



*Ranger 2 is a high performance acoustic position reference system designed for tracking underwater targets and positioning dynamically positioned (DP) vessels. The system uses the Ultra-Short Baseline (USBL) positioning method to calculate the position of a subsea target, for example an ROV, by measuring the range and bearing from a vessel-mounted transceiver to an acoustic transponder fitted to the target. Multiple subsea targets over a wide area and range of water depths can be simultaneously and precisely positioned to achieve near to a 1 second update rate.*

### COURSE OBJECTIVES

This course provides the basic theory together with a thorough practical understanding of the operation of Sonardyne’s Ranger 2 Ultra-Short Baseline (USBL) acoustic positioning system. Using both simulators and live in-water systems (\*) the course covers all aspects USBL positioning from system configuration through to tracking.  
(\* ) Plymouth based only

### COURSE TEACHING MEDIUM

Course delivery and written material are in English.

### WHO SHOULD ATTEND?

Course is geared towards:

- Hydrographic Surveyors
- ETO / DPO’s

### COURSE DURATION / LOCATION

The Operator Training Course is 2 days in duration.  
With the Advanced option the course is 3 days in duration.  
Locations: Plymouth / Aberdeen / Blackbush / Macae / Houston / Singapore.  
Also courses could be run locally at your premises. (Please contact us for more information)

### NUMBER OF PARTICIPANTS

Ranger 2 operator / advanced courses are for up to 6 participants.

### Advanced optional theory modules

- CASIUS Calibration
- Diagnostics
- Signal processing

### TRAINING COURSE DELIVERABLES

- Booklets containing course material plus USB stick containing supporting information.
- Ranger 2 USBL Operator Course attendance certificate.

### BOOKING AND CONFIRMATION

Details of course dates, training centre locations, availability and full terms and conditions can be found at: [www.sonardyne.com](http://www.sonardyne.com)

To reserve a place please email: [training@sonardyne.com](mailto:training@sonardyne.com)

Or contact us via LinkedIn:

<https://www.linkedin.com/company/sonardyne-training>

### OPERATOR COURSE SYLLABUS

All modules are covered in the theory sessions and re-enforced by practical exercises.

Theory:

- Acoustic positioning systems
- Principals of USBL
- Sonar Equation
- Error theory
- Refraction and Sound Speed
- Transceiver deployment and optimisation
- Basic 6G Command Language and Signal Diagnostics
- Ranger 2 USBL Software
- Fusion 6G hardware setup serial and acoustic testing (I Wand / 6G Terminal Lite)
- ROV and Structure Tracking
- Application of Sound Speed Profiles and Environmental Factors
- USBL Calibration Theory (CASIUS)
- Beacon Tracking
- Tracking Diagnostic Tools and Resolution of Tracking Problems
- Configuration of Output Telegrams and Reports
- Troubleshooting