VAISALA

QUICK REFERENCE GUIDE

Vaisala CARBOCAP® Carbon Dioxide and Temperature Transmitter GMW116

- **Compact, wall-mounted carbon dioxide and temperature transmitter for demand-controlled ventilation**
- **Ideal for HVAC applications**
- **Advanced single-beam dual wavelength measurement with no moving parts**
- **Incorporates the Vaisala CARBOCAP® Sensor**

M211092EN

GENERAL

The Vaisala CARBOCAP® Carbon Dioxide and Temperature Transmitter GMW116 measures the temperature and carbon dioxide level in indoor spaces, and sends this information to the ventilation system. The ventilation can then be controlled more accurately, resulting in better indoor air and lowered energy consumption.

Since the GMW116 constantly measures the temperature, there is no need for temperature compensation in carbon dioxide measurement.

INSTALLATION

1. Select the Location for a Transmitter

Select a location for the transmitter using the following criteria:

- The conditions at the location should represent well the area of interest. Avoid placing the transmitter near heat sources, ventilation, or in direct sunlight. Do not install the transmitter on the ceiling.
- Check that the location has easy access to power supply wiring.

2. Open the Transmitter

The GMW116 transmitters are delivered closed. Open the transmitter as follows:

1. Push down on the plastic clip using a flat head screwdriver. The clip is visible through the ventilation slit at the top of the transmitter.
2. Lift the top of the cover to remove it.

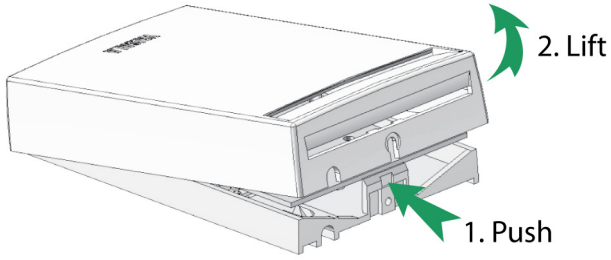


Figure 1 Opening the Transmitter

ELECTRICAL CONNECTIONS

Vin+	Power supply (+) 24 VDC/VAC
0	Power supply (-)
CH1	CO2 Signal (+) 0... 10 V
GND	Signal (-)
CH2	Temperature Signal (+) 0... 10 V
GND	Signal (-)

3. Connect the Power Supply

The power cable can be inserted from the top, bottom, or center of the mounting base. Insert the power cable from the cable feed that is most convenient (top or center preferred), and connect the wires to the screw terminals. Avoid looping the cable over the ventilation holes at the bottom of the transmitter, as this would interfere with temperature and humidity measurement.

The transmitter operates on **24 VAC or 15 ... 36 VDC**

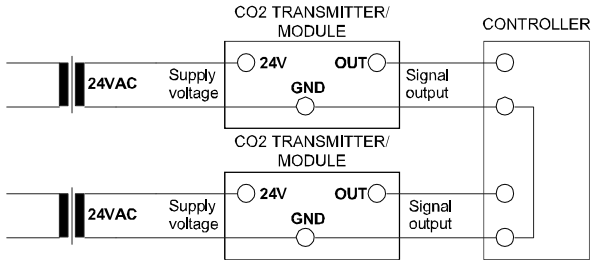


Figure 2 Connection of Separate AC Supplies (Recommended)

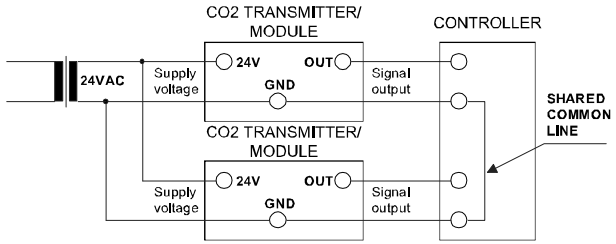


Figure 3 Connection of Single AC supply to Several Transmitters

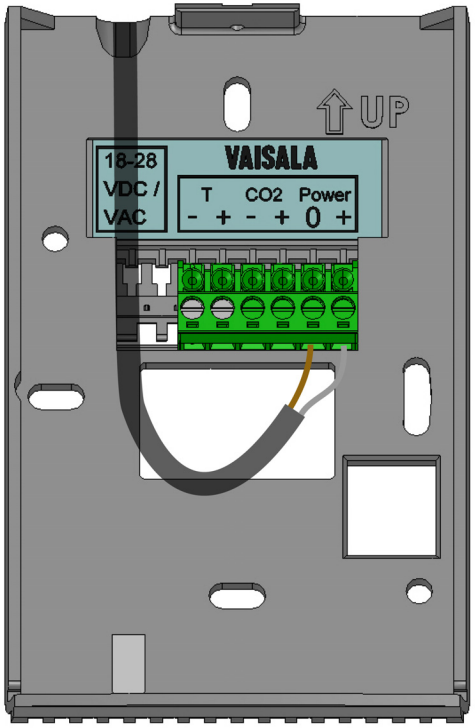


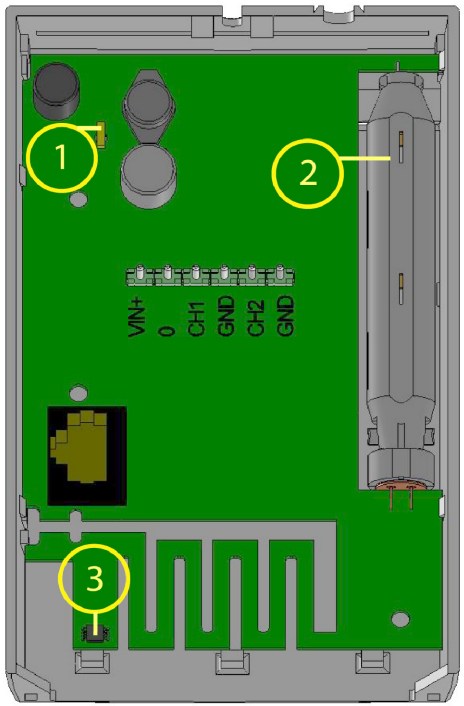
Figure 4 Surface routing of the power cable

4. Install the Mounting Base

Use the mounting holes to attach the mounting base securely to the desired location. Use at least two screws (not included). Note the correct orientation: the arrow on the mounting base must point straight up after installation.

NOTE	The accuracy of the temperature measurement depends directly on the temperature dynamics of the wall material.

NOTE	A through-wall mounting for the power cable is also possible. When tubes are used in through-wall mounting, make sure the tubes are properly sealed to avoid false measurements.



1	Diagnostics LED
2	CO2 sensor
3	Temperature sensor

Figure 5 GMW116 Cover

5. Connect the Cover to the Base

Place the cover on the mounting base and close it so that the plastic clip snaps into place. Make sure that the pins mate with the holes on the screw connector.

6. Check the Diagnostics LED

The transmitter has a diagnostics LED on the component board that is visible through the front ventilation hole when the transmitter is closed.

Green LED is lit during normal operation and will blink if there is an internal error, for example a sensor fault.

TECHNICAL DATA

Property	Description / Value
Performance	
Measurement ranges	0 ... 2000 ppm CO_2 0 ...50° C T
Measurement accuracy (incl. repeatability, non-linearity and calibration uncertainty)	±(2.0 % of range + 2 % of reading)
Long-term stability	± 5 % of range / 5 years
Response time	1 min
Pressure dependence of reading	+ 0.15 % of reading / hPa (typical)
Temperature measurement accuracy	± 0.7° C at 25° C
Warm-up time	1 min
Product lifetime	> 10 years
Operating environment	
Operating temperature range	0 … +50° C
Operating humidity range	0 ... 85 %RH
Operating pressure range	700 hPa ... 1200 hPa
Inputs and outputs	
Operating voltage	24 V (±20 %) AC/DC
Power consumption	< 2 W
Connections	Screw terminals, wire size 0.22 ... 1.5 mm^2
Outputs analog	 2 x (0 ... 10 V)
Recommended external load voltage output	 > 10 kΩ
Electromagnetic compatibility	EN61326-1: Generic Environment

GUARANTEE

Vaisala issues a guarantee for the material and workmanship of this product under normal operating conditions for two (2) years from the date of delivery. Exceptional operating conditions, damage due to careless handling and misapplication will void the guarantee.