Datasheet –Observer



Observer delivers advanced subsea asset monitoring in a compact, low-power device. By combining on-board analytics, communication and modular sensor hardware, Observer delivers an end-to-end solution that streamlines data acquisition, reduces operational costs, and supports data-driven decision making.

Integrating configurable logging, subsea data processing and acoustic telemetry in a single device, Observer operates as a standalone system or as part of a larger integrated network.

Intelligent on-board data processing algorithms convert raw time-series measurements into compact summary data packets. This allows the sampling, processing and transmitting of information from internal and external sensors and ensures efficient communications to the topside during lengthy deployments.

Observer also provides event detection, alerting the user when it detects changes above defined threshold values.

In addition to its acoustic telemetry, Observer includes serial interfaces for sensor connection and Ethernet for cabled data upload or high-speed offload on retrieval.

Users can configure system parameters, set sampling schedules, adjust data rates and estimate battery life through a standard web browser. The acoustic link is managed by the application, simplifying operations and removing the need for expert knowledge.

Real-time data visualisation allows confirmation of sensor performance and remote monitoring of asset condition, ensuring minimal offshore setup time and continuous data availability. Observer also has Edge processing capability, providing opportunities for bespoke data processing algorithms.

Observer incorporates Sonardyne's field-proven 6G acoustic communication technology and is fully compatible with Sonardyne's existing topside modems and 6G communication ecosystem. External sensors including strain gauges, accelerometers, displacement sensors, pressure sensors and environmental sensors can be connected to Observer if required.

Bespoke configurations and engineering consultation are also available through Sonardyne's project team to meet specific customer requirements.

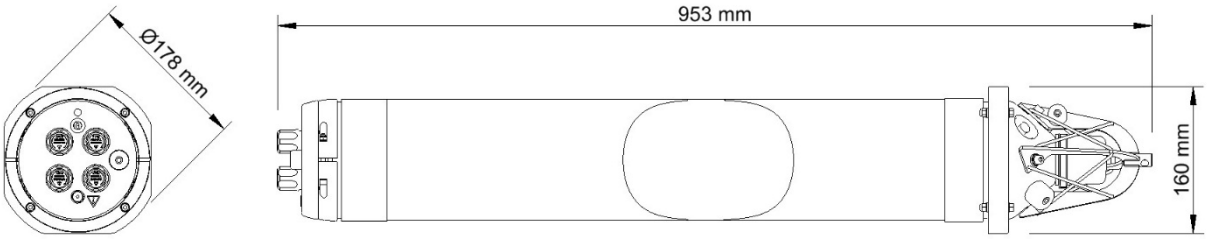
Typical applications

- BOP monitoring to measure wellhead motion and conductor fatigue
- Pipelines buckling from thermal expansion
- Subsidence of seabed structures
- Production riser FIV and VIV monitoring determining fatigue
- Drilling riser motion to measure fatigue
- Mooring line monitoring
- Umbilical or dynamic cables to determine performance

Key features

- Onboard data processing and acoustic alarms
- Acoustic configuration and data retrieval
- Internal high precision pressure, temp and IMU sensors
- Battery life estimation tool
- User friendly configuration
- Customisable mounting and deployment solutions
- High and low frequency motion measurement
- 3,000 m operational depth rating
- Sonardyne Wideband telemetry provides up to 9,000 bps actual acoustic data rate

Specifications – Observer



Features		Specification (Type 8402-0101)
Acoustic operating frequency		MF omni acoustic modem 20-34 kHz (alternative options available on request)
Expected operating range		Up to 3,000 m slant range [1]
Sampling rates		Sensor dependent, configurable decimation
Data storage		64 GB dual redundant
Data processing		Min, max, mean, std deviation
Internal sensors	Pressure sensor - standard	30 / 300 bar 0.01% FS, additional options available on request
	Temperature sensor - standard	± 0.1 °C
	IMU - standard	6 degrees of freedom - gyroscope (offsets ± 0.5 deg/sec) and accelerometer (offsets ± 20 mg)
	High grade IMU - optional	6 degrees of freedom - triple gyroscope (offsets ± 0.1 deg/sec) and tri-axis accelerometer (offsets ± 2 mg)
Connectivity	1x 8-way external sensor connector	4-20 mA interface 12 V external power output 0-12 V voltage input RS232/485 interface
	2x 4-way external sensor connectors	mV/V (wheatstone bridge type sensor)
	1x 8-way connector for power and comms	24 V external power input Ethernet
Electrical	Standard battery specifications	1872 Wh primary lithium non-rechargeable battery pack (alternative capacities available on request)
	Expected battery life[2] (typical/max life/max sampling)	Up to 10 years (duty cycle logging pressure, temp & motion) 4+ years for a typical riser monitoring application (duty cycle logging USBL position, motion, depth, temp & SV) 2.5 years continuous logging (motion, depth, temp)
Mechanical	Construction	Aluminium (super duplex / titanium on request)
	Dimensions (height x diameter)	927.5 x 132 mm
	Approx weight in air/water[3]	18 kg / 10.26 kg
Environmental	Depth rating	300 / 3,000 m (dependent on pressure sensor)
	Operational / storage temperature	-5 to 55°C / -20 to 55°C

[1] Depending on environmental factors such as noise, depth of water and line of sight
[2] Estimated time
[3] Estimated weights

sonardyne.com

Specifications subject to change without notice – 10/2026