



AQUA DATA

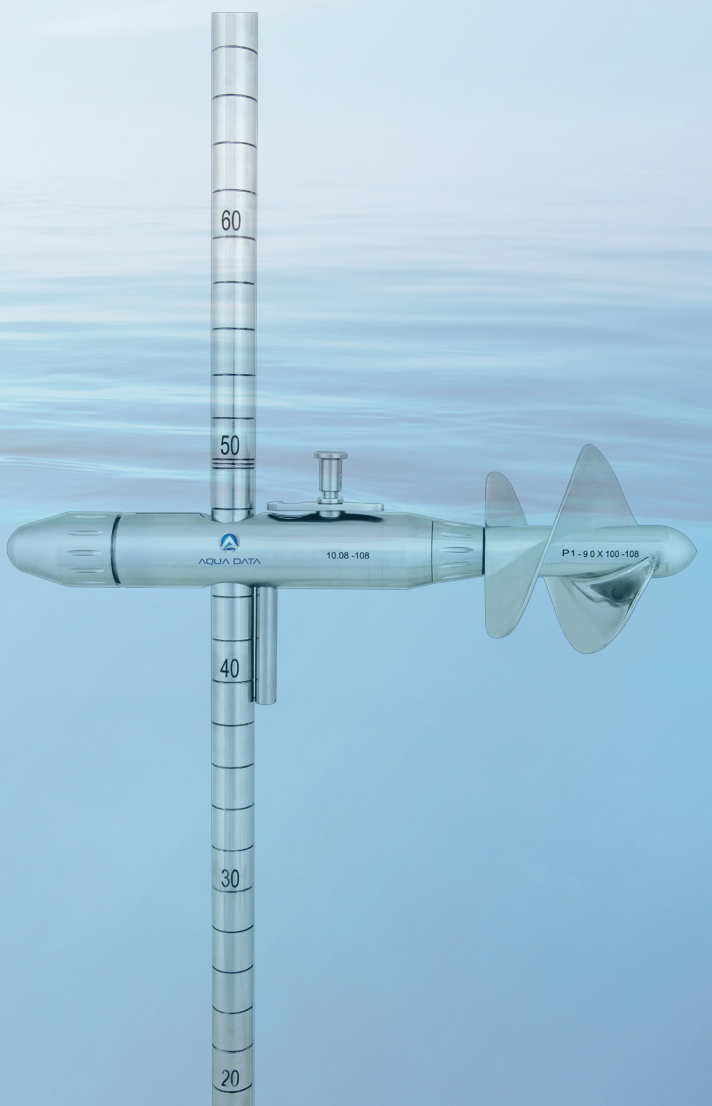
# Universal Current Meter

## CM-32

The AQUADATA Universal Current Meter CM-32 is a measuring instrument to determine the flow velocity of water in open canals, rivers, streams, rivulets, pressure pipes, lakes, and the sea.

Universal application on different fixing devices for use on rod or as cable suspended meter equipment.

The reliable instrument approved by many years practical experience under hard conditions worldwide.



### Main Body

Made of high-quality, noncorrosive chromium steel, the current meter can be used even under extreme conditions. The propeller is filled with oil and rotating in two special ball-bearings. The oil filling and a capillary seal protects against water entry. A base stop prevents the propeller from striking to the ground.

Universal Application on different fixing devices for use on rod or as cable-suspended meter equipments, for use with AQUADATA single drum winches or cable way installation.

### Contact Transmission:

The current meter propeller gets turned by the flow. A permanent magnet turning with the propeller actuates, once per revolution the built-in Reed Contact which is watertight under pressure. The pulse sequence is nearly proportional to water velocity in the measuring point.

### Guiding Device (Rod):

This rod is manufactured from non-corrosive stainless chromium steel. 20 mm. dia., 2 m. long, 2 sections, graduation and numbering in cm. with ground stop.



Connection Cable:

The number of cycles that appear with the rotation of the propeller in the water is transmitted to the Signal Counter via the connection cable (3 m.). The plugs on the cable ends are made of stainless chrome material.

Determination of Flow Velocity:

The exact relation between the number of propeller cycles per second and the water velocity is determined by the equation:

$$v = k \cdot n + \Delta$$

$v$  = flow velocity (m/sec.)

$k$  = hydraulic pitch of propeller (m) determined by test runs in the modern hydraulic towing canal.

$n$  = number of propeller revolutions per second

$\Delta$  = meter constant (m/sec.) determined by test runs in the modern hydraulic towing canal.

Since among current meters there are mechanical differences in the propellers as well as in the bearings, constants  $k$  and  $\Delta$  are found by specific tests in the modern hydraulic towing canal (Certificated of Calibration DSI - TAKK).

If desired, the calibration equation (relation between  $n$  and  $v$ ) can also be supplied with fully calculated value and compiled in a table (Velocity table - TAKK).

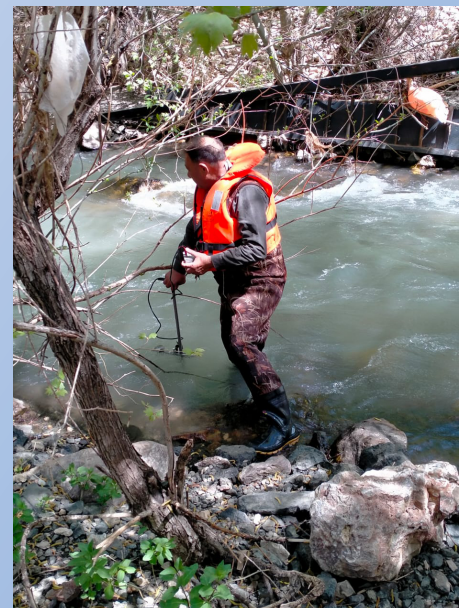


P1

P2

P3

Propeller Size	100 mm dia 0,125 m pitch	80 mm dia 0,50 m pitch	125 mm dia 0,25 m pitch
Max. Water Velocity (m / sec.)	5,0	10,0	12,0
Starting Speed (m / sec.)	0,025	0,040	0,025
Range of Component Effect	± 45°	± 5°	± 5°
Material	Metal	Metal	Metal





## Possibilities of Application:

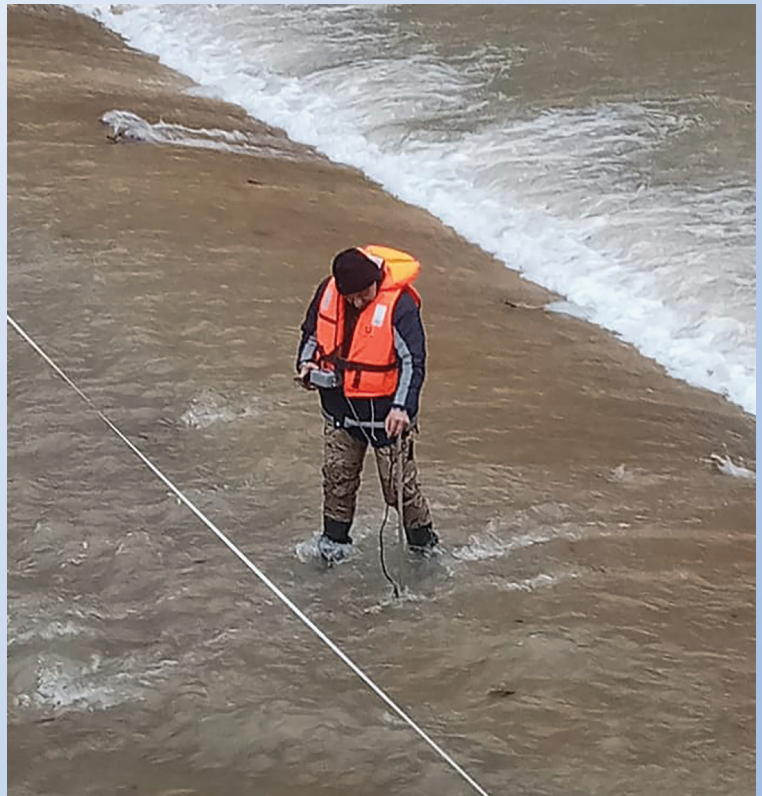
### Current Meter on Rod:

For measurements in small rivulets and low water levels with slow flowing speed, the CM- 32 Current Meter is used in combination with a rod. The two Standard methods of fixing the current meter to the rod are the following;

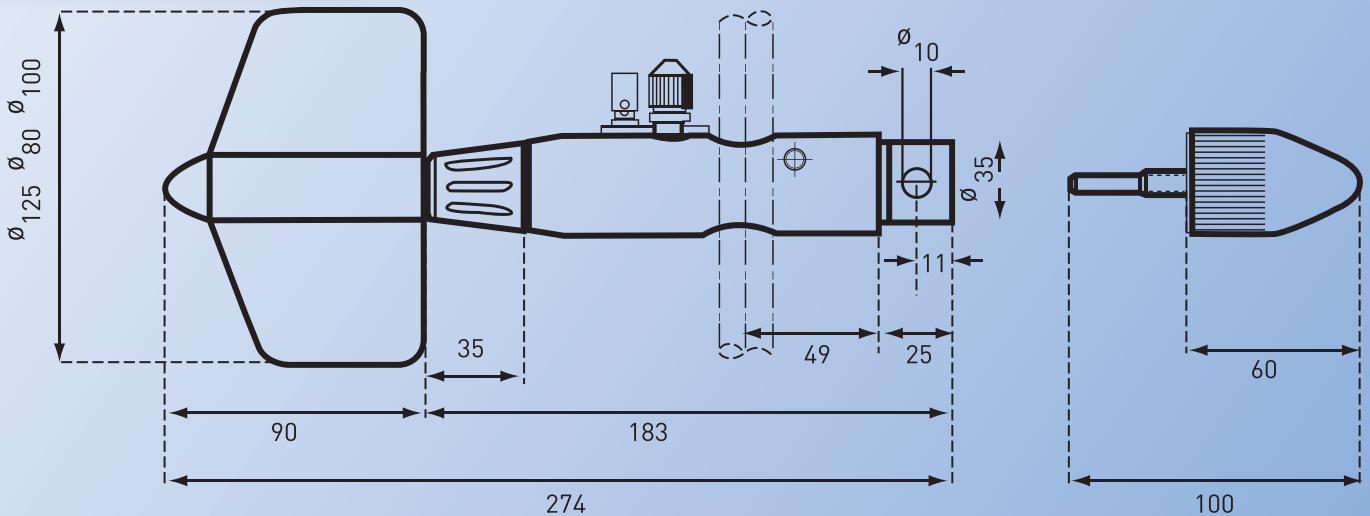


### Instrument Case (CM -32):

Made of resistant black ABS plastic. Dimension: 19 x 33 x 45 cm, Weight: Case including equipment approx. 5,5 kg.



## Dimensional Drawing:





## Signal Counter Z07

This full electronic counter is able to receive frequencies for all flow velocities. The impulses generated by the Current Meter are added and indicated in relation to the preselected time. The timing starts from the first impulse.

### Technical Details

- **LCD Display:** 128x64 Graphic Dot Matrix. double line, indication, automatic battery control and insertable buzzer.
- LCD Double Display simultaneously shows propeller type, pulses, time, and flow velocity.
- 30, 55, and 60 seconds is the time or retention as these values can be set manually.
- **Key pad:** 6 buttons keypad for on and off, time setting, Propeller choice, Blacklight choice and start/stop.
- After the calibration of the propellers, constant "k" and "Δ" values can be entered for each propeller (See User's Guide). When the calibration is done again due to the mechanical damages and the constraints change, "k" and "Δ" constant values of each propeller can be entered again via keypad on the counter.
- The set and the remaining time can be seen on the screen when the speed and water velocity is set at the same time.
- **Timing set:** 30, 40, 50, 55, 60 and 100 sec. as can be made with quartz clock.
- Even if you don't press the stop button of the counter, it has the feature of self-closing after 4 minutes.
- The flow velocity value can be seen on the screen; moreover, buzzer beep is heard at the end of the arranged time when the propeller takes a whole stroll.
- Time can be set in the range of 0-200 sec. within an interval of 5 sec.
- When the Electronic counter is first started, it is arranged for 55 sec.
- **Accuracy**  
**Time measurement:** 0.01 sec.  
**Impulse Counting:** 1 impulse.
- **Maximum impulse frequency:** 40 impulse /sec.
- **Temperature Range :** -20 °C + 70 °C
- **Power Supply:** 3.7V Lithium Ion
- **Case (size) and weight:** 11 x 9 x 5,5 cm. / 430 gr., IP-68



This counter is able to calculate the current velocity directly by means of predefinable equations (Z-07) with input of up to 20 calibration results and additional indication of the flow velocity in cm / sec. Universal Current Meter has a working range between 0.025 m/sec. to 12.0 m/sec. during the process. Reed contact is used for the pulse.

### Option:

Extra rod, extra cable, extra oil, sinkers, winch, mobile bridge jib, car crane and relocation device.

