



## Overview

Scanmatic now offers exceptionally small, low cost and low powered sensor transmitters with acoustic communication. While primarily developed for the purpose of providing health information and id-tracking of fish, these units have a wide ranging potential for offering integrity monitoring of subsea infrastructure. In many cases these units can offer the same situational awareness and early warning functionality as traditionally bulky and costly transponders.

The 10 cm transmitters measures tilt, depth or movement. They are attached to mooring lines, subsea buoyancy elements or other objects of interest by use of customized solutions, ranging from cable ties, diver fasteners or ROV clamps.

The acoustically transmitted sensor information is received by a 25 cm long cabled receiver which for permanent installations typically interfaces with a top side control system for relevant presentation and alarm handling. For temporary operations, the receiver could for example communicate with a laptop computer, or distribute the information directly to web based solutions.

The technology is well proven in the aquaculture market, with more than 18 000 units deployed in Norway since 2006.

## Applications

- Mooring Line Integrity Monitoring
  - Early warning of mooring line failure
  - Increased situational awareness
- Riser monitoring
- Depth monitoring of subsea buoyancy
- Permanent monitoring solutions
- Retrofit integration
- Temporary operations, e.g. rig moving, equipment deployment

## Features:

- Tilt/Inclinometer
- Movement/Accelerometer
- Depth/Pressure
- Wireless acoustic communication
- > 500 m range
- Up to 10 years battery life
- Low cost
- Small footprint
- Easy deployment and retrofit
- Data acquisition and system integration
- “Internet of Things under Water”



## Specifications

Acoustic receiver:	
Dimensions	230 mm length, 75 mm diameter, 1140 g in air, 260 g in water
Material	Delrin
Operational depth	0 - 500 m (pressure tested to 1000 m)
Signal processing	<ul style="list-style-type: none"> <li>- True and parallel multichannel reception in the 60 – 80 kHz band</li> <li>- Advanced digital signal processing to reduce noise influence</li> <li>- Signal intensity and background noise logging</li> <li>- Range estimate to transmitter based on signal intensity</li> </ul>
Battery operating life	<ul style="list-style-type: none"> <li>- Stand alone logger: 8 – 9 months</li> <li>- Real time version: Optional 4 months backup battery which enables buffering of data in the eventuality of power outage. When power is restored, receiver automatically transmits stored values.</li> </ul>
Input voltage	Real time version: 6 – 30 VDC
Data storage capability	1 500 000 detections
Communication interfaces	<ul style="list-style-type: none"> <li>- Realtime version: RS485</li> <li>- Stand alone version: Bluetooth and USB</li> </ul>
Other	<ul style="list-style-type: none"> <li>- Integrated temperature sensor</li> <li>- Three-color LED diode for status indication</li> <li>- Intuitiv PC software for import, .csv export, filtering and graph view</li> <li>- Straight forward integration to top side control systems with alarm handling</li> <li>- Customisable cabling, connector and fastening solutions</li> </ul>

Acoustic transmitter:	
Dimensions	105 mm length, 16 mm diameter, 18 g in air, 7 g in water
Material	Delrin, Titanium pressure transmitter
Power output	156 dB re 1µPa@1m
Transmit range	0.5 – 1 km, depending on local conditions
Transmit frequency	60 – 80 kHz (configurable)
Battery life	Up to 10 years with 2 - 3 min transmitting interval (configurable)
Operational depth	0 – 300 m
Depth resolution	1 cm
Depth accuracy	Maximum error +- 50 cm
Inclinometer measuring range	0 – 180 degrees
Inclinometer resolution	1 degree
Inclinometer accuracy	+ - 1 degree
Movement – sensor	3 - axis MEMS accelerometer
Other	<ul style="list-style-type: none"> <li>- Activated with magnetic key</li> <li>- Possibility of “alarm mode” where unit only transmits if depth and/or inclinometer values exceeds pre-configured range for increased battery lifetime. Alive-signal e.g. once every 24 hours</li> </ul>

