

Instrument

Wave height meter

The wave height meter is developed for measurement of dynamically varying liquid levels, wave heights of water in particular. The wave height meter can be used as a standalone probe or combined with a control unit. The main difference when using a control unit is the ability to adjust the gain and zero shift of the output signal by means of dials. Furthermore, the control unit provides the probe with power. The output signal for the surface elevation is analogue for both the standalone version as the control unit.

Applications

The wave height meter is, amongst others, used for laboratory research in the fields of:

- wave penetration in harbours
- performance of breakwaters and dikes
- coastal protection
- load and stability of off-shore structures

Probe

The probe of the wave height meter is constructed of two parallel stainless steel rods, mounted underneath a small box. This box contains electronics for sensor excitation, signal detection, amplification and galvanic isolation. The rods act as the electrodes of an electric conduction meter. A platinum reference electrode is included to compensate the surface elevation measurement for the effect of varying electrical conductivity of the fluid. The analogue output signal is linearly proportional to the liquid level between the sensor rods.

Features

- fast dynamic response
- wide range 0.5 m, other ranges optional
- automatic compensation for conductivity variation
- high linearity
- easy installation
- analogue output indication on control unit



Technical specifications

Wave height electrodes	<ul style="list-style-type: none"> rods, stainless steel, type 316, 4 mm diameter electrode spacing 24.3 mm electrode length 590 mm (other lengths optional)
Reference electrode	platinum
Other materials exposed to liquid	PVC-U
Liquid medium	<ul style="list-style-type: none"> medium conductive liquids non-aggressive to mentioned materials minimum required conductivity 0.1 mS/cm sensitivity variation < 1 % for 0.1 to 2.0 mS/cm
Accuracy	0.5 % of measuring range, best straight line
Output	0.4 V/cm level variation (standard: -10 to +10 VDC for 50 cm liquid level change)
Frequency response	> 15 Hz
Dimensions	incl. electronics 675 mm long (standard length)
Cable	25 m (optional up to 100 m)

Control unit

The control unit supplies the wave height meter with power and provides a way to adjust the wave height meter to the desired calibration. Four switch selectable ranges are available to adjust the gain of the output signal. The zero level is adjustable by a dial. One universal carrying case (UCC) can support two control units.

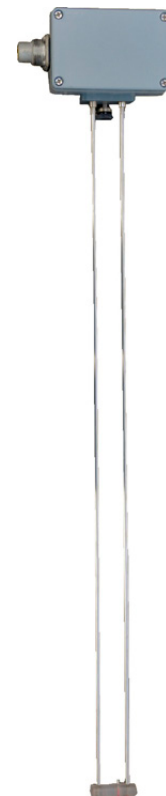
Features

- output indication
- switch selectable ranges
- adjustable zero level
- can be used with probes of various length

Technical specifications

Probes available	standard probe 0.5 m range special probe 1.0 m range other lengths on request
Ranges	0.05, 0.1, 0.2, 0.5 m for standard probe 0.1, 0.2, 0.4, 1.0 m for special probe
Frequency response	> 15 Hz
Output	+/- 10 VDC
Dimensions cassette	standard eurostyle cassette

Several configurations can be built on request. One example is a setup where a number of wave height meters without control units are powered by one electronics box. For each wave height meter the analogue output signal is available on a BNC connector. Furthermore, there is the possibility to include data output over USB or Ethernet.



probe



Control unit front view



Control unit rear view

More information: instrumentation@deltares.nl