



*Marksman is an advanced acoustic positioning system that provides an accurate and highly repeatable position reference for dynamically positioned drilling vessels. Marksman is primarily suited to deep water Mobile Drilling Units, Well Intervention and Heavy Lift Construction vessels, where the system calculates position relative to a seabed deployed transponder array. Robust and reliable simultaneous vessel operations (SIMOPS) are possible through the use of Sonardyne's latest digital Wideband 2 signal technology.*

### COURSE OBJECTIVES

This course provides the basic theory together with a thorough practical understanding of the operation of Sonardyne's Marksman Long/Ultra-Short BaseLine (LUSBL) acoustic positioning system. Using both simulators and live in-water systems the course covers all aspects USBL and LUSBL positioning from calibration through to tracking.

### COURSE TEACHING MEDIUM

Course delivery and written material are in English.

### COURSE DURATION

The Operator Training Course is 2.5 days in duration.

### WHO SHOULD ATTEND?

Course is geared towards:

- DPOs
- ETO / Operators

### NUMBER OF PARTICIPANTS

Courses are for up to 6 participants. This instructor-to-participant ratio ensures good one-to-one support, particularly during the hands-on sessions. If required bespoke courses can be run for more than 6, with an additional trainer required.

### ADDITIONAL OPTIONAL COURSE MODULES

- CASIUS Calibration (Advanced module)
- Marine Riser Angle Monitoring (MRAMS)

### TRAINING COURSE DELIVERABLES

- Booklets containing course material plus USB stick containing supporting information.
- Marksman LUSBL 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)

### COURSE SYLLABUS

The following modules are covered in the theory sessions with the knowledge re-enforced by practical exercises:

- General Acoustic Theory
- USBL and LUSBL Positioning Theory
- Sound Speed and Refraction Theory
- Gyro USBL and Transceiver variants
- Optimised USBL Systems
- Lodestar Attitude Heading Reference System
- Dual Redundant LUSBL
- Dual Independent LUSBL
- Working with Wideband Signals and Telemetry
- Acoustic Frequency and Signal Management for Simultaneous Vessel Operations
- Basic 6G Command Language and Signal Diagnostics
- 6G Hardware Configuration and Functional Testing of Compatts, Transponders and Responders
- Marksman LUSBL Software
- Application of Geodesy and Convergence
- Application of Sound Speed Profiles and Environmental Factors
- USBL Calibration and LUSBL Calibration
- Vessel Tracking and General Operating Procedures
- ROV Tracking
- Tracking Diagnostic Tools and Resolution of Tracking Problems
- Application of External Sensor Data
- Configuration of Output Telegrams and Reports
- Output Telegrams for DP Applications
- Troubleshooting