

MupHydro

Co.L.Mar. presents the MupHydro, an intelligent acoustic hydrophone, capable of functioning both as an autonomous recorder and as a cabled Ethernet digital hydrophone. Conceived for long term deployments, it is designed for underwater installation at up to 3000m water depth, with no metal parts exposed to seawater corrosion.



MuPHYdro 300m depth rating variant

Technical features:

- High fidelity and ultra-low noise analogue amplification and digital conversion circuits.
- Standard acoustic sensor bandwidth 10hz-100kHz. 200kHz version upon request.
- 2 ADC channels connected to the hydrophones can have different gain and filtering.
- Software controlled hardware high pass filter can toggle from 5Hz to 700 Hz.
- Low pass 8th order anti-aliasing filter. Cut-off frequency can be set up independently on the 2 channels via software, from 10kHz to 150kHz with 10kHz steps.
- Additional 4th order high order low pass and high pass digital filters can be set up independently on each channel.
- Software programmable 1x to 15x additional analogue gain on each channel.
- Self-test capability and system health monitoring.
- Local data storage, up to 32GB uSDHC + optional 1TB External SSD.
- Onboard triple axis Accelerometer/Magnetometer (compass) for attitude monitoring.
- External pressure and temperature sensors for sound propagation speed profiling.
- Power consumption monitoring and duty cycle function for battery powered deployments.

NEXT GENERATION PROGRAMMABLE HYDROPHONE FOR UNDERWATER NOISE MEASUREMENTS AND MONITORING



Applications:

- Acoustic event detection.
- Underwater noise measurements.
- Underwater monitoring (oil and gas, underwater security, biologic monitoring).
- Autonomous underwater data recorder.
- Cabled digital hydrophone.
- Installation on underwater vehicles or buoys (AUV, ROV, etc.).

Interface:

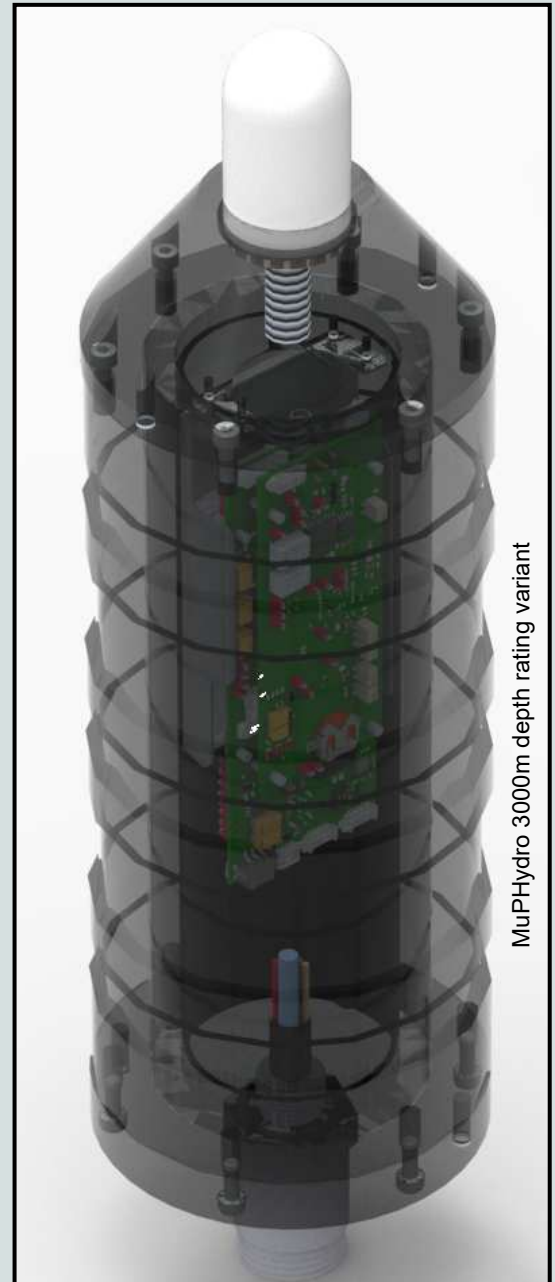
- 13 Pin connector:
- Power and 10-100-1000 Ethernet port.

Technical specifications:

- Sampling frequency up to 512KS/s.
- ADC resolution 16 bits.
- DC input power 12->30VDC.
- Always on power consumption 4W.
Reduces further with duty cycle operation.
- Operating temperature -10°C to + 50°C.
- Cylindrical body with no metal parts in contact with the sea water. Three variants for different depth ratings with the following dimensions:

Depth rating (m)	Diameter (mm)	Length (mm)
300	80	325
1000	83	325
3000	108	350

- Titanium body variant available.
- Hydrophone protection cage provided.



MuPHydro 3000m depth rating variant



MuPHydro 1000m depth rating variant

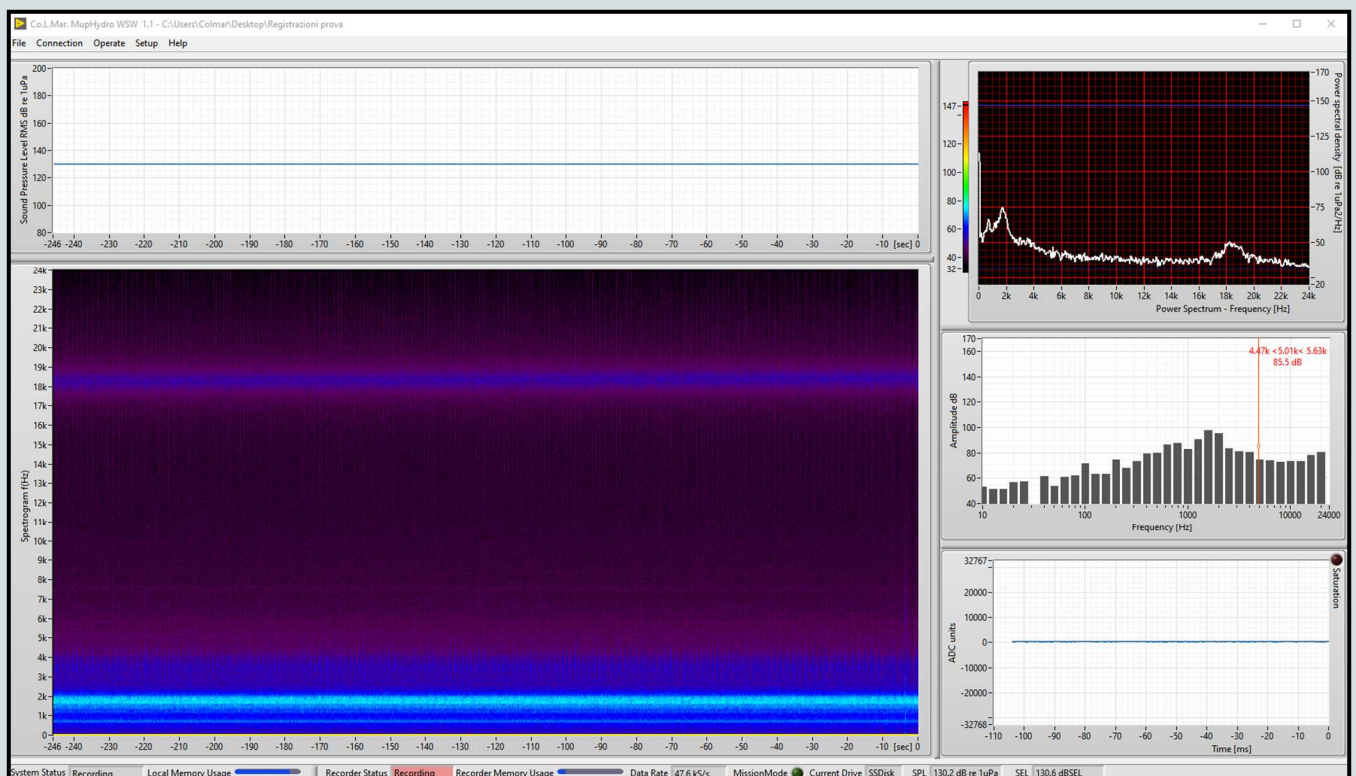


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Windows Software

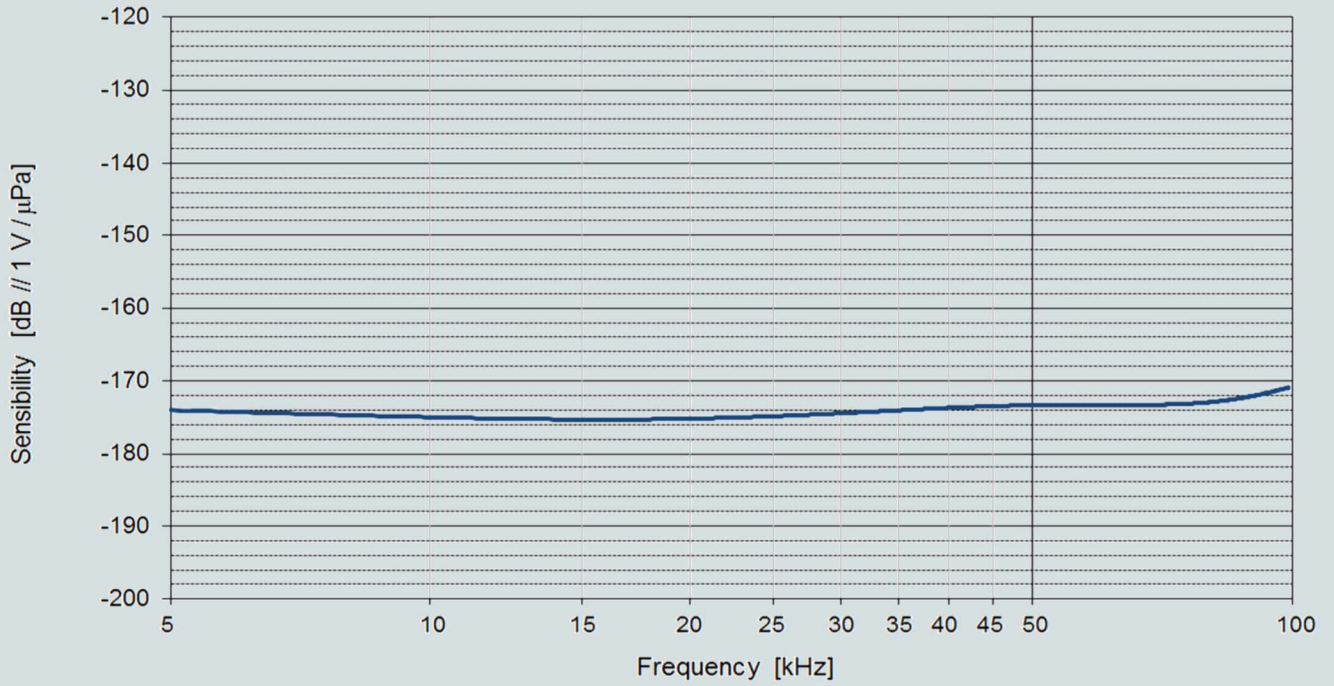
The MuPHYdro hydrophone is bundled with a friendly user interface windows software that can be used to configure and communicate with the device. The features of the software are:

- **Real time** data visualization and playback of previous recordings.
- Records acoustic data on **.wav** audio files.
- **Spectrum and spectrogram** computation and visualization.
- **1/3 octave band spectrum**.
- Gain setup and hardware and software **filter setup** for each channel.
- File manager for the remote recordings stored on the hydrophone.
- Calculation of and visualization of the **Sound Pressure Level** of the acoustic signal.
- Calculation and logging of the **Sound Exposure Level**.
- Toggles the hydrophone between autonomous mission and cabled real time operation.
- Autonomous mission set up:
 - Start and end time and date.
 - Duty cycle for reduced battery consumption.
 - Sound pressure level threshold activation
- Hydrophone status monitoring: Power consumption, external temperature and pressure.



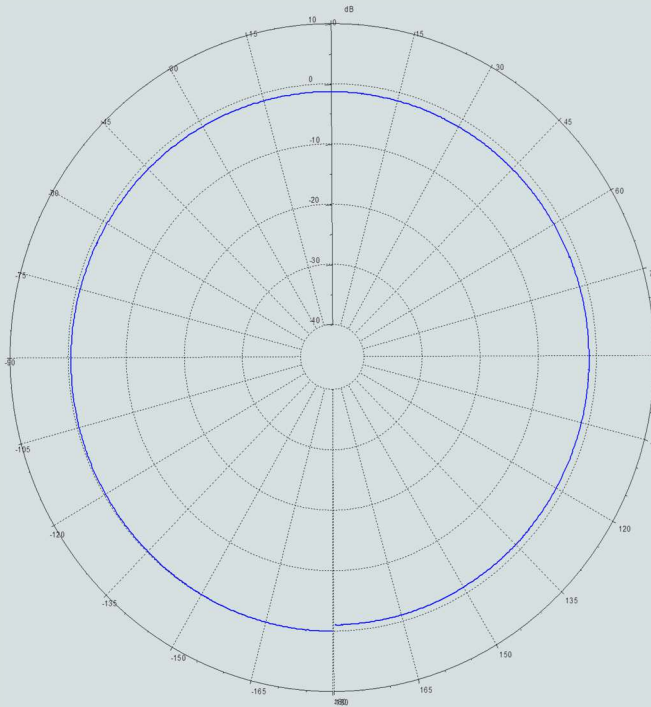
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Receiving response: (single 26dB gain channel 10-100kHz acoustic sensor option)

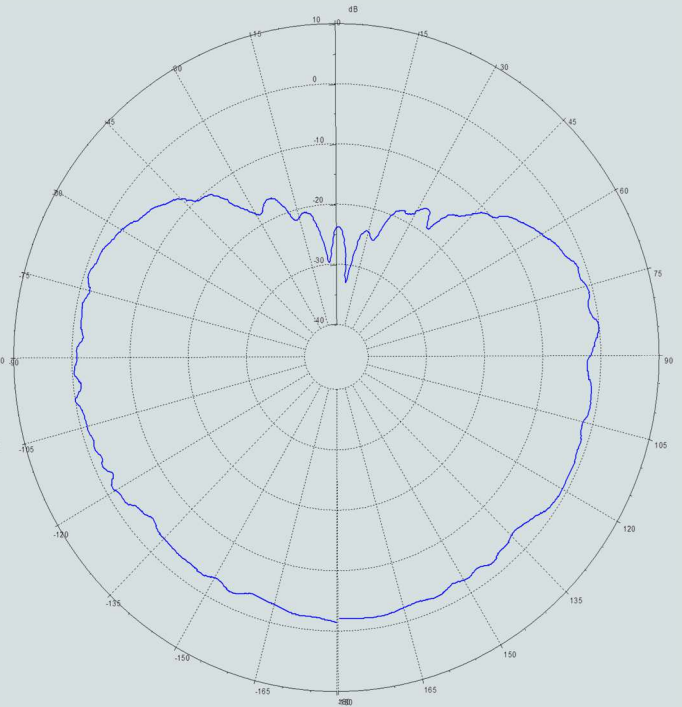


Directivity patterns:

Horizontal plane @ 50kHz



Vertical plane @50kHz



Customizations:

The MupHydro platform is highly customizable and easily expandable with external sensors and peripherals. The device has built in RS232 and RS485 interfaces, SPI and I2C as well as low frequency ADC converters. Contact us for details and information.

