

Datasheet

GPS-Acoustic Module (GPS-A Module)



The Type 8297 GPS-Acoustic Module (GPS-A Module) is an acoustic transceiver integrated into the dry box of an SV3-300 Liquid Robotics 'Wave Glider' autonomous, wave powered surface vehicle and supplied in an original equipment manufacturer (OEM) drop in form factor.

The system manages the collection and storage of high accuracy acoustic box in data (ranges) with tightly coupled high accuracy GNSS and heading, pitch, roll data.

In addition, the system also enables wireless data harvesting operations to be conducted.

The system is compatible with a wide range of Sonardyne 6th generation (6G[®]) instruments, including Compatt 6, Autonomous Monitoring Transponder (AMT), FETCH and Pressure Inverted Echo Sounder (PIES).

The data harvesting functionality enables the autonomous platform to acoustically collect data from seabed instruments in a highly cost-effective manner without the need to deploy an expensive surface ship. The autonomous vessel is controlled remotely from a shore station via Iridium satellite communications.

The unit is capable to be used with remote directional transducer options for operating in both Medium Frequency (MF) (20–34 kHz) and Lower Medium Frequency (LMF) (14–19 kHz) bands to suit different seabed instruments and is fully compatible with Sonardyne Wideband^{®2}.

The system is tightly integrated into the vehicle communications and power systems thereby providing many of the standard acoustic commands and features associated with Sonardyne 6G products.

For data harvesting applications near real-time data is provided by the Iridium satellite communications.

The drop in OEM form factor is designed to drop into the latest Wave Gliders for a plug and play experience.

Typical applications

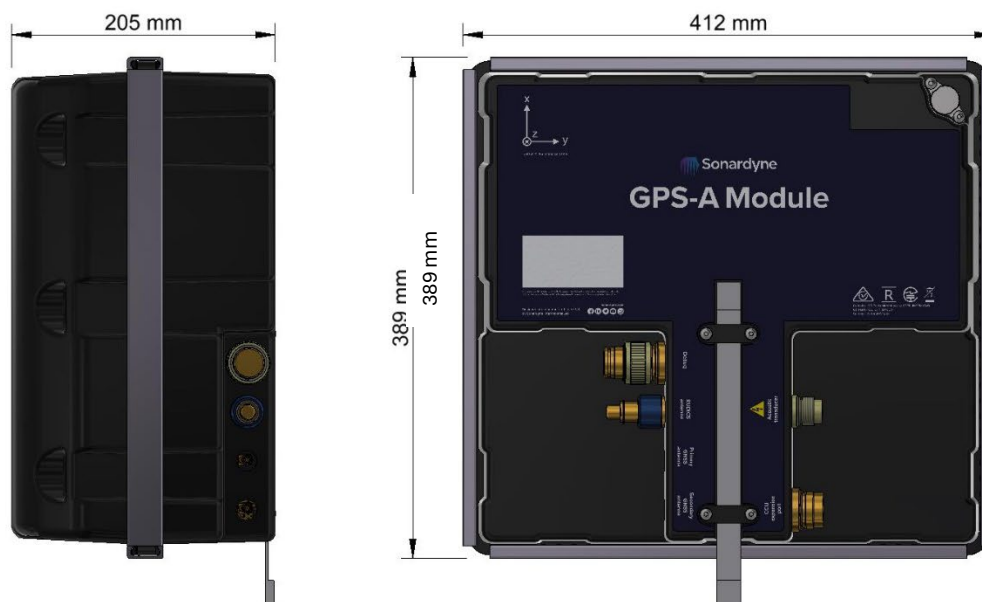
- Precise GNSS/acoustic positioning of seafloor references for determination of tectonic plate movement
- Remote/wireless data harvesting from large arrays of AMT, FETCH and PIES instruments
- Surface gateway for deep ocean tsunami warning systems
- Collection of pressure and temperature gauge data from Sonardyne acoustic data loggers

Key features

- Provides an intelligent managed acoustic link to Sonardyne subsea instruments
- Enables direct remote data collection, monitoring and control from a shore-based operations centre
- Fully compatible with Sonardyne Wideband 2 and 6G
- Tightly integrated with Wave Glider management system
- Integrated acoustic modem with data rates from 100 to 9,000 bps
- Integrated dual antenna GNSS receiver. Integrated compass and attitude sensors
- MF and LMF directional transducer options
- Integrated Wi-Fi link for local test, configuration & data offload

Specifications

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Feature		Type 8297-010-04
Operating frequency ¹		MF (20–34 kHz)
Transducer beam shape		Directional
Transmit source level (dB re 1 μPa @ 1 m)		190–202 dB (4 levels)
Tone equivalent energy (TEE) ²		196–208 dB
Receive sensitivity (dB re 1 μPa)		90–120 dB (7 levels)
Acoustic modem data rates		100–9,000 bps (6 levels)
Dimensions (length x width x height)		412 x 389 x 205 mm (standard Liquid Robotics 3 MPU)
Weight in air/water ³		10.4/-15 kg
Operating temperature		-10 to 45°C
Storage temperature		-20 to 55°C
Internal backup battery for acoustic modem		Rechargeable Li-ion (2.2 Ah)
Satellite communications		Iridium RUDICS (2,400 bps)
GNSS receiver		Survey grade L1 & L2 receiver: Novatel OEM7720 series (GNSS derived heading)
AHRS device		XSENS MTi-300 and/or EPSON G320 SPAN INS
Ranging clock		GPS derived 4 MHz pulse conditioned to 8 MHz
Communication and logging	Communications	Wi-Fi, RS232 transceiver, RJ45 Ethernet, dedicated power and comms for GNSS and HRP, single RS232 expansion port with 5 V power pass through
	Internal logging	128 GB dual redundant internal memory RINEX GNSS logging SPAN INS logging
System components		GPS-A Module Wave Glider Payload 4 m Remote Transducer Wave Glider Transducer Compatible Skeg

¹ For LMF option, please contact Sonardyne.

² WBv2+ signals are 4x the duration (WBv1 & WBv2 are twice) of Sonardyne tone signals, therefore the TEE figure is to give the user an idea of the operational performance when comparing Wideband and Tone systems.

³ Estimated weights.