

GM70 Hand-Held Carbon Dioxide Meter for Spot-Checking Applications



The Vaisala CARBOCAP® Hand-Held Carbon Dioxide Meter GM70 is the demanding professional's choice for hand-held carbon dioxide measurement. The meter consists of the indicator (center) and probe, used either with the handle (left) or pump (right).

The Vaisala CARBOCAP® Hand-Held Carbon Dioxide Meter GM70 is a user-friendly meter for demanding spot measurements in laboratories, greenhouses and mushroom farms. The meter can also be used in HVAC applications, industrial health investigations and as a tool for checking fixed CO₂ instruments.

Vaisala CARBOCAP® technology

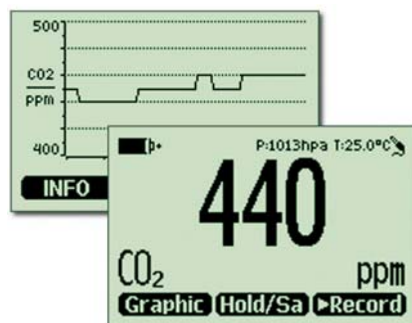
The GM70 incorporates the advanced Vaisala CARBOCAP® Sensor. The patented sensor has unique reference measurement capabilities. Its critical parts are made of silicon; this gives the sensor outstanding stability over both time and temperature. In addition, the measurement accuracy of the sensor is not affected by dust, water vapor or most chemicals.

The GM70 has a two-year recommended calibration interval.

Two sampling methods

The handle is for hand-held diffusion sampling. The GM70 pump enables pump-aspirated sampling from locations difficult to access otherwise. It is also ideal for comparisons with fixed CO₂ transmitters.

Due to its short warm-up time, the GM70 is ready for use almost immediately. The menu-based interface is easy to use, and a graphical LCD display with data logger function makes the handling of



GM70 displays CO₂ concentration both numerically and graphically.

Features/Benefits

- Proven Vaisala CARBOCAP® reliability
- Two optional sampling methods: diffusion or pump aspiration
- User-friendly meter with multilingual user interface
- Numerical and graphical display of measurements
- Data can be logged and transferred to PC via MI70 Link software
- Wide selection of measurement ranges
- Easy recalibration - send the probe to Vaisala
- Suitable for field checking of fixed CO₂ instruments
- Short warm-up time
- Compact and versatile

Order Guide: Page 177

measurement data convenient. The optional MI70 Link Windows® software provides an easy way to handle data in the PC environment.

Interchangeable probes

The GM70 uses the same probes as Vaisala CARBOCAP® Carbon Dioxide Transmitter Series GM220 fixed CO₂ instruments. By plugging different probes into the handle or pump, the user can easily change the measurement range.

Two inputs provide flexibility

The GM70 has two probe inputs. This allows differences to be measured, and is also a practical feature when checking probes against a calibrated probe. Vaisala's relative humidity and dewpoint probes can also be used simultaneously.

The meter can also be used as a calibration check instrument for Vaisala's GM20 and GM220 fixed CO₂ instruments. GM220 probes can even be adjusted by using the GM70 meter.

Technical Data

CO₂ volume concentration measurement

| | |
|--|--|
| Measurement range | |
| High concentrations short probe (GMP221) | 0...2% CO ₂ 0...3% CO ₂ 0...5% CO ₂ 0...10% CO ₂ 0...20% CO ₂ |
| Low concentrations long probe (GMP222) | 0...2000 ppm CO ₂ 0...3000 ppm CO ₂ 0...5000 ppm CO ₂ 0...7000 ppm CO ₂ 0...10,000 ppm CO ₂ |
| Error at 25 °C against certified factory references (incl. repeatability and calibration uncertainty) | |
| GMP221 | < ±[0.02% CO ₂ + 2% of reading] |
| GMP222 | < ±[20 ppm CO ₂ + 2% of reading] |
| Non-linearity | < ±1% of FS |
| Temperature dependence | 0.1% of FS/°C (0.05% of FS/°F) (typical) |
| Pressure dependence (typical) | 0.15% of reading/hPa |
| Long-term instability | < ±5% of FS/2 years |
| Response time (63%) | |
| GMP221 | 20 seconds |
| GMP222 | 30 seconds |
| Warm-up time | 30 seconds, 15 minutes full specifications |

Measurement environment

| | |
|---------------------------------|-----------------------------|
| Temperature | -20...+60 °C (-4...+140 °F) |
| Relative humidity | 0...100 %RH non-condensing |
| Operation pressure | 700...1300 hPa |
| Flow range (diffusion sampling) | 0...10 m/s |

Probe, handle & pump general

| | |
|---------------------------------|------------------------------|
| Sensor | Vaisala CARBOCAP® |
| Housing material | |
| GMP221/222 probe | PC plastic |
| GMH70 handle | ABS/PC blend |
| GM70 Pump | aluminium IP54 |
| Storage temperature | -30...+70 °C (-22...+158 °F) |
| Storage humidity | 0...100 %RH non-condensing |
| Weight | |
| GMH70 with GMP221/222 probe | 230 g |
| GM70 Pump with GMP221/222 probe | 700 g |

Dimensions

| | |
|----------------------------------|-------------------|
| GMH70 handle with probe | |
| length, short probe (GMP221) | 270 mm (10.6 in.) |
| length, long probe (GMP222) | 350 mm (13.8 in.) |
| Space required for GM70 pump | |
| length (with long probe & cable) | 300 mm (12 in.) |
| width | 85 mm (3.3 in.) |
| height | 36 mm (1.4 in.) |
| MI70 indicator | |
| length | 200 mm (7.87 in.) |
| width | 80 mm (3.1 in.) |
| height | 43 mm (1.7 in.) |

MI70 Indicator general

| | |
|-----------------------------|---|
| Menu languages | English, French, Spanish, German, Swedish, Finnish |
| Display | LCD with backlight, graphic trend display of any parameter, character height up to 16 mm |
| Probe inputs | 1 or 2 |
| Power supply | Rechargeable NiMH battery pack with AC-POWER |
| Analog output | 0...1 VDC |
| Output resolution | 0.6 mV |
| Data interface | RS232 |
| Data logging capacity | 2700 points |
| Alarm | Audible alarm function |
| Operating temperature range | -10...+40 °C (+14...+104 °F) |
| Operating humidity range | non-condensing |
| Housing material | ABS/PC blend |
| Housing classification | IP54 |
| Weight | 400 g |

Battery operation time

| | |
|------------------|---|
| Continuous use | |
| with handle | better than 8 h at +20 °C (+68 °F) |
| with pump | better than 5 h at +20 °C (+68 °F) without load |
| Data logging use | up to 30 days |

Electromagnetic compatibility

Complies with the following standard:
EN 61326-1:1997 + Am1:1998 + Am2:2001, Electrical equipment for measurement, control and laboratory use - EMC requirements - Generic Environment.

Accessories

| | |
|--|----------|
| Connection cable for fixed CO ₂ instruments | |
| GMT220, GMM220, GMD20 and GMW20 | GMA70 |
| Analog output cable for 0...1 VDC analog output | 27168ZZ |
| Windows® software, includes PC connection cable | MI70LINK |
| Field-check adapter | 26150GM |
| Carrying case | MI70CASE |



The GM70 in pump-aspirated mode is used for example to check incubators in the field.

CARBOCAP® is a registered trademark of Vaisala.
Specifications subject to change without prior notice.
©Vaisala Oyj

