

What is a DVL?

Teledyne RDI's Doppler Velocity Log (DVL) is a multi-function Commercial-Off-The-Shelf (COTS) acoustic sensor that provides highly accurate velocity information. In addition to providing speed over ground and speed through water, the instrument uses other sensors to provide position updates for both subsea and surface platforms. The DVL provides information by collecting, compiling, and processing a full suite of data parameters which include:

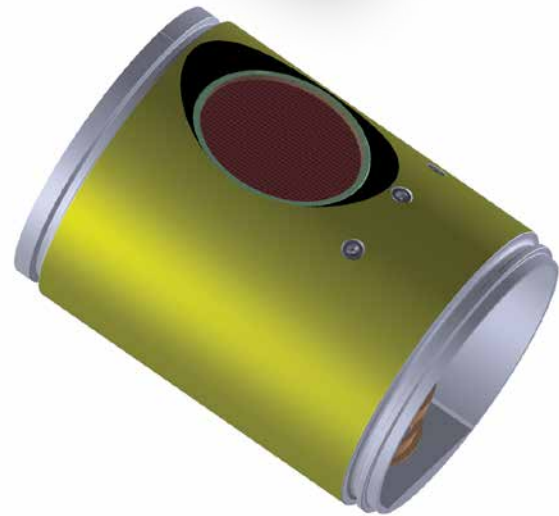
- Velocity
- Depth
- Pitch and Roll
- Altitude
- Heading
- Temperature

The DVL can be used as a stand-alone navigation system or incorporated into an existing marine navigation system to significantly enhance system performance.

Where is it used?

Teledyne RDI's DVLs are ideally suited for a wide variety of scientific, military, and commercial applications. Typical DVL platforms include:

- Autonomous Underwater Vehicles (AUV)
- Remotely Operated Vehicles (ROV)
- Towed Systems
- Surface Ships
- Unmanned Surface Vehicles (USV)
- Submarines
- Autonomous Surface Vehicles (ASV)
- Competition Sailboats



What sets our DVL apart?

Experience:

Backed by years of proven and published performance, Teledyne RDI's DVLs are the industry standard for Doppler aided navigation around the globe. Our DVLs are trusted on the world's commercial and military AUVs more than any other brand. Only Teledyne RDI has the critical combination of technology, experience, and support required for your precision navigation needs.

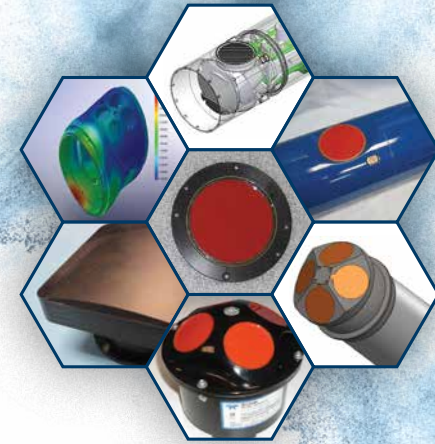
Technology:

- Broadband Doppler Processing
- Highly Accurate, Precise and Reliable Data
- Patented Phased Array Configurations
- Built-in Redundancy
- Bottom Tracking
- Built-in Data Quality Control
- System Health Monitoring

Service:

- Research and Development
- Custom Engineering
- Systems Integration
- Data Analysis Support
- Free Online Training
- Field Support
- 24/7 Customer Service
- On-site Training

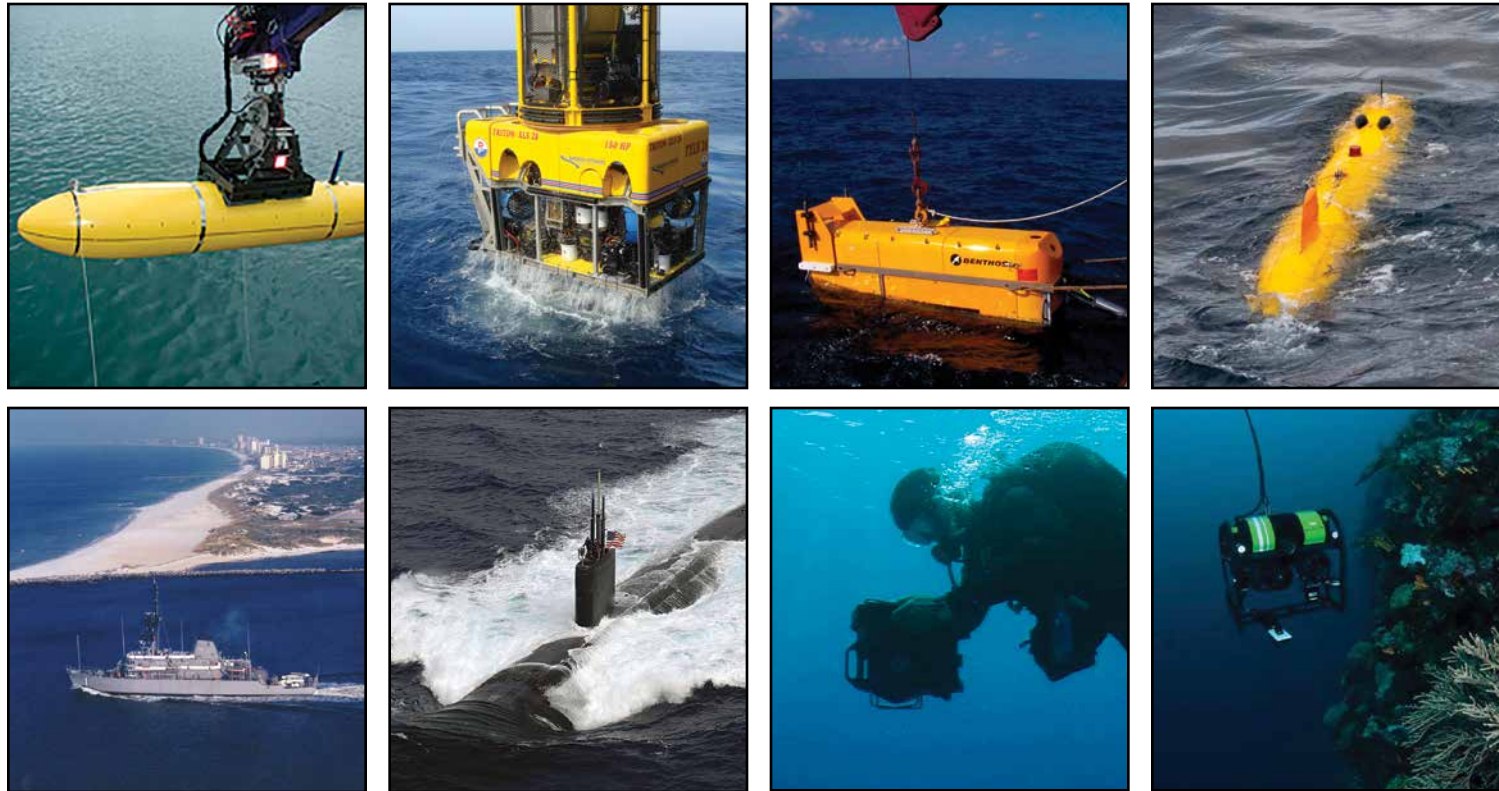
Vehicles come in all shapes and sizes. So should your DVL.



Your vehicle is unique.

That's why, in addition to our full line of standard Doppler Velocity Logs, Teledyne RD Instruments has designed hundreds of custom DVL solutions in partnership with vehicle manufacturers around the globe.

Whether you require a one-off custom DVL or multiple DVLs built to your unique specifications, only Teledyne RD Instruments has the long standing experience, talent, and technology you need to deliver your unique navigation solution.



For 40 years, Teledyne RD Instruments has been the industry's leading supplier of Acoustic Doppler Current Profilers (ADCPs) for oceanographic and inland waterway applications. Teledyne RDI's Navigation business unit offers precision acoustic Doppler navigation products for the marine environment. Teledyne RDI's sister companies provide complementary products for imaging sonars, remotely operated vehicles, autonomous surface vehicles, and more, offering our customers one-stop shopping.



TELEDYNE MARINE
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Everywhereyoulook™

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Specifications subject to change without notice.
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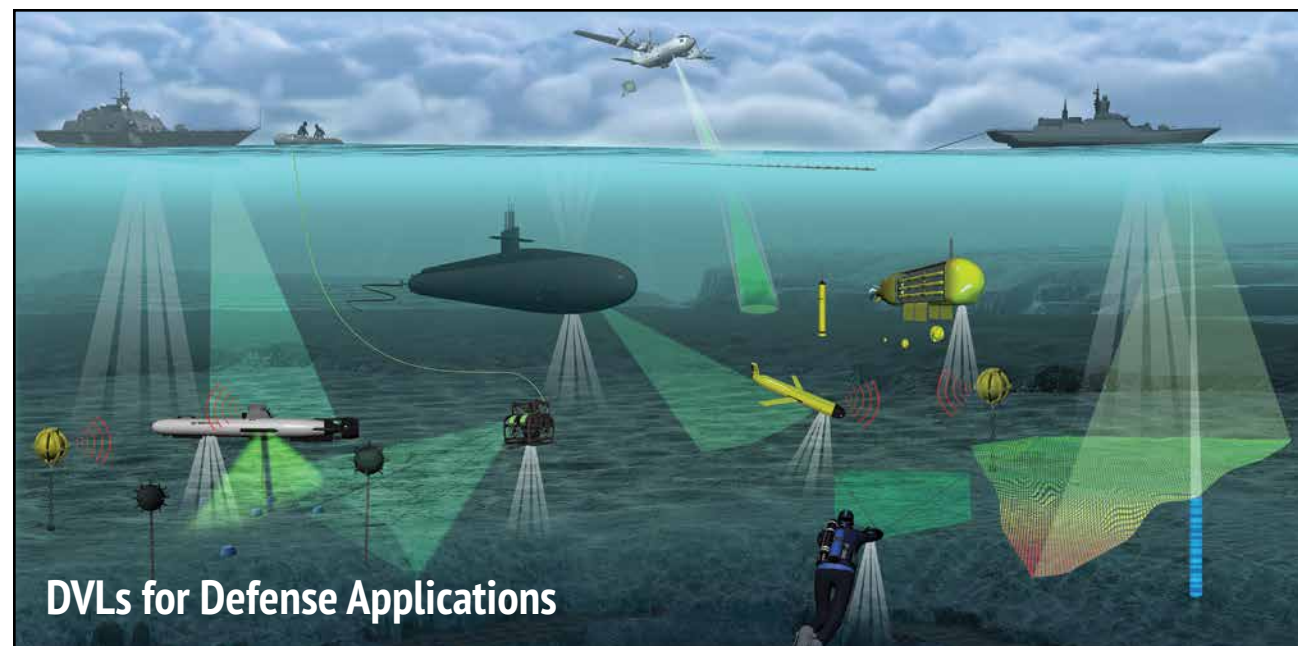
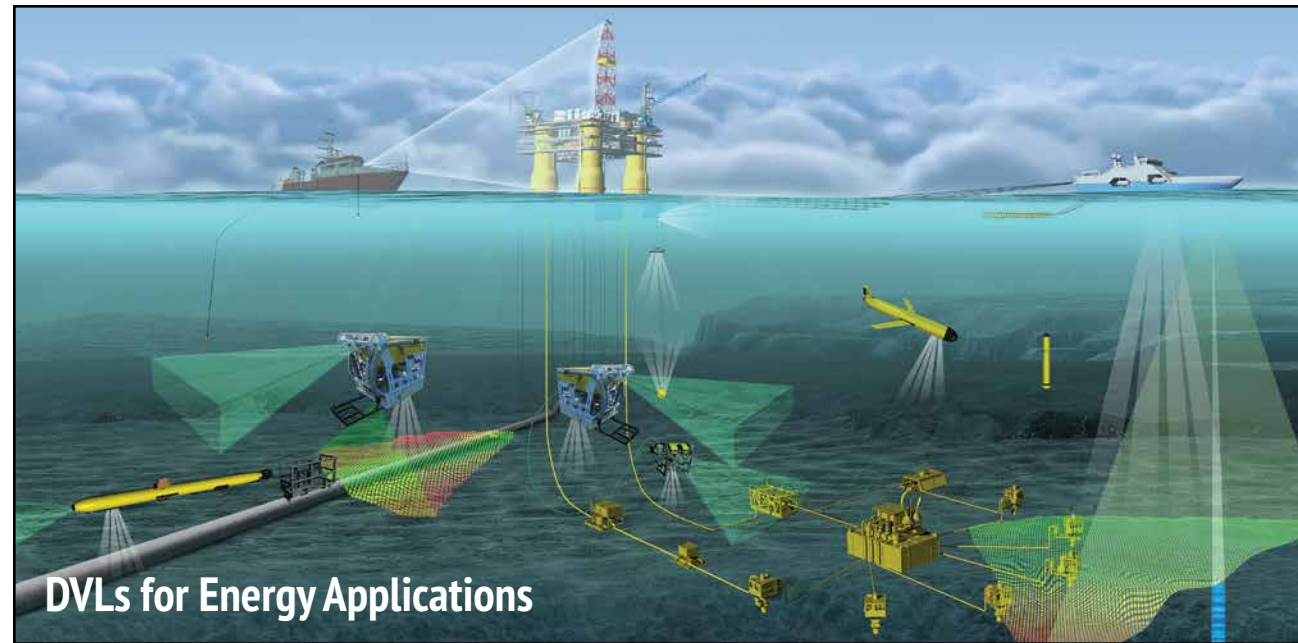
Navigation

Doppler Velocity Logs



TELEDYNE MARINE
RD INSTRUMENTS
Everywhereyoulook™

How and where is a DVL used?



Autonomous Underwater Vehicles
Teledyne RDI's DVL is ideally suited to provide navigation onboard Autonomous Underwater Vehicles (AUVs). The unit's compact size and low power requirements, combined with its versatile, proven technology make it the undeniable tool of choice for AUV designers and manufacturers around the world.

Remotely Operated Vehicles
Hundreds of DVLs are currently in use on board ROVs to monitor vehicle motion and speed. DVLs can also be used to enhance current industry-standard automatic control modes (heading, depth) to include station-keeping. This works in the same manner as a vessel DP system, providing true ROV dynamic positioning capability, allowing an operator to automatically control vehicle motion and position.

Towed Vehicles
Our DVLs provide enhanced platform navigation and survey/vehicle positioning on board towed platforms, including side scan sonars, deep tow systems, magnetometers, mine sweeping instrumentation, synthetic aperture systems, etc.

Manned Submersibles
Custom and standard Teledyne RDI DVLs are installed on a wide variety of military and scientific manned submersibles, including submarines and swimmer delivery vehicles, to provide inertial system aiding, precision positioning, and speed log capability.

Surface Vessels
Teledyne RDI's DVLs are installed on a wide array of commercial and scientific research vessels to aid in navigation in case of GPS outages and signal shading under bridges, in tunnels, and around structures, which can lead to gaps in navigation data. The integration of DVL position data greatly improves this situation, providing high rate dead reckoning position information.

Diver Applications
Teledyne RDI's leading-edge Doppler velocity technology can be used to aid in diver navigation systems for improved performance and safety.

Pick your DVL solution...a simple 3-step process.

- Step 1: Select your **Application**
- Step 2: Select your **Product Specs**
- Step 3: Select **Optional Features**



	Wayfinder	Pathfinder		Tasman		Pioneer	
Application		600 kHz	300 kHz	600 kHz	300 kHz	150 kHz	38 kHz
AUV—Large Diameter (7" min. ID)		●	●	●	●	●	
AUV—Small Diameter (4" min. ID)	●	●					
ROV—Work Class			●	●	●	●	
ROV—Inspection Class	●	●	●	●	●		
Towed Vehicle (TOW)		●	●	●	●		
Manned Submersible/LDUUV/XLUUV		●	●	●	●		
Surface Vessel		●	●	●	●	●	
Diver Navigation & Mapping—OEM	●	●					●

Product Specifications

Transducer	Phased Array 30° Beam	Phased Array 30° Beam	Removable Phased Array 30° Beam	Removable Phased Array 30° Beam	Removable Phased Array 30° Beam	Phased Array 30° Beam	Oil-filled Phased Array 30° Beam
Beam Configuration	4-Beam Janus Config.	4-Beam Janus Config.	4-Beam Janus Config.	4-Beam Janus Config.	4-Beam Janus Config.	4-Beam Janus Configuration	4-Beam Janus Configuration
Frequency (kHz)	614.4	614.4	307.2	614.4	307.2	153.6	38.4
Long Term Accuracy (ECCN 6A001)	±1.15% ±0.1 cm/s	±0.06% ±0.1 cm/s (<4 m altitude) ±0.2% ±0.1 cm/s (>4 m altitude)	±0.08% ±0.1 cm/s (<8 m altitude) ±0.3% ±0.1 cm/s (>8 m altitude)	±0.06% ±0.1 cm/s (<4 m altitude) ±0.2% ±0.1 cm/s (>4 m altitude)	±0.08% ±0.1 cm/s (<8 m altitude) ±0.3% ±0.1 cm/s (>8 m altitude)	±0.6% ±0.2 cm/s	±1.0% ±0.5 cm/s
Long Term Accuracy (ECCN 6A991)	±1.15% ±0.1 cm/s	±1.15% ±0.1 cm/s	±1.15% ±0.1 cm/s	±1.15% ±0.1 cm/s	±1.15% ±0.1 cm/s	±1.15% ±0.2 cm/s	±1.15% ±0.5 cm/s
Bottom Track Range (m)	0.5 - 60	0.15 - 89 (optional 140 with XRT)	0.3 to 275 (up to 500 with XRT)	0.15 to 100 (optional 160 with XRT)	0.3 to 275 (up to 500 with XRT)	3-500 (optional 800 with XRT)	12 - 2500
Current Profile Range (m)	N/A	1.9 - 45	4.5 - 150	1.9 - 60	4.5 - 150	8 - 275	22 - 1100
Operational Depth Rating (m)	200	SC: 300, 500; OEM: 300, 1,000, 6,000	1,000	6,000	6,000	1,000/6,000	1,000
Input Voltage Range (VDC)	11.4 - 36.7	10.7 - 36	10.7 - 36	10.7 - 36	10.7 - 36	24 - 48	24 - 48
Average Power (VDC)	3 W	2.6 W (3.4 W w/Ethernet)	12.5 W	6.3 W	12.5 W	35 W	95 W
Weight in Air (kg)	.85	1.15/1.9 (OEM/SC)	3.44	8.7	8.7	46	354
Weight in Water (kg)	.51	0.7		4.4	4.4	32	282
Communication	RS-232, 115200 or 9600 Baud Rate	Ethernet/Serial RS232 (opt. RS422)	Ethernet/Serial RS232 (opt. RS422)	Ethernet/Serial RS232 (opt. RS422)	Ethernet/Serial RS232 (opt. RS422)	Serial RS232 (optional RS422)	Serial RS232 (optional RS422)
Integrated Compass/AHRS			Optional SBG Ellipse2-A (AHRS)	Optional SBG Ellipse2-A (AHRS)	Optional SBG Ellipse2-A (AHRS)	Optional SBG Ellipse2-A (AHRS)	Custom Option
Integrated Pressure Sensor				600 Bar	600 Bar		
Low Altitude Bottom Track		Included	Included	Included	Included		
HEM (Health Monitoring)/Leak Sensor		Included	Included	Included	Included	Included	
Water Tracking		Included	Included	Included	Included	Included	Included

Optional Features

Current Profiling Option (CP)	●	●	●	●	●	●	●
Extended Range Tracking (XRT)	●	●	●	●	●	●	●