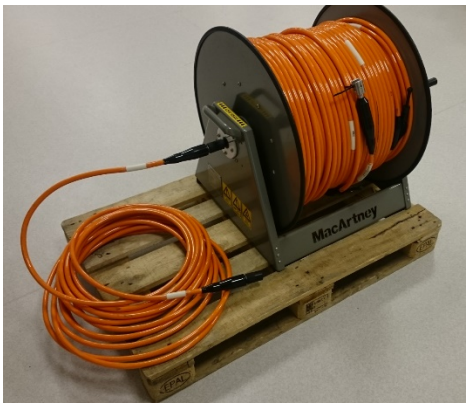
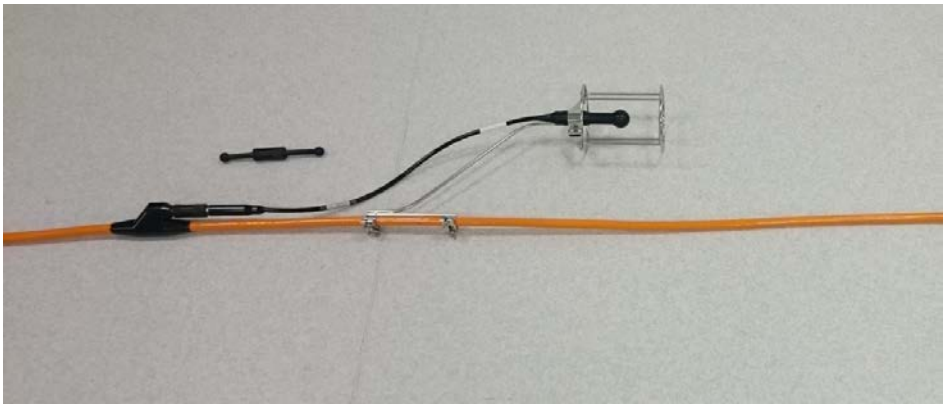
Vertical Line Array System





Overview

The Scanmatic *Vertical Line Array (VLA) System* provides real time visualisation and continuous storage of acoustic signals at sea, covering all frequencies from 30Hz to 100kHz.

The system consists of the following main parts:

1. Manual winch with 225m subsea cable and four detachable hydrophones with protection cages
2. Control Station for data acquisition
3. Rugged computer for control, visualization and storing of the recorded data

The system is capable of sample rates up to 384 kHz on all four channels simultaneous. Acoustic signals are sampled with a resolution of 16 bits and stored as WAVE-files.

Features:

- 4-channel hydroacoustic data acquisition
- Highly sensitive hydrophones
- Broad frequency
- High sample rate
- Small footprint
- Easy deployment

Applications

- Mapping of noise signatures for ships and marine installations
- Sonar test and verification
- Marine mammal monitoring
- Oceanographic research

VLA Control Station

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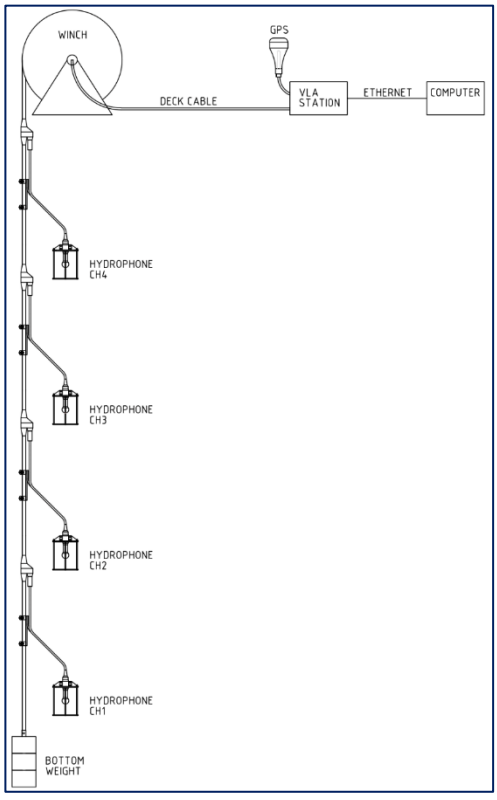
Operation

The VLA is easily deployed from the ship side and lowered to the wanted depth using the manual winch. The deck cable is then connected to the Control Station which performs the analog to digital conversion (ADC) and data acquisition. The Control Station has a GPS for accurate time stamping and positioning, and a 3.5 mm output jack for real time audio listening to any of the 4 channels by means of an audio mixer. The Control Station has an internal battery for more than 10 hours operation, and can also be powered by cable.

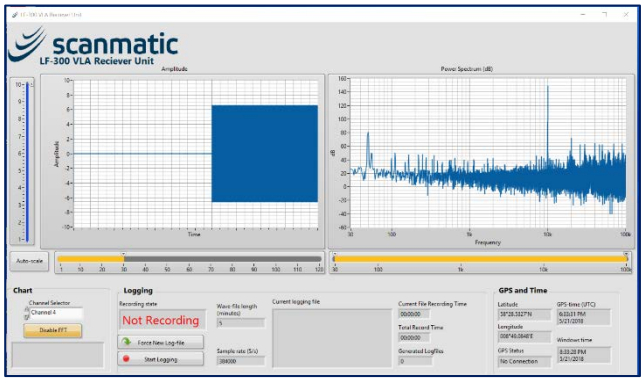
The Control Station interfaces to a ruggedized laptop running the Scanmatic VLA program for system control, real time display and recording of the incoming data. The program allows for flexible configuration of e.g. sample rate, wave-file length, separate or combined channel recording etc. The incoming data is presented in an amplitude plot and a Fast Fourier Transformed (FFT) power spectrum dB vs. frequency plot.



System overview

Specifications

VLA	
Frequency range	20 Hz – 100 kHz
System dynamic range	90 dB
Hydrophone sensitivity	> -174 dB rel 1V/µpa
Surface receiver gain settings	0 dB, 20 dB or 40 dB
Beam pattern	Omni directional, both horizontal and vertical
ADC resolution	16 bit (+/- 10V)
ADC sample rate	Software selectable: 48 kS/s 96 kS/s 192 kS/s 384 kS/s
Audio real time functionality	4-channel audio mixer, 3.5 mm audio jack output
Audio storage format	16 bit Wave file
GPS position and time log format	Comma separated file (.csv)
Control Station input voltage	100 – 240 VAC, 50/60 Hz
Control Station battery	2 x 12 VDC 9 Ah lead acid connected in series for 24 VDC supply
Battery capacity	> 10 hours
Vertical array length	225 m
Hydrophone spacing	30 m (optional)
Winch size	(H x W x D) 730 x 807 x 702 mm
Vertical array and winch weight	130 kg
Control station weight	24 kg
Control station IP rating	IP 67



VLA GUI

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