

# GMM220 Carbon Dioxide Modules for Harsh and Demanding OEM Applications



*The Vaisala CARBOCAP® Carbon Dioxide Module Series GMM220 withstand harsh conditions. They provide high carbon dioxide measurement accuracy over wide temperature and relative humidity ranges.*

## Features/Benefits

- Incorporates Vaisala CARBOCAP® Sensor - the silicon based NDIR sensor
- Choice of several measurement ranges
- IP65 (NEMA 4) protected probe against dust and spray water
- Interchangeable probes provide easy maintenance

### For harsh environments

The Vaisala CARBOCAP® Carbon Dioxide Module Series GMM220 are designed for Original Equipment Manufacturers (OEM's) requiring carbon dioxide measurements in harsh and demanding applications.

The modules are optimized for integration into equipment for greenhouse control, incubators, fermentors, safety alarming and integrated systems.

### Vaisala CARBOCAP® – the silicon based CO<sub>2</sub> sensor

The GMM220 series modules incorporate the industrial Vaisala CARBOCAP® Sensor. The patented sensor has unique reference measurement capabilities. Its critical parts are made of silicon; this gives the sensor outstanding stability over both time and temperature.

Since water vapor, dust, and most chemicals do not effect the measurement, the GMM220 series modules can be used in harsh and humid environments.

### Interchangeable probes

The GMP220 probes are interchangeable. They can be removed, reattached or replaced at any time – without the need for calibration and adjustment. The interchangeable probes make calibration and field service easy. In addition, the measurement range can be changed simply by replacing one probe with another.

### Different configurations to meet demanding applications

The user has a choice of measurement ranges up to 20 % CO<sub>2</sub>; the Vaisala CARBOCAP® Carbon Dioxide Module GMM221 for higher and the Vaisala CARBOCAP® Carbon Dioxide Module GMM222 for lower concentrations of CO<sub>2</sub>.

Different power supply voltages, output options, as well as cable lengths, connectors, and mounting gear are also available.

# Technical Data

## Carbon Dioxide

Measurement Ranges	
GMM221 for high concentrations	0...2% CO <sub>2</sub> 0...3% CO <sub>2</sub> 0...5% CO <sub>2</sub> 0...10% CO <sub>2</sub> 0...20% CO <sub>2</sub>
GMM222 for low concentrations	0...2000 ppm 0...3000 ppm 0...5000 ppm 0...7000 ppm 0...10 000 ppm
Accuracy at +25 °C (+77 °F) against certified factory references	
GMM221	<±[0.02% CO <sub>2</sub> + 2% of reading]
GMM222	<±[20 ppm CO <sub>2</sub> + 2% of reading] (incl. repeatability and calibration uncertainty)
Nonlinearity	<±1.0 %FS
Temperature dependence of output (typ.)	0.1 %FS/°C (0.1 %FS/°F)
Pressure dependence (typ.)	0.15% of reading/hPa
Long-term stability	<±5 %FS/2 years
Response time (63%)	
GMM221	20 seconds
GMM222	30 seconds

## General

Analog output signals	0...20 or 4...20 mA 0...1 V or 0...2 V, 0...2.5 V, 0...5 V
Resolution of analog outputs	0.03 %FS
Recommended external load:	
current output	max. 200 Ohm
voltage output	min. 1 kOhm
Power supply	11-20 VDC or 18...30 VDC
Power consumption	<2.5 W
Warm-up time	<15 minutes
Operating temperature range	-20...+60 °C (-4...+140 °F)
Storage temperature range	-30...+70 °C (-22...+158 °F)
Operating humidity range	
probe	0...100 %RH non-condensing
mother board	0...85 %RH non-condensing
Probe housing material	PC plastic
Housing classification (probe only)	IP65 (NEMA 4)
Weight:	
GMM221 (w/2m cable)	max. 180 g
GMM222 (w/2m cable)	max. 200 g
Probe cable length	0.6 m, 2 m, 6 m or 10 m

## Accessories

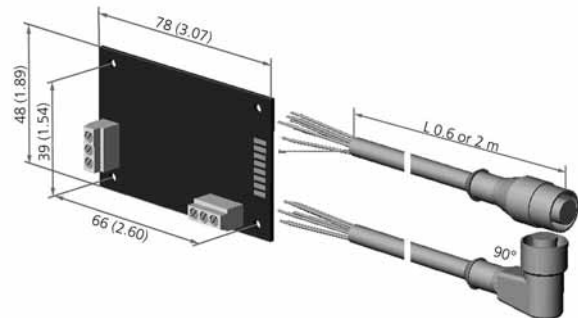
GMP221, GMP222	spare probe
(use the order form to define measurement range etc.)	
25245GM	clips (2 pcs) for attaching the probe
GM45156	mounting flange for the probe
GMM220Z600	6.0 m probe cable
GMM220Z1000	10.0 m probe cable
19040GM	serial COM adapter

## Electromagnetic compatibility

Complies with EMC standard EN61326-1:1997 + Am1:1998 + Am2:2001; Generic Environment.

## Dimensions

Dimensions in mm (inches)



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