

High-Performance Self-Contained Hydrophone

Product Specification Document

Product Overview

This product integrates a high-sensitivity hydrophone, ultra-low-noise analog conditioning circuit, 24-bit high-resolution digital quantization unit, data storage unit and rechargeable high-capacity lithium-ion battery pack. It enables continuous acquisition of underwater acoustic signals across the full frequency band of 8 Hz to 80 kHz for up to 60 days.

The full product series adopts titanium alloy construction. Featuring compact dimensions, it supports acoustic applications at full-ocean depths down to 6000 m.

Product Variants

LN (Low Noise) Variant

- Sensing frequency band: 8 Hz to 40 kHz
- Minimum equivalent self-noise lower than ocean ambient background noise
- Suitable for ocean environment surveys and far-field acquisition
- Uses omnidirectional spherical hydrophone
- Three software-configurable signal amplification gain settings

HF (High Frequency) Variant

- Operating range: 20 Hz to 80 kHz
- Minimum equivalent self-noise: 28 dB re $\mu\text{Pa}^2/\text{Hz}@10\text{ kHz}$
- Maximum sampling rate: 200 ksps
- Applicable to nearly all marine underwater-acoustics applications

Technical Specifications

Parameter	LN	HF	Unit
Low-cutoff Frequency	8	20	Hz
High-cutoff Frequency	10/20/40	10/20/40/80	kHz
Sampling Rate	25/50/100	25/50/100/200	ksps

Parameter	LN	HF	Unit
Sampling Resolution	24	16/24	bit
Minimum Self-Noise	18	28	dB re $\mu\text{Pa}^2/\text{Hz}$
Amplification Factor	20/50/100	20	V/V
Amplification Gain	26/34/40	26	dB
Hydrophone Sensitivity	-195	-195	dB re V/ μPa
Overall System Sensitivity	-169/-161/-155	-169	dB re V/ μPa
Peak Sound Pressure	171/179/185	185	dB re μPa
Dynamic Range (1-Hz Bandwidth)	140	145	dB
Broadband Dynamic Range	108	110	dB
Continuous Acquisition Duration	60	60	day
Storage Capacity	0.5/1	0.5/1	TB
Operating Depth	2000/6000	2000/6000	m

Applications

- Ocean ambient noise monitoring

Active-passive sonar equipment research

Underwater target noise acquisition
- Marine biological research

Ocean environment surveys

Deep-sea acoustic measurement