

Datasheet

HPT 3000 USBL transceiver



The HPT 3000 Ultra-Short BaseLine (USBL) is a new smaller, lighter, high-performance Ethernet interfaced transceiver supporting Sonardyne's Wideband® 2 6G® instruments.

This smaller HPT offers significant improvements for survey positioning for coastal and near shore operations where high elevation tracking is required in low noise environments.

The advanced multi-element processing enables transponders to be positioned more precisely, more quickly and more robustly due to improvements in signal processing algorithms. When used as part of a complete Mini-Ranger 2 USBL system, heading and inertial navigation sensor, class leading performance is achieved.

The internal MTi-30 Xsens sensor provides pitch, roll and heading data for search and salvage applications which are time critical, requiring turn on and track functionality. Shallow water operations and pipelay from anchor barges also benefit from the internal sensor being calibration free.

'Discovery Mode' enables users to automatically detect previously deployed transponders including their configured address and channel, making the system easier to use.

The HPT 3000 is a highly capable acoustic transceiver. Its multiple simultaneous channels enable robust tracking of 10 targets.

Manufactured in aluminium bronze, the HPT 3000 is intended to be fitted temporarily or permanently to a vessel's through-hull or over-the-side pole.

The full hemispherical coverage optimises performance in shallow water environments boosting transmissions and receive sensitivity in the horizontal axis.

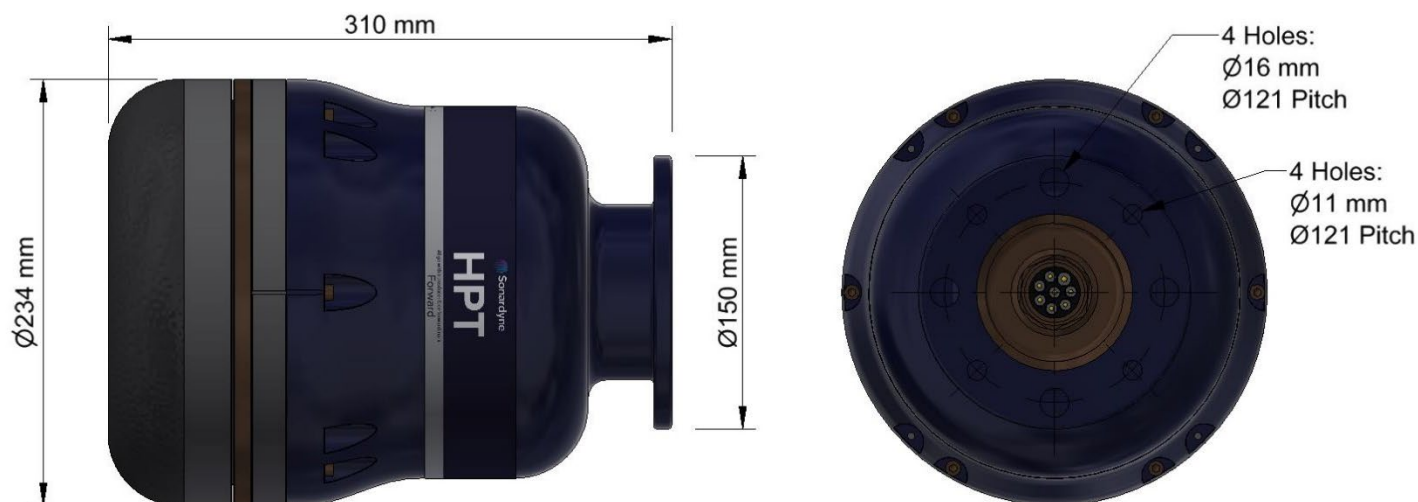
Ethernet connectivity enables the system to function over existing ship network wiring for rapid installation.

Key features

- High performance USBL transceiver utilising Wideband 2 ranging and telemetry offer improved USBL precision and robustness
- Enhanced USBL array design for shallow water high elevation tracking.
- Internal "Xsens" sensor magnetic compass for quick operation.
- True simultaneous tracking of multiple transponders providing high update rates
- Built in health checks including array and electronics diagnostics
- Discovery mode allows users to automatically scan for transponders deployed within acoustic range
- Waterfall plot for enhanced ambient noise monitoring.
- Audio codec for live streaming. To allow noise and signals to be heard in the water.
- Compatible with the Sonardyne 6G suite of products.
- Ethernet connectivity using an Ethernet Serial Hub (ESH)
- Upgradable to Long BaseLine (LBL) and Modem

Specifications

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Feature		Type 8212
Operational frequency		MF (20–34 kHz)
Transceiver performance	Operating range	Restricted to 995 m with Mini Ranger 2 system (4000 m with extended range version)
	Acoustic cover	Full 180°
	Range precision	Better than 15 mm
	Positioning repeatability external MRU	All transceivers tested to better than 0.2% of slant range 1 Drms / 0.14% 1 Sigma
	Positioning repeatability internal Xsens pitch and roll	All transceivers tested to better than 1.3% of slant range 1 Drms / 0.9% 1 Sigma
Transmit source level (dB re 1 μ Pa @ 1 m)		194 dB
Tone equivalent energy (TEE) ¹		200 dB (3 JA)
Electrical		48 V dc ($\pm 10\%$), typical 15 W, maximum 120 W
Communication		Ethernet 100 Mbps
Operating temperature		-5 to 40°C
Storage temperature		-20 to 45°C
Mechanical construction		Aluminium bronze
Dimensions (height x diameter)		310 x 234 mm
Weight in air/water		19.4/9.5 kg

Note: The absolute accuracy of the system is dependent upon the quality of external attitude and heading sensors, beacon source level, vessel noise, water depth, mechanical rigidity of the transceiver deployment machine, SV knowledge and proper calibration of the total system using CASIUS.

¹ WBv2+ signals are 4x the duration of Sonardyne tone signals (WBv1 & WBv2 are 2x). The TEE figure shows the operational performance when comparing wideband and tone systems. Detection performance is directly related to the signal energy (Joules (Watt seconds)) and not power. WBv2+ signals are longer in duration (greater energy) than WBv1 and Tone, therefore the detection performance is the same or improved for low transmit source levels.