

# Datasheet

## Wideband Sub-Mini 6+ (WSM 6+) Transponder/Responder



**The Wideband® Sub-Mini 6+ (WSM 6+) is Sonardyne's latest generation of versatile Ultra-Short BaseLine (USBL) transponders/responders that support Wideband 2 signals. The WSM 6+ is designed for positioning Remotely Operated Vehicles (ROVs), towfish and other mobile targets in water depths up to 4,000 m.**

The compact and rugged design is based on the field proven WSM mechanics and is available in Medium Frequency (MF) directional and MF omni-directional versions. The latest Sonardyne Wideband 2 signal technology has been incorporated, which offers superior ranging accuracy and fast USBL position updates.

The WSM 6+ improves on its predecessors by offering full two-way Wideband support – Interrogation and reply signals. All Wideband 2 and Wideband 2+ signals are supported. Legacy support is also available for Wideband 1 and HPR 400. The configuration is programmable using supplied software and a serial link or it can be configured acoustically via iWAND.

This allows the WSM 6+ to be configured for use with all of the popular MF frequency acoustic navigation systems.

The Type 8370-1111 WSM 6+ is equipped with an omni-directional transducer and is depth rated to 1,000 m making it suitable for a wide range of general USBL tracking applications.

The Type 8370-4112 WSM 6+ is a 4,000 m rated unit and features a higher power directional transducer.

Both types of WSM 6+ have a depth sensor fitted as standard to aid USBL positioning accuracy and an external on/off switch to save the battery when not in use.

WSM 6+ variants are available with acoustically controlled output lines suitable for external motor drive, burnwire or contact closure releases.

### Typical Applications

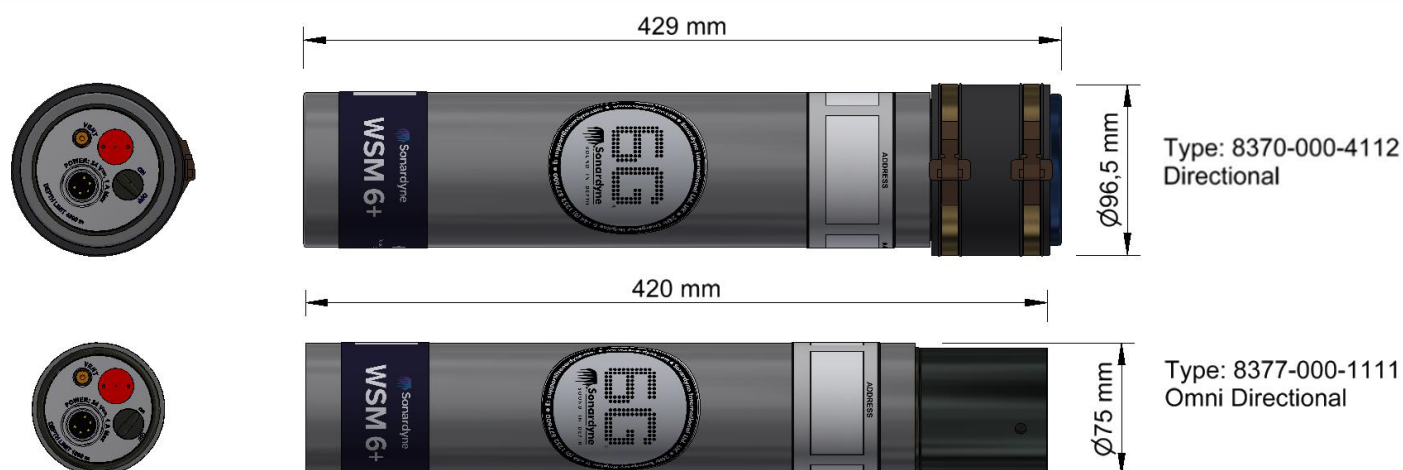
- Subsea vehicle tracking – ROV/towfish/crane wire
- Tether Management Systems (TMS)

### Key Features

- Full two-way Sonardyne Wideband 2 interrogation and reply – Mitigates interference and multi-path issues
- More than 500 unique Sonardyne Wideband 1 and 2 addresses
- Sonardyne Wideband 1 and HPR 400 navigation compatible
- Choice of 1,000 or 4,000 m depth rating
- Choice of omni-directional or directional beam-shape
- Transponder or responder operating modes
- Depth sensor for improved USBL positioning performance
- Rechargeable NiMH battery
- External on/off switch for saving battery when not in use
- Compact and rugged design
- Release variants available

# Specifications

## Wideband Sub-Mini 6+ (WSM 6+) Transponder/Responder



Feature		Type 8370-1111	Type 8370-4112
Depth Rating		1,000 m	4,000 m
Operational Frequency		MF (19–34 kHz)	MF (19–34 kHz)
Transceiver Beam Shape		Omni-directional	Directional
Transmit Source Level (dB re. 1 µPa @ 1 m)	External Power	187 dB	196 dB
	Battery	184 dB	193 dB
Tone Equivalent Energy (TEE) <sup>1</sup> (External Power)		193 dB	202 dB
Receive Sensitivity (dB re 1 µPa)		<85 dB	<80 dB
Power Supply		Rechargeable NiMH battery or external. 24 V via ROV umbilical	
Operating Channels		All Sonardyne Wideband HPR 400 channels	
Depth Sensor		±0.5% full scale (100 bar)	±0.5% full scale (400 bar)
Operating Life (1 s update rate, max. power, Wideband 2)		>6 days	>3 days
Update Rate (Maximum)		>2 Hz	>2 Hz
Quiescent Life (Battery)		>35 days	>35 days
Connector	5-Way (Standard)	Subconn MCBH5M	Subconn MCBH5M
	8-Way (Burnwire/Motor Release)	Subconn MCBH8F	Subconn MCBH8F
Operating Temperature		-5 to 40°C	-5 to 40°C
Storage Temperature		-20 to 55°C	-20 to 55°C
Mechanical Construction		Anodised aluminium alloy	Anodised aluminium alloy
Dimensions (Length x Diameter)		420 x 75 mm	429 x 96.5 mm
Weight in Air/Water		3.2/1.3 kg	5.5/3.2 kg
Battery Charger		8370-011-01	8370-011-01

<sup>1</sup> WBv2 & WBv1 signals are 2x the duration of Sonardyne tone signals, therefore the TEE figure gives the user an idea of the operational performance when comparing Wideband and tone systems.