Tasman DVL

600 kHz / 300 kHz Phased-Array DVLs

Tasman's phased-array transducer is field-replaceable.

For those serious about data quality, Teledyne RDI's **Tasman DVL** represents the latest generation of DVL technology, promising the highest-performance navigation and positioning for industry's most important applications. Since its introduction in 2019, the Tasman DVL has replaced the Workhorse Navigator as the gold standard for subsea navigation around the globe. With its wide array of advanced features, like the acoustic phased array, extended range, and TRDI's trusted broadband signal processing, the Tasman DVL provides users with highly-reliable, precision navigation and position data, even over challenging terrain. Incorporating robust water tracking and current profiling capability, the Tasman DVL is uniquely qualified to deliver on high expectations both scientific and operational.

With bottom tracking ranges from 0.15 m up to 500 m, in up to 6,000 m water depths, the Tasman delivers a solid, value-priced solution for vehicles ranging from small ROVs to large diameter AUVs, from USVs to crewed surface ships.

PRODUCT FEATURES

- **Innovative phased-array transducer design:**
  - Field-replaceable transducers for efficient, economical contingency planning and peace of mind
  - Robust, hydrostatic/hermetic design; isolated from electronics
  - Eliminates the need for speed of sound correction
  - Enhanced position accuracy at a reduced size and weight
  - Reduces drag on the vehicle
- **Unmatched Bottom Tracking Range:** Our patented technology XRT allows you to bottom track up to 160 m altitude with the 600 kHz DVL and up to 500 m with the 300 kHz DVL, delivering the high accuracy that Teledyne RDI is best known for.
- **Water tracking standard with all systems:** Extends operability by enabling navigation in open water even when bottom is out of range, enabling vehicle operation in a wider variety of environments and jobs. Position drift is minimized as vehicles descend and ascend, enabling improved positional accuracy upon bottom lock.
- **Health Monitor:** Provides insight and alerts in near real-time of potential problems including:
  - Change in transducer voltage, current, and impedance
  - Number of pressure cycles and Maximum pressure
  - Operating time for quality tracking purposes
  - Leak detection from possible damage.
- **Real-time standard deviation and time of validity output** for highly accurate coupling with an Inertial Navigation System (INS) further improves your resulting DVL aided INS position accuracy.
- **Designed as a drop-in replacement** for previous generation TRDI Workhorse Navigator for ease of installation.
- **Acoustic Doppler Current Profiling (ADCP)** for scientific or operational and safety data when deploying divers or equipment in currents.

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TECHNICAL SPECIFICATIONS

		600 kHz	300 kHz
Bottom Tracking	Maximum Altitude[1]	100 m (160 m with XRT)	275 m (up to 500 m with XRT[2])
	Minimum Altitude	0.15 m	0.3 m
	Velocity Range[4]	±1.6m/s (<0.35m altitude); ±9m/s (>0.35m altitude) No Tilt	±1.6m/s (<0.35m altitude); ±9m/s (>0.35m altitude) No Tilt
	Long Term Accuracy[4,5]	±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)
	Long Term Accuracy[6]	±1.15% ±0.1 cm/s	±1.15% ±0.1 cm/s
	Precision @ 1 m/s	±0.5 cm/s @ ½ alt.	±0.6 cm/s @ ½ alt.
	Resolution	0.01 mm/s	0.01 mm/s
	Maximum Ping Rate[7]	12 Hz	7 Hz
Water Profiling	Maximum Range[3]	60 m	150 m
	Minimum Range	1.9 m	4.5 m
	Velocity Range	±12 m/s	±17 m/s
	Long-Term Accuracy	±0.3% ±0.1 cm/s	±0.6% ±0.1 cm/s
Acoustic	Center Frequency	614.4 kHz	307.2 kHz
	Source Level (re 1 µPa)	217 dB@1 m	220 dB@1 m
	1-Way Beam Width	2.2°	2.7°
	Number of Beams	4-phased array	4-phased array
	Beam Angle (nominal)	30°	30°
	Bandwidth (nominal)	6.25% of center freq.	6.25% of center freq.
Environmental	Maximum Operating Depth	6,000 m	6,000 m
	Operating Temperature	-5°C to 45°C	-5°C to 45°C
	Storage Temperature	-30°C to 60°C	-30°C to 60°C
Internal Sensors	Health Monitor	Transducer health, leak detection, pressure cycles, maximum pressure, over pressure, operating time	
	Leak Detection	Electronic housing	Electronic housing
	Pressure Sensor	600 Bar (6000 m)	600 Bar (6000 m)
	Dual-Axis Digital Inclinometer		
	AHRS (optional)	SBG Ellipse2-A (450 deg/s)	SBG Ellipse2-A (450 deg/s)
Dimensions	(cm)	18.73 diameter x 17.4 high	18.73 diameter x 17.4 high
Weight	(kg)	8.7 in air, 4.4 in water	8.7 in air, 4.4 in water
Power	Average Power[8] (typical)	5.4 W	11.8 W
	Quiescent Power Input	1.4 W	1.4 W
	Quiescent Power with Ethernet	2.3 W	2.3 W
	Voltage[6]	10.7-36 VDC	12-36 VDC
	Peak Current[7] (typical)	1.8 A	5.4 A
Communications	Ethernet and RS232 (optional RS422 only installed at factory)		
Standard Data Outputs	• Single-ping bottom-track velocity variance for improved Kalman filter integration and data quality estimation • Bottom track velocity • Altitude: 4 individual measurements • Error velocity (data quality indicator) • Acoustic echo intensity • Water track velocity • Temperature • Current profiling (optional)		

1. @5°C and 35ppt, salinity, @ max V
2. 420 m in typical conditions, up to 500 m in ideal conditions
3. When mounted with beam @ 45°
4. No pre-calibration necessary
5. ECCN: 6A001
6. ECCN: 6A991
7. @5% of maximum altitude
8. @24 VDC Input

TELEDYNE MARINE
RD INSTRUMENTS
Everywhereyoulook™

www.teledynemarine.com
14020 Stowe Drive, Poway, CA 92064 USA
Tel. +1-858-842-2600 • Email: rdisales@teledyne.com
Les Nertieres 5 Avenue Hector Pintus 06610 La Gaude France
Tel. +33-49-211-0930 • Email: rdie@teledyne.com