

DOPPLER VELOCITY LOG (DVL)

BY WATERLINKED

The **Waterlinked Doppler Velocity Log (DVL)** is a specialized acoustic navigation instrument designed to function as a high-precision speedometer for Oceanbotics SRV-8 Series ROVs.

How It Works

The Doppler Velocity Log (DVL) uses an array of three acoustic transducers to calculate velocity. It measures the change in frequency between the sound pulse sent out and the echo that bounces back from the seafloor or particles in the water. This shift allows the system to determine exactly how fast the vehicle is moving.

The DVL provides **three additional functions** that offer more situational awareness, stability in current, and increased precision:

- **Altitude Lock:** Locks the distance from the bottom
- **Position Lock:** Keeps the vehicle stationary
- **Step Controls:** Makes precise movements

Available Models

- A50
- A100
- A125
- A250

Seamless Integration & Versatile Mounting

- The DVL is a **plug-and-play accessory**. Connect it to your ROV via a serial port and configure the IP address in your network settings for instant hardware recognition.
- The compact DVL can be mounted anywhere on the underside of your ROV, allowing you to optimize space based on your existing payload and accessories.



Core Capabilities

- **Autonomous Station-Keeping:** Automatically maintains a fixed geographic position by compensating for water currents, eliminating the need for constant manual corrections.
- **Dual-Reference Velocity:** Simultaneously measures velocity relative to the seabed and the water column, ensuring reliability in various depths and conditions.
- **Active Thruster Feedback:** Provides high-frequency, real-time velocity data directly to the vehicle, allowing the thrusters to make instantaneous adjustments for stability.
- **Drift Counteraction:** Prevents unintended movement by maintaining a persistent "bottom lock," even in dynamic or challenging underwater environments.

Model	A50	A100	A125	A250
Depth Rating (m)	600	1000	3000	4000
Min Altitude (m)	0.05	0.05	0.05	0.3
Max Altitude (m)	50	100	125	250
Diameter (mm)	66	90	125	149
Height (mm)	25	34	30	40
Weight in air (kg)	0.17	0.2	0.98	1.65
Weight in water (kg)	0.1	0.125	0.5	0.75



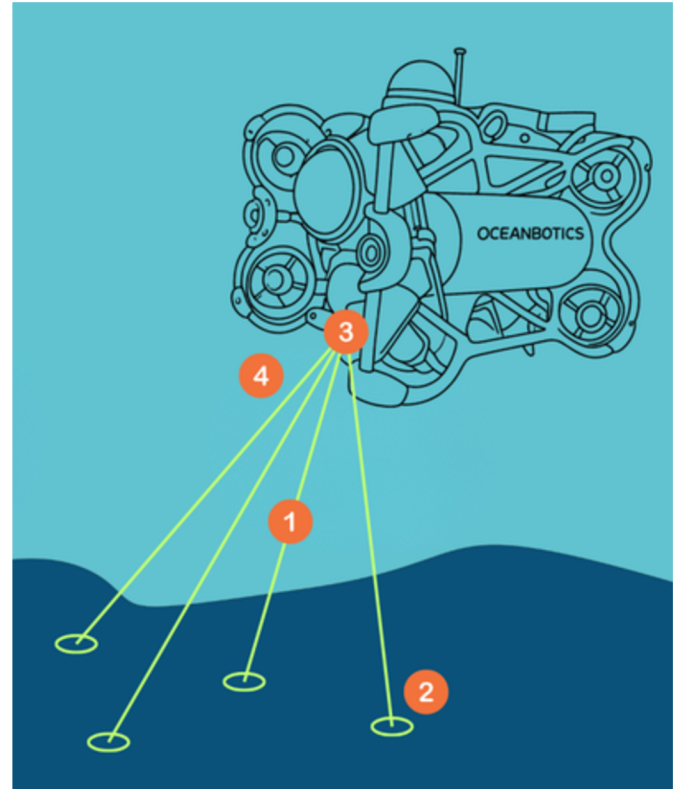
Additional Accessory Add-ons
For a complete list of compatible ROV accessory add-ons, scan the QR code or visit oceanbotics.com/accessories

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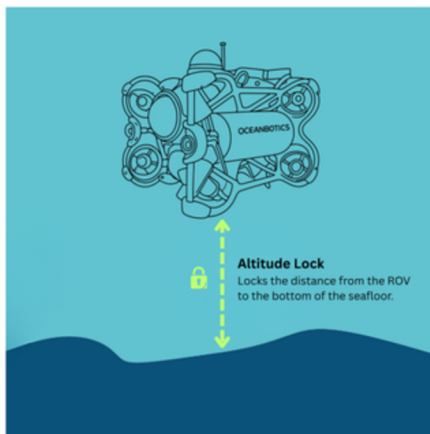
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How the DVL Operates: 4-Step Process

1. DVL sends out four sound beams (pings) toward the ground below.
2. As those sound waves bounce off the seafloor, the DVL instantly “listens” and catches the returning echoes.
3. The onboard computer quickly crunches the data in three ways:
 - **Speed:** It measures how the frequency of the echo changed to calculate exactly how fast the ROV is moving (The Doppler Effect).
 - **Distance:** It times how long the sound took to make the round trip to determine how far the ROV is from the bottom (Altitude).
 - **Orientation:** It combines this data with the IMU (which acts like a 3D compass and level) to track which way the ROV is tilted and facing.
4. By blending this information, the system gives the pilot a real-time, steady readout of the ROV’s exact speed and position, allowing for smooth, hands-off hovering.

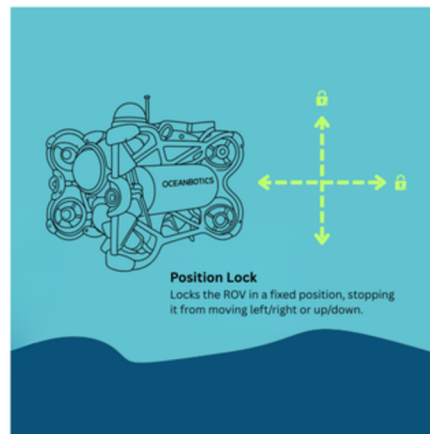


Three Core Functions of DVL



Altitude Lock

Locks the distance from the ROV to the bottom of the seafloor.



Position Lock

Locks the ROV in a fixed position, stopping it from moving left/right or up/down.



Step Controls

High-precision, incremental movements while in **Position Lock**, allowing for set distances in any direction.