTIONS

The GMM11/12 CO₂ modules have three different measuring ranges: 0...3000 ppm, 0...3 % and 0...10 %, so it is easy to find the right product for your application.

The GMM11 modules have a non-linear 0...1 V output, whereas the GMM12 modules have linear 4...20 mA or 0...20 mA output. The GMM12 can also be modified to have a voltage output. The GMM11/12 modules operate over the full relative humidity range of 0...100 %RH. The A, B and C modules cover different measurement ranges and are designed for pump aspiration; the AD module is diffusion aspirated.

LOW MAINTENANCE

The modules have no moving parts that might wear out or fail, so there is little need for maintenance. As the sensing element of the GMM11/12 is inherently stable, the modules require calibration only once a year.

TECHNICAL DATA CO₂ MODULES

GMM11A, AD, B, C

GMM12A, AD, B, C

CARBON DIOXIDE

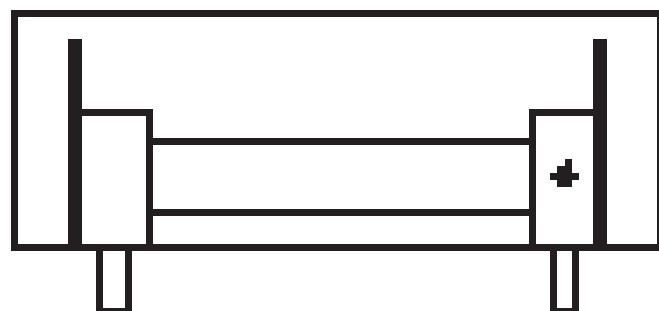
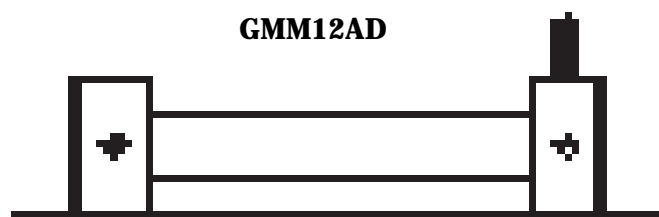
Measurement range	
GMM11A/12A	0...3000 ppm
GMM11AD/12AD	0...3000 ppm
GMM11B/12B	0...3 %
GMM11C/12C	0...10 %
Accuracy	< ±[1% of full scale + 2% of reading]
Stability (over 1 year)	< ±5% of full scale
Repeatability	
zero	< ±0.5% of full scale
span	< ±1.5% of full scale
Response time	20 s with pump
(10...90% response)	50 s with diffusion aspiration
Zero drift	
with time	< ±2% of full scale/year
with temperature	< ±0.1% of fullscale/°C
Sensing technique	single beam NDIR
Sampling technique	
0...3000 ppm	diffusion
0...3000 ppm, 0...3 %	
0...10 %	pump

GENERAL

Analogue outputs	
GMM11	non-linear 0...1 V
GMM12	linear 4...20 mA or 0...20 mA (switch selectable)
Power supply	
GMM11	15 VDC (14.25...15.75 V)
GMM12	24 VDC (18...30 V)
Typical power consumption	
GMM11	0.9 W
GMM12	2.0 W
Warm up time (at normal ambient conditions)	
operational	3 min
full specification	5...15 min depending on installation
Operating temperature range	0...+45 °C
Operating humidity range	0...100 %RH noncondensing
Storage temperature range	-20...+60 °C
The GMM11/12 sensors have successfully passed the following tests:	
RF field emission	EN 55022
RF field susceptibility	IEC 1000-4-3

Dimensions vary between different modules

Specifications subject to change without prior notice
© Vaisala Oyj



GMM11A 140 x 51 x 32 mm

GMM11AD 140 x 65 x 50 mm

GMM11B,C 40 x 51 x 32 mm

GMM12A,B,C 150 x 55 x 35 mm

GMM12AD 150 x 70 x 50 mm