

Pathfinder

Phased-Array Doppler Velocity Log



Teledyne RD Instruments' **Pathfinder Doppler Velocity Log (DVL)** is small in size and *huge* on value! Utilizing Teledyne RDI's proven, industry-leading phased-array technology, the Pathfinder DVL provides an array of

advanced internal algorithms and features you'd typically expect to find only in higher-end solutions. With up to 500 m of bottom tracking, in up to 6000 m of water, the Pathfinder delivers a solid, value-priced solution for vehicles ranging from small inspection class ROVs to large diameter AUVs.

Pathfinder's **bottom-detection** algorithms and single-ping bottom location accuracy are underpinned by the broadband processing techniques that Teledyne RDI is known for. Pathfinder provides **highly reliable** velocity data for navigation and position control, even over challenging terrain. It can also be upgraded with current profiling as different projects may require.

The Pathfinder DVL is available off-the-shelf in self-contained or OEM configurations, providing you with a footprint and flexibility that's just right for your unique vehicle requirements.

PRODUCT FEATURES

- **Small but mighty:** Dramatically reduced size and weight allows Pathfinder to be installed on board the smallest vehicles.
- **Phased Array:** Unique phased array transducer design delivers outstanding position accuracy at a reduced size, eliminates the need for speed of sound correction, and reduces drag on your vehicle.
- **XRT (Extended Range Tracking):** Our patented option delivers up to 60% increase in bottom tracking range.
- **Health Monitor:** Provides insight and alerts in near real-time of potential problems including transducer health, operating time, and leaks from potential damage.
- **Water tracking:** Extend your vehicle's range of operability by enabling navigation even when bottom is out of range.
- **INS-ready:** 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.
- **ADCP:** Acoustic Doppler Current Profiling (ADCP) option expands scientific and operational capabilities as needs arise.
- **Budget minded:** Priced for smaller budgets, without the need to compromise on performance.



TELEDYNE MARINE
RD INSTRUMENTS
Everywhereyoulook™

Pathfinder Phased-Array DVL



TECHNICAL SPECIFICATIONS

		600 kHz	300 kHz (OEM only)
Bottom Tracking	Maximum Altitude ¹	89 m (up to 150 m optional)	275 m (up to 500 m optional ²)
	Minimum Altitude	0.15 m	0.3 m
	Velocity Range ³	±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	±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 ^{5,7}	±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 ⁶	12 Hz	7 Hz
Water Profiling	Maximum Range ^{1,2}	47 m	150 m
	Minimum Range	1.9 m	4.5 m
	Velocity Range ³	±15 m/s	±15 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)	215 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	SC - 300 m, 500 m; OEM - 300 m, 1,000 m and 6,000 m	1,000 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	Leak Detection	Dual Up & Down in SC / One located in OEM Transducer	One located in OEM Transducer
	Health Monitor	Transducer Health, Operating Time	Transducer Health, Operating Time
Power	Average Power (@ 24 VDC)	2.6 W (3.4 W with Ethernet enabled)	13.5 W (14.4 W with Ethernet enabled)
	Quiescent Power	1.3 W (2.2 W with Ethernet enabled)	1.3 W (2.2 W with Ethernet enabled)
	Input Voltage (VDC)	10.7 - 36 VDC	12-36 VDC
	Surge Current	<4 A	<6.5 A
	Communications	Ethernet & RS232 (or optional RS422 only installed at factory)	
Dimensions (in.)	Contact RDI for specific configuration W & D		

1. @5°C and 35 ppt, salinity, @ max V
 2. 420 m in typical conditions, up to 500 m in ideal conditions
 3. When mounted with beam @ 45°
 4. ECCN 6A001
 5. ECCN 6A991
 6. @ 5% of maximum altitude
 7. Max speed = ±1.6 m/s (<0.35 m altitude) & ±9 m/s (>0.35 m altitude) No Tilt