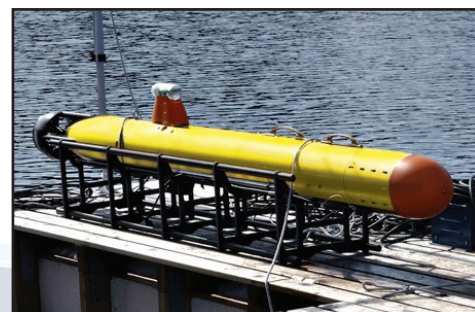


Sonar Training Target

Gavia AUV Module

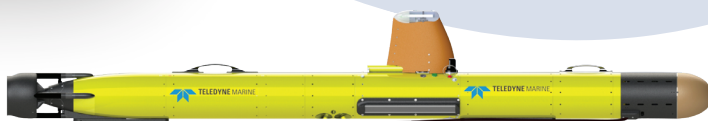
Flexible Solutions for ASW Training

The Sonar Transponder Module (STM), is a module for receiving and retransmitting sonar signals which allows for a standard Gavia vehicle to be configured as a Sonar Training Target (STT) for ASW training purposes. The STM consist of a flooded transducer compartment, an electronic compartment and a hydrophone that is towed behind the Gavia AUV and is capable of simulating preprogrammed target characteristics. The STM is programmable to emulate different type of realistic submarine target sizes and speeds for cost effective and re-usable ASW training capability.



Assembled Gavia Vehicle in Sonar Training Target configuration

STM Module



Gavia Vehicle in Sonar Training Target configuration with hydrophone cable deployed

PRODUCT FEATURES

- The Sonar Transponder Module (STM), simulates the echo responses and acoustic signatures of a range of underwater targets
- Control of the STM is fully integrated into the Gavia user interface and mission planning.

Benefits

- Cost effective, reusable solution for ASW training
- Man portable and rapidly deployed
- Can be operated from standard Gavia vehicles configured for other tasks when not conducting ASW training
- Wide array of additional sensors available for Gavia AUVs



TELEDYNE MARINE
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Sonar Training Target

Autonomous Underwater Vehicles

TECHNICAL SPECIFICATIONS

	STM MODULE (from Scanmatic SA, Norway)
Length	698 mm
Weight	10 kg
	STM SPECIFICATIONS
Frequency Range	5 - 50 kHz
Noise Transmit	3 - 20 kHz
Programmable Target Size	
Programmable Doppler	
	STT CONFIGURED GAVIA SYSTEM WITH DVL INS AND STM MODULE
Length (w DVL INS)	Utilizing 1 battery, 2932mm
Weight in Air	74kg with single battery
Battery Module Diameter	200mm
Depth Rating	500m or 1000m
Battery Module	1.5 kWh lithium ion rechargeable cells per module
Max Speed	> 5.5 knots
	Dependent on speed and exact configuration
Endurance	Typically 6 - 7 hours per rechargeable battery module. Vehicle can be operated with two batteries for increased endurance (roughly doubled) or batteries can be field swapped for continuous operations.
	COMMUNICATION
Wireless LAN	IEEE 802.11g compliant
Satellite Communications	Full global coverage via Iridium link
Acoustic Modem	For tracking and status updates

Navigation

DVL aided Inertial Navigation System (INS) – Teledyne RDI DVL and INS from iXBlue (Compact PHINS C3 or C5) or Kearfott Guidance and Navigation (T16 or T24)

Operation

The following operational modes are supported by the STM.

Echo repeat mode

The Sonar Training Target (STT) will for the sonar sensor look as a submarine traveling with the speed of the platform and with a maximum target strength of 20 dB, which is a typical medium size submarine.

Store repeat

When a sonar ping is detected by the STM, a pre-recorded echo is repeated. This mode gives the facility of full output power with no "sing around" problems, and a target strength of up to 40 dB can be achieved.

Target highlights

The echo can be manipulated the same way as a target with finite dimensions will do. Different targets can be defined and stored in a file with different aspect angle. When the platform is programmed to turn into a new leg of its sailing mission, an echo structure representing a different aspect angle of the target can be commanded to the STM.

Passive mode

The STM can output pre-stored pulses or pre-stored noise signals continuously or with intervals, and with varying level - either increasing or decreasing. This can be used for identifying a target among other targets, for simulating a torpedo attack or for warning surface ships when surfacing

Control

- Acoustic commands over an underwater telephone system (UWT/UQC)
- Over the horizon communications through Iridium

Gavia AUV Modularity

The modular construction of the Gavia AUV allows the user to conduct a variety of missions with field-changeable modules. Additional Gavia AUV modules can be purchased at later dates to increase capability as mission requirements dictate.



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