

# Benthowaye Instrument Inc.

Underwater Sound Solutions

www.benthowave.com

### Hydrophone Specification

Part Number:	BII-7181FG	BII-7181FG BII-7181PG								
Sensitivity at 1 kHz:	-221.5 + Preamp Gain. Variation: ± 2 dB.									
Free-field Voltage Sensitivity:	Refer to Graph of FFVS vs. Frequency.									
-3dB Beam Width:	Refer to Graph of Directivity Pattern.									
Usable Frequency in Water:	1Hz ~ 1MHz at ±4dB	/1								
Usable Frequency in Air:	1Hz ~ 20kHz at -3dB									
Bespoke Preamp Gain (dB):	Fixed Gain: Default 4	0 dB, 0 to +40 dB available.	IB, 0 to +40 dB available.			-	eamp: 20	eamp: 20, 40, 60 dB.		
Gain Selection Voltage:	N/A CMOS/TTL Compatible. Logic Low 0: Gain Selection Wire to COM or 0 to Logic High 1: Gain Selection Wire Open or +2.4 Vs: Power Supply Voltage; COM: Power Supply						or +2.4 VDC to Vs.			
Built-in Bandpass Filter:	1. Default: -3 dB bandwidth 8 Hz to 2 MHz.       1. Default: -3 dB bandwidth 8 Hz to 1 MHz.         2. Bespoke, specify when ordering.       2. Bespoke, specify when ordering.					Hz.				
Maximum Output Vomax:	2: Despose, specify when ordering.     2: Despose, specify when ordering.       (Supply Voltage - 4) Vpp     (Supply Voltage - 3.4) Vpp									
Overload Pressure Level:		3) - Sensitivity, in dB μPa.								
Output Type:	Single Ended.									
Acceleration Sensitivity:	124.6 dB re µPa/(m/s <sup>2</sup> )									
Maximum Operating Depth:	50 m and limited by	the cable length if the cable	has wire	e leads or	a non-	waterproof connect	or.			
Mounting Options:	<ol> <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>									
		e document AcousticSystem	.pdf for a							
Cable:	Four Conductor Shiel	ded Cable (SC)		Six Co	onduct	or Shielded Cable (S	SC) or Cal	ble Bundle		
Cable Length:	1. Default: 10 m. 2. Custom-fit up to 2	00m								
Connector:	3. SMA (Plug, Male P 4. SMC (Plug, Female 5. 1/8" (3.5mm) TRS 6. XLR (pin) (XLR) (Ma 7. MIL-5015 Style (pin 8. LEMO (Plug Male P 9. Underwater Mater 10. +9VDC Battery Sr 11. Customized, buye	Max. Diameter Ф14.3 mm). (in) (SMA), Voltage Rating: 3: a Socket) (SMC), Voltage Rating: 3: b Socket) (SMC), Voltage Rating: Plug (TRS35) (Max. Diameter ax. Diameter Ф20.2 mm). n) (5015) (Max. Diameter Φ3: Pins) (LEMO) (Max. Diameter able Connector (pin) (UMC) hap (BS) (Exclusive to preampler specifies the connector. (Contector is for use	ing: 335 r Φ10.5 30 mm w r Φ9.5 m (Max. Di plified hy Custom)	V <sub>RMS</sub> Cont mm). vith 3 con nm with 3 ameter Φ ydrophon	tacts). contac 21.5 to e)	:. (SMC) (Max. Diam cts). ο Φ35 mm).	eter Φ6.	4 mm).		
Current (Quiescent):	8 mA 10 mA							for dry uses and are not		
Supply Voltage Vs:	+8.5 to +30 VDC +8.2 to +30 VDC							for dry uses and are not		
Supply Vollage V3.	10.5 10 130 VDC			-		VDC		for dry uses and are not		
Suggested DC Supply:	+9VDC Battery, Mari DO NOT use variable DO NOT use switchin	ne Battery, Automobile Batt power supply whose maxim ig mode DC power supply.	num supj	+8.2 d DC Line ply voltag	to +30 ar Pow e is hig	ver Supply, Not Incluiner Supply, Not Incluiner than the rated states of the states of	ıded. voltage.	·		
Suggested DC Supply: Size:	+9VDC Battery, Marin DO NOT use variable DO NOT use switchin Sensing Element: ΦD Varies with options.	power supply whose maxim g mode DC power supply. DxL=Ф4.6x8mm; Solid Suppo	num supp rt: ΦDxL	+8.2 d DC Line ply voltag	to +30 ar Pow e is hig	ver Supply, Not Incluiner Supply, Not Incluiner than the rated states of the states of	ıded. voltage.	·		
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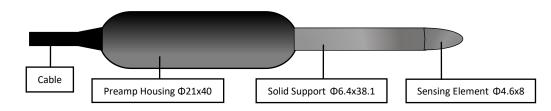
## Benthowaye Instrument Inc.

Underwater Sound Solutions

www.benthowave.com

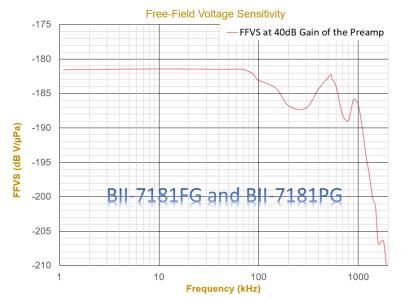
RHERH-THIORINH									
Output Signal	White	BNC/SI	BNC/SMA/SMC Center		XLR Pin 2	TRS Tip			
Output Signal Common	Green	BNC/SI	BNC/SMA/SMC Shield		XLR Pin 1 and Pin 3	TRS Ring and Sleeve			
Shielding	Shield	Shield	Shield		XLR Metal Shell	N/A			
Selecting Sensitivity FFVS of Ty	wo-bit Digitally Progr	ammable		•					
Gain Selection Wire A1	Gain Selection	Gain Selection Wire A0 Hydrophone Sensit			ity				
0 (Logic Low)	0 (Logic Low)		-221.5 + 20 dB V	/µPa					
0 (Logic Low)	1 (Logic High)		-221.5 + 40 dB V	3 V/μPa					
1 (Logic High)	0 (Logic Low)		-221.5 + 60 dB V/μPa						
1 (Logic High)	1 (Logic High)		-221.5 + 80 dB V/μPa (ONLY for signal frequency ≤ 400 kHz)						

### 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-7181FGL or BII-7181PGL) when ordering to specify L-shaped Hydrophone.

#### Free-field Voltage Sensitivity (Bespoke):



**Directivity Pattern:** -500kHz - 250kHz - 125kHz -250kHz - 500kHz ------ 125kHz 0° 0° 315 45° 315 45° -10d8 -20dB -20dB Horizontal Beam XY Plane Vertical Beam XZ Plane 90° 270° 270 90° BII-7181FG BII-7181FG BII-7181PG BII-7181PG 5dB/Division 5dB/Division 225 135° 135° 225 180° 180°