

Preliminary Datasheet

Syrinx – Doppler Velocity Log



Description

The Syrinx DVL is a class leading Doppler velocity log (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.

With high precision over a large altitude range, this 600 kHz system combines the best of 300 and 1200 kHz DVLs in a single unit.

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

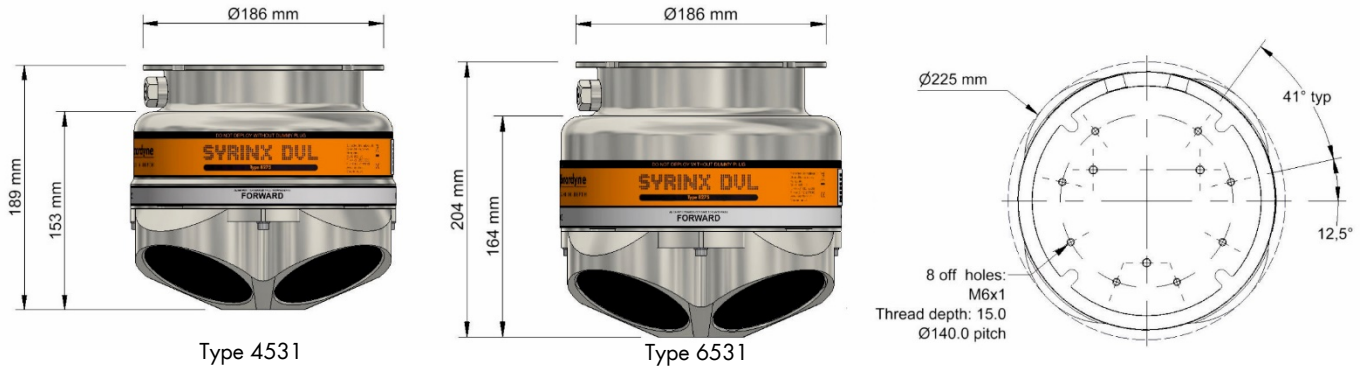
transducer is badly damaged. Both 4,000 m and 6,000 m depth options are available.

Key Features

- Class-leading 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 175 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 80 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
- Echo Observer for Syrinx software included with ADCP upgrade
- Internal bulkhead prevents water ingress if a transducer is damaged

Preliminary Specifications

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Features	Type 4531	Type 6531	Type 8275-4531	Type 8275-6531
Operating Frequency			600 kHz	
Bottom Velocity – Single Ping Precision			Standard Deviation @ 1 m/s*	±0.22 cm/s
Long Term Accuracy				±0.12% ±0.1 cm/s
Min/Max Altitude				0.4/175 m
Velocity Range				>10 m/s
Velocity Resolution				0.01 cm/s
Data Output Rate				25 Hz max
Water Reference Velocity				Accuracy ±0.2% ±0.1 cm/s
				Layer Size Selectable
				Minimum/Maximum Range 0.5 m/70 m
ADCP				Profiling range 0.3–80 m
				Velocity range & rms (along beam) Up to ±5.6 m/s ±4% of measured value
				Maximum number of cells 256
				Maximum ping rate 4 Hz (ADCP) or 2.5 Hz (DVL+ADCP)
Acoustics				Beam Width ±1.5 Degrees
				Beam Angle 30 Degrees
				Maximum Transmit Source Level (dB re 1 uPa @ 1 m) 217 dB
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 V–12 V rising or falling edge configurable
				Internal Logging 32 GB internal memory
Output				Output Telegrams Sonardyne proprietary, PDO, PD3, PD4, PD6, PD13, SDDBT
				Simultaneous telegram output
Power				Voltage (DC Input) 24 V (±10%)
				Average Power (Typical) 4 W standby, 10 W nominal
Environmental				Depth Rating 4,000 m 6,000 m
				Operating Temperature -5 to 55°C
				Storage Temperature -20 to 55°C
Mechanical				Construction Titanium
				Connector Type Subconn
				Dimensions (Height x Diameter) 189 x 225 mm 204 x 225 mm
				Weight in Air/Water** 12/7 kg (4,000 m) 15/9 kg (6,000 m)

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

**Estimated weights