

1-CUBE

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GMA_s

**MEASURING DEVICE
FOR CO₂ CONTENT IN FERMENTING TANKS AND KEGS:**

USER'S GUIDE

Contents:

- 1. Equipment**
- 2. Installation - putting the device into operation and its maintenance**
- 3. Safety recommendations**
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1. Range of supply

the measuring device GMAs..... 1 unit

Accessories

withdrawal head for kegs with closing valve..... 1 unit
pressure reducing valve with pressure gauge 1 unit
air pump for air 1 unit
check valve..... 1 unit
plastic reduction..... 1 unit
rubber hose..... 2 units
(length and number of hoses according to customer's demand)
set of slings 1 unit

Note: accessories are not part of the supply - only on customer's demand

2. Installation - putting the device into operation and its maintenance

First, you have to mount inlet and outlet hoses if you have not ordered them. They should fit in diameter the hose connectors (3, 5) and your sampling valve. Fix them with clamps.

Before operating attach GMAs by fixing of inlet hose (3) to the sampling point (sampling valve). The measured sample must flow through tube (4) to the bottom of the device vessel. The inlet hose (3) must be well secured at the sampling point to avoid beer sputters.

Before each new test, discharge the sample in the following way: open both valves (1 and 2), lift up the inlet hose (3) over the device and turn the device upside down. The sample goes through outlet hose (5) to the drain.

After the test has been completed (before storing) rinse (clean) the inside of the device with clean pressure water to remove any traces of beer.

The device cleaning after all measurements (before storing) is easy and fast.

Open both ball valves (1, 2). Connect the inlet hose (3) to the water source and afterwards open slowly the water cock to rinse (clean) the device with water. Pressure of water must not exceed value 250kPa on the pressure gauge meter.

Whole internal space of the vessel (6) must be filled with water during cleaning. Once the cleaning procedure is over, close the water supply and disconnect the inlet hose (3) from the water cock. Bring the outlet hose (5) to the drain and turn the device upside down. At the same time, the inlet hose (3) must be over the device so that water can completely flow out. After this handling the device is ready for storing.

Switch on the Digital Thermometer with the On/Off key and be sure to use Celsius scale degrees.

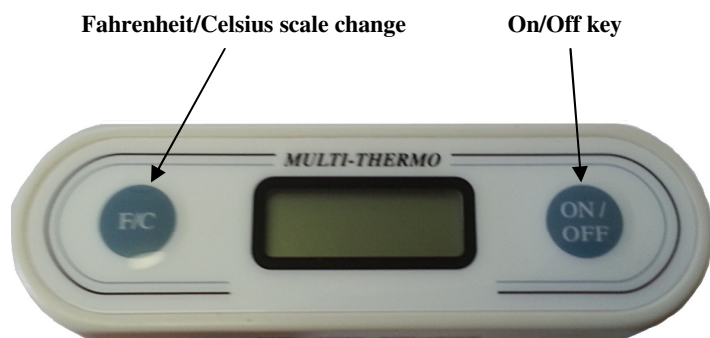
Replace battery type (393) when the low battery indicator appears on the screen. Unscrew the little cap on the bottom of the thermometer (see pic. below). Pay attention to the polarity (+ and -) of the original battery and install the new battery in the same way.

Note: If the battery is not well placed (polarity inversion) the thermometer can be damaged.

Batteries that are worn out or no longer required must be sent to a dedicated collection point and it must not be sent to an unsorted waste disposal point.



Location of the battery



3. Safety recommendations

Measuring device of CO₂ content may be operated only by person who became completely acquainted with its function within the framework of the training, or who became thoroughly acquainted with the user's guide of this device.

Measuring device GMA can be used only for determination of CO₂ content in the range of measured values determined by technical conditions. Never connect the measuring device to the sampling points where measured parameters are over measuring capacity of the device.

Check the device before each measurement. Do not use visibly damaged device and contact the qualified service personnel who provides service for delivered device.

Attention! It is forbidden to use the device for pressure higher than 400kPa and for temperature higher than +35°C. It could cause device destruction and staff injury.

4. Technical data:

range of CO ₂ measurement.....	2 - 7.8 g/l
range of temperature measurement	0 - +40 °C
range of pressure measurement	0 - 400kPa
accuracy of CO ₂ content measurement	+/- 0.2 g/l
accuracy of temperature measurement.....	+/- 0.5 °C
accuracy of pressure measurement.....	+/- 2.5%
dimensions	245 x 210 x 110 mm
weight (of empty device)	about 2 kg

5. Operating instructions

Measuring device makes it possible to determine CO₂ content in cylindro-conical fermenters and fermenting tanks. It is possible to determine CO₂ content in kegs too but it is necessary to equip the measuring device with accessories (head) for reliable sampling from kegs.

Before operating check visually the device if it is not damaged.

Attention! Before sampling from tank, remove any sedimented yeast to avoid the presence of yeast in the tested beer.

- 1) Attach GMAs by fixing of inlet hose (3) to the sampling point.
- 2) Bring the outlet hose (5) to the drain, during this handling the inlet ball valve (1) is shut and the outlet valve is partially open.
- 3) Hold the device in a vertical position and open fully the inlet valve (1) then open the valve (sampling valve) of the sampling point so as to allow the beer fill in the measuring chamber (6). During filling handle the outlet and inlet valve (2, 1) to obtain the sample without foam. The whole measuring vessel (6) must be filled with beer and all foam must be forced out of the device.
- 5) Once the measuring vessel (6) is full close first the outlet valve (2), inlet valve (1) and then the valve of the sampling point.
- 6) After this, open shortly and close immediately the outlet valve (2) to reach zero pressure inside the measuring chamber. The pressure gauge should indicate 0 kPa.
- 7) Switch on the Digital Thermometer with the On/Off key.
- 8) Take the bottom (7) of the GMAs by one hand and the holder (9) by the other one and shake the sample by turning upside down the device several times, until the pressure stops increasing.
- 9) Watch the gauge meter (11) and once the pressure is established then read pressure and temperature value. Refer (turn) to the nomogram (chart) for the corresponding CO₂ values in g/l.

Warning! Before removing the GMAs from the sampling point, make sure that the valve is closed and the inner space of the inlet tube is not under pressure and only after that remove the inlet hose from the sampling point.

Note: A plastic reduction can be used if the diameter of the inlet hose does not fit. In such case, slip the plastic reduction on the inlet hose (3), and slip the hose (with the desired diameter) on the opposite part of the plastic reduction.

6.0 Service

Service is provided by company:

1-CUBE s.r.o.

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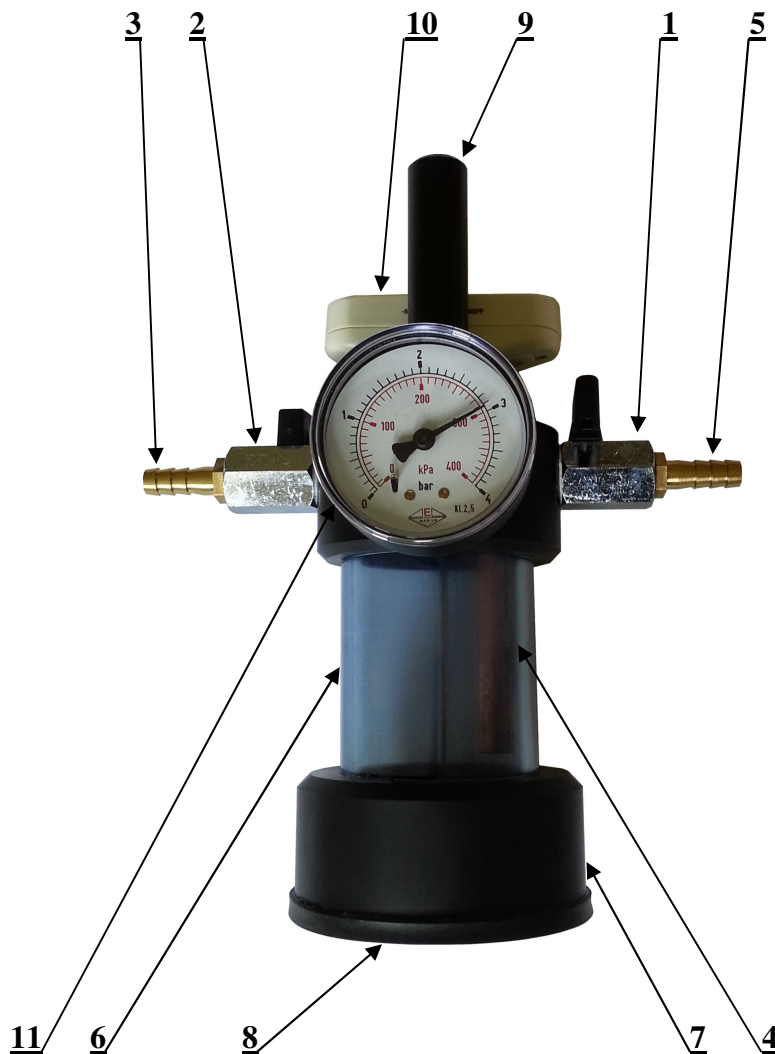
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NOTICE: It is forbidden for anyone except for the manufacturer or authorized company to repair the device.

The design of our devices optimally considers environmental compatibility. In accordance with the EC guideline 2002/96/EG devices that are worn out or no longer required must be sent to a dedicated collection point alternatively, must be sent to 1-CUBE for disposal.

Picture 1



Parts description:

1 - inlet valve

2 - outlet valve

3 - inlet hose connector

4 - inside beer inlet tube

5 - outlet hose connector

6 - measuring vessel

7 - bottom

8 - nomogram

9 - holder

10 - thermometer

11 - pressure gauge