

Modular Sensor Platform for Inductive Moorings

The new MI.Sens modular multiparameter sensor was developed in close collaboration with Aanderaa with the purpose to provide a flexible sensor system with realtime data transmission through a jacketed steel wire mooring line.

The system can host up to 7 different sensors. Besides the full range of Aanderaa smart sensors, also various external sensors with RS232 and RS422 interface are supported.

The MI.Sens system is available with depth ratings of 300m and 6,000m. Installation on the steel wire mooring line is easily accomplished with the integrated mooring clamp and split inductive coupler.

The standard configuration already provides up to 1,200 Wh battery capacity with Lithium primary or 420 Wh with Alkaline cells.

The splendid battery capacity and the low power consumption of the system enables long term deployments with short sensor sampling intervals.

Full compatibility with Seabird™ inductive mooring line communication is guaranteed. Up to 98 devices can be installed on a single mooring.

The standard configuration is equipped on the upper end with an Aanderaa single ZPulse DSC for single point current measurements and up to three additional sensors on the bottom end.

The instrument can be conveniently activated / deactivated by the integrated magnetic power switch that also signals system status information (e.g. battery capacity and sensor sampling) via a multicolor status LED.

The system is ideally complemented with one of our gateway buoy systems - e.g. the cost efficient MI.Sat buoy or one of the larger spar buoy solutions. Also available is a range of swivels with electrical feedthrough ideally suited for inductive mooring applications.

Optional Aanderaa Sensors

- Temperature sensor type 4060
- Conductivity sensor type 4XXX
- Pressure sensor type 4117
- Oxygen optode type 4835 / 4330(F)
- Turbidity sensor type 4112
- ZPulse doppler current sensor type 4XXX

Other sensors are available upon request

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MI.Sens sensor platform



MI.Sat II buoy with inductive mooring



SB.600 spar buoy with inductive mooring (U864 counterfill operation)

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MI.Sens sensor platform



Swivel C.45 in inductive mooring
(picture courtesy NOC)

Product Specification

Sensor Capability

- Up to 7 sensors can be fitted on both sides of the instrument
- 7 RS232 ports (2 also configurable as Rs422)
- Up to 4 analogue inputs (24 bits, differential or single ended)
- Programmable sensor supply voltage 5 V to 12V
- integrated pressure sensor Keller 7LD 30 / 600bar; +/- 0.5%FS

Recording System

- Data storage on SDHC / SDXC slot
- Storage capacity up to 128 GB
- Programmable sampling interval

Power Supply

- Refillable battery container (21 x size D Alkaline / 21 x size D Lithium)
- Power consumption in standby between sampling: approx. 3mW
- Endurance: More than 2 years with lithium primary batteries at a 30 Min. sampling interval with Doppler Current Sensor and Aanderaa CTD sensors

Depth Rating

- 300m or 6,000m

Mechanical Properties

- Instrument dimensions
 - Length: 502mm (including sensors)
 - Diameter: 124mm (pressure tube) 135mm (locking sleeves)
- Materials
 - Titanium / POM
- Weight in air: (with DW.DSC, 3 sensors, no batteries) 9.85 kg
- Displacement: 6.2l

Operating Temperature Range

- -5 to +50°C

Z Pulse Doppler Current Sensor Specification

Current Speed: (Vector averaged)

- Range: 0-300 cm/s, higher range on request
- Resolution: 0.1 mm/s
- Mean Accuracy: ± 0.15 cm/s
- Relative: $\pm 1\%$ of reading
- Statistic variance (std): 0.3 cm/s (ZPulse mode), 0.45 cm/s

Current Direction:

- Range: 0 – 360° magnetic
- Resolution: 0.01°
- Accuracy: $\pm 2^\circ$

Tilt Circuitry:

- Range: 0-90°
- Resolution: 0.01°
- Accuracy: $\pm 1.5^\circ$

Acoustics:

- Frequency: 1.9 to 2.0 MHz
- Power: 25 Watts in 1ms pulses
- Beam angle (main lobe): 2°