

# Datasheet

## Modem 6 Transceiver (surface)



Modem 6 Transceiver MF



Modem 6 Transceiver LMF



Surface system kit

**The Modem 6 range, based on our proven 6G® equipment range provides a reliable and cost-effective method of wirelessly transferring underwater sensor data in real-time.**

The Modem 6 Transceiver is a surface deployed instrument, suitable for recovering data from a wide range of sensors including: current profilers, temperatures, depth and custom instrumentation.

The system kit comprises a surface Modem 6, Surface Interface Unit (SIU), deck cable, 100 m cable drum and a dunker cage, which allows deployment over the side in the absence of a deployment pole.

The advanced multi-element processing comprises improvements in signal processing algorithms and array design, enabling telemetry to be robustly decoded even in noisy and reverberant environments due to

Manufactured in aluminium bronze, it is intended to be fitted temporarily or permanently to a vessel's through-hull or over-the-side pole or mounted in a dunker cage assembly.

Modem 6 is a flexible range of instruments, supporting specific communication settings for a variety of link types such as low latency data, fire and forget, acknowledged and large data uploads. A 512 kB modem buffer stores data when a modem link is not active.

All Modem 6 products utilise Sonardyne Wideband® signal processing and standard 6G control language. They can be programmed using the supplied software and a serial link or any third-party terminal software.

This technology is field proven and provides unprecedented levels of robustness and flexibility in challenging acoustic environments.

Data transfer rates range from 9,000 bps down to 200 bps depending on the environment.

Advanced communication protocols and intelligent data packet stitching ensure latency is minimised and data is delivered error free.

### Key features

- MF and LMF option
- Sonardyne Wideband telemetry provides up to 9,000 bps actual acoustic data rate
- Compatible with all Modem 6 instruments
- Full two-way Sonardyne Wideband 2 interrogation and reply – mitigates interference and multi-path issues
- Incorporates field proven communication technology used within critical subsea applications
- More than 500 unique Sonardyne addresses
- Robust performance in noisy and reverberant environments
- Enhanced array designs for improved noisy vessel and deepwater performance
- Built in health checks including array and electronics diagnostics
- In water ambient noise monitoring
- Supports enhanced telemetry schemes TS4 and TS5.

# Specifications

## Modem 6 Transceiver (surface)



Feature	Type 8182-0001	Type 8193-0012
Operating frequency	MF (20–34 kHz)	LMF (14–19 kHz)
Operating range	Up to 7,000 m	Up to 12,000 m
Acoustic coverage	Up to $\pm 90^\circ$	Up to $\pm 90^\circ$ optimised for deepwater (depending on frequency of operation)
Transmit source level (dB re 1 $\mu$ Pa @ 1 m)	200 dB	200 dB
Tone equivalent energy (TEE) <sup>1</sup>	206 dB (13 JA)	206 dB (13 JA)
Transceiver 6 operating voltage	48 V dc ( $\pm 10\%$ ), typical 15 W, max 120 W – supplied by the SIU	
SIU operating voltage	90–260 V ac, 50/60 Hz, 200 VA max	
Serial communication	Primary and secondary port: RS485 (half-duplex) SIU input: RS232	Primary and secondary port: RS485 (half-duplex) SIU input: RS232
Operating temperature	-5 to 40°C	-5 to 40°C
Storage temperature	-20 to 45°C	-20 to 45°C
Mechanical construction	Aluminium bronze	Aluminium bronze
Dimensions (height x diameter)	370 x 225 mm	439 x 310 mm
Weight in air /water <sup>2</sup>	28/15 kg	41/20 kg
<b>Surface system kit</b>	<b>Sonardyne part number</b>	
Surface Interface Unit (SIU)	620-7079	
Cable Drum (100 m)	641-3614	
Deck Cable (5 m)	820-0127	
Dunker Cage	641-3612	

<sup>1</sup> 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.

<sup>2</sup> Estimated Weights.