The Neptune Oceanographics’ 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 directional hydrophones to listen for ‘ultra-sounds’ generated by fluid leaking under pressure from a pipeline into the sea.

The APLD allows rapid detection and location of leaks by scanning the suspect area. The system can be deployed using an ROV, AUV, towed vehicle or can be diver held. Software rejection of ultra-sounds at frequencies below 30kHz enables automatic filtering of most of the acoustic noise generated by the ROV or attendant vessel. The two channel system allows one of more sensor types (fluorometer, acoustic and temperature) to be operated simultaneously for more efficient detection.

The sensors are connected to a processor board that is mounted within a pressure housing mounted on the ROV. The processor produces data in RS232 and RS485 (operator selectable) format for transmission to the surface via the ROV umbilical. Power is supplied by the ROV (12 to 30vdc). For diver operations, the sensor connects to the surface PC via a diver to surface cable and a pressure housed RS485 signal converter.

The on-board PC displays data as 2 channel colour time series plots in real time allowing the operator to easily see changes in signal that indicate the presence of a leak. The software also allows the user to set an alarm level just above mean background that will provide an immediate visual and audible response in the event of a leak signal.

The sensor can be integrated with Neptune Oceanographics’ fluorescent leak detectors (FPLD) allowing both systems to be operated simultaneously through a common RS232 interface to the ROV or RS485 via a separate cable for diver operations. Both the APLD and the FPLD data can be displayed on the same screen simultaneously.

**Features**

- Hydrophone may be diver held, mounted on ROV, AUV, towed from a vessel, integrated with sidescan sonar fish, or attached to other survey equipment.
- The directional hydrophones allow the operator to ‘home in’ to a leak thus enabling the system to determine the location of a problem.
- The system is easily mobilised for offshore operations
- Data logging for later playback
- Processed data displayed on screen in real time
- Operating depth to 2,000m
- Can be integrated with Neptune Oceanographics’ fluorometric leak detectors (FPLD) allowing both systems to be operated simultaneously through a common RS232 interface to the ROV or RS485 via a separate cable for diver operations. Both the APLD and the FPLD data can be displayed on the same screen simultaneously
**Specifications**

**Mechanical**
- Sensor dimensions: 55mm diameter by 250mm in length
- Subsea connector 6-way

**Electrical**
- Inputs - two gain lines and power supply (12 - 36Vdc)

**Acoustic**
- Frequency response 30kHz to 140kHz
- Gain options (selected by the two gain lines), 40dB, 52dB, 60dB and 72dB
- Directionality of unit about +/- 12 degrees at 100kHz, becoming narrower at higher frequencies, and wider at lower frequencies