



# 1-CUBE

Hamry 3567, 580 01 Havl. Brod, Czech Rep.

tel + 420 569 433 620

1-cube@1-cube.com

www.1-cube.com

## At-line Analog CO<sub>2</sub> meter for beer and carbonated beverages (CO<sub>2</sub> GEHALTEMETER) Type GMAS

### **Application:**

The analog CO<sub>2</sub> meter type GMAS enables the determination of CO<sub>2</sub> content in beer, carbonated beverages and sparkling wines in cylindroconical tanks, conditioning tanks or KEG casks, expressed in volumes and g/L.

### **Measurement Principle:**

The instrument uses Henry's law. The CO<sub>2</sub> content is determined by measuring the temperature and the partial pressure of CO<sub>2</sub> in equilibrium after mechanical shaking of the beverage.



**Working Procedure:**

The device's inlet ball valve is connected by a silicone hose to the sampling valve on the pipeline or tank in operation. The measuring chamber of the device is filled with a sample of the beverage. Once the measuring chamber is filled, the outlet valve is closed first, followed by the inlet valve. Then the pressure in the measuring chamber is zeroed by brief opening and closing of the outlet valve. The release of bound carbon dioxide from the beverage is carried out by shaking until a constant pressure is reached (until the pressure stops increasing). Then the partial pressure in equilibrium is read on the manometer and the temperature on the digital thermometer. The CO<sub>2</sub> content is read from the nomogram in g/L and in volumes.

**Technical data:**

<b>Parameter</b>	<b>Range / Value</b>	<b>Accuracy</b>
CO <sub>2</sub> measurement	2 to 7.8 g/L (1 to 4 vol)	0.2 g/L or 0.1 vol
Temperature	-3 to +30 °C	0.5 °C
Pressure	0–400 kPa (0–6 bar)	1.6 %
CO <sub>2</sub> Reading	Nomogram	—
Dimensions (HxWxD)	270 x 200 x 140 mm	—
Weight	1.1 kg	—

**Scope of Delivery:**

- CO<sub>2</sub> meter type GMAS, operation manual.

**Accessories (not included in standard delivery, available on request):**

- Inlet and outlet silicone hoses
- Sampling head for KEG casks

**Main disadvantage:**

- The need for manual shaking to release CO<sub>2</sub>, which is slower and places higher demands on the operator in terms of measurement accuracy.

**Advantages & Benefits:**

- Best price: The simple design guarantees the lowest acquisition cost.
- Tradition and reliability: Over 25 years of development and thousands of satisfied users worldwide.
- Repairable, spare parts available.

**FAQ :**

**Differences between GMAS, GMA and GMD models?**

- GMAS & GMA are analog with nomogram-based CO<sub>2</sub> reading.
- GMD measures pressure & temperature automatically and displays CO<sub>2</sub> in g/L and volumes.
- GMD & GMA release CO<sub>2</sub> via piston pressure pulse (fast & reproducible).
- GMAS requires manual shaking until steady pressure (slower, less reproducible, cheapest).

**Here is an overview table of the differences and characteristics of the individual types:**

<b>Function / Feature</b>	<b>GMAS</b>	<b>GMA</b>	<b>GMD</b>
Measurement Type	Analog (manometer)	Analog (manometer)	Digital (display)
CO <sub>2</sub> Release Method	Manual shaking	Pressure impulse by piston	Pressure impulse by piston
Result Determination	Nomogram	Nomogram	Automatic calculation
Speed and Accuracy	Lower (operator dependent)	High (reproducible)	Highest (automated)
Price Level	Most affordable	Mid-range (excellent price/performance ratio)	Premium

**Who is the GMAS suitable for?**

- The GMAS is suitable for the smallest producers of carbonated beverages and microbreweries.