



CAISSON

Measuring equipment

VI-D4 Concrete Moisture Meter

INTRODUCTION

VI-D4 meter was designed in order to measure concrete humidity. Its unquestionable advantage is nondestructive method of measurement with simultaneous high accuracy and easiness of use.

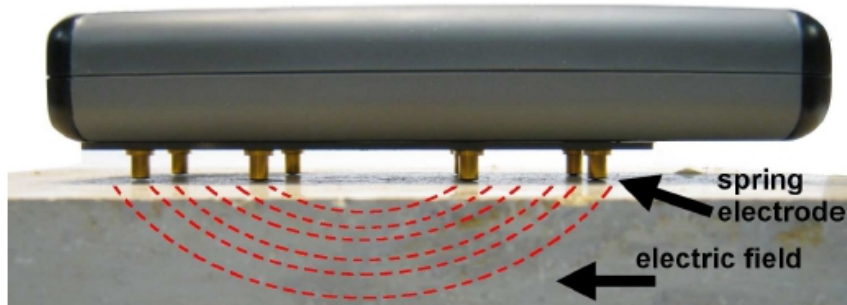
TECHNICAL DETAILS

- **Dimension:** 147x89x33mm
- **Power supply:** 2xAA battery
- **Average working time** on one battery set:
20 hours
- **Display:** graphic monochrome 128x64 pixels,
size 61x33mm with backlight
- **Operating temperature range:** 5°C to 40°C
- **Accuracy:** $\pm 0.5\%$
- **Scales:**
 - 1 - Concrete (0-6% H₂O)
 - 2 - Cement Screed (0-6% H₂O)
 - 3 - Cement Screed (0-4% CM)
 - 4 - Anhydrite Screed (0-3.5% H₂O)
 - 5 - Anhydrite Screed (0-1.9% CM)
 - 6 - Caisson 0.3-15.3 Scale (0.3-15.3m)
 - 7 - Relative Scale (0-100%)



1. General function

VI-D4 meter calculates humidity of analyzed material by measuring its electrical impedance. The relation between humidity of certain material and its impedance is directly proportional. Impedance is measured through generating low frequency electric field between electrodes. The meter measures low intensity alternating current flowing through electric field and on that basis calculates moisture of tested material.



2. Constraints

Concrete Moisture Meter VI-D4 does not detect concrete humidity through electricity conducting materials like metal coverings/ linings, PE-rubber or any wet surfaces. Moisture Meter VI-D4 should not be used to measure concrete humidity on surfaces which are topped with a thick layer of floor covering material like wood. Meter measurement outcomes show the actual humidity at a time of measurement.



To turn on the meter press ON/HOLD button.

- **To set the scale press SET button. There are 7 available scales:**

- 1 - Concrete (0-6% H_2O)
- 2 - Cement Screed (0-6% H_2O)
- 3 - Cement Screed (0-4% CM)
- 4 - Anhydrite Screed (0-3.5% H_2O)
- 5 - Anhydrite Screed (0-1.9% CM)
- 6 - Caisson 0.3-15.3 Scale (0.3-15.3m)
- 7 - Relative Scale (0-100%)

Name of chosen scale will appear in the scale indicator field. To see detailed description of each scale go to Available scales section.

- **To set the mode of measurement press ON/HOLD button. There are 2 available modes:** Normal, Max Hold

The display color will change depending on which mode was chosen.

To see detailed description of each mode go to Modes & functions section.

- **To make a measurement press the meter against the tested surface until all spring electrodes are completely blocked.**

! Caution: Do not press the device too intensely as this may harm the electrodes.

! Caution: Fingers **SHOULD NOT** touch the sensor plate and electrodes while measuring.

The meter should be held in the middle while measuring (see picture below).



It is recommended to repeat the measurement in a few points situated next to each other as humidity has a tendency of uneven distribution. If the measurements vary, only the highest outcomes should be used.

- To switch off the meter press ON/HOLD button for around 2 seconds.

3. Preparation of the surface before measuring

All concrete heating/drying equipment should be switched off at least 96 hours before taking the final measurements. Otherwise the outcome may not reflect the actual humidity level or displacement of humidity in tested material. Before the measurement may be taken, the analyzed surface should be cleaned- there should not be any foreign substances like plastic films, dust etc.. In case of measuring concrete floors all covering materials like: concrete additives, primers, paints, etc., should be removed in order to reveal pure concrete that is going to be measured.

All cleaning and cover-removing works should be finished at least 48 hours before taking the measurement. VI-D4 meter should not be used to measure concrete on which there is water in a liquid state. Measurements should be avoided in areas exposed to direct sunlight or other sources of heat.

4. Available scales

Concrete 0-6% H₂O

Concrete scale may be used only for concrete surfaces. It shows the relation between weight of pure water contained in the tested material with its dry weight. The scale range varies between 0 and 6% as 6% is about maximal physically possible content of water in the concrete. The obtained results should not be confused with moisture emission or any other humidity measurement methods.

Cement Screed (0-6% H₂O)

This scale is used to measure the moisture content of cement screed. The content of water is expressed as a percentage of weight.

Cement Screed (0-4% CM)

This scale is used to measure the moisture content of cement screed. The displayed value is an approximate value that can be also determined using the Carbide Method (CM).

Anhydrite Screed (0-3.5% H₂O)

This scale is meant for moisture measurements in anhydrite floors. The displayed value is an approximation of a value that normally would be indicated using a CM-measurement device.

Anhydrite Screed (0-1.9% CM)

This scale is used to measure the moisture content of Ascreed. The displayed value is an approximate value that can be also determined using the Carbide Method (CM).

Caisson 0.3-15.3 Scale (0.3-15.3m)

Scale works in a similar way as the Relative with a range from 0.3 til 15.3m.

Relative Scale 0-100%

Relative scale may be used in humidity level comparison of various materials. Obtained results should not be interpreted as percentage content of water in tested surfaces. There is no linear correlation between the outcomes and relative humidity. The scale should be used only as comparison technique. Scale may be used on the surfaces where direct contact with pure concrete is impossible because of some layer/covering.

5. Modes & Functions



Normal Mode

The main measuring method of VI-D4 meter is **Normal** mode. In this setting the measured value is refreshed continuously.



Max. Hold mode

If the measured area is not easily reachable and it is impossible to read the value while measuring, the Max. Hold mode may be used. After choosing that mode the measured value is not refreshed continuously. The meter will show only the highest value gained from numerous measurements.

! Caution: Even single touching of sensor plate or electrodes during this mode will cause a highly inaccurate outcome. That in turn will result in the need of repeating the whole measurement process. The measurement in that set may be repeated by switching the mode into Normal and then into Max.Hold again.



Auto turn-off

In order to maximize batteries lifetime, the meter automatically turns off after 12 minutes. This function is always active and can't be switched off.



Service Info

This mode enables to check some meter service information which include:

- Total working time
- Quantity of switching-on
- Software version
- Date of production
- Batteries voltage

This mode may be accessed by pressing and holding the SET button for 5 seconds and then by pressing ON/HOLD button simultaneously. All the information will be shown as long as the SET button will be held.

6. Power supply



VI-D4 meter is battery powered. It uses 2 AA type batteries. Both, rechargeable and standard batteries may be used. Battery status shows the remaining capacity of the batteries. If the currently used batteries are almost out of charge, the battery icon will show empty.

While changing batteries into new ones both batteries should be replaced. Replace only with 2 of the same type of batteries and only fully charged ones.

Battery arrangement scheme is shown in the picture below:



7. Warranty

Notwithstanding the statutory warranty claims, CAISSON provides a warranty in accordance with the laws of the Customer's country for a period of at least two years from the date of sale of the device to the end user. The warranty covers only those faults which are caused by defects in material or workmanship. A warranty claim must be accompanied by a proof of purchase with the date of sale specified. Warranty repairs shall be performed only by an authorized distributor of CAISSON. The following are excluded from the warranty:

- Misuse
- Use of force, damage caused by external factors or foreign bodies such as sand or water
- Damage caused by failure to comply with the instructions for use
- Normal wear and tear

The warranty also excludes devices that are partially or entirely disassembled.