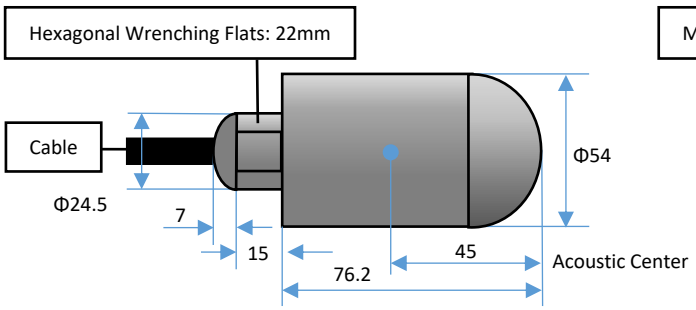
Transducer Specification

Part Number:	BII-7512
Signal Type:	Pulsed SINE, Chirp, PSK, FSK, etc.; Pulsed Square Waveform
Resonant Frequency fs:	20 kHz **1. Efficiency is low in the frequency range far from f_s, so it is NOT recommended to operate transducer at frequency far from f_s.** **2. Transducer can operate in low power at frequency far from fs, the input power P_i should be much less than 1% MCIP at f_s.**
Quality Factor Q_m:	2. Note: -3dB bandwidth $\Delta f = fs/Q_m$.
TVR:	139 to 142 dB µPa/V at 1m at fs, Refer to TVR Graph, Transmitting Voltage Response.
FFVS:	-195.0 dB V/µPa @ fs with 20 m cable. Free-field Voltage Sensitivity.
-3dB Beam Width:	Horizontal x Vertical = 360° x 90° at fs, Refer to Beam Pattern Graph.
Beam Pattern:	Toroidal Beam at fs; Omnidirectional at f ≤ 9 kHz.
Free Capacitance:	37.62 nF @ 1kHz
Dissipation:	0.0567 @ 1kHz
Admittance or Impedance:	Gmax = 0.35 mS, B = 4.57 mS @ fs
MIPP at fs:	350 Watts, Maximum Input Pulse Power
MPW @ MIPP at fs:	40 Seconds, Maximum Pulse Width
MCIP at fs:	80 Watts, Maximum Continuous Input Power.
How to determine pulse width, duty cycle and off-time with input pulse power (peak power): 1. Determine the input pulse power (IPP, peak power) with sound intensity required by the project. IPP MUST be less than MIPP. 2. Pulse Width ≤ (MIPP * MPW*(120°c-T)/103°c)/IPP. T: Water Temperature in °c. 3. Duty Cycle D ≤ MCIP*(120°c-T)/103°c)/IPP. 4. Off-time ≥ PW*(1-D)/D.	
Operating Depth:	Maximum, 300 m and Limited by the cable length if the cable has wire leads or a non-waterproof connector.
Mounting Options:	1. Default: Free Hanging (FH) 2. Thru-hole Mounting with Single O-ring (THSO) 3. Thru-hole Mounting with Double O-ring (THDO) 4. Bolt Fastening Mounting (Stainless Steel) (BFMSS) 5. End-face Mounting (EFM) 6. Flange Mounting (FGM) Please refer to online document **AcousticSystem.pdf** for a complete list of Mounting Options and more details.
Cable:	1. Two Conductor Shielded Cable (SC) 2. 50 Ω RG58 Coax (RG58) 3. Two Conductor Unshielded Cable (USC)
Cable Length:	1. Default: 1m. 2. Custom
Connector:	1. Default: Wire Leads (WL) 2. 50 Ω BNC Male (BNC) 3. Underwater Mateable Connector (UMC) 4. MIL-5015 Style (5015) 5. Custom (custom) Note: Underwater Mateable Connector is for underwater uses. Other connectors and wire leads are for dry uses and are non-waterproof.
Size ΦDxH:	Φ54x76.2 mm, and actual length depends on Mounting Parts.
Weight:	1.8 kg with 10 m cable. Actual weight depends on Mounting Parts, Cable Types and Length.
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.
Impedance Matching:	BII-6000 Bespoke Impedance Matching between transducers and power amplifiers. Order Separately. Append **IM** to the part number for integrating BII-6000 in the transducer, and specify impedance in Ω. For example, BII-xxxxIM50Ω: BII-xxxx transducer with built-in Impedance Matching unit as a 50 Ω load.
TR Switch:	BII-2100 Transmitting & Receiving Switch. Not Included. Order Separately, Append TR to part number (BII-xxxxTR).
Temperature Sensor:	1. Default: No built-in temperature sensor. 2. Built-in temperature sensor. Append **TS** to part number (BII-xxxxTS) for integrating a temperature sensor in the transducer.
Potable Transmitter:	BII-8030 series portable acoustic transmitters.
Portable T/R System:	BII-8080 series portable transmit and receive systems.
WARNING: DANGER — HIGH VOLTAGE on wires. Wires shall be insulated for safety. DO NOT TOUCH THE WIRES BEFORE THE DRIVING SIGNAL IS SHUT DOWN. Cable shield must be grounded firmly for safety. for 50Ω BNC Male connector, it is buyer's sole responsibility to make sure that the (female) BNC shield of the signal source is firmly grounded for operating safety before hooking up transducer/hydrophone to the signal source. Coax with BNC is not intended for hand-held use at voltages above 30Vac/60Vdc.	

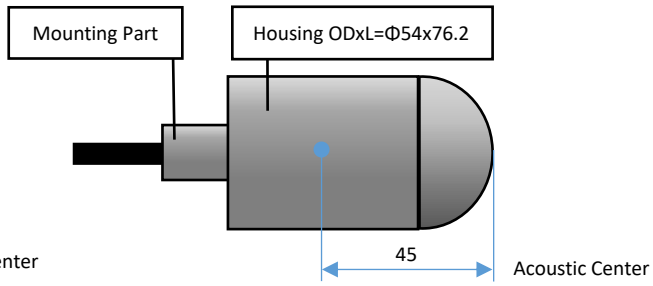
Wiring:	**Two Conductor Shielded Cable**	**Coax/BNC**	**Underwater Connector**	**MIL-5015 Connector**
Signal	White or Red	Center Contact	Contact 2	Contact C
Signal Common	Black	Shield	Contact 1	Contact B
Shielding and Grounding	Shield	Shield	Contact 3	Contact A

Physical Size (Dimensional Unit: mm): The overall length varies with the length of mounting parts. Please refer to online information of mounting options.

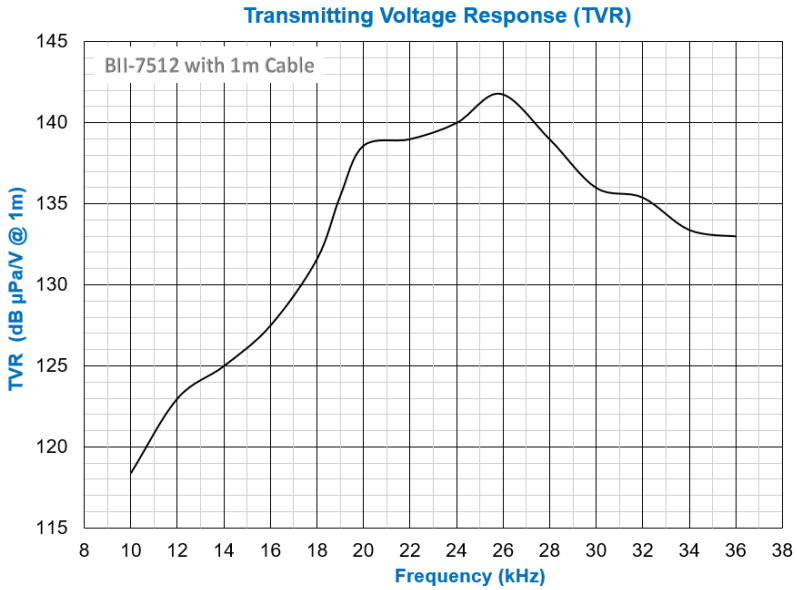
a. Size information of Free Hanging.



b. General Size information.



Transmitting Voltage Response



Directivity Pattern