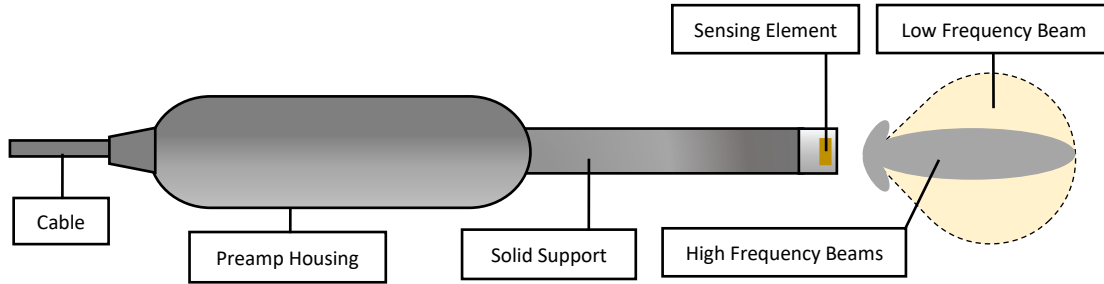


## Hydrophone Specification

<b>Part Number:</b>	BII-7184FG	BII-7184PG		
Sensitivity:	-217.0 + Preamp Gain at 1kHz, Variation: $\pm 3$ dB.			
Free-field Voltage Sensitivity:	Refer to Graph of <b>FFVS vs. Frequency</b> .			
Directivity Pattern:	Conical Beam			
Beam Width:	$\theta_{-3dB} = 44175^\circ/f(\text{kHz})$ ; $\theta_{-6dB} = 60961.5^\circ/f(\text{kHz})$ ; $\theta_{-10dB} = 79515^\circ/f(\text{kHz})$ . f: Operating Frequency in kHz.			
Side Lobes:	< -17.8 dB with $\theta_{-3dB} \leq 49^\circ$ ; No side lobe with $\theta_{-3dB} > 49^\circ$ .			
Bespoke Preamp Gain (dB):	Fixed Gain: Default 40 dB, -40 to +40 dB available.	Digitally Programmable Gain Preamp: 30, 60 dB.		
Gain Selection Voltage:	N/A	CMOS/TTL Compatible. Logic Low 0: Gain Selection Wire to COM or 0 to +0.8 VDC. Logic High 1: Gain Selection Wire Open or +2.4 VDC to Vs. Vs: Power Supply Voltage; COM: Power Supply Common.		
Built-in Bandpass Filter:	1. Default: -3 dB bandwidth 200 Hz to 3 MHz. 2. Bespoke, specify when ordering. Minimum -3dB high pass frequency: 200 Hz.			
Maximum Output Vomax:	(Supply Voltage Vs - 4) Vpp	(Supply Voltage Vs - 3.4) Vpp		
Overload Pressure Level:	$20 \cdot \log(\text{Vomax}/2.828)$ - Sensitivity, in dB $\mu\text{Pa}$ .			
Output Type:	Single Ended.			
Acceleration Sensitivity:	130.0 dB re $\mu\text{Pa}/(\text{m}/\text{s}^2)$			
Maximum Operating Depth:	50 m, and limited by the cable length if the cable has wire leads or a non-waterproof connector.			
Mounting Options:	<ol style="list-style-type: none"> <li>Free Hanging (FH)</li> <li>Free-hanging with Male Underwater Connector (FHUWC)</li> <li>Thru-hole Mounting with Single O-ring (THSO)</li> <li>Thru-hole Mounting with Double O-ring (THDO)</li> <li>Bolt Fastening Mounting (Plastics) (BFMP)</li> <li>Bolt Fastening Mounting (Stainless Steel) (BFMSS)</li> </ol> Please refer to online document <a href="#">AcousticSystem.pdf</a> for a complete list of Mounting Options and more details.			
Cable:	Four Conductor Shielded Cable (SC)	<ol style="list-style-type: none"> <li>Cable Bundle: Shielded Cable and RG174/U Coax</li> <li>Six Conductor Shielded Cable (SC)</li> </ol>		
Cable Length:	<ol style="list-style-type: none"> <li>Default: 10 m.</li> <li>Custom-fit up to 200m.</li> </ol>			
Connector:	<ol style="list-style-type: none"> <li>Default: Wire Leads (WL)</li> <li>BNC Male (BNC)</li> <li>SMC (Plug, Female Socket) (SMC)</li> <li>LEMO (Plug Male Pins) (LEMO)</li> <li>Underwater Mateable Connector (UMC)</li> <li>+9VDC Battery Snap (BS) (Exclusive to preamplified hydrophone)</li> <li>Custom (custom)</li> </ol>			
Current (Quiescent):	15 mA	11 mA		
Supply Voltage Vs:	+8.5 to +30 VDC	+6 to +30 VDC		
Suggested DC Supply:	+9VDC Battery, Marine Battery, Automobile Battery, Fixed DC Linear Power Supply, Not Included. DO NOT use variable power supply whose maximum supply voltage is higher than the rated voltage. DO NOT use switching mode DC power supply.			
Size:	Sensing Element: $\Phi D = \Phi 2$ mm, Solid Support: $\Phi D \times L = \Phi 6.4 \times 38.1$ mm. Preamp Housing: $\Phi D \times L = \Phi 21 \times (40 \text{ to } 55)$ mm. Varies with options.			
Weight:	560 grams with 10 m cables, Varies with options.			
Operation Temperature:	-10 °C to +60 °C or 14 °F to 140 °F.			
Storage Temperature:	-20 °C to +60 °C or -4 °F to 140 °F.			
<b>Wiring of Single Ended Output:</b>	<b>Wire Leads</b>	<b>BNC Male and 9V Battery Snap</b>	<b>Underwater Connector</b>	<b>SMC Plug and 9V Battery Snap</b>
+VDC	Red	Female Snap	Pin 3	Battery Female Snap
Common	Black	Male Snap	Pin 1	Battery Male Snap
Signal	White	BNC Center Pin	Pin 2	SMC Center Socket
Signal Common	Blue or Green	BNC Body	Pin 4	SMC Body
Shielding	Shield	N/A	N/A	N/A
<b>Wiring Information of Hydrophones with One-bit Programmable Gain Preamps:</b>				
<b>Wiring of Single-Ended Output:</b>	<b>Wire Leads</b>	<b>Underwater Connector</b>	<b>BNC Male/SMA/SMC + 9V Battery Snap</b>	
+VDC	Red	Pin 3	Battery Female Snap	
Common	Black	Pin 1	Battery Male Snap, XLR Pin 1.	
Digital Common	Yellow or Brown	Pin 5	Yellow or Brown	
Digital A0 (FFVS Selection)	Blue	Pin 6	Blue	
Output Signal	White	Pin 2	Center Pin or Contact	
Output Signal Common	Green	Pin 4	BNC/SMA/SMC Shield	
Shielding	Shield	N/A	N/A	
<b>Selecting Sensitivity of One-bit Digitally Programmable</b>				
<b>Gain Selection Wire A0</b>	<b>Hydrophone Sensitivity</b>			
0 (Logic Low)	-217.0 + 30 dB V/ $\mu\text{Pa}$			
1 (Logic High)	-217.0 + 60 dB V/ $\mu\text{Pa}$			

**Physical Size (Dimension Unit: mm):**



Customization of Length Reduction of the Hydrophone: Hydrophone can be made as "L" shape with solid support perpendicular to the housing wall. Appending "L" to the part number (BII-7184FGL and BII-7184PGL) when ordering to specify L-shaped Hydrophone.

**Free-field Voltage Sensitivity in Water (Bespoke):**

