

# Hydrophone TC4033

## Robust Spherical Reference Hydrophone



The TC4033 provides uniform omnidirectional characteristics within the full frequency range of 1Hz to 140kHz.

The typical sensitivity of -203dB re 1V/ $\mu$ Pa and the capacitance of 7nF ensure an excellent signal to noise ratio, thereby allowing TC4033 to be used with extension cables with only a limited reduction in sensitivity.

The TC4033 offers excellent acoustic characteristics and durability, which makes it ideal for a wide range of applications and for calibration purposes.

### NBR means Nitrile Rubber

The NBR rubber is first of all resistant to sea and fresh water but also resistant to oil. It is limited resistant to petrol, limited resistant to most acids and will be destroyed by base, strong acids, halogenated hydrocarbons (carbon tetrachloride, trichloroethylene), nitro hydrocarbons (nitrobenzene, aniline), phosphate ester hydraulic fluids, Ketones (MEK, acetone), Ozone and automotive brake fluid.

## TECHNICAL SPECIFICATIONS

<b>Usable frequency range:</b>	1Hz to 140kHz
<b>Linear frequency range:</b>	1Hz to 80kHz
<b>Receiving sensitivity:</b>	-203dB $\pm$ 2dB re 1V/ $\mu$ Pa at 250Hz
<b>Transmitting sensitivity:</b>	144dB $\pm$ 2dB re 1 $\mu$ Pa/V at 1m at 100kHz
<b>Horizontal directivity:</b>	Omnidirectional $\pm$ 2dB at 100kHz
<b>Vertical directivity:</b>	270° $\pm$ 2dB at 100kHz
<b>Nominal capacitance:</b>	7.8 nF (incl.10m cable)
<b>Operating depth:</b>	900m
<b>Operating temperature range:</b>	-2°C to +80°C
<b>Storage temperature range:</b>	-40°C to +80°C
<b>Weight, incl. 10m cable (in air):</b>	1.5kg
<b>Cable (length and type):</b>	Standard 10m shielded pair DSS-2/MIL-C-915. Optional cable length available on request
<b>Connector type:</b>	BNC
<b>Encapsulating material:</b>	Special formulated NBR
<b>Metal body:</b>	Aluminum bronze - AlCu10Ni5Fe4



## PRODUCT BENEFITS

- Omnidirectional in the full frequency range
- Wide frequency range
- Durable construction
- Long-term stability
- Individually calibrated



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### Documentation:

Individual calibration curves:

Sensitivity at reference frequencies:  
250kHz

Receiving sensitivity:  
5kHz to 200kHz

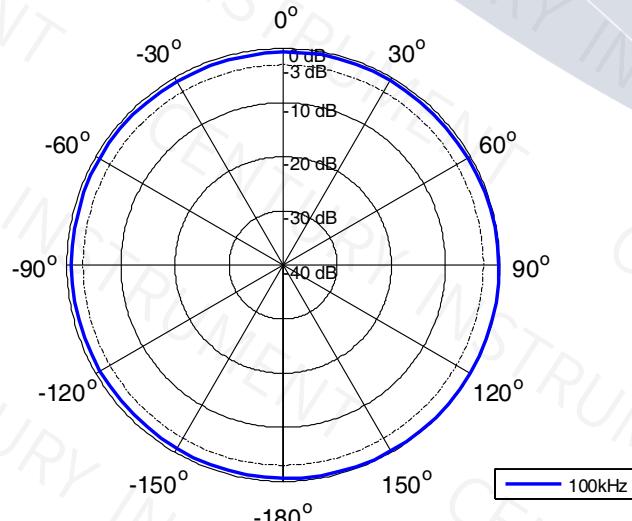
Impedance:  
5kHz to 200kHz

Horizontal directivity:  
At 100kHz

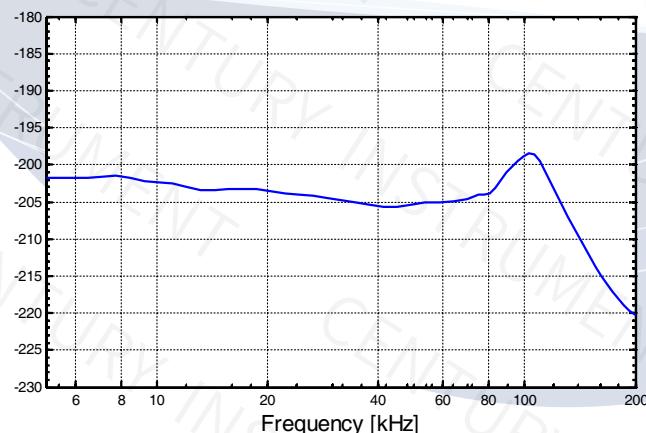
Vertical directivity:  
At 100kHz

Transmitting sensitivity:  
5kHz to 200kHz

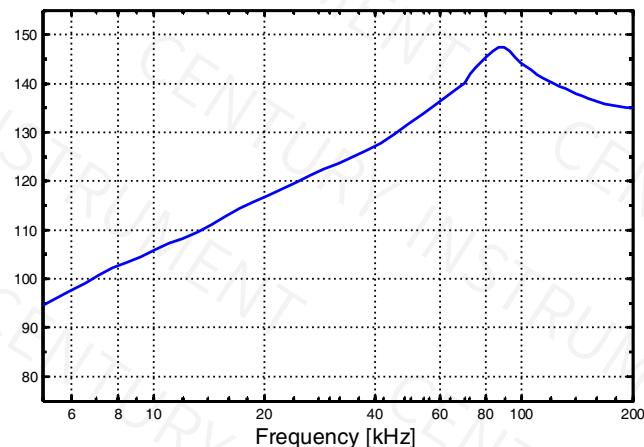
Horizontal directivity pattern



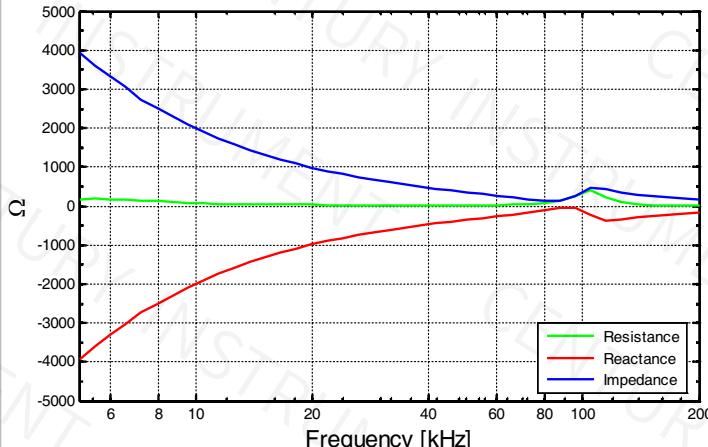
Receiving Sensitivity [dB re 1V/µPa @ 1m]



Transmitting Sensitivity [dB re 1µPa/V @ 1m]



Impedance



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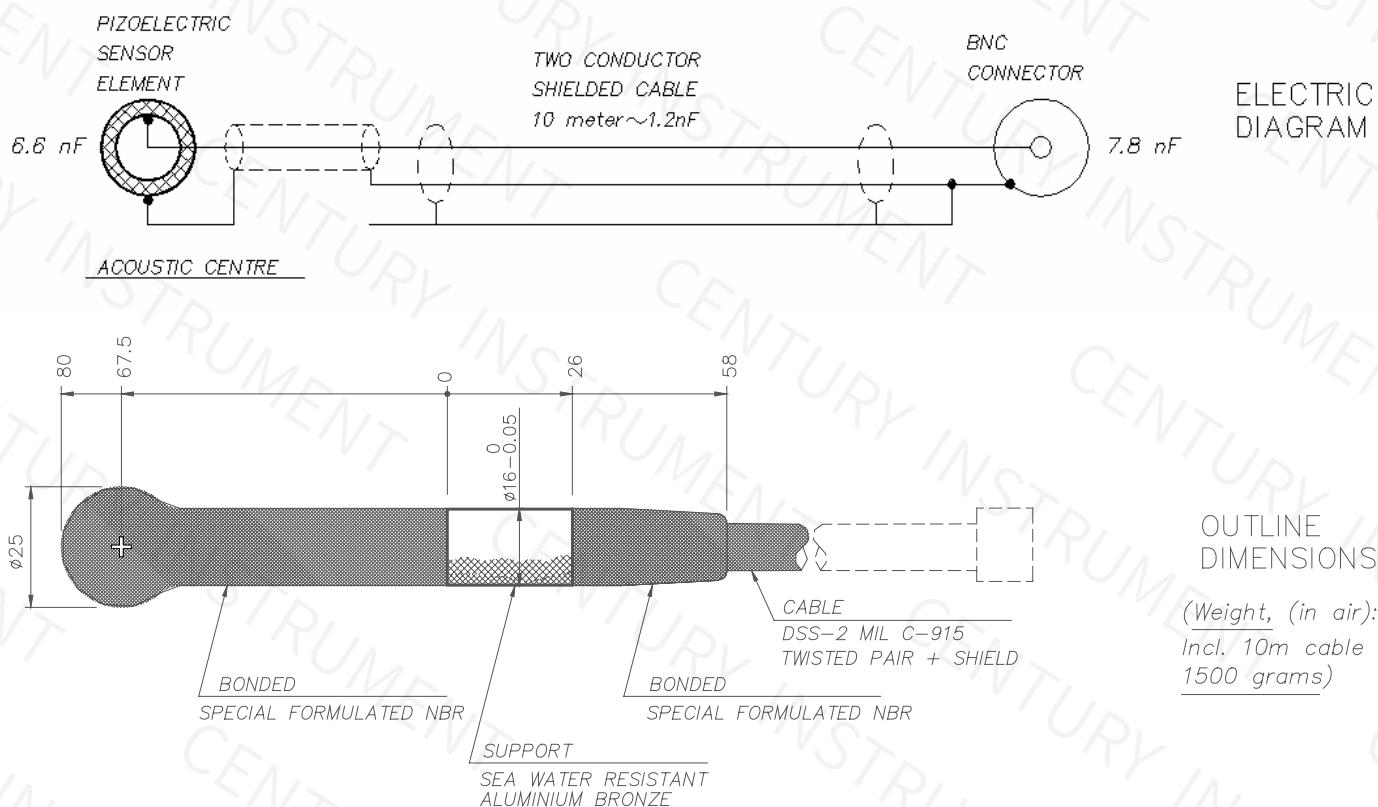
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### Documentation:

The sensor element is permanently encapsulated in special formulated NBR, which has been especially compounded to ensure acoustic impedance close to that of water and low water permeability.

### Electrical Diagram and Outline Dimensions



For information on export control regulations  
on this product, please refer to  
[www.teledynemarine.com/reson](http://www.teledynemarine.com/reson)



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