Robust positioning system – Underwater GPS G2

Underwater GPS G2 is our latest Short BaseLine (SBL) system providing reliable accurate and robust acoustic positioning of a single Locator.

The G2 Topside is connected to the G2 Antenna which must be mounted in the water with direct line of sight to the Locator. A Wi-Fi signal emitted by the internal Web server of the G2 Topside allows the user to track the Locator using the Water Linked Web-based GUI. Users can also develop their own user interface using the Water Linked easy to use HTTP based API.

With the benefit of an integrated GPS and Inertial Measurement Unit (IMU), the GPS G2 provides absolute GPS position of the Locator, removing the need to integrate additional third-party sensors for accurate navigation.

While only one Locator can be tracked the Locator can be set to one of 7 channels, allowing multiple GPS G2 systems to be used in the same area without interference.

Locators are available in one of 3 configurations to support the user's requirements. The Locator must be synchronised with the Topside, which is achieved either through a GPS lock or through direct connection with the Topside, typically through the ROV tether.

Key features

- Reliable positioning in the most challenging environments (shallow water, inside tanks/ pools, around installations etc.)
- Omnidirectional 360 degrees operation
- Locator operates reliability even when close to the surface
- 100m and 300m range versions available
- Small size enabling easy mounting
- On-board user-friendly web-based GUI with comprehensive diagnostic features
- Water Linked API supplied to allow for custom integration

G2 Topside

U1 Locator

G2 Antenna

Locator Type*	Power Source	Depth Source	Time Synchronization	Signal Range
U1	Integrated Battery	Integrated	GPS lock	300m
A1	G2 Topside	User supplied	G2 Topside (Direct connection/Tether)	300m
D1	G2 Topside	Integrated	G2 Topside (Direct connection)	100m

*U1 Locator is supplied as standard and is limited to 200m operating depth

Acoustic | performance

System range	100 meter and 300 meter options
Ping rate	2 Hz
Accuracy	Horizontal range: <0.2%, Horizontal angle: <1 deg, Vertical range (depth): <1%
Long term drift	Locator A1/D1: None, Locator U1: ~1m/6hr
Frequency	31.25 – 250 kHz (200 kHz typical)
Directivity	Omnidirectional
Operating principle	Time of flight, Triangulation

Electrical | interface

Input voltage	10 - 30 Vdc
Power drain	3 W
Power-on surge	28 W
Communication	Wi-Fi (802.11ac/a/b/g/n), Ethernet (100 Mbps), NMEA 0183
User Interface	Web based GUI
Protocols	Water Linked API

Mechanical

System Weight (typical)	6 kg
Receiver dimension	30 x 21 x 10 cm
Antenna dimension	54 x 12.5 x 14.5 cm (folded), 151 x 98 x 53.5 cm (expanded)
Locator U1 dimension	13.3 x 3.2Ø cm
Depth rating	300 meters (U1 limited to 200 meters)
Operating temperature	-10 to 60 °C

Approvals

CE

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