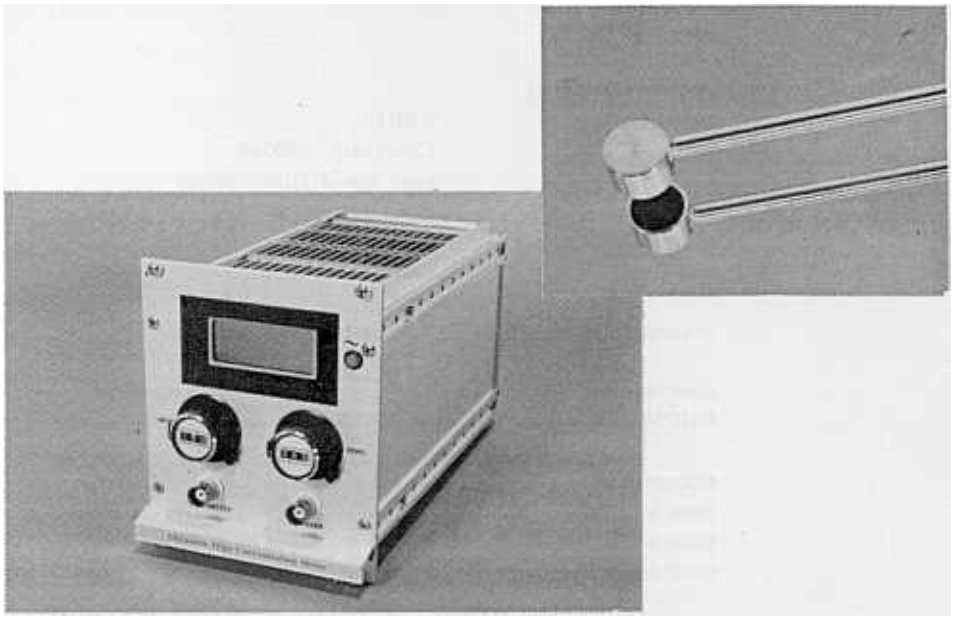
instruments

UHCM probe and control-unit for ultra sonic high concentration-meter



application
The UHCM is an instrument for measurements of high particli concentrations (suspended or consolidated) in liquids, like clay, silt, sand, mud and sluge.

general description
the measurement method is based on the attenuation of sound by particles. The UHCM-system consists of:

- the acoustic probe with adjustable transmitter and receiver elements
- an UCC or BP-UCC instrument housing, providing the system power supplies and the
- UHCM control-unit with controlls and switches for burst configuration:
  - logarithmic amplifier
  - LCD-display unit and
  - analogue output.

specific applications include
- laboratory research
- bed sediment of rivers and harbours
- slurries (cement, clay, etc.)
- environmental investigations and studies
- concentrated suspensions in the food-industry.
- sludges (water treatment, sewage etc.).

features
- output is linearly proportional to the concentration
- output available on LCD display as well as analogue signal at output connectors
- sensors can be optimized for specific applications
- due to the adjustable burst width and frequency a wide range of application possibilities
- the control unit fits in the standard DELFT HYDRAULICS' UCC and BP-UCC battery powered universal carrying cases.

WL | delft hydraulics

specifications

probe (standard)

frequency	- 5 MHz
range	- China clay ~1200g/l
	- sand d_{50}=200 µm ~ 400g/l
transducer(s)	- Ø 9 x 6 mm each
acoustial path length	- 11 mm
materials	- stainless steel 316
	- epoxy
connection cables (2)	- 5 m, (standard supplied)

control-unit

UHCM control-unit installed in UCC housing or BP-UCC.

transmitter

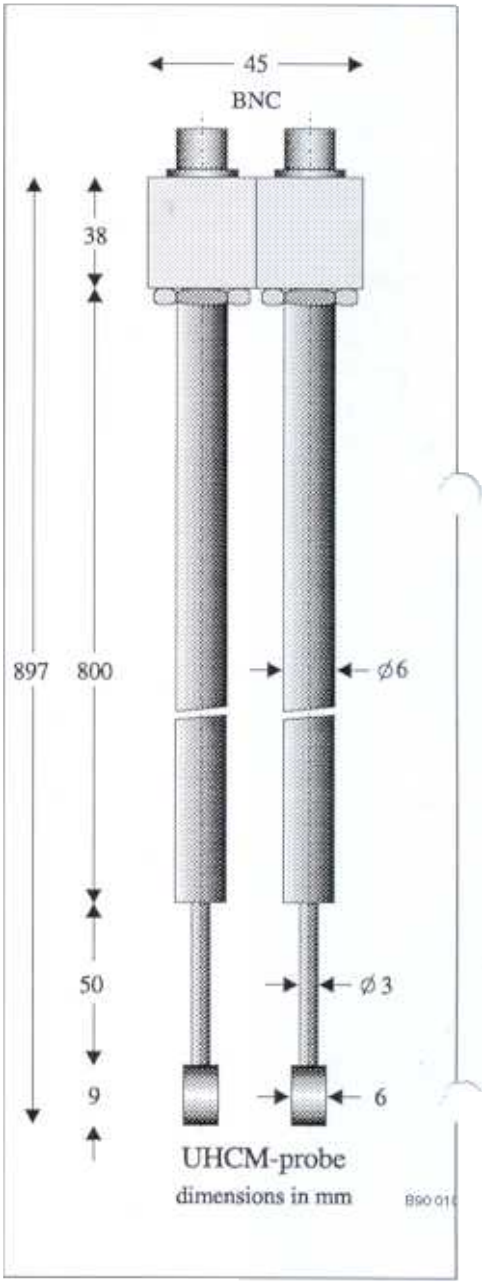
burst frequency	- adjustable 0.1525 - 20 MHz (in steps)
burst width	- 2 - 255 periods of burst frequency
burst interval	- 1 µs – 120 s

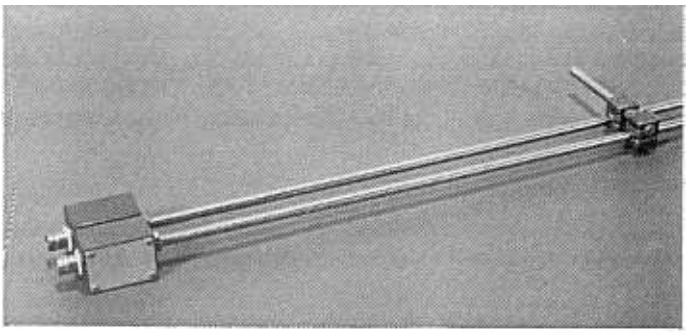
receiver

dynamic range	- 40 dB
responce	- 10 Hz (dispay 1 Hz)
accuracy	- 0.5 dB
controls	- zero-adjustment 0-3 and 0-6dB (jumper selectable)
	- span-adjusatment 4-40 dB
display	- LCD display (3.5 digits)
outputs	- analog voltage, 0-10 VDC,
connectors	- BNC (2x)
	- 64-pole male DIN 41612 type for UCC.

(UHCM-cpl)

power	- supplied by UCC-cabinet total consumption 3.6 VA max.
dimensions	106 x 129 x 187(205) mm (w x h x d)
weight	- 0.9 kg





After special structural modification the instrument was succesfully applied for bed compaction measurements in the laboratory.