Neptune Oceanographics Ltd

ACOUSTIC PIPELINE LEAK DETECTION (APLD) MKII

The Neptune Oceanographics' MKII acoustic pipeline leak detection system (APLD) detects leaks from risers, pipelines, flanges, sub-sea control systems etc. with confidence using acoustic techniques. The APLD uses a highly sensitive smart hydrophone to listen for 'ultrasounds' generated by fluid leaking under pressure from pipeline to sea.

The APLD allows rapid detection and the locating of leaks by scanning over the suspect area. The system can be deployed using an ROV, AUV, towed vehicle, PIG or can be diver held.

Software allows operator selected filtering of data to allow removal of acoustic signals not associated with a leak, e.g., sounds generated by the ROV, AUV, attendant vessel, spurious anomalies, etc.

The HF Smart Hydrophone is a digital hydrophone that processes and stores acoustic data. It transmits waveform or spectral data over its data link in real-time.

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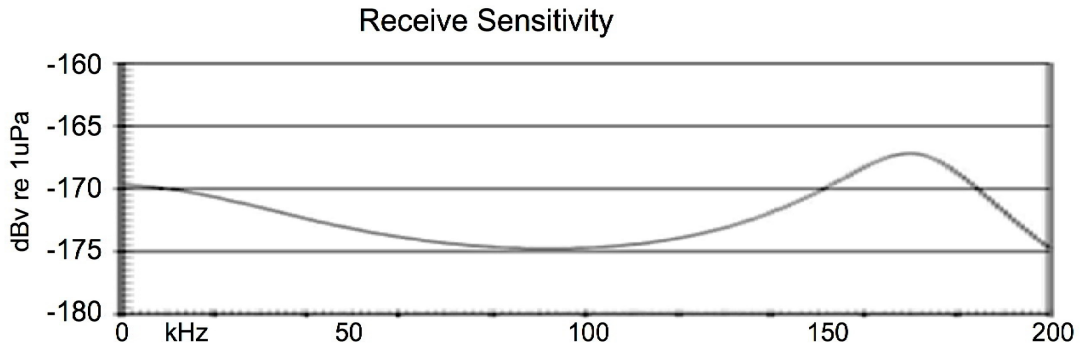
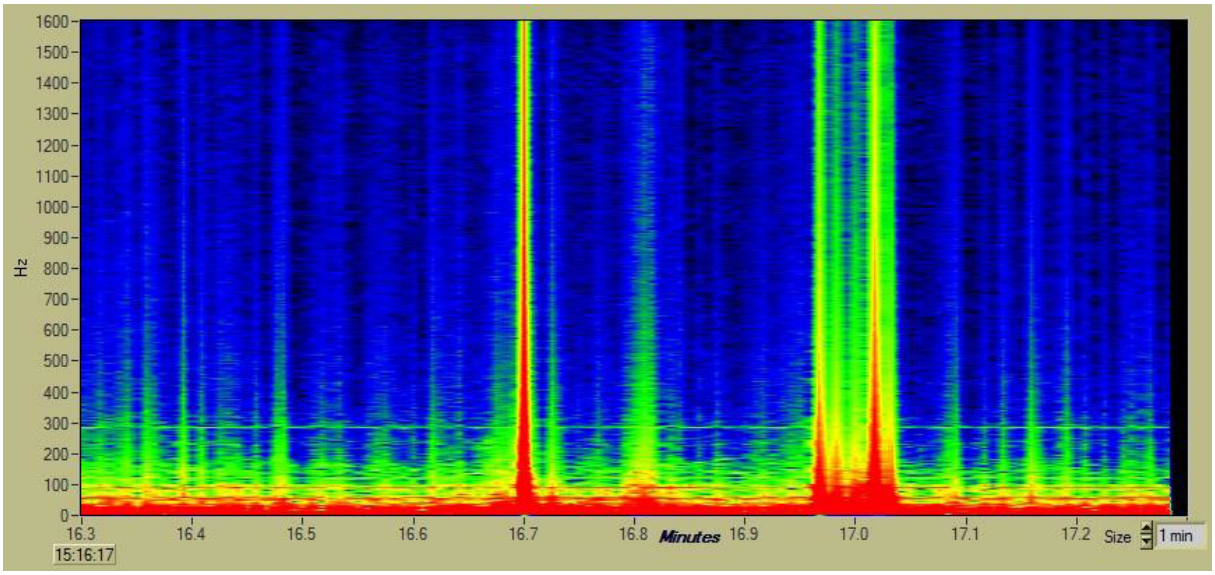


The Spectrum chart displays the Fast Fourier Transform (FFT) of returned data



Performance

Peak Measured Signal	177 dB re µPa
Frequency Response	10 Hz to 200 kHz ±5 dB
Noise (Spectral Density)	30 dB re µPa2 / Hz at 10 kHz
Sensor Receive Sensitivity	-171 dBV re µPa with pre-amp
Data Interface	Ethernet Standard
Max Depth	3500m

Instrument access methods

• Web browser to view instrument status, download logged data, configure instrument settings & power down.

• SFTP to manage files on instrument. Copy & delete stored data files. Install firmware upgrade.

• Stream time series and FFT over UDP or TCP/IP socket. Used by the Lucy program, and can be used to develop user drivers.

• Lucy PC software to view & process data, enquire & setup instrument.

Specification

Material	3500m unit - Titanium
Calibration	High frequency tank calibration measurements supplied with instrument
Sample rates	512, 256, 128, 64, 32, 16, 8, 4, 2 & 1kSample/sec. Waveform sample rate can be different from that for FFT. Sigma-delta primary sampling at 16 MHz.
Power	12-24 (10.8-26.4) Vdc, reverse polarity protected. Note: reversing polarity causes h/w reset. Unit draws 1.2W. Ethernet version when connected draws 2W.
Batteries	Internal lithium Ion 3.7V rechargeable, suitable for air shipping Capacity 2.6 A-h
Safety	Isolation between DC power and the instrument or communication interface is greater than 100 MΩ, @ 250Vac. Plastic units use brass connectors. Titanium units use titanium connectors.
Connector	Standard instrument connector is SubConn MCBH-8M. Pinouts are available in the instrument user's guide.
Cables	Ethernet 100m Maximum Ethernet Extender Option 1600m Maximum Serial RS422 1200m Maximum Serial RS232 5m Maximum
Overall length	267mm
Housing length	165mm
Housing diameter	45mm
Element diameter	20mm