MARINE MAGNETICS

SeaSPY
TOWED MAGNETOMETER

GENERAL DESCRIPTION

RUGGED
Smart connector
The SeaSPY connector is a custom brass underwater connector that supports a tonne of towing force. A PVC nose cone protects it from side impacts, while maintaining a streamlined tow body.

Sleek Design
SeaSPY’s sleek design resists snags. The inexpensive and field replaceable tail fins are the only protruding element and they are designed to snap off should they ever get snagged on rocky outcroppings.

Reliability
The SeaSPY tow fish is made of ¼” super strong fiberglass coated with a ‘bumper’ layer of polyurethane for extra shock absorption. Should even a drop of water penetrate the tow fish, a leak detector warning appears on your screen to inform you. In the event of a breach, the SeaSPY’s electronics module is encased in a polycarbonate housing with ‘O’ ring seals for another layer of security. The sensor itself is suspended on shock mounts to ensure the quality of your data isn’t influenced even if you drag SeaSPY along the sea floor.

A quick glance self diagnostic LED system on the isolation transceiver can save hours of frustration. If all connections are hooked up properly, a status LED will glow green. If there’s a problem with one of the connections, it will glow yellow. If there’s a short somewhere, it will glow red and the transceiver will safely shut down the output power in microseconds. A blue LED flashes with every mag reading.

Better Data
Worldwide Operation with No Restrictions
SeaSPY will collect accurate data no matter where you are or in which direction you are surveying.

Highest Absolute Accuracy
SeaSPY Overhauser sensors have the highest absolute accuracy of any magnetometer: 0.1nT. The repeatability between SeaSPY sensors is also unmatched at better than 0.01nT.

The benefits to the user are four-fold
1. Targets will not be missed because they fall between mismatched survey lines.
2. Reduces post-processing. Competing technologies require the user to collect tie lines in order to level the data set (match-up inaccurate survey lines).
3. There will be no variation introduced in the data by slight course changes during a survey line.
4. A magnetic map of an area will look the same, regardless of direction in which the survey lines were conducted.

Stable Time
The clock used in the SeaSPY’s electronics module is accurate to 1ppm throughout the entire temperature range, (as opposed to 100ppm found in competing magnetometer systems) so it will be accurately time stamped to sync with diurnal correction (base station) information.

Maintenance Free Sensors
SeaSPY sensors don’t degrade with time, so you’ll get the same quality data after 10 years of use as you did the first time you used it. In addition SeaSPY sensors contain no consumable parts, so you won’t have to replace anything, like the expensive lamps that wear out in optically pumped mags.

Overhauser Effect
SeaSPY is a pulsed Overhauser magnetometer that measures the ambient magnetic field using a specialized branch of nuclear Magnetic Resonance technology, applied specifically to hydrogen nuclei.

Ease of Use
Ultra Low Power Consumption
A SeaSPY system only requires 1W standby and 3W maximum. As a result, SeaSPY can run for days directly from a 12V or 24V vehicle battery.

No temperature effect on accuracy
SeaSPY works equally well in cold, deep waters as tropical waters, starting instantly on power-up without requiring warm up. And data collected at –40°C will be identical to data recorded at +60°C.

Integrate with side scans and other platforms
An easy all in one solution to integrate SeaSPY with side scans. A single 10m tow cable is terminated with everything you need. No modifications to your magnetometer or gradiometer are required. Simply swap out your tow cable for the integration cable and you are ready to go.

Best of all, your accessories, including power supply, are still compatible. The integration maintains the basic system integrity of each product, ensuring they can both run independently as well as together.
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SeaSPY Towfish includes
• Depth rating 1000m (1500psi), 3000m (5000psi), 6000m, (9000psi) customer specified.
• Overhauser Sensor
• Electronics module containing all of the driving electronics and Larmor counter
• Leak detector to let you know if even a drop of water penetrates the towfish
• 4 lead weights to increase the weight of the towfish and to prevent it from rotating. To adjust the weight you can remove or add additional weights in the field.
• SeaLINK data acquisition and GPS logging software for Windows.

Tow Cable
The cable is made up of one twisted pair of conductors, a Vectran strength member, water block and yellow polyurethane jacket. Length determined by customer.

SPECIFICATIONS

Operating Zones
NO RESTRICTIONS
SeaSPY will perform exactly according to spec throughout the entire range.

Absolute Accuracy
0.1nT

Sensor Sensitivity
0.01nT

Counter Sensitivity
0.001nT

Resolution
0.001nT

Dead Zone
NONE

Heading Error
NONE

Temperature Drift
NONE

Power Consumption
1W standby, 3W max

Timebase stability
1ppm, -45ºC to +60ºC

Range
18,000nT to 120,000nT

Gradient Tolerance
Over 10,000nT/m

Sampling Range
4Hz - 0.1Hz

External Trigger
By RS-232

Communications
RS-232, 9600bps

Power Supply
RS-232, 9600bps

Operating Temperature
-45ºC to +60ºC

Temperature Sensor
-45ºC to +60ºC, 0.1 step

Towfish
Towfish Length
124 cm
Towfish Diameter
12.7 cm
Towfish Weight in Air
16 kg
Towfish Weight in Water
2 kg

Isolation Transceiver
Dimensions: 11 x 6 x 3 cm
Weight: 130 g

RS-232 cable

Battery Clip Cable or Power Supply
The power supply accepts any AC line power, from 100-240VAC and 50/60 Hz to provide conditioned and clean 24V DC power. Weight 165g

Options
• Pressure Sensor
• Altimeter
• Transponder
• SideScan integration
• Depth options: 3000m, 6000m
• Extension cables
• Change the weight of the towfish with additional weights
• Deck cable
• Termination kit
• Winches

Tow Cable
Conductors
Twisted pair

Strength Member
Vectran

Breaking Strength
2,500 kg

Outer Diameter
1 cm

Bending Diameter
16.5 cm

Weight in Air
125 g/m

Weight in Water
44 g/m

Outer Jacket
Yellow Polyurethane

Cable Termination
Field Replaceable

Floatation Cable
Conductors
Twisted pair

Strength Member
Vectran

Max Working Load
2,500 kg

Outer Diameter
1.9 cm

Bending Diameter
25 cm

Weight in Air
272 g/m

Weight in Water
-20 g/m

Outer Jacket
Orange Polyurethane

Cable Termination
Field Replaceable