

NAUTA scientific



Towed array of hydrophones 2020

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Description

integration is also possible using both real-time GPS position and AIS data together with analysis software.

Towable hydrophone prepared with two acoustic sensors and one pressure gauge, set inside two oil filled pipes (IsoParaffine) with overall diameter of 35mm.

The length of each pipe is about 1m, with spacing among the sensors of 5m.

The on-board signal acquisition interface must accept a MIC LEVEL signal and **must provide standard phantom power** usually dedicated to microphones. The interface delivered with this setup is a 4-channel USB interface Steinberg UR-44 with a frequency response up to 96kHz;

a depth reading of the sensor position in the water column is also delivered using a pressure gauge with standard 4..20mA output and a dedicated display (battery powered) with autonomous switch on the back.

An A.I.S. (Automatic Identification System) receiver with GPS receiver and wi-fi broadcasting of the received data is also delivered with this setup. The A.I.S. data received by the nearby vessels include class, position and course of the nearby vessels according to the A.I.S. standard. Compatible navigation software is needed to use and store A.I.S. data. The A.I.S. installation requires both a small external VHF receiving antenna and a GPS receiving antenna (small plastic) both provided. A filtered power supply cable is also provided in case the on-board power supply distribution is not able to deliver a clean and ripple-free voltage to the receiving unit.

Signal acquisition interface has to be connected to and properly configured on a computer in order to have recordings, analysis capabilities, sampling rate selection and software filter configuration. Navigation

DESCRIPTION OF PARTS AND OPTIONS

Cable for towed arrays of hydrophones / sensors

Leg of 250m, (aramid) kevlar reinforced (400kg), Polyurethane double coating, orange color, meters printed on the surface.

Two shielded pairs for audio signal and one shielded pair for current loop (4..20mA sensor, typically pressure transmitter).

Wet-end directly into the first hydrophone body.

First hydrophone pipe head: stainless steel AISI304. Secondary heads/tails in black Delrin plastic.

Dry-end (on-board) into a plastic splash-proof connector Bucaneer series, and into an interconnection case.

Two cable grips, set at about 235m and 140m from first hydrophone body.

a 400Hz high-pass filter attenuating 6dB per octave downwards. In order to optimize the shipment of the equipment has been assembled using two short pipes with 5m spacing among the two sensors.

Preamplifiers are powered using standard phantom power over the signal lines, simplifying the setup of the system.

SPECIFICATIONS:

- TWO ceramic hydrophones (-208dB re 1V/uPa sensitivity with nearly flat frequency response up to 100kHz (+/- 2dB)).
- PA4 wideband preamp
- Pressure transmitter using a standard 4..20mA circuit, able to send to depth of the sensors up to a display on-board.

Sensors

Aquarian Scientific sensors:

The system is assembled using two measurement AS-1 hydrophones with custom PA4 preamplifiers/line drivers featuring

On-board parts

Connector towards hydrophone is offered using two standard XLR male connectors and one WEIPU connector towards the pressure transmitter.

Depth display - battery powered

A four channel analog to digital audio interface for computer (stereo sampling rate at 192kHz per channel) with USB interface. Four channels in total. Steinberg UR44 recommended.

Extra equipment

One Aquarian Scientific AS-1 hydrophone with a 25m cable and external PA4-P48 pre-amplifier (variable gain, phantom powered). Standard XLR balanced output;

One Tascam DR-100 MKIII digital portable audio recorder, XLR microphone input.

One AIS receiver, with GPS and wi-fi multiplexer model Quark-elec A026, VHF receiving antenna, GPS external antenna, USB power supply

ONE YEAR from delivery, for originally defective parts and assemblies, with the exclusion of parts suffering from misuse, entanglements into nets, wires, sea-bottom, fishing lines or other bodies at sea.

Software is not covered by this warranty and issues must be referred to license resellers.

Nauta offers assistance for hardware equipment delivered, including basic problem solving related to software. NAUTA applies a "fair policy" according to which all the equipment will be repaired and/or replaced, when out of the standard warranty, with the agreement of the final customer and at the lowest possible rates. All shipping costs for repair returns will be covered by the final customer.

Warranty:

The customer recognizes the critical nature of this equipment and agrees on a "fair warranty policy" according to which the repairs are given for free, at the manufacturing facility, for a period of
