



*Fusion LBL 6G® continues to be the world's most popular Long Baseline (LBL) acoustic positioning system by providing the most accurate method for installing subsea structures, tracking ROVs and conducting acoustic metrology. The system operates by measuring acoustic ranges to a seabed array of transponders. These ranges are then passed through a least squares computation to precisely trilaterate a position. As the system utilises a fixed seabed array, the system precision remains the same regardless of water depth.*

### COURSE OBJECTIVES

This course provides the basic theoretical knowledge together with a thorough practical understanding of the operation of Sonardyne's Fusion LBL software utilising our 6<sup>th</sup> Generation subsea acoustic positioning hardware. The course covers all aspects LBL survey scenarios using hands-on simulators and/or in-water equipment operation (\*).

(\* Plymouth training centre only)

### WHO SHOULD ATTEND?

- Hydrographic Surveyors
- Survey Engineers

### COURSE TEACHING MEDIUM

The course theory presentations and the accompanying written material are in English.

### COURSE DURATION

The course is 4 days in duration

### NUMBER OF PARTICIPANTS

Courses are for up to 6 participants. This instructor to participant ratio ensures good one-to-one support, during the hands-on sessions.

If required bespoke courses can be run for more than 6, with an additional trainer required.

### BOOKING AND CONFIRMATION

Details of course dates, training centre locations and current availability of places can be found at the Training Course section of Sonardyne's website:

[www.sonardyne.com](http://www.sonardyne.com)

To reserve a place on a course, please email:

[training@sonardyne.com](mailto:training@sonardyne.com)

### TRAINING COURSE DELIVERABLES

- Folder containing course material along with a USB stick containing electronic course material and relevant product manuals
- Fusion 1 LBL competency certificate

## COURSE SYLLABUS

### Theory

- Introduction to Sonardyne & Acoustic positioning systems.
- Long Baseline Positioning Principles
- Calibrations and Processing
- 6G Command Language
- Error theory
- Least Squares
- Sonar Equation
- Wideband signal processing and correlation
- Signal Diagnostics

### Practical / Examination

- Long Baseline Calibration and QC of Calibration Data (Relative and Absolute)
- Box-in Calibration and QC of Data
- Transceiver Tracking and QC of Data
- Tracking Diagnostic Tools (travel times)
- Mobile Compatt and Structure Tracking (acoustic heading)
- Compatt Measurement only Sensor Tracking
- Fusion 6G Hardware setup serial and acoustic testing (iWand / 6G terminal lite)
- Application of Geodesy, Convergence and Scale Factor
- Problem Solving scenarios
- Application of Sound Speed Profiles, Tidal Variation and Environmental Factors
- Troubleshooting