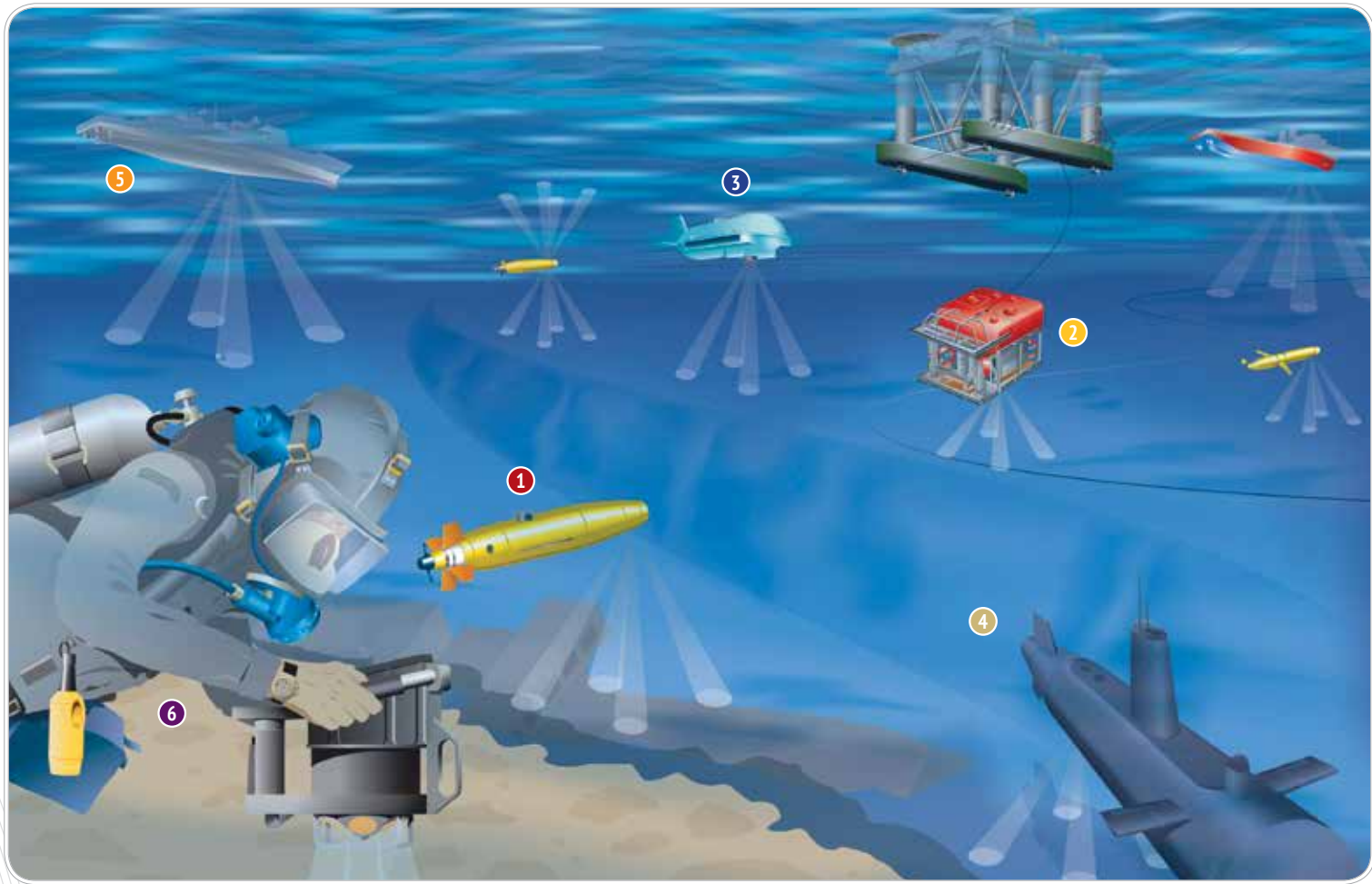


# How and where is an DVL used?



- Autonomous Underwater Vehicles**  
Teledyne RDI's DVL is ideally suited for installation on a wide array of Autonomous Underwater Vehicles (AUVs). The unit's compact size and low power requirements, combined with its versatile, proven technology make it the tool of choice for AUV designers and manufacturers around the world. In fact, you can find a Teledyne RDI DVL installed on virtually every commercial AUV designed to date.
- Remotely Operated Vehicles**  
Hundreds of DVLs are currently in use onboard ROVs to monitor vehicle motion and speed. The DVL can also be used to enhance the current industry standard automatic control modes (heading and depth) to include station-keeping. This works in the same manner as a vessel DP system, providing a true ROV dynamic positioning capability, allowing the operator to automatically control vehicle motion and position while focusing on other tasks.
- Towed Vehicles**  
Teledyne RDI's DVLs provide enhanced platform navigation and survey/vehicle positioning onboard towed platforms, including side scan sonars, deep tow systems, magnetometers, mine sweeping instrumentation, synthetic aperture systems, etc. The DVL is highly effective regardless of whether the system is being towed from a surface vessel or helicopter.

- Manned Submersibles**  
Custom and standard Teledyne RDI DVLs are installed on a variety of military and scientific manned submersibles to provide inertial system aiding, precision positioning, and speed log capability. DVLs can be found on Navy submarines and swimmer delivery vehicles, as well as the Woods Hole Oceanographic Institution's highly acclaimed Alvin vehicle.
- Surface Vessels**  
Teledyne RDI's DVLs are installed on a wide array of commercial and scientific research vessels. Surface vessel positioning is typically provided by Global Positioning Systems (GPS). However, GPS outages and signal shading under bridges, in tunnels, and around structures 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 has been applied to the diver navigation line of products.

# 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



Application	Explorer		Pioneer			Navigator			Custom Engineered Solutions					Diver Navigation
	Phased Array	Piston	38	150	300	300	600	1200	38	150	300	600	1200	Various Models
AUV—Large Diameter	•	•		•	•	•	•	•		•	•	•	•	
AUV—Small Diameter (less than 6")	•	•									•	•	•	
ROV—Work Class	•	•		•	•	•	•	•		•	•	•	•	
ROV—Inspection Class	•	•		•	•	•	•	•		•	•	•	•	
Towed Vehicle (TOW)	•	•		•	•	•	•	•		•	•	•	•	
Manned Submersible	•	•	•	•	•	•	•	•	•	•	•	•	•	
Surface Vessel	•	•	•	•	•	•	•	•	•	•	•	•	•	
Diver Navigation & Mapping—OEM	•	•			•						•	•	•	•
Diver Navigation & Mapping—Turnkey														•

Product Specifications	Phased Array 30° Beam	Piston Array 30° Beam	Oil-filled Phased Array 30° Beam	Phased Array 30° Beam		Piston Array 30° Beam			Oil-filled Phased Array 30° Beam	Phased Array 30° Beam	Piston or Phased Array 30° Beam	Piston or Phased Array 30° Beam	Piston Array 30° Beam	Phased & Piston Array 30° Beam
Transducer				Phased Array 30° Beam		Piston Array 30° Beam								
Beam Configuration	4-Beam Janus Configuration		4-Beam Janus Configuration			4-Beam Janus Configuration			4-Beam Janus Configuration					
Frequency (kHz)	614.4		38.4	153.6	307.2	307.2	614.4	1228.8	38.4	153.6	307.2	614.4	1228.8	614/1228
Long Term Accuracy (ECCN 6A001 License Controlled)	±0.3% ±0.2cm/s	±0.5% ±0.2cm/s	±1.0% ±0.2cm/s	±0.6% ±0.2cm/s	±0.4% ±0.2cm/s	±0.4% ±0.2cm/s	±0.3% ±0.2cm/s	±0.2% ±0.1cm/s	±1.0% ±0.2cm/s	±0.6% ±0.2cm/s		±0.2% ±0.1cm/s		100m CEP @6km
Long Term Accuracy (ECCN 6A991 Export License-Free)	±1.15% ±0.2cm/s		±1.0% ±0.2cm/s	±1.15% ±0.2cm/s		±1.15% ±0.2cm/s			±1.15% ±0.2cm/s					
Bottom Track Range (m)	(0.31) 0.5 - 81	(0.25) 0.5 - 66	12 - 2100	2 - 550	0.6 - 275	1 - 200	0.7 - 90	0.5 - 25	12 - 2500	2.8 - 580	1 - 275	0.7 - 90	0.5 - 30	0.25 - 30
Current Profile Range (m)	1.33 - 35	1.33 - 25	22 - 1100	12.2 - 275	4.5 - 150	1.9 - 110	1.2 - 50	0.8 - 15	12 - 1100	2.8 - 365	1 - 135	0.7 - 50	0.25 - 18	0.25 - 18
Operational Depth Rating (m)	300/1000	300/1000/4000	1000 (6000 Opt.)	1000m		3000/6000			Custom, up to 1000m		Custom, up to 6000m			90/100
Weight in Air (kg)	2.6 (Remote Head) 7.95 (Self-Contained)		364	17.8 (Inline) 23.5 (Right Angle)	Consult factory	15.8 / 20.1		12.4 / 18	Custom					12.7 / 18.1
Weight in Water (kg)	0.36 (Remote Head) 2.72 (Self-Contained)		282	6.0 (Inline) 8.3 (Right Angle)	Consult factory	8.8 / 13.6		6.1 / 12.1	Custom					0.9 / 0.23
Dimensions L x W x H (cm)	32.6 x 12.4 x 12.4 (Right Angle) 36.9 x 14.3 x 14.3 (Inline)		Xcdr 91.44 ø x 12.16 H Canister 20.32 ø x 53.02 H	42.55 x 20.32 ø	Consult factory	24.5 x 22.5 x 22.5		24.3 x 20.2 x 20.2	Custom					31 x 37 x 33 / 47 x 39 x 20
Communication	4 x RS232 / RS422		4 x RS232/RS422			RS232 / RS422			RS232 / RS422					RS232 & USB <sup>1</sup>
Integrated Compass	External		External			•	•	•	Option					

Optional Features	Phased Array 30° Beam	Piston Array 30° Beam	Oil-filled Phased Array 30° Beam	Phased Array 30° Beam		Piston Array 30° Beam			Oil-filled Phased Array 30° Beam	Phased Array 30° Beam	Piston or Phased Array 30° Beam	Piston or Phased Array 30° Beam	Piston Array 30° Beam	Phased & Piston Array 30° Beam
Enhanced Low Altitude Bottom Tracking (cm)	• (0.31m)	• (0.25m)											• (0.25m)	• (0.25m)
Current Profiling Option	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Integrated Pressure Sensor	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Auto Bathymetric Data Collection/Mapping	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ECCN 6A991 Compliant Firmware Version	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3rd Party Sensor Interfaces	•	•	•	•	•	•	•	•	•	•	•	•	•	•

<sup>1</sup> Wet mateable.

## 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:

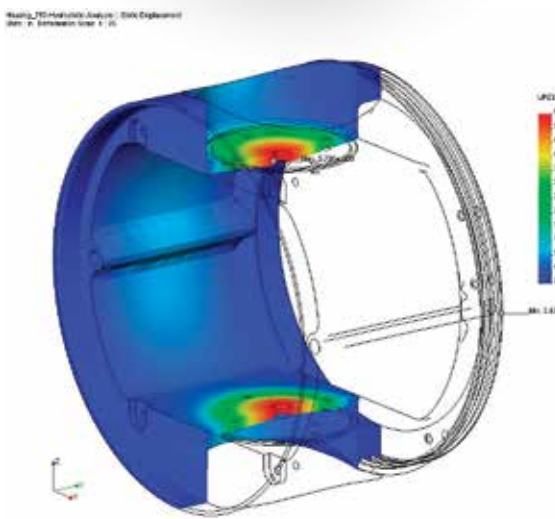
- Velocity
- Depth
- Pitch and Roll
- Altitude
- Heading
- Temperature

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
- Swimmer Delivery Systems
- Divers



## What sets our DVL apart?

### Technology:

- Broadband Doppler Processing
- Highly Accurate, Precise and Reliable Data
- 4-Beam Janus and Patented Phased Array Configurations
- Built-in Redundancy
- Bottom Tracking
- Built-in Data Quality Control
- Quieter, Faster Measurements for Real-time Navigation

### Service:

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



### Experience:

Teledyne RDI's DVLs are the industry standard for Doppler aided navigation around the globe. Our DVLs are operating on board over 95% of the world's commercial and military AUVs. Only Teledyne RDI has the critical combination of technology, experience, and support required for your precision navigation needs.



**Teledyne RD Instruments, Inc.** specializes in the design and manufacture of underwater acoustic Doppler products and oceanographic sensors for a wide array of commercial, academic, and defense applications. The company currently employs over 200 multi-disciplined scientists, engineers, technicians, sales, and support personnel, and resides in an 80,000 square-foot ISO-9001:2000 facility that includes state-of-the-art engineering, laboratory, manufacturing, and test areas. The company is comprised of three distinct business units, each focused on acoustic Doppler technology:

**Marine Measurements:** Acoustic Doppler current profiling, wave measurement, CTD, and Carbon Sensor products for coastal and deepwater oceanographic environments.

**Navigation:** Precision acoustic Doppler navigation products for the marine environment.

**Water Resources:** Acoustic Doppler discharge and flow-measurement products for inland environments.

Supporting three product lines is our **Engineering Services Group**, which provides resources and expertise in special programs and custom engineering. This allows Teledyne RD Instruments to assist our customers with their custom specifications and/or packaging.

### Our Commitment to you..

At Teledyne RD Instruments, we aspire to maintain leadership in our marketplace, enlisting customers as partners to work together in enduring relationships built on mutual trust and mutual benefit. From this foundation, we will continually evolve our products and services to meet our customers' needs.



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# Teledyne RD Instruments

Measuring Water in Motion and Motion in Water

## NAVIGATION Product Selection Guide

