



Micro-Ranger 2 is an acoustic positioning system for tracking divers, remotely operated and autonomous underwater vehicles. Portable and quick to mobilise, Micro-Ranger 2 can be deployed from any waterside location or vessel of opportunity, including RHIBs and small survey vessels. This makes it ideal for supporting marine operations conducted in rivers, lakes and coastal waters. The system has an operating range of 995 metres and can update you with the position of each target being tracked up to twice a second.

SYSTEM OVERVIEW

Micro-Ranger 2 works using 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. Simply connect your computer, external GPS and transceiver to the system's interface unit, 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 equipment. To deliver the best possible positioning performance and operator experience, Micro-Ranger 2 is built around the same market-leading 6G hardware and Wideband 2 digital acoustic technology you'll find in our family of deep water USBL systems, Mini-Ranger 2 and Ranger 2, but for significantly less cost and complexity.

TOPSIDE EQUIPMENT > Micro-Ranger Transceiver

The Micro-Ranger Transceiver (MRT) is the key innovation at the core of the Micro-Ranger 2 system. Extremely small and light, the MRT can be deployed from the side of any vessel, pontoon, or even USV (Unmanned Surface Vessel). The configuration of the receiver elements inside provide omni-directional acoustic tracking coverage, so is ideal for tracking targets in shallow water all the way to the surface. It's design offers unrivalled range resolution and precision for a USBL system of this size.

SONARDYNE MICRO-RANGER 2 USBL UNDERWATER TARGET TRACKING SYSTEM

WHAT YOU NEED TO KNOW

- Low-cost, easy-to-use underwater target tracking system
- Always know where your divers, seabed instruments and remotely operated vehicles are
- Use it in rivers, lakes, reservoirs and coastal waters
- Portable and quick to mobilise from any size boat or waterside location
- 995 metre operating range
- Fast position updates; up to twice per second
- No need for an export license; easy to ship internationally
- 6G inside; built around our digital wideband acoustic architecture

To optimise performance in different operating environments, the MRT has a built-in diagnostics mode to both listen to, and visualise signals and noise in the water.

Ethernet Serial Hub

The 1U-high Ethernet Serial Hub (ESH) provides a single, but all encompassing interface between peripheral sensors (e.g. external GPS receiver), acoustic instruments, mains power and the software running on your PC. Communications are all Ethernet based, enabling you to connect to a vessel’s onboard network if one’s available. The ESH also supports responder trigger and 1PPS (Pulse Per Second) time synchronisation across other surveys systems. It can be mounted in a 19” instrument rack or in a soft case for complete portability.

Software

Micro-Ranger 2 software comes with a lot of advanced and powerful features selected from our Mini-Ranger 2 and Ranger 2 USBL systems to ensure you have everything you need to track underwater targets. Designed for PCs running Windows 7 and Windows 10 operating systems, it’s intuitive layout means you’ll quickly feel comfortable using Micro-Ranger 2 and in no time be ready to carry out your first underwater tracking mission.

If you need to track and also communicate with small AUVs and drones, an optional Marine Robotics feature pack is available. Used in conjunction with a Sonardyne Nano AvTrak 6 transceiver (see website for more details) on your vehicle, the pack unlocks a host of features such as Data Exchange – used to enable modem functionality utilising Wideband 2 digital signal processing supporting user data transfer rates from 100 to 9000bps.

UNDERWATER EQUIPMENT > Nano and WSM 6+ Transponders

At only just over 150 mm long and weighing 225 grams, Nano is a popular choice for divers, man-portable AUVs and micro ROVs. Its wireless charging and Near Field Communications (NFC) capability means that storing it, turning it on and setting it up is also quick and simple. Two models are available; one with a pressure sensor for depth aiding and one without. Both are depth rated to 500 metres.

For tracking larger underwater targets such as a towfish, a crane wire or medium-sized ROV for example, WSM 6+ will meet your requirements. Depth rated to 1,000 metres and featuring a rechargeable battery pack, WSM 6+ can also be powered directly from your underwater vehicle so it can remain deployed for as long as you need it to.



Go-anywhere portability Micro-Ranger 2 gives you the flexibility to operate virtually anywhere. Connect up your laptop, MRT transceiver, external GPS and power to the ESH and you’re ready to start tracking.

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Deploy it, track it

Micro-Ranger 2 is a sixth-generation (6G) Ultra-Short BaseLine (USBL) underwater positioning system. It is highly portable and offers the functionality and performance you come to expect from Sonardyne acoustics. Use it to track a small ROV, a diver or any other small target in ranges of up to 995 metres at very fast update rates.



Transponder options

Whether you’re tracking a small underwater instrument, search and rescue diver or micro ROV, Nano (below left) and WSM 6+ transponders perfectly compliment your Micro-Ranger 2 topside hardware.

