

Teledyne RESON

Hydrophone TC4032

Low Noise Sea-State Zero Hydrophone



The TC4032 general purpose hydrophone offers a high sensitivity, low noise and a flat frequency response over a wide frequency range.

The high sensitivity and acoustic characteristics makes TC4032 capable of producing absolute sound measurements and detecting even very weak signals at levels below "Sea State 0".

The TC4032 incorporates an electrostatically shielded highly sensitive piezoelectric element connected to an integral low-noise 10dB preamplifier. The TC4032 preamplifier is capable of driving

long cables of more than 1.000 meters, and the preamplifier features an insert calibration facility.

Per default the amplifier is provided with differential output. The differential output is an advantage where long cables are used in an electrically noisy environment. For use in single ended mode: Use positive output pin together with GND.

Versions with different filter characteristics are available: 4032-1 5Hz to 120 kHz, 4032-2 1Hz to 120 kHz and 4032-5 100Hz to 120 kHz.

TECHNICAL SPECIFICATIONS

Usable Frequency range:	5Hz to 120kHz
Linear Frequency range:	15Hz to 40kHz ± 2 dB 10Hz to 80kHz ± 2.5 dB
Receiving Sensitivity:	-170dB re 1V/ μ Pa (-164dB with differential output)
Horizontal directivity:	Omnidirectional ± 2 dB at 100kHz
Vertical directivity:	270° ± 2 dB at 15kHz
Operating depth:	600m
Survival depth:	700m
Operating temperature range:	-2°C to +55°C
Storage temperature range:	-30°C to +70°C
Weight (in air):	720g without cable
Max. output voltage:	≥ 3.5 Vrms (at 12VDC)
Preamplifier gain:	10dB
Supply voltage:	12 to 24VDC
High pass filter:	7Hz -3dB
Quiescent supply current:	≤ 19 mA at 12VDC ≤ 22 mA at 24VDC
Encapsulating material:	Special formulated NBR
Housing material:	Alu Bronze AlCu10Ni5Fe4

PRODUCT BENEFITS

- Low noise performance
- High sensitivity
- Wide frequency range
- Flat frequency response
- Long term stability
- Individually calibrated



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NBR means Nitrile Rubber

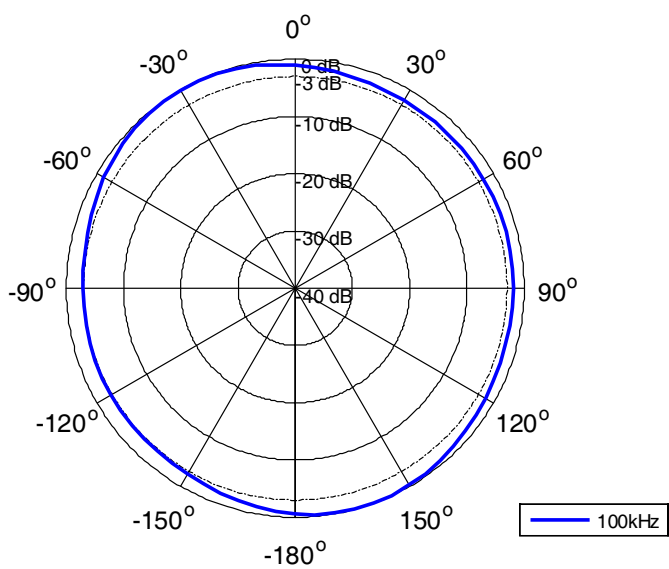
The NBR rubber is first of all resistant to sea and fresh water but also resistant to oil. It is limited resistant to petrol, limited resistant to most acids and will be destroyed by base, strong acids, halogenated hydrocarbons (carbon tetrachloride, trichloroethylene), nitro hydrocarbons (nitrobenzene,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

Documentation:

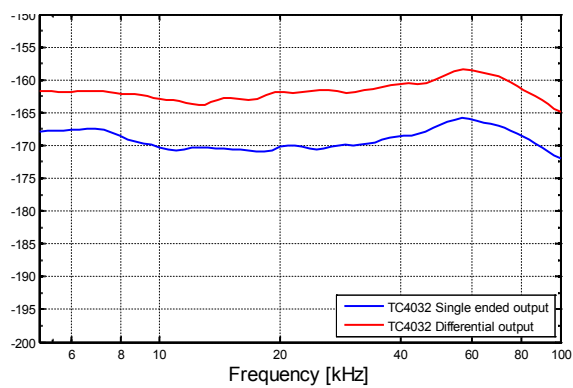
Individually calibration curves: 250 kHz
 Sensitivity at ref.: frequencies: 250 kHz
 Receiving sensitivity: At 5 kHz to 100 kHz

Vertical directivity: At 15 kHz
 Horizontal directivity: At 100 kHz

Horizontal directivity pattern

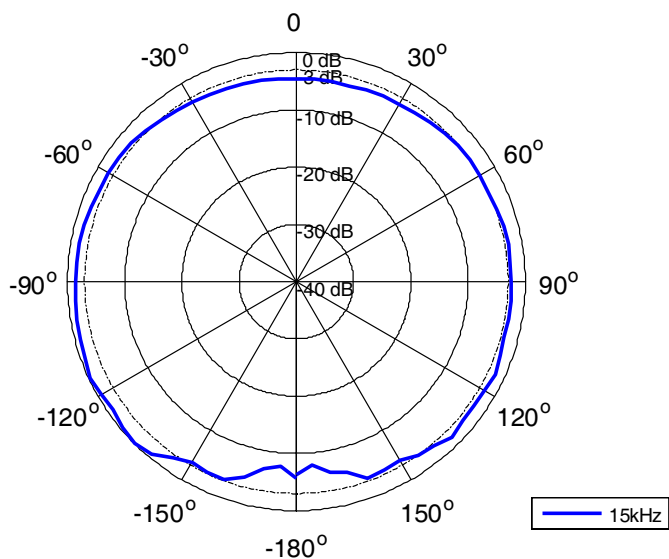


Receiving Sensitivity [dB re 1V/μPa @ 1m]

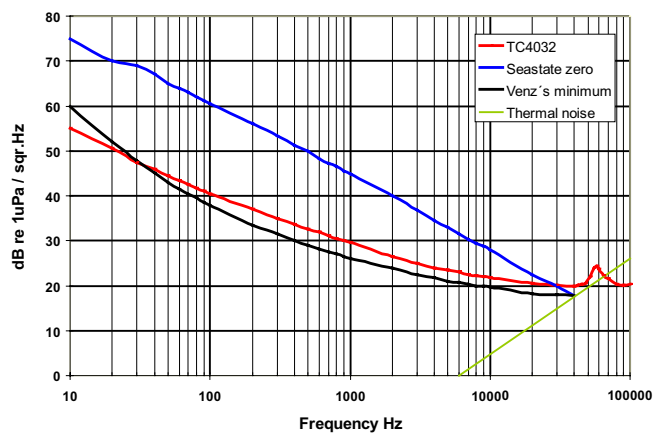


The OCR curve shown above is for single output

Vertical directivity pattern



Typical equivalent noise pressure curve

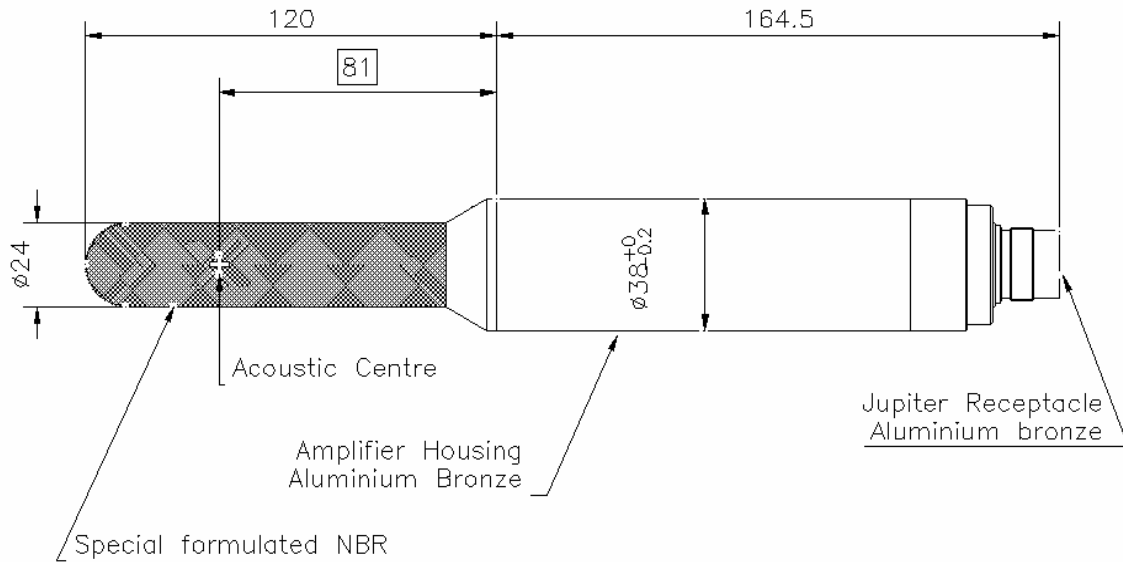


Valid for all versions of TC4032

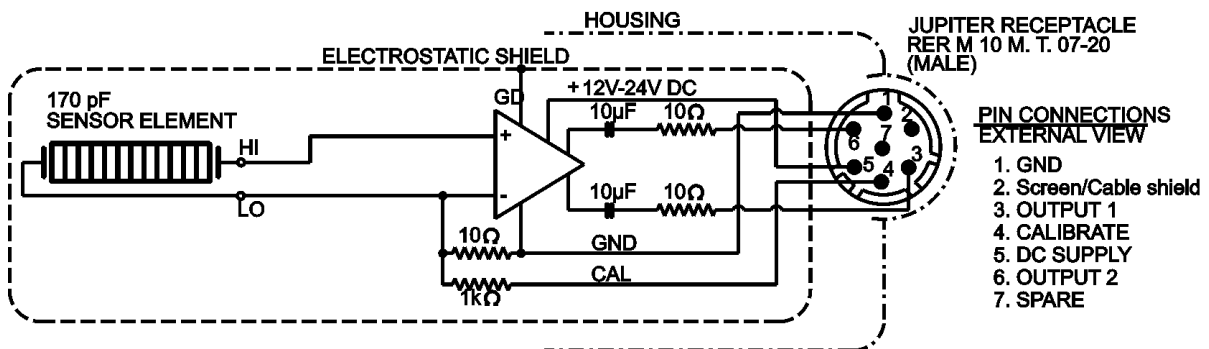
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Outline Dimensions



Electrical Diagram



Per default the amplifier is provided with differential output. The differential output is an advantage where long cables are used in an electrically noisy environment. For use in single ended mode: Use positive output pin (3) together with GND.

Insert voltage calibration

The TC4032 preamplifier contains an insert calibration circuit. This allows for electrical calibration of the hydrophone. The calibration method is not an absolute calibration but, it provides a reliable method for testing of the hydrophone, especially for hydrophones in fixed remote installations. The insert sine signal simulates the output signal from the sensor element.

To perform an insert calibration, use an appropriate function

generator. The applied calibration signal must not exceed 10 Vrms. A higher voltage may damage the calibration resistor. 2 Vrms will be appropriate for insert calibration. The attenuation of the calibration signal is 30dB for short cables.

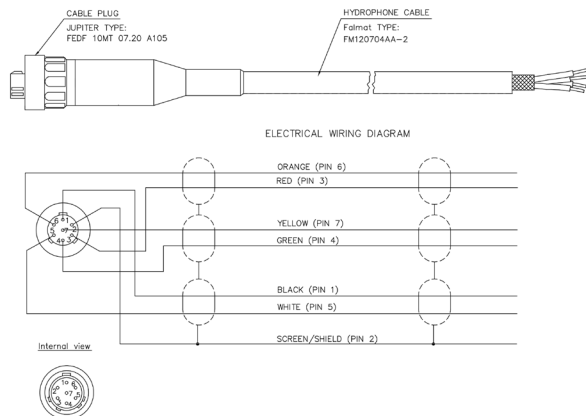
Apply the signal to the calibrate input, connector contact 4. = green wire of cable. Connect generator ground to sine generator ground, and measure the signal on hydrophone output.

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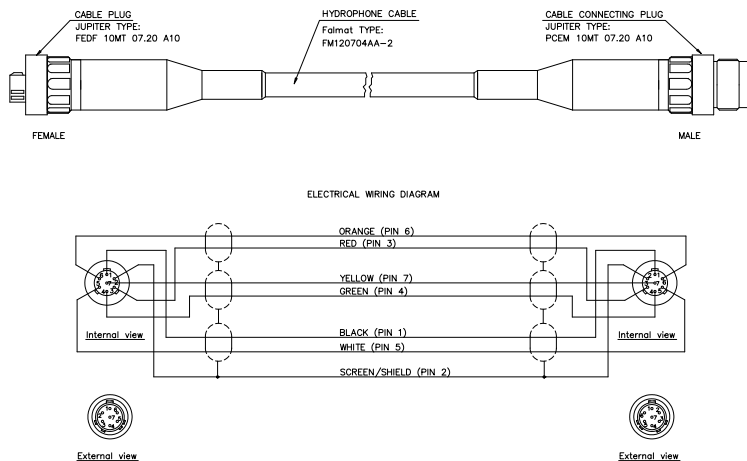
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Accessories

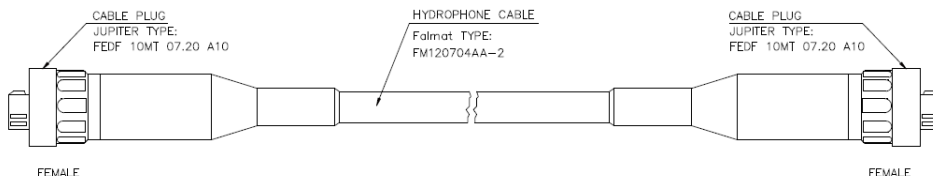
TL8140



TL8142



TL8144



For information on export control regulations on this product, please refer to www.teledyne-reson.com



For more details visit www.teledyne-reson.com or contact your local Teledyne RESON Office. Teledyne RESON reserves the right to change specifications without notice. 2016@Teledyne RESON

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