

# HAFFMANS c-DGM

## CO<sub>2</sub> / O<sub>2</sub> GEHALTEMETER

### GENERAL PRODUCT INFORMATION

In the beer and beverage industries, the content of dissolved carbon dioxide (CO<sub>2</sub>) and oxygen (O<sub>2</sub>) are determining factors in the quality, taste and flavor stability of beer and carbonated beverages. Particularly, O<sub>2</sub> is an important parameter as it causes a rapid decline of the flavor stability and shelf life. Breweries as well as soft drink manufacturers continuously control and measure the concentrations of CO<sub>2</sub> and O<sub>2</sub> during production.

The CO<sub>2</sub>/O<sub>2</sub> Gehaltemeter, type c-DGM, combines the internationally accepted determination of the dissolved CO<sub>2</sub> content based on Henry's Law with a highly accurate dissolved O<sub>2</sub> measurement. This state-of-the-art optical O<sub>2</sub> measurement technology is greatly improved compared to the traditional O<sub>2</sub> measuring instruments and doesn't require frequent calibration. Its design allows for higher product pressure, making it suitable for the soft drink industry. Up to 10 different product types can be programmed into the device. The bumper protects the c-DGM against physical impact in harsh environments.

When the CO<sub>2</sub> measurement is started, the O<sub>2</sub> content is stored. Automatically, equilibrium is created, followed by the measurement of pressure and temperature. The dissolved CO<sub>2</sub> content is then electronically calculated and displayed. The data can be securely transferred to a PC using the interface cable. Besides the combined CO<sub>2</sub>/O<sub>2</sub> measurement, the c-DGM is suitable for single O<sub>2</sub>, continuous O<sub>2</sub> and single CO<sub>2</sub> measurements.

Also the Total Package Oxygen (TPO) value, based on the Uhlig method, is calculated in the CO<sub>2</sub> / TPO measuring mode and the single TPO measurement.



### CUSTOMER BENEFITS

- **Accurate product control**
  - reproducible and operator independent results
- **Cost saving**
  - lower investment costs (one device for CO<sub>2</sub> and O<sub>2</sub> measurement and up to 10 product types)
  - less labor intensive
  - reduction of beer loss
  - low maintenance

### APPLICATIONS

- **At-line, sampled directly during the production process**
- **Laboratory, after the production, sampled from a variety of bottles or cans**
- **TPO calculation from bottles or cans using sampling device ISD-special**

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### TECHNICAL DATA

#### O<sub>2</sub> content

Measuring range 0.0 - 2,000 ppb  
Accuracy ± 1 ppb + 2% of m.v.\*  
Measuring Units ppb, µg/l, ppm, mg/l, %

#### CO<sub>2</sub> content

Measuring range 2.0 - 10.0 g/l  
Accuracy ± 0.05 g/l  
Measuring Units g/l, % b.w., Vol, kPa

#### Temperature

-5.0 - 40.0 °C, 23 - 104 °F, acc. ± 0.2 °F

#### Pressure

0.0 - 10.0 barg, acc. ± 0.01 bar

#### Measuring time incl sampling

Approx. 120 sec.

#### Number of measurements per charge

Approx. 120

#### Interface

RS-232

#### Dimensions

210 x 130 x 260 (LxWxH mm)

#### Weight

ca. 3.2 kg

\* at 20 °C

### SCOPE OF SUPPLY

- CO<sub>2</sub> / O<sub>2</sub> Gehaltemeter, type c-DGM
- Bumper
- Service set with power supply (Euro or US plug)
- Software set (CD + Interface cable)
- Set of two sample hoses
- Instruction manual

### OPTIONS

- Certificate of measurement
- Bumper
- Quick charger
- Inpack 2000 Sampling Device "special"



Bumper



#### HAFFMANS B.V.

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