

INTRODUCTION

Vaisala's GMM20W module uses a completely new sensor technology. The silicon based CARBOCAP[®] sensor provides for excellent stability and reliability. The GMM20W module requires almost no maintenance: the recommended calibration interval is five years. This combined with the high performance makes the GMM20W modules an ideal choice for OEM applications related to ambient CO₂ measurement.

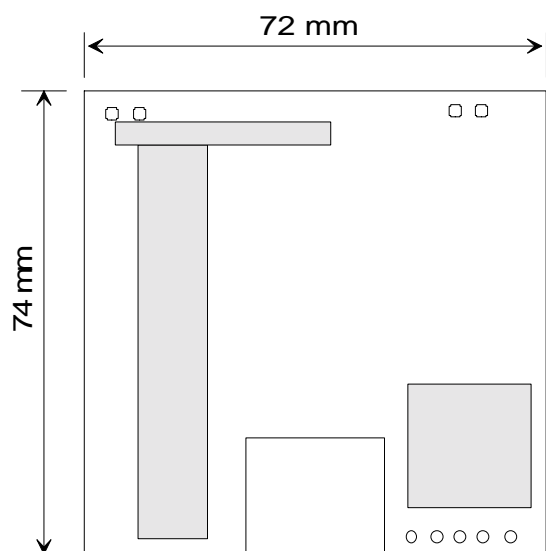


Figure 1 Dimensions

ELECTRICAL CONNECTIONS

The nominal 24 V supply must be connected between terminals + and - on the mother board. The analogue output is available at remaining terminals. The common wire is connected to terminal 0 and the other wire either to terminal V (voltage output) or to terminal mA (current output). The current output is chosen with the jumper 0/4mA (see Figure 3): 4...20mA is chosen by connecting the jumper (default) and the 0...20 mA is chosen by disconnecting the jumper. If the relay output of display models is used, note that the wiring is done at the back of the display board. The default relay trigger point has been set to 1000 ppm. This can be changed with the optional software kit 19222GM. For further details, contact your local Vaisala representative.

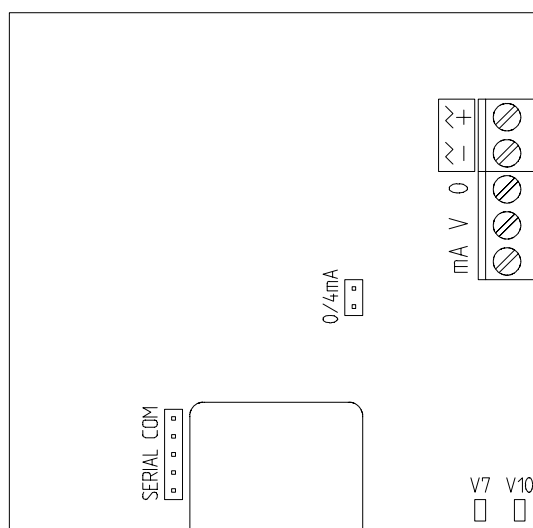


Figure 2 Electrical connections and leds V7, V10

Note that during normal operation the green led (V10) at the lower righthand corner is blinking. In case the self-diagnostics procedure comes across some abnormality, the red led (V7) lights up (see Figure 2 above).

SERVICE AND MAINTENANCE

The GMM20W module has an excellent stability and requires almost no maintenance. A full after sales calibration and service facility is naturally provided by Vaisala and its distributors.

In case the user prefers to do the calibration himself, calibration gases and equipment are also available. Vaisala's portable CO₂ meters together with the Calibration Kit provide for easy and convenient on-site calibration checks (see the corresponding manuals for detailed instructions).

GMM20W should be adjusted if the reading differs too much from the reference value during checking (note that in any case, only slight differences are expected). For this purpose, we recommend Vaisala's Software Kit 19222GM which includes a floppy disk and a serial COM adapter.

Connect the cable to the connector marked "Serial Com" on the main PCB of the module and to the connector A on the serial COM adapter (see Figure 3).

In order to achieve full accuracy, the module has to be calibrated against accurate and traceable calibration gases in stable environmental conditions (temperature, pressure). Accurate calibrations are usually performed in laboratories; in these calibrations, temperature and pressure corrections have to be made. For further details, consult your local Vaisala representative.

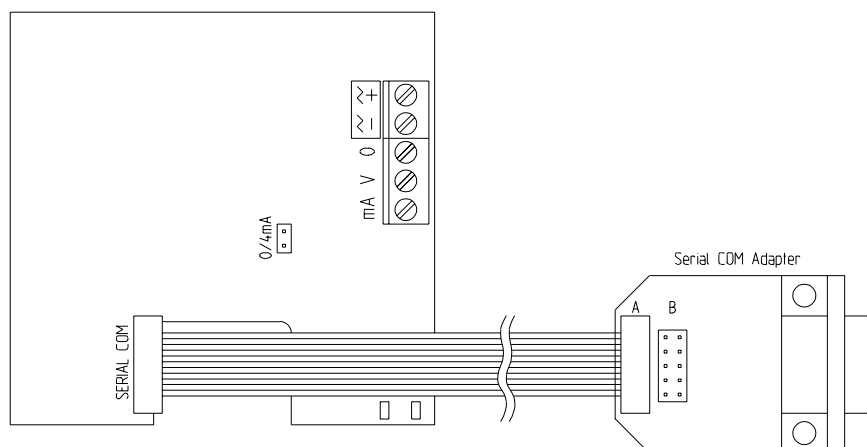


Figure 3 Connection of the serial communication cable

POWER SUPPLY REQUIREMENTS

The GMM20W module is designed to operate from a nominal 24 VAC/VDC supply. The power supply should maintain the voltage between 18...30 VDC or 20...26 VAC for all load conditions and all mains voltages. The power input includes a halfwave rectifier. To avoid current peaks, it is recommended to use a DC supply. The average transmitter current consumption is 85 mA maximum but peak currents of 170 mA may occur during normal operation.

CONNECTION TO AN AC SUPPLY

The GMM20W module can also be connected to a 24 VAC supply without an external rectifier. However, when more than one module is connected to one 24 VAC transformer, a common loop is formed and there is an increased risk of a short-circuit. To avoid this, always use separate floating supply for each module (see Figure 4A). However, if several modules have to share one transformer, the phase (~) must always be connected to + connector in each module (see Figure 4B).

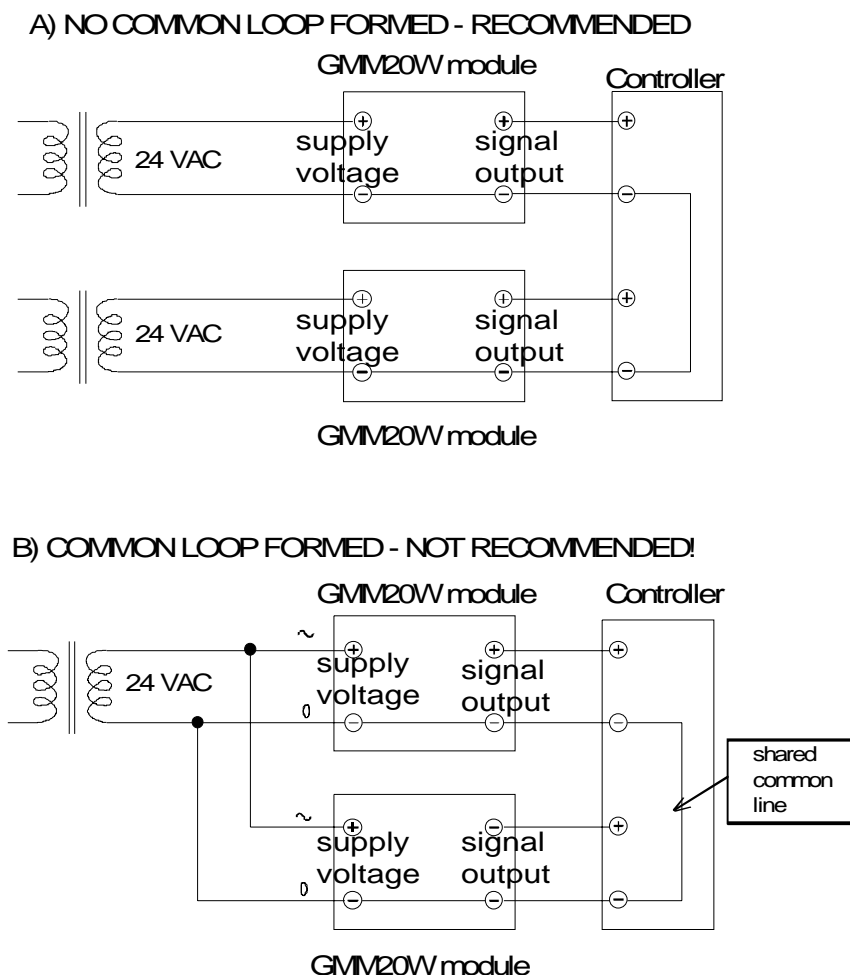


Figure 4 AC connections

TECHNICAL DATA

Carbon dioxide

Measuring range	0...2000 ppm CO ₂ (nominal)
(can be recalibrated for other ranges: 0...5000 ppm, 0...10000 ppm, 0...20000 ppm)	
Accuracy at 20°C	<±[1% FS + 1.5% of the reading]
(including non-linearity and calibration uncertainty)	
Repeatability	<±1 % FS
Temperature dependence of output	< 0.05 %FS / °C
Long-term stability (in ambient conditions)	<±5 % / 5 years
Response time (0...67%)	1 minute

Operating conditions

Operating temperature	-5...+45 °C
Storage temperature	-20...+70 °C
Humidity range:	
temporarily	0...100 %RH (non-condensing)
continuous use	0...85 %RH (non-condensing)

General

Output signals	0...20 mA or 4...20 mA and 0...10 V
Optional outputs	relay LonWorks [®] interface
Recommended external load: current output	max. 500Ω
voltage output	min. 1kΩ
Relay contact ratings	max. 50 V 0.5A
Power supply	nominal 24 VDC/VAC (18...30 VDC)
Power consumption	< 2.5 W
Warm-up time	< 5 minutes
Dimensions:	72 x 74 x 19 mm
Weight:	56 g

Accessories

Order code	Description
GMI21	Display and relay option
GMR20	Relay output option
GML20	LonWorks [®] interface option
19222GM	Calibration software kit (incl. disk and serial COM adapter)
18192GM	Field calibration kit (used with Vaisala's portable CO ₂ meters)

The GMM20W module complies with the following standards and has passed the following tests:

EN50081-1 (EN 55022 class B)

EN50082-1 (IEC 1000-4-3, IEC 801-4 (1988))

GUARANTEE

Vaisala issues a guarantee for the material and workmanship of this product under normal operating conditions for one (1) year from the

date of delivery. Exceptional operating conditions, damage due to careless handling and misapplication will void the guarantee.