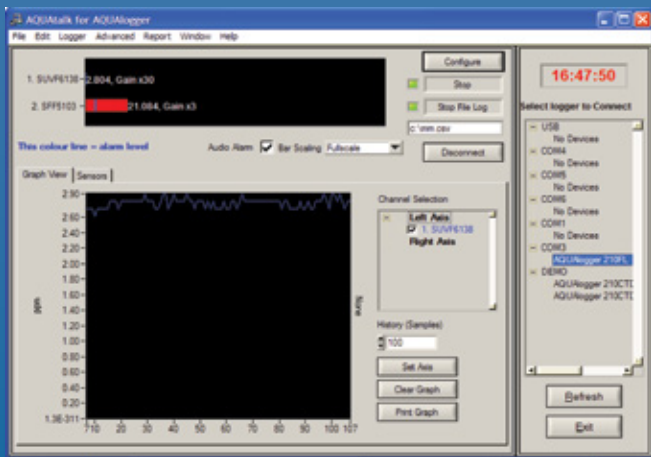


## ACOUSTIC PIPELINE LEAK DETECTION (APLD)

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 to 'sounds' generated by fluid leaking under pressure from a pipeline into the sea. These pressure differences can range from a few Bar to exceeding 100Bar.



### 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

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 or can be diver held. Software rejection of sounds of 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 or more sensor types (fluorometer and acoustic) 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 RS232/485 interface to the ROV. Both the APLD and the FPLD data are 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 (6V to 15Vdc)

Output - 0 to 2.5v envelope of response, with time constant of 10ms

#### Acoustic:

Frequency response from 30kHz to 140kHz or 40kHz to 150kHz

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

