



## ACOUSTIC / SEISMIC / WIDEBAND HYDROPHONE COMPARISON CHART

Acoustic / Seismic / Wideband Hydrophones	HTI-96-MIN	HTI-90-U	HTI-94-SSQ	HTI-97-DA/AC	HTI-92-WB	Marine Mammal
Sensitivity with preamp - Customer specifies preamp gain within range shown	-240 to -165 dB re: 1 V/uPa (0.1 to 562 V/Bar)	-240 to -155 dB re: 1 V/uPa (0.1 to 1778 V/Bar)	-240 to -165 dB re: 1 V/uPa (0.1 to 562 V/Bar)	-240 to -157 dB re: 1V/uPa	-155 dB re: 1 V/uPa typical (-145 to -185 available)	-164 dB re: 1 V/uPa
Sensitivity without preamp	-201 dB re: 1 V/uPa (8.9 V/Bar)	-186 dB re: 1 V/uPa (50.1 V/Bar)	-198 dB re: 1 V/uPa (12.6 V/Bar)	-193.0 dB re: 1 V/uPa (22.4 V/Bar)	N/A	N/A
Frequency response - Customer may specify HPF & LPF within range shown	2 Hz to 30 KHz	2 Hz to 20 KHz	2 Hz to 30 KHz	1 Hz to 20 KHz	2 Hz to 50 KHz	2 Hz (-3 dB) to 30 KHz (-3 dB)
Equivalent input self noise in dB re: 1uPa (ubar)	RMS from 1 Hz to 1000 Hz: 78 dB re: 1 uPa (0.08 uBar) Spectral - 10 Hz: 54 dB re: 1 uPa/√Hz 100 Hz: 42 dB re: 1 uPa/√Hz 1000 Hz: 42 dB re: 1 uPa/√Hz	RMS from 1 Hz to 1000 Hz: 63 dB re: 1 uPa (0.015 uBar) Spectral - 10 Hz: 54 dB re: 1 uPa/√Hz 100 Hz: 35 dB re: 1 uPa/√Hz 1000 Hz: 26 dB re: 1 uPa/√Hz	RMS from 1 Hz to 1000 Hz: 75 dB re: 1 uPa (0.06 uBar) Spectral - 10 Hz: 54 dB re: 1 uPa/√Hz 100 Hz: 40 dB re: 1 uPa/√Hz 1000 Hz: 38 dB re: 1 uPa/√Hz	RMS from 1 Hz to 100 Hz: 70 dB re: 1 uPa	Greater than 10 dB below Sea State "0" (dB re: 1 uPa/(sqrt)Hz): 43 dB @ 100 Hz 27 dB @ 1,000 Hz 15 dB @ 10,000 Hz 12 dB @ 20,000 Hz 10 dB @ 50,000 Hz	RMS from 1 Hz to 1000 Hz: 78 dB re: 1 uPa (0.08 uBar) Spectral - 10 Hz: 54 dB re: 1 uPa/√Hz 100 Hz: 42 dB re: 1 uPa/√Hz 1000 Hz: 42 dB re: 1 uPa/√Hz
Pre-amplifier type	voltage or current mode	voltage, current, or differential mode	voltage or current mode	voltage, current, or differential mode	voltage, current, or differential mode	voltage mode (3 wire: power, GND, signal out)
Maximum operating depth (pressure)	3048 meters (10,000 feet)	6096 meters (20,000 feet)	6096 meters (20,000 feet)	2600 meters (8600 feet)	1000 meters (3,280 feet)	3048 meters (10,000 feet)
Size (length x diameter)	2.50 inches (6.35 cm) x 0.75 inches (1.9 cm)	4.0 inches (10.16 cm) x 1.5 inches (3.81 cm)	1.50 inches (3.8 cm) x 1.25 inches (3.2 cm)	1.0 inches OD x 2.88 inches (1.25 in. dia. x 0.375 in. mounting ring)	4.0 inches x 1.5 inches	2.50 inches (6.35 cm) x 0.75 inches (1.9 cm)

Typical power requirements for the following preamps	Current Mode (2-wire)	Standard Voltage Mode (3-wire)	Low Power Voltage Mode (3-wire)	Standard Differential Mode (4-wire)	Low Power Differential Mode (4-wire)
	10 to 36 VDC @ 4 mA	5 to 15 VDC @ 1 mA	2.7 to 10 VDC @ 0.75 mA	5 to 15 VDC @ 2 mA	2.7 to 10 VDC @ 1.5 mA



## BOREHOLE HYDROPHONE COMPARISON CHART

Borehole Hydrophones	HTI-99-DHLA	HTI-93-DH	HTI-94-SDH	HTI-00-DHPC	HTI-02-DHPC
Sensitivity with preamp - Customer specifies preamp gain within range shown	Optional preamplifier gain - 0 dB to 48 dB	Optional preamplifier gain - 0 dB to 48 dB	Optional preamplifier gain - 0 dB to 48 dB	-40 to +40 dB	Preamplifier gain: 20 dB Assembly sensitivity: -183 dB re: 1v/μPa With 200 Ohm termination resistor: 71 V/Bar (2 dB loss due to orifice)
Sensitivity without preamp	Element: -183 dB re: 1V/μPa (70 V/Bar)	Element: -186 dB re: 1V/μPa (50 V/Bar)	Element: -186 dB re: 1V/μPa (50 V/Bar)	-197 dB re: 1 V/uPa	Element: -201 dB re: 1V/μPa (8.9 V/Bar)
Frequency response - Customer may specify HPF & LPF within range shown	Customer-specified low-cut preamplifier: 1 Hz to 5 KHz	1 Hz to 15 KHz	1 Hz to 15 KHz	1Hz to 10kHz	10 Hz (-3 dB) to 15 kHz (-3 dB)
Equivalent input self noise in dB re: 1uPa (μbar)	RMS from 1 Hz to 1000 Hz 58 dB re: 1 μPa (0.008 μBar) Spectral - 10 Hz: 49 dB re: 1 μPa/√Hz 100 Hz: 30 dB re: 1 μPa/√Hz 1000 Hz: 21 dB re: 1 μPa/√Hz	RMS from 1 Hz to 1000 Hz 63dB re: 1 μPa (0.015 μBar) Spectral - 10 Hz: 54 dB re: 1 μPa/√Hz 100 Hz: 35 dB re: 1 μPa/√Hz 1000 Hz: 26 dB re: 1 μPa/√Hz	RMS from 1 Hz to 1000 Hz 63 dB re: 1 μPa (0.015 μBar) Spectral - 10 Hz: 54 dB re: 1 μPa/√Hz 100 Hz: 35 dB re: 1 μPa/√Hz 1000 Hz: 26 dB re: 1 μPa/√Hz	74 dB RMS from 1 Hz to 1000 Hz	78 dB RMS from 1 Hz to 1000 Hz
Preamplifier type	8 mA constant current, 12 VDC to 30 VDC	current, voltage, or differential mode	current, voltage, or differential mode	current, voltage, or differential mode	current mode, 15 VDC to 40 VDC
Maximum operating pressure	20,000 psi	10,000 psi Pressure compensated design	10,000 psi	20,000 psi	10,000 psi
Operating temperature	Maximum: 200 deg. C	Maximum: 200 deg. C (stainless) 150 deg. C (polyurethane)	Maximum: 200 deg. C (stainless)	2 deg. C to 150 deg. C	0 deg. C to 206 deg. C
Size (length x diameter)	60 x 1.7 inches (2.0 m x 4.32 cm) 9 elements per channel 2 channels per array	5.35 x 1.6 inches (13.6 x 4.1 cm)	4.5 x 1.2 inches (11.4 x 3.1 cm)	2.445 x 1.181 inches (62.10 x 30.00 mm) end cap, 0.980 inches (24.89mm) viton boot	2.25 inches x 0.625 inches

Typical power requirements for the following preamps	Current Mode (2-wire)	Standard Voltage Mode (3-wire)	Low Power Voltage Mode (3-wire)	Standard Differential Mode (4-wire)	Low Power Differential Mode (4-wire)
	10 to 36 VDC @ 4 mA	5 to 15 VDC @ 1 mA	2.7 to 10 VDC @ 0.75 mA	5 to 15 VDC @ 2 mA	2.7 to 10 VDC @ 1.5 mA



## HIGH / ULTRA-HIGH FREQUENCY HYDROPHONE COMPARISON CHART

High / Ultra-High Frequency Hydrophones	HTI-99-HF	HTI-99-UHF
Sensitivity with preamp - Customer specifies preamp gain within range shown	-204 dB re: 1 V/uPa Gain: customer specified; 44 dB max.	-210 dB re: 1 V/uPa Gain: customer specified; 44 dB max.
Frequency response - Customer may specify HPF & LPF within range shown	2 Hz (-3dB) to 125 KHz (-3dB)	2 Hz (-3dB) to 250 KHz (-3dB)
Capacitance	3.6 nF	2.5 nF
Preamplifier type	Voltage mode (standard)	Voltage mode (standard)
Maximum operating depth (pressure)	2000 meters	2000 meters
Power	9 VDC to 36 VDC, 6.5 mA (nominal)	9 VDC to 36 VDC, 6.5 mA (nominal)
Size	2.54 cm dia. x 7.6 cm length	2.54 cm dia. x 7.6 cm length
Maximum cable length	300 meters	300 meters

Typical power requirements for the following preamps	Current Mode (2-wire)	Standard Voltage Mode (3-wire)	Low Power Voltage Mode (3-wire)	Standard Differential Mode (4-wire)	Low Power Differential Mode (4-wire)
	10 to 36 VDC @ 4 mA	5 to 15 VDC @ 1 mA	2.7 to 10 VDC @ 0.75 mA	5 to 15 VDC @ 2 mA	2.7 to 10 VDC @ 1.5 mA

The specific units featured here are our most popular hydrophones.  
High Tech, Inc. specializes in custom hydrophones for non-standard applications and environmental conditions.  
Contact our factory at [hightechninc@att.net](mailto:hightechninc@att.net) to discuss your particular requirements.