# Datasheet
# Micro-Ranger 2


**Micro-Ranger 2 has been designed as a true one box battery powered USBL solution, small enough to be carried as hand luggage on commercial flights and mobilised at short notice.**

Micro-Ranger 2 uses a positioning technique known as Ultra-Short BaseLine (USBL) to calculate the position of underwater targets. A transceiver at the surface transmits an acoustic signal to transponders attached to each of the targets you wish to track. Using the return signal from each transponder, Micro-Ranger 2 determines its range (distance), bearing (heading) and depth, displaying the results on a radar-style software display.

If you're a first-time user of USBL technology, you'll find Micro-Ranger 2 incredibly easy to use. Connect your laptop to the inbuilt Wi-Fi, then attach a transponder to each target you want to monitor the position of. With the transceiver lowered into the water, you're ready to start tracking up to 10 divers, underwater vehicles or any other underwater equipment.

To deliver the best possible positioning performance and operator experience,
Micro-Ranger 2 uses the same market-leading 6G® hardware and Wideband®2 digital acoustic technology you'll find in Sonardyne's family of deepwater USBL systems, but with significantly less cost and complexity

Built around Sonardyne's Micro-Ranger Transceiver the USBL system can be deployed from the quayside or a vessel and is optimised for omni-directional tracking.

Each system is supplied with two of Sonardyne's Nano transponders, in either NFC or cabled configurations.

Note: The PC is not included.

## Key features

- One box tracking solution for AUVs, ROVs and instruments
- Wide input voltage range for powering + charging on the job
- Optimised for shallow water high elevation tracking
- Track and actuate Sonardyne releases
- Internal rechargeable battery with external on/off switch
- Industry standard IP68 external connectors
- Global database of sound velocity profiles for ease of use and accuracy
- Available as an integrator kit with Marine Robotics Pack for AUV communication
- Export license free

# Specifications
# Micro-Ranger 2


| Feature | | Type 8241 - Micro-Ranger 2 |
|---|---|---|
| Dimensions | | 524 x 428 x 206 mm |
| Weight | | 13.5 kg |
| External power + charge | | 12/24 V dc, 115–230 V ac, 30 W maximum, 3.5 W typical |
| Internal battery | | Li-Ion 33 Wh[1] |
| Battery life | | >10 hours at 1 Hz ping rate |
| Connection type | | Ethernet or Wi-Fi (DHCP) to PC |
| User connection ports[2] | | X1 RJ45 Ethernet port/X2 USB charging ports/RS232 via PC |
| Operating temperature | | -15 to 45°C |
| Storage temperature | | -20 to 45°C |
| IP rating | | IP67[3] |
| **Performance & Acoustics** | | |
| Accuracy[4] | Array | <3.5% of slant range 1DRMS |
| | System | <5% of slant range 1DRMS |
| Repeatability | | 0.3% of slant range 1DRMS |
| Range | | <995 m |
| Update Rate | | Up to 3 Hz |
| Beam Shape | | Omni-directional |
| Frequency | | 19–34 kHz |
| **Included in System Kit** | | |
| Software | | Micro-Ranger 2 |
| Transponder | | X2 NFC Nano or x2 cabled Nano |
| Transceiver | | Micro-Ranger USBL Transceiver (MRT) USBL |
| Internal GNSS | | Single frequency GNSS |
| Cabling | | 10 m USBL cable/5 m GNSS cable |
| Charger | | Portable topside charger/Nano charger |
| Documentation | | Manual and quick start guide |

[1] UN 38.3 certified with electronic disconnect for transport.
[2] Additional user connections possible to Micro-Ranger 2 software via UDP.
[3] IP67 when operating with a closed box.
[4] System accuracy includes internal Heading, Pitch, Roll and GNSS. Array accuracy excludes GNSS error and incorrect Heading, Pitch and Roll.

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