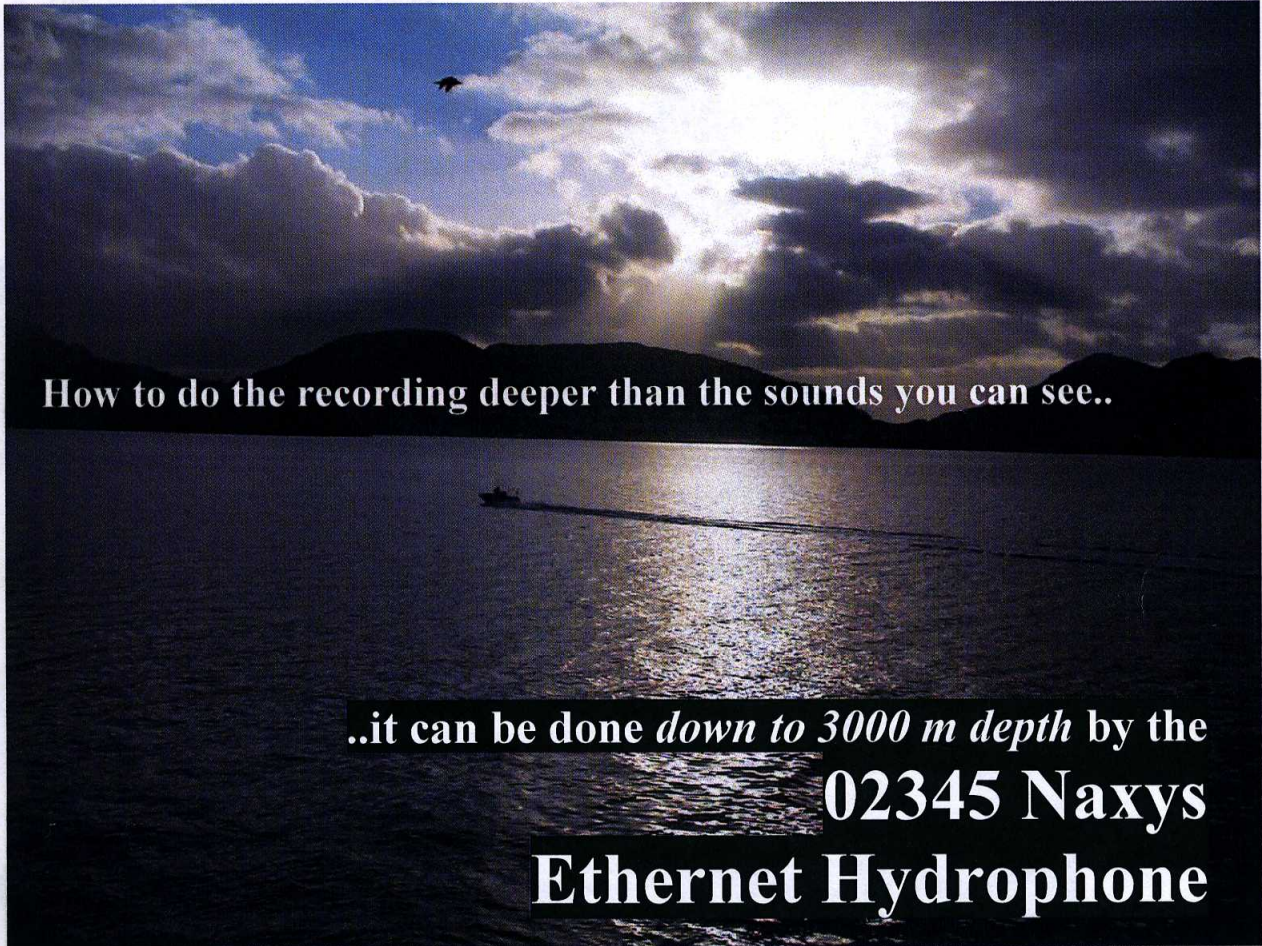




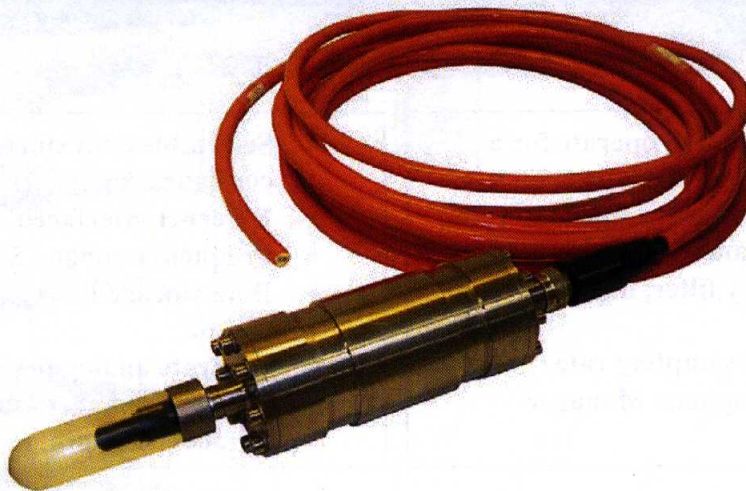
02345 Naxys Ethernet Hydrophone  
DATASHEET

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How to do the recording deeper than the sounds you can see..

..it can be done *down to 3000 m depth* by the  
**02345 Naxys**  
**Ethernet Hydrophone**



**NAXYS AS**

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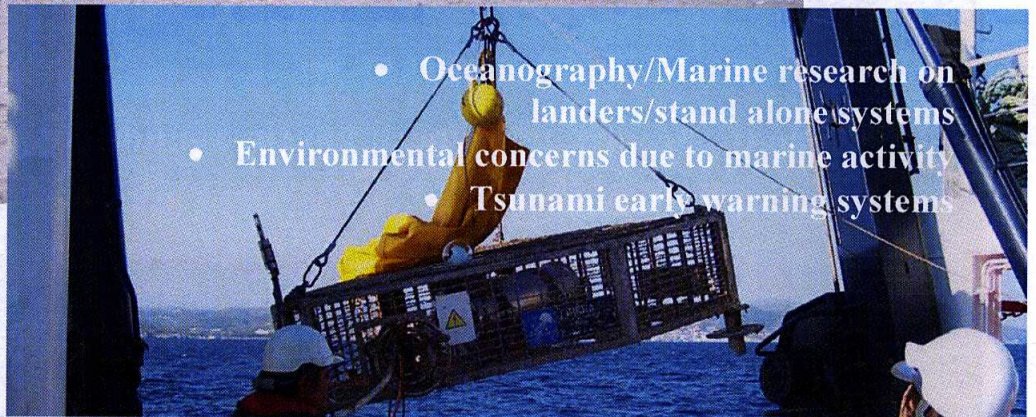


**Applications:**

- Safety of sea traffic, permanent installations in ports and harbours
- Coastal monitoring in real time
- Cavitation measurement



- Oceanography/Marine research on landers/stand alone systems
- Environmental concerns due to marine activity
- Tsunami early warning systems



- ROV/DREDGER/TRENCHER monitoring
- Subsea valves, pumps, subsea condition monitoring



**Features:**

- Instant data, or armed to operate for a specific scheduled period
- Sequenced operated for specific active and deactivated time frames
- Selectable frequency filter, high and low cut
- Selectable gain and sampling rate
- by the Naxys Hydrophone Manager software

- Selectable data storage in ring buffer configuration
- Ethernet interfaced, through Cat5 cable
- Frequency range : 5 Hz - 300 KHz
- Data storage in wav files, for processing of data
- Separate analogue signal output
- Housing, connector and cable certified for 3000 m depth

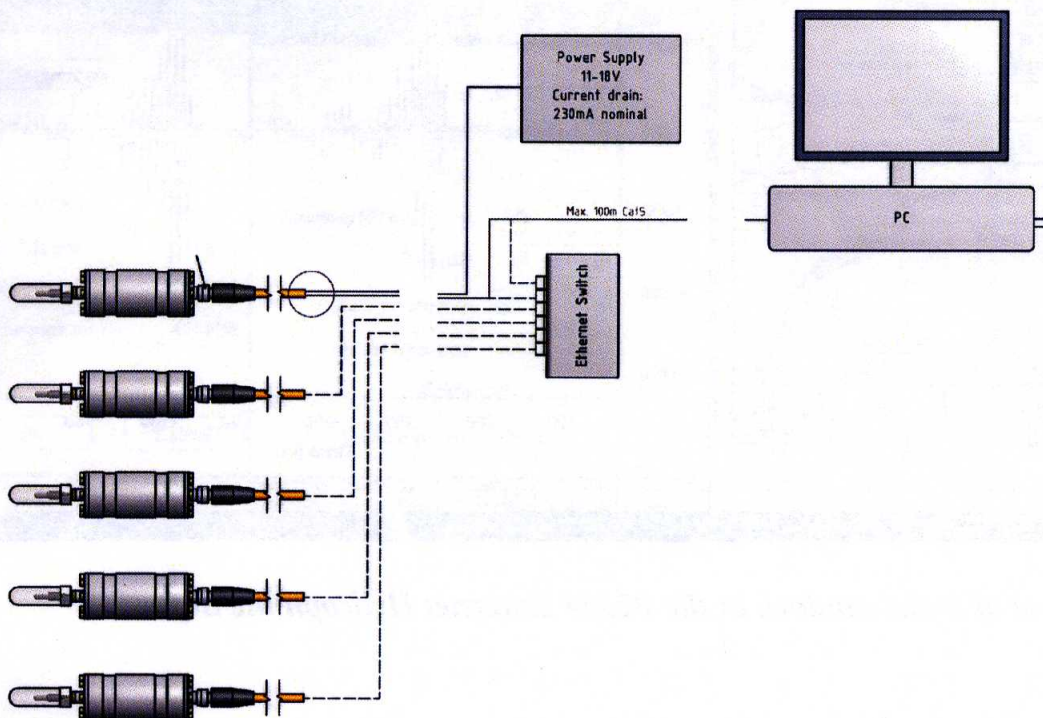


## 02345 Naxys Ethernet Hydrophone DATASHEET

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The Naxys Ethernet hydrophone is manufactured in the frequency range of 5 Hz to 300 KHz, with **selectable sampling rate in steps from 6 KHz up to 768 KHz** and **selectable gain in steps; 0-10-20-40 dB**. The Manager software also offers a **selectable frequency filter** and as well as **ring buffer data storage**. These end user configurations and all other operational controls are done from the Naxys Ethernet Manager software 02344. After signal recording and storage on PC's hard-disk, these files can be processed further with the Naxys Analyzing software 02346, or programs like Mat lab, MathCAD, Cool EDIT or Lab VIEW. The hydrophone(s) can be operated in *manual mode* by operator as straight on-off, *armed* for a specific monitoring period, as *scheduled time frame*, or in *sequences*. Stored files will automatically be named by *Serial No and Time of start recording*, and the session file will also contain info about *Gain, Sampling frequency, IP address and Time of stop recording* and is updated for every new data file being logged with common reference. Operator can adjust the scales' resolutions, amplitude and time when displaying real time data using the zoom buttons and to activate the audio signal on PC loudspeaker while doing a recording. The signal level can be displayed in either Pa, dB or Raw data (digitalized voltage) Depending on the number of hydrophones in the system and the sampling frequency, the software calculates the expected data rate and displays it as Kbytes/min. The operator gets, at the same time, information on available disc space (PC's hard-disk)

### **System of 5 Ethernet Hydrophones, linked through one router/switch, and controlled by one PC**



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## 02345 Naxys Ethernet Hydrophone DATASHEET

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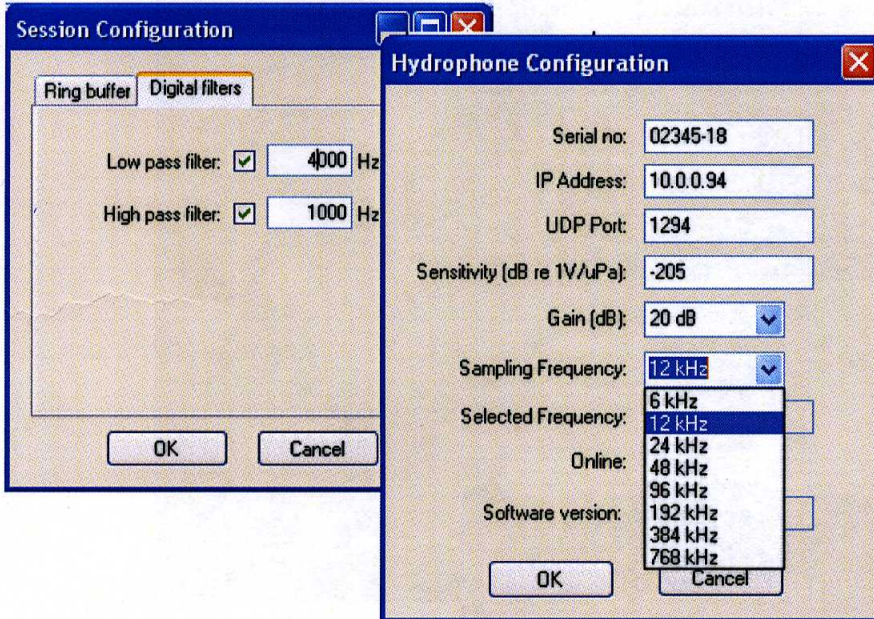
An array can be configured in the field with up to 5 Hydrophones in a signal collecting system, still with a common sampling frequency of 768 KHz. Each Cat5 Hydrophone cable has a maximum length of 100 m, from the hydrophone to Router/Switch or directly to PC. Delivery of Hydrophones always includes a Manual and an individual calibration sheet with information like *Serial No*, *IP address No*. and *UDP receiver No*. The hydrophone element is encapsulated in an acoustically transparent compound, providing Omnidirectional characteristics. The electronics has a 16 bit resolution. The signal is also presented in analogue values, on separate pins in the connector, which makes it suitable for real time operations when no storage of data is demanded (see specification list last page). This signal is buffered, and an analogue signal lead will not affect the amplitude of the digitalised signal to Ethernet port.

IP Address	Sampling Frequency (KHz)	Bytes Logged (K)	Use	Online	Display
10.0.0.94	12	178	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
10.0.0.105	192	45173	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.0.0.88	48	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.0.0.72	12	629	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.0.0.73	96	756	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

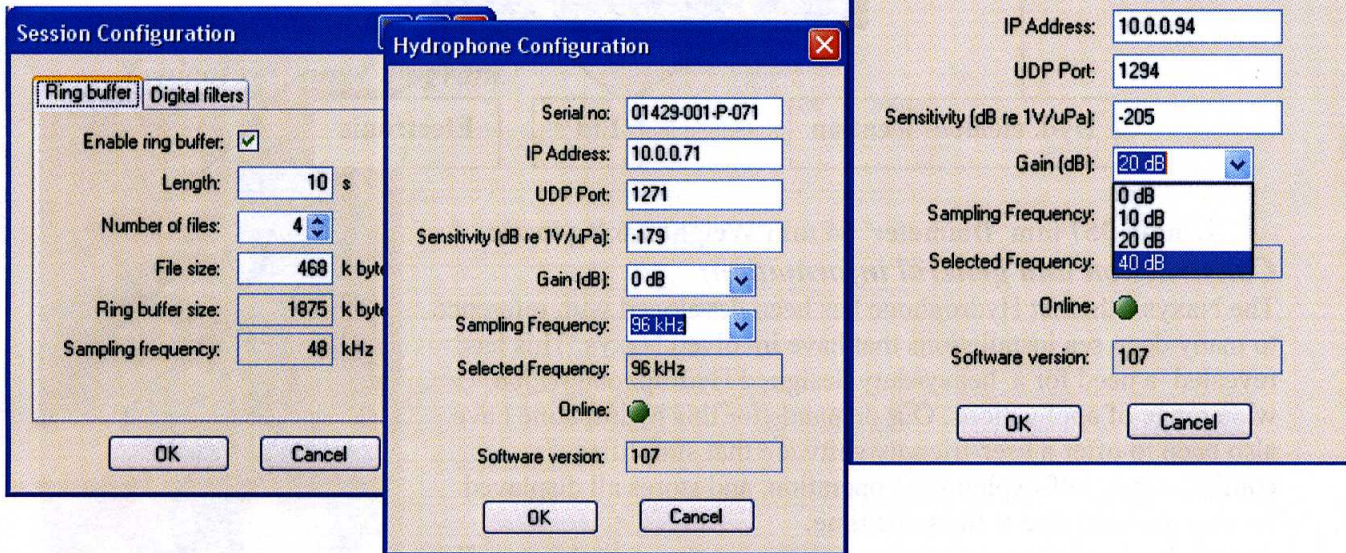
*Example of main window, in the 02344 Ethernet Hydrophone Software*

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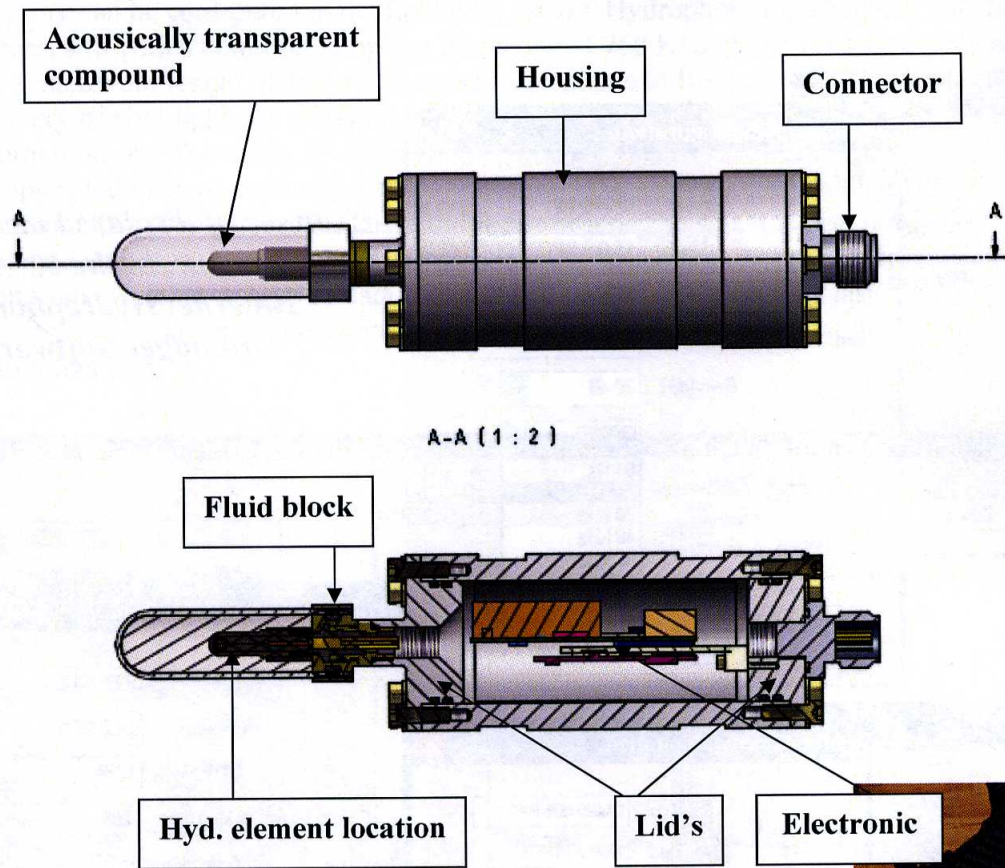


*Example of displayed main window, in the 02344 Ethernet Hydrophone Manager Software:*





*Main components in the NAXYS Ethernet Hydrophone 02345*



**Length 357 mm Diameter 64 mm Weight 2.6 Kg in air**  
**Construction and general information:**

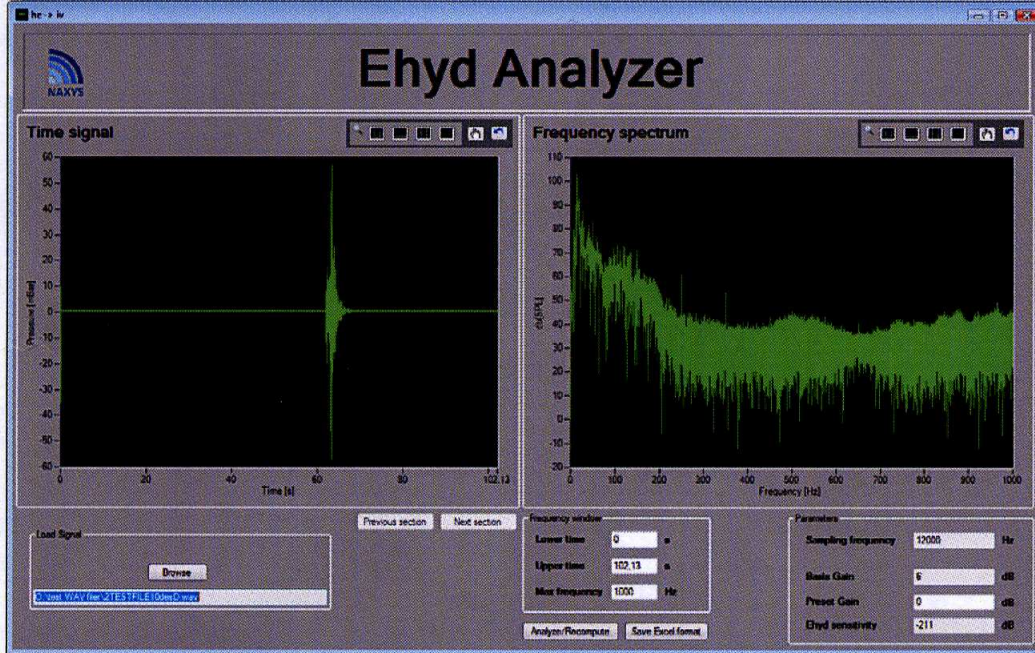
The Naxys Ethernet Hydrophone has been developed with reference to many deep sea installations that have involved Naxys. This has revealed a need for a heavy-duty designed Hydrophone with a wide range of applications. Our demands for this hydrophone have also been to offer a user-friendly software that simplifies configuration, self-explains the operation, and stores all displayed data on the hard disc at the same time.

The Hydrophone element, the housing, connector and cable are all specified and pressure tested to 3000 m depth rating. The 8 pin chassis connector is attached at the rear end of the housing, leading power, TX/RX signals and analogue signal. Housing is made of Titanium grade 2. Standard length of incorporated underwater Cat5 cable is 10 m. Hydrophone and cable are delivered as standard in a field-friendly container (see picture to the right).

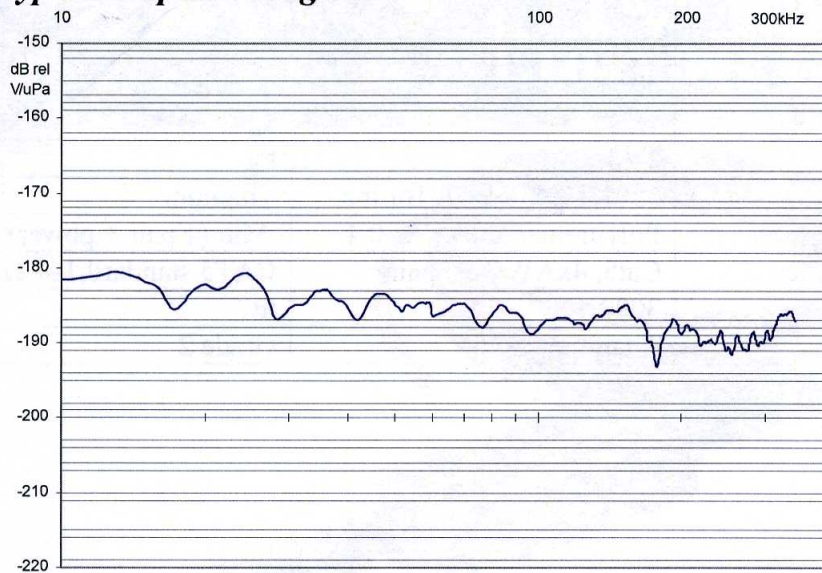




*Example of display in the 02344 Ehyd Analyzer Software  
(not included in the standard Hydrophone package, must be ordered separately)*



*Typical response diagram.*





## 02345 Naxys Ethernet Hydrophone DATASHEET

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### *Specifications*

<b>Parameters</b>	<b>Value</b>	<b>Units/ Comments</b>
Hydrophone sensitivity	-205 + variable gain	dB rel V/ $\mu$ Pa
Element sensitivity, typical	-211	dB rel V/ $\mu$ Pa
Frequency range	5 – 300 k	Hz
Maximum operational depth	3000	m
Directivity pattern	Omnidirectional	Ref to axis
Digital resolution	16	bit
Power suppl, recommended value	11 – 18	V
Current drain, average	190	mA
Sensitivity accuracy	+/- 3	dB
Sampling frequency	6-12-24-48-96-192-384-768	kHz
Selectable frequency cut-off	Any levels, upper and lower	kHz
Selectable ring buffer storage	User configurable size	K Byte
Gain levels	0-10-20-40	dB + 6dB basic
Analogue output	0 to +/-2.5 (max)	V
Analogue output sensitivity	-205 + variable gain	dB rel V/ $\mu$ Pa
Digital Interface	Ethernet 100BASE-Tx	
Temperature range	-2 to +45 / -25 to +85	deg C (operational/storage)
Dimensions	301 / 75	mm (length/diameter)
Weight, in water	1.54	kg
Weight, in air	2.38	kg
Connector type, on housing	5507 1508 T BCR Burton	Titanium
Cable jacket material & diameter	Polyurethane, 14.7 +/-0.4	Mm (4 pair + power)
Cable, electrical characteristics	Cat5, 4xAWG 26 pairs	CAT5 standard, 142 $\Omega$ /km
Cable depth rating	3000	m
Housing of electronics	Titanium	Grade 2

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