



# GM70 Handheld Carbon Dioxide Meter

for Spot-Checking Applications



## Features

- 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

The Vaisala CARBOCAP® Handheld 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).

GM70 is a user-friendly meter for demanding spot measurements in laboratories, greenhouses and mushroom farms. The meter can also be used in HVAC and industrial applications, and as a tool for checking fixed CO<sub>2</sub> instruments.

GM70 has a short warm-up time and is ready for use almost immediately. It has a menu-based interface, a graphical LCD display and data logging capability.

### Vaisala CARBOCAP® Technology

GM70 incorporates the advanced CARBOCAP sensor that has unique reference measurement capabilities. The measurement accuracy is not affected by dust, water vapor or most chemicals. The meter has a two-year recommended calibration interval.

### Two Sampling Methods

The handle is for hand-held diffusion sampling. GM70 pump enables pump-aspirated sampling from locations difficult to access otherwise. It is also ideal for comparisons with fixed CO<sub>2</sub> transmitters.

### Interchangeable Probes

GM70 uses the same probes as Vaisala CARBOCAP Carbon Dioxide Transmitter Series GMT220. By plugging different probes into the handle or pump, the user can easily change the measurement range of the GM70.

The meter can also be used as a calibration check instrument for Vaisala's fixed CO<sub>2</sub> instruments. GMW90 and GMP220 probes can also be adjusted by using the GM70 meter. GM70 has two probe inputs. Vaisala's relative humidity and dewpoint probes can also be used simultaneously with CO<sub>2</sub> measurement.

### MI70 Link

The optional MI70 Link Windows® software and the USB connection cable form a practical tool for transferring logged data and real time measurement data from GM70 to a PC.

## Benefits

- Proven Vaisala CARBOCAP® reliability
- Wide selection of measurement ranges
- Easy recalibration using the interchangeable probes
- Suitable for field checking of fixed CO<sub>2</sub> instruments
- Short warm-up time
- Compact and versatile



# Technical Data

## CO<sub>2</sub> Volume Concentration Measurement Performance, GMH70 Probe

### Response Time (63 %)

GMP221	20 s
GMP222	30 s

### Measurement Ranges

High concentrations, short probe (GMP221)	0 ... 2 % 0 ... 3 % 0 ... 5 %, 0 ... 10 %, 0 ... 20 %
Low concentrations, long probe (GMP222)	0 ... 2000 ppm, 0 ... 3000 ppm, 0 ... 5000 ppm, 0 ... 7000 ppm, 0 ... 10 000 ppm

### Accuracy at 25 °C and 1013 hPa<sup>1)</sup>

GMP221	±(1.5 % of range + 2 % of reading) <sup>2)</sup>
GMP222	±(1.5 % of range + 2 % of reading)
Temperature dependence, typical	-0.3 % of reading/°C
Pressure dependence, typical	+0.15 % of reading/hPa
Long-term stability	< ±5 %FS / 2 years
Warm-up time	30 s, 15 min full specifications

1) Including repeatability, non-linearity and calibration uncertainty.

2) Applies for concentrations above 2 % of full scale.

## 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 Mechanical Specifications

Sensor	Vaisala CARBOCAP®
<b>Housing Material</b>	
GMP221/222 probe	PC plastic
GMH70 handle	ABS/PC blend
GM70 Pump	Aluminium casing
<b>Weight</b>	
GMH70 with GMP221/222 probe	230 g
GM70 Pump with GMP221/222 probe	700 g

## Probe, Handle & Pump Operating Environment

Storage temperature	-30 ... +70 °C (-22 ... +158 °F)
Storage humidity	0 ... 100 %RH, non-condensing

## MI70 Measurement Indicator

### Operating Environment

Operating temperature	-10 ... +40 °C (+14 ... +104 °F)
Operating humidity	0 ... 100 % RH, non-condensing
Storage temperature	-40 ... +70 °C (-40 ... +158 °F)

### Inputs and Outputs

Max. no of probes	2
Power supply	Rechargeable NiMH battery pack with AC adapter or 4xAA size alkalines, type IEC LR6
PC interface	MI70 Link software with USB or serial port cable

Analog Output	
Scale	0...1 VDC
Output resolution	0.6 mV
Accuracy	0.2 % full scale
Temperature dependence	0.002 %/°C full scale
Minimum load resistor	10 kΩ to ground

### Mechanical Specifications

Housing classification	IP54
Housing materials	ABS/PC blend
Weight	400 g

### Compatibility

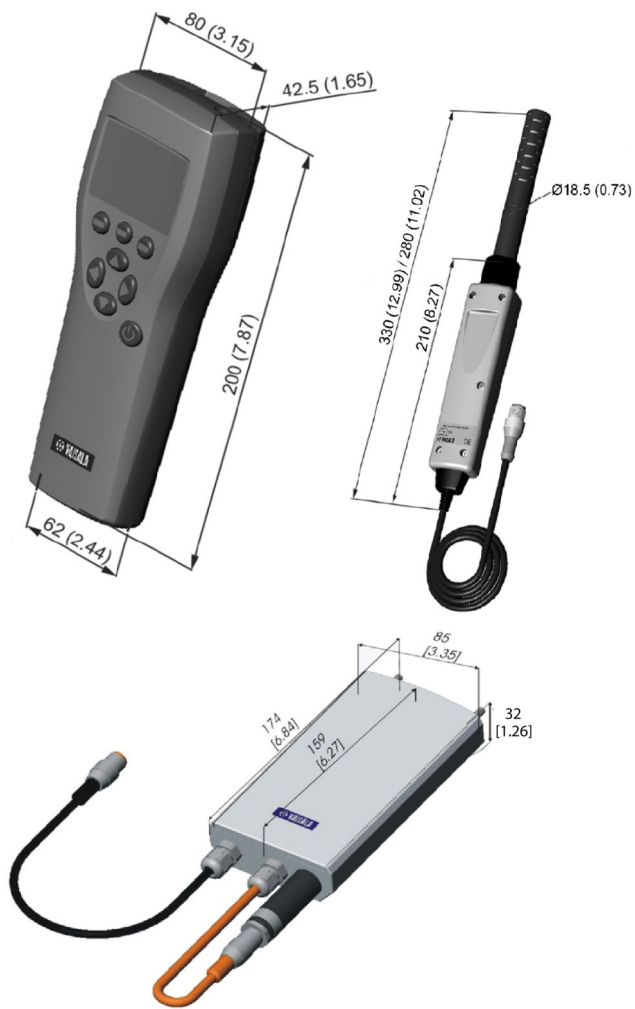
EMC compliance	EN61326-1, Portable Equipment
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### Other

Menu languages	English, Chinese, Spanish, Russian, French, Japanese, German, Swedish, Finnish
Display	<ul style="list-style-type: none"> <li>LCD with backlight</li> <li>Graphic trend display of any parameter</li> <li>Character height up to 16 mm</li> </ul>
Alarm	Audible alarm function
Data logging capacity	2700 real time data points
Logging interval	1 s to 12 h
Logging duration	1 min ... memory full
Resolution	0.01 %RH, 0.01 °C/°F, 0.01 hPa, 0.01 a <sub>w</sub> , 10 ppm / 0.01 %CO <sub>2</sub>

## Battery Operation Time

Typical charging time	4 hours
<b>Operation Times</b>	
Continuous use (with handle)	better than 8 h at +20 °C (68 °F)
Continuous use (with pump)	better than 5 h at +20 °C (68 °F) without load
Data logging use (one probe)	up to 30 days depending on logging interval



Dimensions in mm (inches)

## Spare Parts and Accessories

MI70 Link software with USB cable	219687
MI70 Link software with serial port cable	MI70LINK
Analog output cable for 0 ... 1 VDC	27168ZZ
Calibration adapter	26150GM
Weatherproof carrying case	MI70CASE3
Soft carrying case for diffusion handle and probe	MI70SOFTCASE
Battery, NiMH 4.8 V	26755
Spare probe (use the order form to define measurement range etc.)	GMP221, GMP222
Nafion Membrane Tubing	212807GM
<b>Connection Cable for Fixed CO<sub>2</sub> Instruments</b>	
GMT220, GMD20	GMA70
GMP343	DRW216050SP
GMW90 series	219980SP



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