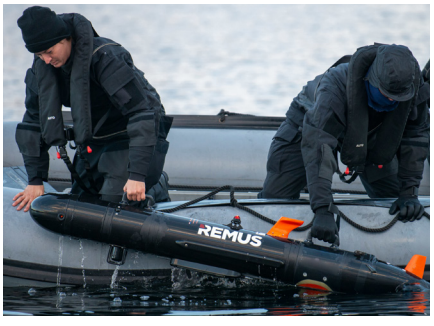
REMUS 100M

Unmanned Underwater Vehicle

MINE COUNTERMEASURES VARIANT

The REMUS 100M mine countermeasures variant is a small class, two-man portable unmanned underwater vehicle (UUV) that can be rapidly deployed to hazardous areas to collect data in support of defense missions.

The open architecture and modularity of the REMUS Technology Platform facilitates increased capabilities, interoperability and applications while decreasing risk and cost.



Dutch Navy REMUS Team recovers the Autonomous Underwater Vehicle during Trident Juncture 18.
NATO Photo By WO FRAN C.Valverde

Key Features

- Two-man portable, small-class UUV
- 100-meter depth rated
- Up to 10-hour mission duration
- Speeds up to 4.5 knots
- Open architecture
- Low logistics
- Rapidly deployable from any vessel of opportunity

Royal Canadian Navy members train with a Royal Netherlands Navy autonomous underwater vehicle team during the Rim of the Pacific (RIMPAC) exercise.
Canadian Armed Forces image/Released

Mine Countermeasures (MCM)

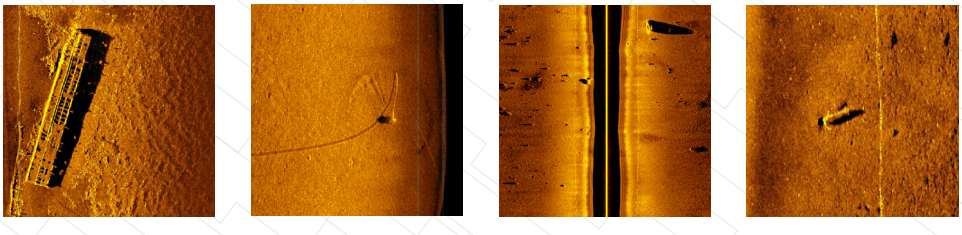
The REMUS 100 is used by expeditionary warfare forces worldwide to conduct shallow-water MCM and port and harbor clearance. Using side scan sonar, the REMUS 100 surveys large areas autonomously which allows operators to review the data away from the mine field to identify and classify mine-like objects.

Search and Recovery (SAR)

REMUS 100 UUVs are rapidly deployable from any vessel of opportunity and provide large area coverage on a single mission, making them ideal for SAR operations. Side scan sonar and precision navigation provide highly accurate data to locate targets, including downed aircraft and sunken ships.

Rapid Environmental Assessment (REA)

REMUS 100 UUVs can be used for REA, evaluating ocean bottom type and obstacles to clear Q routes and landing zones. Side scan sonar facilitates characterization of the physical environment to increase mission effectiveness, reduce risk and improve efficiency for follow-on missions.



Other Applications

Given the stability and versatility of the REMUS 100M, there are numerous applications possible. Other common applications include:

- Intelligence, Surveillance and Reconnaissance (ISR)
- Marine Geology
- Marine Archaeology

In 2003, the REMUS 100 was the first combat-deployed UUV in history during Operation Iraqi Freedom.

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REMUS 100M Unmanned Underwater Vehicle

Specifications

Standard Specifications, Sensors and Payloads	
Depth Rating	100m (328 ft.)
Diameter	19cm (7.5 in.)
Length	1.85m (73 in.)
Weight	38.6kg (85 lb.)
Speed	0-4.5 knots (0-2.3 m/s)
*Estimated Endurance**	10 hours
Energy Storage	1.5 kWh rechargeable lithium-ion battery
Recharge Time in Vehicle	6 hours
*Maximum Range**	67km (36nm)
Propulsion and Control	Direct drive DC brushless motor, open 3-blade propeller; Cruciform fin control (yaw and pitch)
Communications	WHOI micromodem 2.0 high frequency (20-30 kHz) acoustic communications; 2.4 GHz WiFi; Iridium (optional)
Antenna	GPS, WiFi, Iridium, LED status lights, visible and infrared (IR) recovery locating strobe
Navigation	iXblue Phins C3 Inertial Navigation System (INS); Garmin commercial GPS; Long Baseline (LBL); DVL-aided dead reckoning
Doppler Velocity Log (DVL)	Teledyne 300 kHz phased array DVL with 200m bottom lock
Side Scan Sonar	Marine Sonics (MSTL) MK II Arc Scout 900/1800 kHz dual frequency; Resolution up to 5cm; Swath up to 160m
Other Sensors	YSI conductivity and temperature (CT) sensor; TE Connectivity depth sensor
Hard Drive	1 TB solid state hard drive
Warranty	Standard 1 year warranty; Warranty options available
Software	Vehicle Interface Program (VIP) for mission programming and post-mission analysis
External Connections	100 Megabit ethernet; Vehicle power/charging (110/220V)
Tracking	Ranger & VIP software via towfish communications; Mission monitoring; Re-direct, loiter and abort commands
Safety Features	Ground fault detection; Leak detection; Health status
Operations	Capable of operating multiple REMUS vehicles simultaneously
Auxiliary Equipment	Ranger and towfish; Ruggedized laptop; Hub box; Pelican transit case; Vehicle maintenance cradle; Operations and maintenance spares
Optional Payloads, Equipment and Software	
Camera	Voyis 4K HD stills camera module with high intensity LED light-bar
Iridium Communications	Iridium capable with encrypted Iridium dial-up and SMS modem; Customer must provide SIM card
Safety Features	RJE International emergency locator beacon
Software	SeeByte SeeTrack and Neptune; Reflection Post-Mission Analysis
Auxiliary Equipment	LBL transponders; Surface communications station

**At 3.0 knots (1.5 m/s) with standard sensors active*

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