

## AQUARIAN PA6



### PA6 Hydrophone Preamplifier Balanced Line Driver

The PA6 is designed to connect passive piezo sensors, used in most hydrophones, to professional-grade microphone preamplifiers. These include preamps that are built into digital recorders, high-quality computer sound interfaces, PA systems, and mixing consoles.

The PA6 will also be useful for many other sensors, such as geophones, accelerometers, contact microphones, and any device requiring a low-noise, high-impedance buffer that works within the human auditory spectrum and above.

Phantom power is required.

48V is the standard but the PA6 is designed to work with supplies as low as 24V with negligible performance difference.

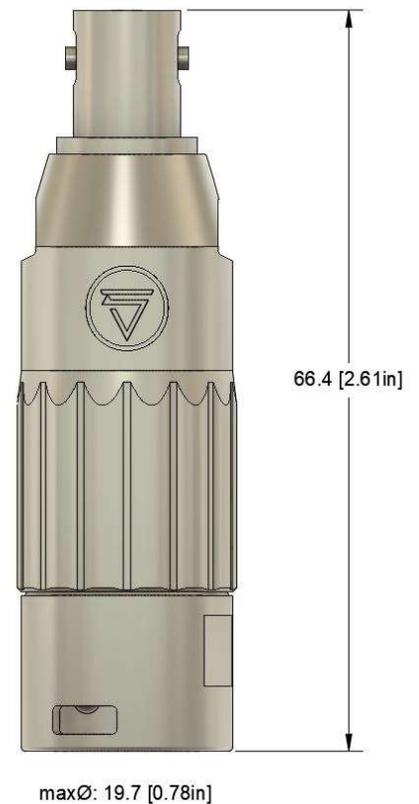
**NOTE:** This amplifier is not waterproof. Care should be taken to keep connectors and electrical components as dry as possible, especially when working in corrosive environments such as seawater or chlorinated water.

# PRODUCT DATASHEET

## Aquarian AS1 Scientific Hydrophone

### Specifications:

Default board setup:		26dB gain, differential output, P48 phantom-powered
Equivalent Input Noise:	-120dBV	10nF input shunt, A-weighted 20Hz - 20KHz, 1KΩ output load
Total Broadband Output Noise:	-88dBV	10nF input shunt, Unweighted 10Hz - 90KHz, 1KΩ output load
Bandwidth:	14Hz - 90KHz	+0/-0.5dB, 1KΩ output load
	4Hz - 270KHz	+0/-3dB, 1KΩ output load
THD+N:	<0.01%	@1KHz, -60 to -20 dBV input
Max output:	>8dBV RMS	@1KHz, 1KΩ output load, 1% THD
Current consumption:	8.5 mA	48V Phantom Power (from mic preamp)
	3.4 mA	24V Phantom Power (from mic preamp)
Gain:	26dB	Differential: pins 2 & 3 (Standard—can be factory-modified)
Z out:	17 Ω	Each phase to ground
Z in:	10 MΩ	(Standard—can be factory-modified to filter low frequencies)
Physical:	Ø19.7mm x 66.8mm, 42g	. (Built on Switchcraft AAA3MZ connector)



Documento	P03-DS-01	Datasheet
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### Aquarian AS1 Scientific Hydrophone

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#### **PA6 noise ( $\sqrt{\text{Hz}}$ ) with and without AS1 attached.**

Notes about equivalent self-noise of system, measured in sound pressure level referenced to 1uPA (as is standard for underwater sound):

Add PA6 gain to hydrophone sensitivity, then take absolute value and add  $\sqrt{\text{Hz}}$  noise level.

#### **By example:**

Typical AS-1s with 9m cable have been coming out with sensitivities of - 206dBV re: 1uPa.

Standard gain for PA6 is 26dB.  $-206+26=-180$

(Shortcut without the math: This means that at 180dB SPL, the hydrophone and PA6 would output 1Vrms.)

Viewing the first chart below, you'll see that at 1KHz, noise level is approximately -135dBV.

$$180 + -135 = 45.$$

Therefore the equivalent self noise of a typical AS-1 when used with the PA6 at 1KHz is 45dB SPL .