

BII-7090 Series Specification

Vibration Insensitive Hydrophone. When suspended from a ship or boat, buoy, or used in towed array, the hydrophone experiences a large movement and induced vibration resulting from surface waves, currents, hydrodynamic flow turbulence, cable movement, etc... BII-7090 series hydrophones cancel the translational acceleration in their axial direction and have low acceleration sensitivity in other directions. They can be deployed in these harsh fields and reduce spurious signals caused by induced vibration. A hydrophone with omnidirectional or toroidal response pattern has streamlined hemispherical dome which minimizes drag forces and hydrodynamic noises caused by the hydrophone in motion or the flow past the hydrophone. Optional mounting parts are available for installation on portable-mounting apparatus, submersibles, pipe, tank, or vessel.

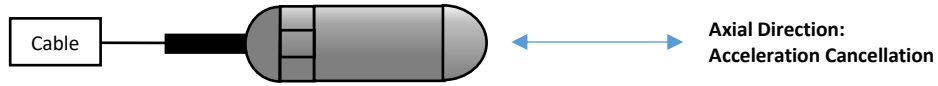
Typical Applications	
Marine Seismic Detector/Exploration/Survey Monitoring Seismic Sources/Airgun/Watargun	Underwater Sound Listening and Recording Oil-filled Streamer Element/Sonobuoy

Specification

The hydrophone is tested in water unless stated otherwise.				
BII-7090 series are the upgradation of BII-7010, BII-7070, and BII-7140 series. Please refer to these hydrophones for general information.				
Hydrophone:	BII-7090 Series			
Sensitivity @ 1 kHz:	Custom-fit. -182 to -210 dB V/ μ Pa without preamp. Variation: \pm 2 dB.			
	Sensitivity Loss over Extension Cable (dB) = $20 \cdot \log[C_h / (C_h + C_c)]$. C_h : Hydrophone Capacitance; C_c : Capacitance of Extension Cable. Cable is of 100 pF/meter roughly. Valid for hydrophone without preamplifier.			
Usable Frequency in Water:	Available from 0.1 Hz to 450 kHz. Specify frequency range when ordering.			
Usable Frequency in Air:	Available from 1 Hz to 20 kHz. Specify frequency range when ordering.			
Directivity Pattern:	Bespoke. Conical, Omnidirectional and Toroidal Beams are available.			
Acceleration Sensitivity:	1. \leq (40 to 100) (dB re μ Pa/(m/s ²) in axial direction of the hydrophone. 2. 90 to 140 (dB re μ Pa/(m/s ²) in other directions of the hydrophone.			
Preamplifier:	1. default: No Preamp. 2. Customization: Built-in Preamp. Refer to BII-1000 series preamp.			
Signal Output Type:	Single Ended or Differential. 1. Default: Single Ended Output (SE). Append SE to the listed part number. 2. Differential Output (DF), Append DF to the listed part number.			
Maximum Operating Depth:	100 m and limited by the cable length if the cable has wire leads or a non-waterproof connector.			
Mounting Options:	1. Free Hanging (FH) 2. Free-hanging with Male Underwater Connector (FHUWC) 3. Thru-hole Mounting with Single O-ring (THSO) 4. Thru-hole Mounting with Double O-ring (THDO) 5. Bolt Fastening Mounting (Plastics) (BFMP) 6. Bolt Fastening Mounting (Stainless Steel) (BFMSS) 7. Flush Mounting (FSM) 8. Custom-fit			
Interface:	Shielded Cable, Wires, and Solder Pins are available.			
Cable Options:	1. Coax RG174/U (RG174) (for Single Ended Output ONLY) 2. Coax RG178/U (RG178) (for Single Ended Output ONLY) 3. Coax RG58/U (RG58) (for Single Ended Output ONLY) 4. Shielded Cable with Twisted Pair, Φ D=3.6 mm (SC36) 5. Shielded Cable with Rubber Jacket, Φ D=6.5 mm (SC65) 6. Custom-fit.			
Cable Length:	1. Default: 6 m. 2. Custom-fit Cable Length.			
Connector:	1. Default: Wire Leads (WL) 2. BNC Male (BNC) (for Single Ended Output ONLY) 3. 3.5 mm (1/8") TRS Plug (TRS35) 4. 1/4" (6.35 mm) TRS Plug (TRS635) 5. XLR Plug (XLR) 6. Underwater Mateable Connector (UMC) 7. MIL-5015 Style (5015) 8. Custom (custom) Note: Underwater Mateable Connector is for underwater uses. Other connectors and wire leads are for dry uses and are non-waterproof.			
Size:	Customization.			
Weight:	\geq 0.55 kg with 10 m cable. Actual weight depends on Mounting Parts, Cable Types and Length.			
Operation Temperature:	1. Default: -10 °C to +60 °C or 14 °F to 140 °F. 2. Bespoke High Temperature Transducer: -10 °C to 120 °C, or 14 °F to 248 °F. Append HT to part number.			
Storage Temperature:	-20 °C to +60 °C or -4 °F to 140 °F.			
Wiring of Differential:	Two Conductor Shielded Cable	Underwater Connector	AWG26 Wires	Solder Pins
Signal +	White or Red	Pin 2	White or Red	Pin 1
Signal -	Black	Pin 1	Black	Pin 3

Common & Shielding	Shield	Pin 3	Green		Pin 2
Wiring of Single Ended:	Two Conductor Shielded Cable	Underwater Connector	AWG26 Wires	Coax with Wire Leads	Solder Pins
Signal	White or Red	Pin 2	White or Red	Center Contact	Pin 1
Signal Common	Black	Pin 1	Black	Shield	Pin 2
Shielding	Shield	Pin 3	N/A	Shield	N/A
Do NOT use the hydrophone as a sound projector in the air otherwise the hydrophone will be damaged.					
Sound Measurement in Air: The hydrophones can be used to detect sounds in air. The sensitivity in air is same to the one in water in low frequency range.					

Acceleration Cancellation in axial direction of the hydrophone.



Physical Size, Shape, and Orientation (Dimensional Unit: mm):

