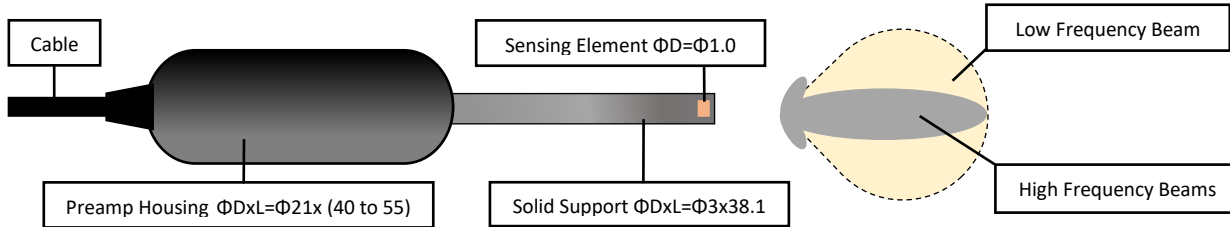


Hydrophone Specification

Part Number:	BII-7185FG	BII-7185PG		
Sensitivity @ 1kHz (dB V/μPa):	-227 + Preamp Gain, ± 3 dB			
Free-field Voltage Sensitivity:	Refer to Graph of FFVS vs. Frequency .			
Usable Frequency in Water:	200Hz ~ 2MHz at ±6 dB V/μPa.			
Usable Frequency in Air:	200Hz ~ 80kHz at -3 dB V/μPa.			
Bespoke Preamp Gain (dB):	Fixed Gain: Default 40 dB, 0 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 V _s . V _s : Power Supply Voltage. COM: Power Supply Common.		
Built-in Bandpass Filter:	1. Default: -3 dB Bandwidth 100 Hz to 3MHz. 2. Bespoke, specify when ordering.	1. Default: -3 dB Bandwidth 150 Hz to 3MHz. 2. Bespoke, specify when ordering.		
Directivity Pattern:	Conical Beam			
Beam Width:	$\theta_{-3dB} = 88344^\circ/f(\text{kHz})$; $\theta_{-6dB} = 121920^\circ/f(\text{kHz})$; $\theta_{-10dB} = 159000^\circ/f(\text{kHz})$. f: Operating Frequency in kHz.			
Side Lobes:	< -17.8 dB with $\theta_{-3dB} \leq 49^\circ$; No side lobe with $\theta_{-3dB} > 49^\circ$.			
Maximum Output Vomax:	(Supply Voltage V _s - 4) Vpp	(Supply Voltage V _s - 3.4) Vpp		
Overload Pressure Level:	227 or 20*log(Vomax/2.828) - Sensitivity, in dB μPa, whichever is less.			
Output Type:	Single Ended.			
Acceleration Sensitivity:	Acoustic Axis: 143 dB μPa/(m/s ²); Non-Acoustic Axis: ≤136.81 dB re μPa/(m/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"> Free Hanging (FH) Free-hanging with Male Underwater Connector (FHUWC) Thru-hole Mounting with Single O-ring (THSO) Thru-hole Mounting with Double O-ring (THDO) Bolt Fastening Mounting (Plastics) (BFMP) Bolt Fastening Mounting (Stainless Steel) (BFMSS) Please refer to online document AcousticSystem.pdf for a complete list of Mounting Options and more details.			
Cable:	Four Conductor Shielded Cable (SC)	Six Conductor Shielded Cable (SC) or Cable Bundle		
Cable Length:	1. Default: 10 m. 2. Custom-fit up to 200 m.			
Connector:	<ol style="list-style-type: none"> Default: Wire Leads (WL) BNC Male (BNC) SMC (Plug, Female Socket) (SMC) LEMO (Plug Male Pins) (LEMO) Underwater Mateable Connector (UMC) +9VDC Battery Snap (BS) Custom (custom) 			
Current (Quiescent):	8 mA	19 mA		
Supply Voltage V _s :	+8.5 to +30 VDC	+8.2 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: ΦD=Φ1.0 mm; Solid Support: ΦDxL=Φ3x38.1 mm. Preamp Housing: ΦDxL=Φ21x(40 to 55) mm. Varies with options.			
Weight:	0.56 kg with 10m 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.			
Sound Measurement in Air: The hydrophones can be used to detect sounds in air. Receiving sensitivity in air is same to the one in water in low frequency range.				
Wiring Information of BII-7185FG				
Wiring of Single Ended Output:	Wire Leads	BNC Male and 9V Battery Snap	SMC and 9V Battery Snap	Underwater Connector
+VDC	Red	Female Snap	Battery Female Snap	Pin 3
Common	Black	Male Snap	Battery Male Snap	Pin 1
Signal	White	BNC Center Pin	SMC Center Socket	Pin 2
Signal Common	Blue or Green	BNC Body	SMC Body	Pin 4
Shielding	Shield	N/A	N/A	N/A
Wiring Information of Hydrophones with Fixed-gain Preamps:				
Wiring of Single Ended Output:	Wire Leads	BNC Male/SMA/SMC and 9V Battery Snap	Underwater Connector	
+VDC	Red	Female Snap	Pin 3	
Common	Black	Male Snap	Pin 1	
Signal	White	Center Pin or Contact	Pin 2	
Signal Common	Blue, Green, or Yellow	BNC/SMA/SMC Shield	Pin 4	
Shielding	Shield	N/A	N/A	
Wiring Information of Hydrophones with One-bit Programmable Gain Preamps:				
Wiring of Single-Ended Output:	Wire Leads	Underwater Connector	BNC Male/SMA/SMC + 9V Battery Snap	
+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
Selecting Sensitivity of One-bit Digitally Programmable			
Gain Selection Wire A0	BII-7185PG Sensitivity		
0 (Logic Low)	227.0 + 30 dB V/ μ Pa		
1 (Logic High)	227.0 + 60 dB V/ μ Pa		

Physical Size (Dimension Unit: mm): Varies with options.



Customization of Length Reduction of the Hydrophone:

1. Solid support can be customized to be shorter.
2. Hydrophone can be made as "L" shape with solid support perpendicular to the housing wall. Appending "L" to the part number (BII-7185L) when ordering to specify L-shaped Hydrophone.

Free-field Voltage Sensitivity (Bespoke):

