Teledyne RD Instruments

Pathfinder

600 kHz Phased Array DVL

Small in Size– Big on Performance

Teledyne RD Instruments' new **Pathfinder DVL** is precisely what our customers have been waiting for! This new highly compact 600 kHz DVL is small in size and *huge* on value. Derived from Teledyne RD Instrumets' long-standing, highly reliable DVL technology, this system promises to deliver the precision navigation performance you've come to expect from Teledyne RDI, at a price point, size, and weight that's ideally suited for your next application.

Utilizing Teledyne RDI's proven **state-of-the-art electronics**, 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 80 m of bottom tracking, in up to 300 m of water, the Pathfinder 600 delivers a solid, value-priced solution for vehicles ranging from small inspection class ROVs to large diameter AUVs.

Utilizing Teledyne RDI's **proven bottom-detection** algorithms and single-ping bottom-location accuracy with its broadband velocity processing technology, the Pathfinder provides users with **highly reliable** precision velocity data for navigation and position control, even over indeterminate terrain.

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

PRODUCT HIGHLIGHTS

- **Small but mighty:** Dramatically reduced size and weight allows Pathfinder to be installed on board the smallest vehicles with minimal impact on system payload.
- **Budget minded:** Priced for smaller budgets, without the need to compromise on performance.
- **Proven Performance / Reliability:** Building upon Teledyne RDI's vast experience with DVL technology and performance, Pathfinder offers a proven, reliable solution to ensure the success of your mission.
- **Phased Array:** Unique phased array transducer design delivers enhanced position accuracy at a reduced size, eliminates the need for speed of sound correction, and reduces drag on your vehicle.
- **Flexible Design:** Self-contained or OEM package options available to meet your unique vehicle needs.
- **Versatile:** Upgradeable to include Acoustic Doppler Current Profiling (ADCP) capability.
- **Ethernet Compatibility:** Plug-n-play with today's interfaces.

Pathfinder Doppler Velocity Log

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TECHNICAL SPECIFICATIONS

		600 kHz
Bottom Tracking	Maximum Altitude[1,2]	89 m
	Minimum Altitude	0.2 m (<20 cm altitude mode available)
	Velocity Range[3]	±9 m/s or +16 m/s upon request
	Long Term Accuracy[4]	±0.2% ±0.2 cm/s
	Long Term Accuracy[5,7]	±1.15% ±0.2 cm/s
	Precision @ 1 m/s	±0.5 cm/s @ ½ alt.
	Precision @ 3 m/s	±1.5 cm/s @ ½ alt.
	Precision @ 5 m/s	±2.3 cm/s @ ½ alt.
	Resolution	0.1 cm/s (default)
Water Profiling	Maximum Ping Rate[6]	12 Hz
	Maximum Range[1,2]	43 m
	Minimum Range	1.9 m
	Velocity Range[3]	±12 m/s
	Long Term Accuracy	±0.3% ±0.2 cm/s
	Precision @ 1 m/s	±7.5 cm/s@2 m bin
	Precision @ 3 m/s	±7.5 cm/s@2 m bin
	Precision @ 5 m/s	±7.7 cm/s@2m bin
	Resolution	1 mm/s.
	Cell Sizes	0.1 m–4 m
Acoustic	Center Frequency	614.4 kHz
	Source Level (re 1 µPa)	215 dB@1 m
	1-Way Beam Width	2.2°
	Number of Beams	4-phased array
	Beam Angle (nominal)	30°
	Bandwidth (nominal)	6.25% of center freq.
Environmental	Maximum Operating Depth	300 m
	Operating Temperature	-5°C to 45°C
	Storage Temperature	-30°C to 60°C
	Weight in Air (OEM/SC)	1.15/1.9 kg
	Weight in Water	0.7 kg
Internal Sensors	Leak Detection	Dual Up & Down in SC / In Transducer in OEM.
	Health Monitor	Transducer Health, Operating Time
Power	Average Power (@ 24 VDC)	2.6 W (3.4 W with Ethernet enabled)
	Quiescent Power	1.1 W (2 W with Ethernet enabled)
	Input Voltage (VDC)	10.7 - 36 VDC
	Surge Current	<4 A
Communications	Ethernet & RS232	
Dimensions (in)	9 x 4 x 2.8 SC (L x W x H) • 4.58 x 3.38 x 2.18 OEM Electronic (L x W x H) • 3.295 x 1.75 Transducer (D x H)	

1. @5°C and 35 ppt, salinity, @ max V.
2. Maximum range may be reduced due to flow noise.
3. When mounted with beam @ 45°. Also, for platforms with forward velocity higher than reverse (or vice versa), the maximum velocity can be increased to [-2 m/s -> +16 m/s] for bottom track via firmware modification.
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.

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