

Datasheet

Syrinx – Doppler Velocity Log



The Syrinx Doppler Velocity Log (DVL) is a class leading DVL that builds on Sonardyne's range of acoustic devices by bringing to market a high-integrity, high-performance instrument. Syrinx is a standalone navigation instrument or can be integrated into SPRINT Nav or third-party navigation systems.

Syrinx DVL is available in two frequencies: 600 kHz or 400 kHz for higher altitude tracking.

Syrinx gains performance advantages by using both doppler and correlation technology in environments where each is best suited.

Advanced processing techniques avoid any loss in output measurements due to undulating and sharp roll off terrain, including near vertical gradients.

Adaptive signalling utilises the best signal type for the environment and terrain, giving class leading performance at low and high altitude.

Syrinx can output data of different formats simultaneously; this reduces the requirement of more than one DVL on the ROV, saving on weight and costs.

Optional ADCP and DVL+ADCP modes are available for standalone profiling, or concurrent DVL navigation and velocity profiling within the same instrument. This capability can be used without sacrificing navigation accuracy when combined with an INS.

When Syrinx is integrated with SPRINT INS, inertial velocities can be used to correct ADCP profiles for vessel speed in the absence of bottom lock or in moving bed conditions. This unique capability allows unbiased profile velocities and navigation through the entire water column.

The ADCP data uses an extended PDO format containing acoustic, GPS and inertial data. Live or file data can be inspected and processed using the Echo Observer for Syrinx software package, which can be included with the ADCP upgrade.

Sonardyne have developed the transducers to be singularly interchangeable, dramatically reducing maintenance costs and times. An internal bulkhead is fitted to prevent water ingress if a transducer is badly damaged. Both 4,000 and 6,000 m depth options are available.

Key Features

- Class-leading 400/600 kHz DVL
- Reliable adaptive bottom lock
- Capsule case design built around field proven USBL array capsules
- Concurrent Ethernet and serial comms
- Individually replaceable transducers
- On-board web interface for configuration and diagnostics
- Up to 25 Hz DVL ping rate
- 0.4 to 230 m DVL operation range
- Tight integration to Sonardyne SPRINT INS, providing unmatched DVL aided navigation even in challenging bottom lock conditions
- ADCP mode with up to 120 m range
- Up to 4 Hz ADCP ping rate
- Tight integration with SPRINT INS provides ADCP profiles independent of vessel motion, even without bottom lock or under moving bed conditions
- Internal bulkhead prevents water ingress if a transducer is damaged

Specifications

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Feature				8275-4531/6531 600 kHz		8275-4561 400 kHz	
Operating Frequency				600 kHz		400 kHz	
Bottom Velocity – Single Ping Precision (Standard Deviation @ 1 m/s ¹)				±0.22 cm/s		±0.28 cm/s	
Long Term Accuracy				±0.12% ±0.1 cm/s		±0.22% ±0.1 cm/s	
Minimum/Maximum Altitude				0.4/175 m ²		0.4/230 m	
Velocity Range				>10 m/s			
Velocity Resolution				0.01 cm/s			
Data Output Rate				25 Hz maximum			
Water Reference Velocity		Accuracy		±0.2% ±0.1 cm/s			
		Layer Size		Selectable			
		Minimum/Maximum Range		0.4/80 m		0.4/120 m	
ADCP		Profiling Range		0.4–80 m		0.4–120 m	
		Velocity Range & RMS (Along Beam)		Up to ±11.2 m/s ±0.4% of measured value			
		Maximum Number of Cells		255			
		Maximum Ping Rate		ADCP		4 Hz	
				DVL+ADCP		2.5 Hz	
Beam Width				±1.0°		±1.3°	
Beam Angle				30°			
Transmit Source Level (dB re 1 µPa @ 1 m)				217 dB (maximum)			
Sensors		Temperature		-5 to 40°C			
		Pitch/Roll (Optional)		±0.5°			
		Pressure (Optional)		±0.1% full scale			
Configuration (Array)				4-beam array @ 30° beam angles			
Communication and Logging		Communications		Dual RS232, multi-port Ethernet (TCP & UDP)			
		Trigger Inputs		3–12 V rising or falling edge configurable			
		Internal Logging		32 GB internal memory			
Output Telegrams				Sonardyne proprietary, PD0, PD3, PD4, PD6, PD13, SDDBT Simultaneous telegram output			
Voltage (dc Input)				24 V (±10%)			
Average Power (Typical)				10 W nominal			
Depth Rating				4,000 or 6,000 m array			
Operating Temperature				-5 to 55°C			
Storage Temperature				-20 to 55°C			
Mechanical Construction				Titanium			
Connector Type				Subconn			
Dimensions (Height x Diameter)		4,000 m		189 x 225 mm		189 x 225 mm	
		6,000 m		204 x 225 mm		n/a	
Weight in Air/Water ³		4,000 m		12.0/9.1 kg		11.3/8.5 kg	
		6,000 m		14.4/10.9 kg		n/a	

¹ Standard deviation refers to proven single-ping true horizontal velocity precision, specified at 20–30 m altitude.

² 150 m bottom acquire range, up to 175 m once bottom locked in optimal seabed conditions.

³ Estimated weights.