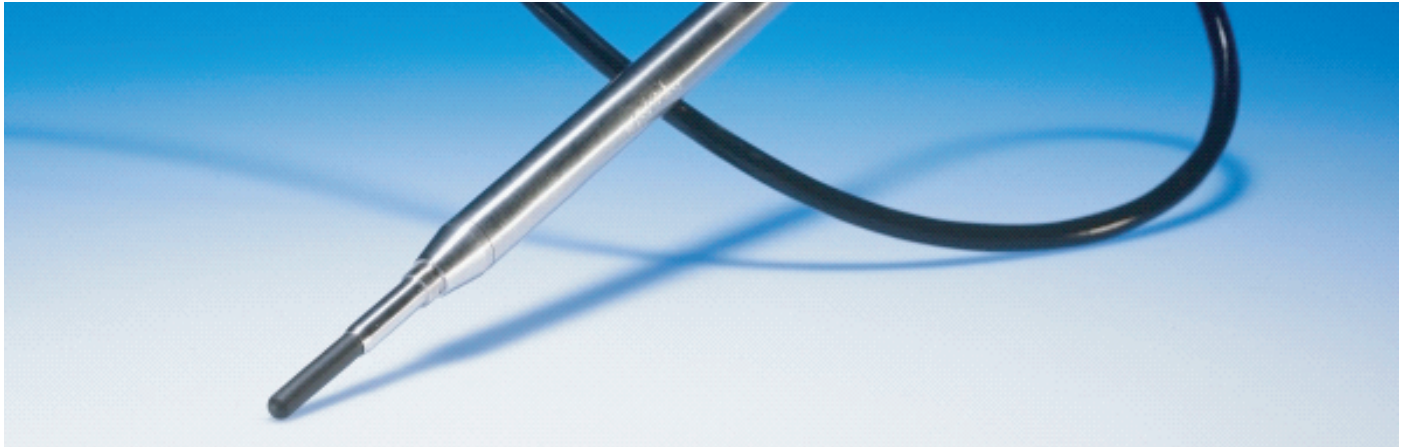


# Hydrophone TC4035

## Broad Band Miniature Probe Hydrophone



### TC4035

- **Reference hydrophone for high frequencies**
- **Linear receiving response from 100kHz to 500kHz**
- **Long term stable sensitivity**
- **Individually calibrated**
- **Calibration as standard reference hydrophone traceable to national standards established at NPL**

The TC4035 is a miniature probe hydrophone specifically designed as a standard reference hydrophone for sound measurements in the frequency range 100 to 500kHz. The hydrophone incorporates a 10dB low-noise pre-amplifier, which includes an insert calibration circuit for convenient electrical testing of the hydrophone condition. The pre-amp has a drive capability for cable length up to 25 meters.

The hydrophone offers a useable frequency range from 10 to 800kHz with good omnidirectional characteristics in the horizontal and the vertical plane.

#### TECHNICAL SPECIFICATIONS

|                                |                                                                               |
|--------------------------------|-------------------------------------------------------------------------------|
| Receiving Sensitivity Typical: | -214dB $\pm$ 2dB re 1V/ $\mu$ Pa (at 100kHz)                                  |
| Linear Frequency Range:        | 100kHz to 500kHz $\pm$ 3dB                                                    |
| Usable Frequency Range:        | 10kHz to 800kHz                                                               |
| Horizontal Directivity:        | Omnidirectional $\pm$ 2dB (at 250kHz)                                         |
| Vertical Directivity:          | 60° to 120° $\pm$ 3dB (at 250kHz)                                             |
| Operating Pressure:            | 300m                                                                          |
| Survival Pressure              | 400m                                                                          |
| Max. Sound Pressure:           | -4dB distortion level 210dB re 1 $\mu$ Pa at 12V supply                       |
| Equivalent noise:              | 80dB re 1 $\mu$ Pa ( $\sqrt{H}$ at 1 kHz)                                     |
| Weight (in air):               | 410 grams (LEMO receptacle incl.)                                             |
| Max. Output Voltage :          | 1 Vrms at 12VDC<br>2Vrms at 24VDC                                             |
| Operating Temperature Range:   | -2°C to +40°C                                                                 |
| Storage Temperature Range:     | -30°C to +50°C                                                                |
| Supply Voltage:                | 10VDC to 24VDC                                                                |
| Preamplifier Gain:             | 10dB                                                                          |
| Output Drive Capability:       | 25m cable at 1M Ohm input                                                     |
| Insert cal. attenuation:       | -30dB                                                                         |
| Quiescent Current:             | 15mA at 12VDC<br>20.5 mA at 18VDC                                             |
| Housing Material:              | Stainless Steel AISI 316                                                      |
| Cable:                         | Standard 10m 4 cond.+ shielded<br>Optional cable lengths available on request |
| Connector:                     | LEMO Series E four-pole watertight                                            |



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The sensor element is permanently encapsulated in high density polyurethane to ensure long term reliability. The strain relief and outer jacket of the cable is also made of high density polyurethane.

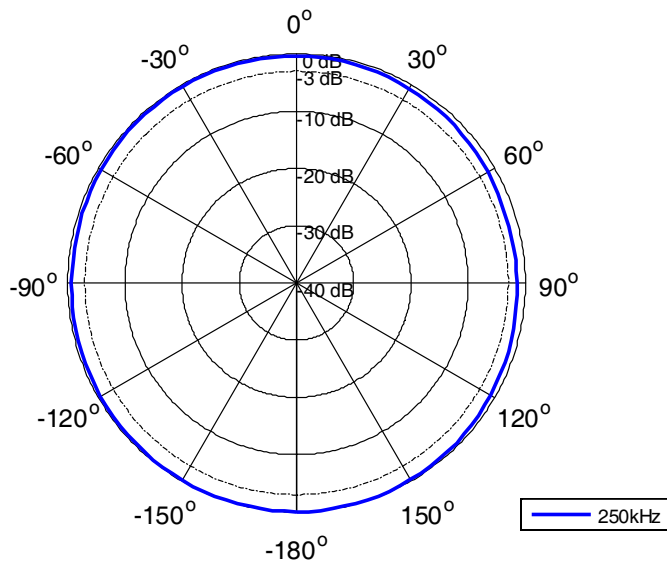
4035 can be used in sea or fresh water.

**Documentation:** Horizontal directivity:  
At 250 kHz

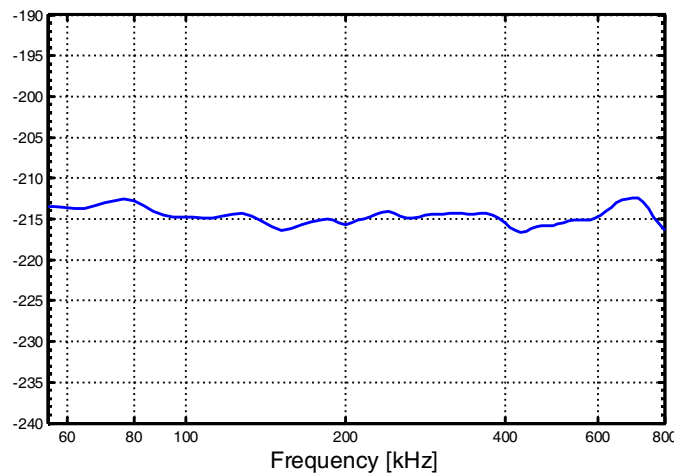
Receiving sensitivity:  
50 kHz to 800 kHz

Vertical directivity:  
At 250 kHz

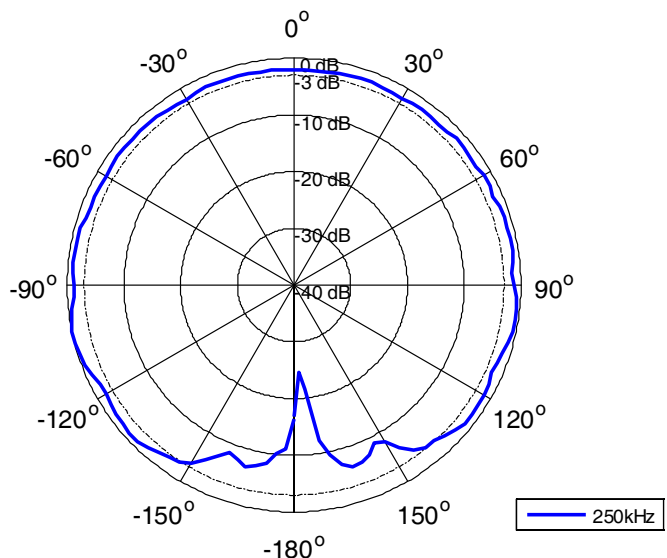
Horizontal directivity pattern



Receiving Sensitivity [dB re 1V/ $\mu$ Pa @ 1m]



Vertical directivity pattern



Accessories included: LEMO fixed socket no. ERA.1E.304.CNL

The TC4035 is a high quality hydrophone designed for use as a transfer standard hydrophone. The sensor element has excellent stability over time, - which ensure reliable sensitivity over long periods.

Connecting the TC4035: The TC4035 is supplied with a 4-pole LEMO plug and a receptacle for individual panel mounting.

The EC6073 input module is a universal junction unit for connections of hydrophones. The TC6073 is equipped with the connectors required for: input output, voltage supply and insert calibration signal.

Insert voltage calibration: The insert calibration is an electrical simulation of a signal received from the acoustic sensor element.

Injecting a signal to the calibration line input performs insert calibration. The responding signal received on the hydrophone output terminal is attenuated -30 dB typical.

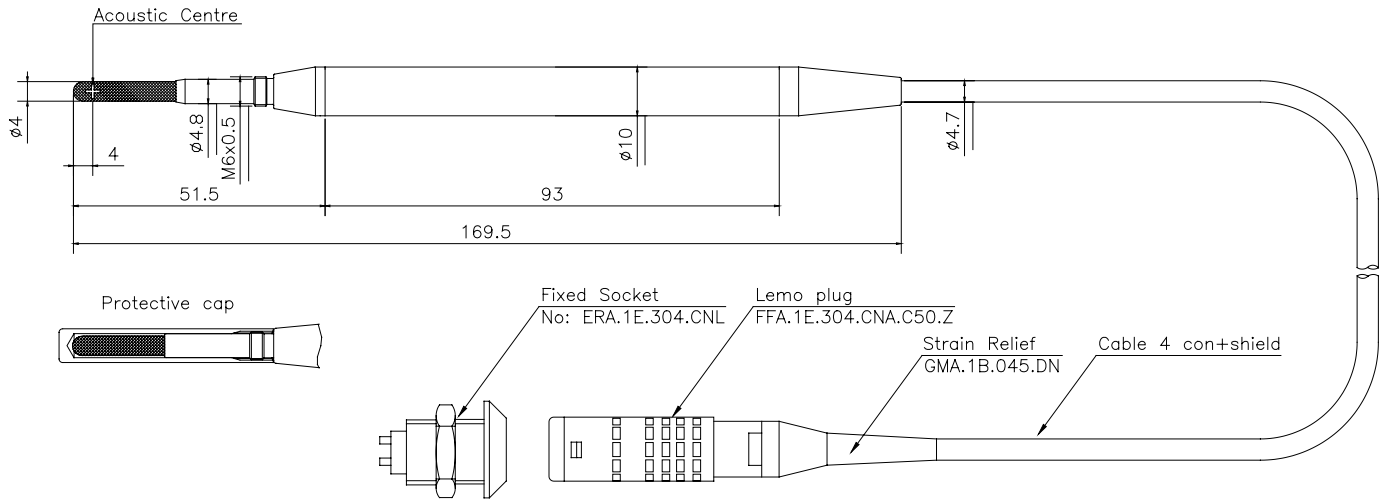
The recommended max. insert voltage signal for TC4035 is 2 Vpp.

**WARNING!** Exceeding the recommended calibration voltage may cause damage to the calibration resistor.

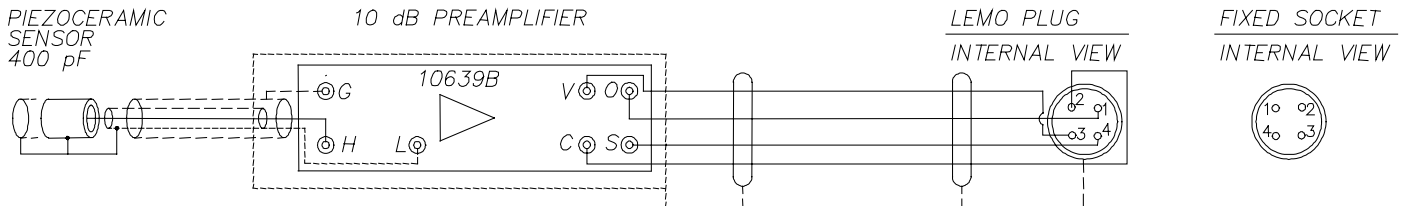
# Hydrophone TC4035

## Broad Band Miniature Probe Hydrophone

### Outline Dimensions



### Wiring Diagram



G = Guard  
H = High  
L = Low

V = Supply red  
O = Output white  
C = Calibrate blue  
S = GND black

#### Explanation:

| Terminal no.: | Function: | Colour: |
|---------------|-----------|---------|
| 1             | Out       | White   |
| 2             | Cal.      | Blue    |
| 3             | Supply    | Red     |
| 4             | GND       | Black   |



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