

**1. 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.

**2. 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.

**3. 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.

**4. 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.

**5. 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.

**6. Diver Applications**

Teledyne RDI's leading edge Doppler velocity technology has been applied to the CobraTac and MapTac line of diver navigation and mapping systems.

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

**Step 1:** Select the product best suited to your **Application**

**Step 2:** Narrow your product selection by reviewing the **Product Specifications**

**Step 3:** Further narrow your selection by choosing additional **optional Features**



**Workhorse Navigator**  
Doppler Velocity Logs are the industry's first choice for precision navigation applications, providing accurate velocity and altitude updates for a wide variety of underwater tasks.



**Workhorse Voyager**  
Export-friendly Doppler Velocity Logs based on our proven Navigator technology. This 6A991 compliant alternative offers velocity and altitude data.



**Custom Workhorse Navigator**  
Teledyne RDI offers you the unique capability to customize your Doppler Velocity Logs to meet your requirements.



**Explorer PA**  
Doppler Velocity Logs offer a full spectrum of precision navigation solutions designed for your littoral to deep water endeavors.



**Explorer 6A991**  
Doppler Velocity Logs offer an export-friendly navigation solution for your littoral to deep water endeavors.



**Phased Array Velocity Sensor**  
PAVS 150 provides a 500m bottom-tracking capability for extended range deep water operations.



**CobraTac and MapTac**  
Navigation and survey platforms that operate without the need for acoustic baselines or floating-point buoys.

**Application**

|  |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AUV—Large Diameter                         | * | * | * | * | * | * | * | * | * | * | * | * | * |
| AUV—Small Diameter ( <i>less than 6"</i> ) |   |   |   | * | * | * | * | * | * | * | * | * | * |
| ROV—Work Class                             | * | * | * | * | * | * | * | * | * | * | * | * | * |
| ROV—Inspection Class                       | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Towed Vehicle (TOW)                        | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Manned Submersible                         | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Surface Vessel                             | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Diver Navigation & Mapping—OEM             |   |   |   |   |   |   | * | * | * | * | * | * | * |
| Diver Navigation & Mapping—Turnkey         |   |   |   |   |   |   |   |   |   |   |   | * | * |

**Product Specifications**

| Transducer                   | Janus Array 30° Beam |                    |                    | Janus Array 30° Beam |                    |                    | Janus Array 30° Beam |                |                | Phased Array 30° Beam | Janus Array 30° Beam  | Phased Array 30° Beam | Janus Array 30° Beam        |
|------------------------------|----------------------|--------------------|--------------------|----------------------|--------------------|--------------------|----------------------|----------------|----------------|-----------------------|-----------------------|-----------------------|-----------------------------|
|                              | 300                  | 600                | 1200               | 300                  | 600                | 1200               | 300                  | 600            | 1200           | 600                   | 600                   | 150                   | 1200                        |
| Frequency (kHz)              | 300                  | 600                | 1200               | 300                  | 600                | 1200               | 300                  | 600            | 1200           | 600                   | 600                   | 150                   | 1200                        |
| Long Term Accuracy           | ±0.4% ±0.2cm/s       | ±0.2% ±0.1cm/s     | ±0.2% ±0.1cm/s     | ±1.15% ±0.2cm/s      | ±1.15% ±0.1cm/s    | ±1.15% ±0.1cm/s    | ±0.4% ±0.2cm/s       | ±0.2% ±0.1cm/s | ±0.2% ±0.1cm/s | ±0.3% ±0.2cm/s        | ±1.15% ±0.2cm/s       | ±0.6% ±0.2cm/s        | —                           |
| Bottom Track Range (m)       | 1 - 200              | 0.7 - 90           | 0.5 - 30           | 1 - 200              | 0.7 - 90           | 0.5 - 30           | 1 - 200              | 0.7 - 90       | 0.5 - 30       | (0.31) 0.5 - 80       | (0.31) 0.5 - 65       | 2 - 500               | 0.25 - 30                   |
| Current Profile Range (m)    | 1 - 110              | 0.7 - 50           | 0.25 - 18          | 1 - 110              | 0.7 - 50           | 0.25 - 18          | 1 - 110              | 0.7 - 50       | 0.25 - 18      | 0.7 - 35              | 0.7 - 35              | 12.2 - 245            | 0.25 - 30                   |
| Operational Depth Rating (m) | 3000/6000            | 3000/6000          | 3000/6000          | 3000/6000            | 3000/6000          | 3000/6000          | 100 - 6000           | 100 - 6000     | 100 - 6000     | 300 / 1000            | 300 / 1000 / 4000     | 1000                  | 90 / 100                    |
| Weight in Air (kg)           | 15.8 / 20.1          | 15.8 / 20.1        | 12.4 / 18          | 15.8 / 20.1          | 15.8 / 20.1        | 12.4 / 18          | Custom               | Custom         | Custom         | 4.3 (self-contained)  | 17.5 (self-contained) | 17.8 / 23.5           | 12.7 / 18.1                 |
| Weight in Water (kg)         | 8.8 / 13.6           | 8.8 / 13.6         | 6.1 / 12.1         | 8.8 / 13.6           | 8.8 / 13.6         | 6.1 / 12.1         | Custom               | Custom         | Custom         | 0.8 (self-contained)  | 6.0 (self-contained)  | 6.0 / 8.3             | -0.9 / -0.23                |
| Dimensions L x W x H (cm)    | 24.5 x 22.5 x 22.5   | 24.5 x 22.5 x 22.5 | 24.3 x 20.2 x 20.2 | 24.5 x 22.5 x 22.5   | 24.5 x 22.5 x 22.5 | 24.3 x 20.2 x 20.2 | Custom               | Custom         | Custom         | 32.6 x 12.4 x 12.4    | 36.9 x 14.3 x 14.3    | 45.72 x 20.32 x 20.32 | 31 x 37 x 33 / 47 x 39 x 20 |
| Communication                | RS232/RS422          |                    |                    | RS232/RS422          |                    |                    | RS232/RS422          |                |                | RS232/RS422           | RS232/RS422           | RS232                 | Wet-mateable RS232          |
| Integrated Compass           | *                    |                    |                    | *                    |                    |                    | *                    |                |                |                       |                       |                       | *                           |

**Optional Features**

|  |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Enhanced Low Altitude Bottom Tracking (cm) |   |   | * |   |   | * |   |   | * | * | * | * | * |
| Current Profiling Option                   | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Integrated Pressure Sensor                 | * | * | * | * | * | * |   |   |   |   |   |   |   |
| Auto Bathymetric Data Collection/Mapping   |   |   |   |   |   |   |   |   |   |   |   |   | * |
| ECCN 6A991 Compliant Firmware Version      |   |   |   | * | * | * |   |   |   |   | * | * | * |
| 3rd Party Sensor Interfaces                |   |   |   |   |   |   |   |   |   | * | * | * | * |

# 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
- Altitude
- Depth
- Heading
- Pitch and Roll
- 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:

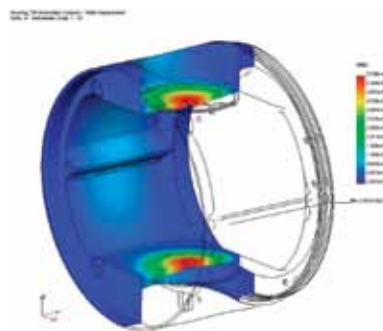
- Broadband Doppler Processing
- Highly Accurate, Precise and Reliable Data
- Patented 4-Beam Janus and Phased Array Configurations
- Built-in Redundancy
- Patented Bottom Tracking
- Built-in Data Quality Control
- Quieter, Faster Measurements for Real-time Navigation

### 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. (RDI)**, located in Poway, California, specializes in the design and manufacture of underwater acoustic sonar products for underwater navigation, imaging, diving, current profiling, and waves measurement applications.

For nearly three decades, Teledyne RDI has been providing the industry with leading-edge acoustic Doppler solutions for commercial, scientific and military marine applications. There are currently thousands of Teledyne RDI products operating around the globe in environments ranging from the shallowest stream to the deepest ocean, measuring water in motion and motion in water. Originally founded in 1982 as RD Instruments, the company has remained dominant in its field by providing an unwavering commitment to new product development, superior data quality, and the highest level of service and support. In August 2005, RDI was purchased by Teledyne Technologies, and now operates as a wholly owned indirect subsidiary of Teledyne Technologies, Inc.

Through market growth and product diversification, Teledyne RDI is comprised of three distinct business units:



**Navigation:** Precision navigation, imaging, and diver products for the marine environment.



**Marine Measurements:** Acoustic Doppler current profiling, wave measurement, and Conductivity, Temperature and Depth (CTD) products for coastal and deep water oceanographic environments.



**Water Resources:** Discharge and flow-measurement products for inland environments.

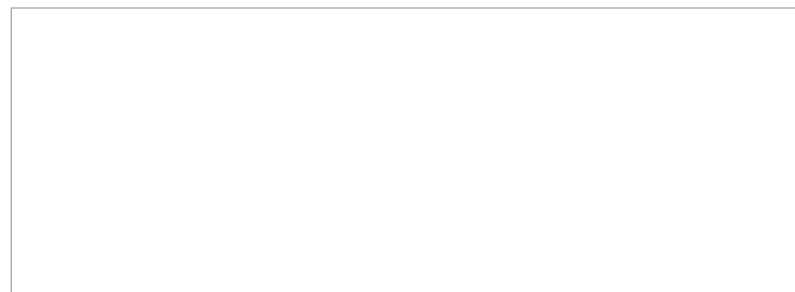
### Core Competencies

Through the years, Teledyne RDI has continuously enhanced and refined its core competencies in the following areas:

Research & Development • Sonar Systems Design • Transducer Design • Signal Processing • Low-Power Electronics Design • Systems Engineering • Product Development • Full Scale Production • OEM Manufacturing • Build to Print Contracting • Technical Sales & Marketing • After Sale Service & Support

### 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.



**TELEDYNE RD INSTRUMENTS**  
A Teledyne Technologies Company

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