SEAMAP
A MIND Technology Business

SEAMAP U.K. TRAINING

GUNLINK COURSE AGENDAS

Established in 1987, Seamap, a wholly owned subsidiary of MIND Technology, Inc., designs, manufactures and sells a broad range of proprietary products for the seismic, hydrographic and offshore industry. With engineering, manufacturing, sales and support bases located in Singapore, Malaysia and the United Kingdom, Seamap is able to respond to customer's needs anywhere in the world 24-hours a day.

The following details refer to the options for training which can be carried out both in the UK and Singapore. We run courses to meet customer demand and are happy to try and accommodate any date convenient to your crews. To check whether a course date is available please email: seamapsales@mind-technology.com

	GunLink Basic Operator	GunLink 2000 Advanced	GunLink 4000 Advanced (Observers)	GunLink 4000 Advanced (Mechanics)
Duration	Two Days	Two Days	Three Days	Three Days
Objectives	To give users enough information to be able to operate a system on a production vessel for the first time. The course uses the latest Release 4 version of the GunLink software which might also prove useful for users who only have experience with earlier versions of the system.	To equip the user with the skills and knowledge to troubleshoot and maintain a GunLink 2000 System.	To equip the user with the skills and knowledge to troubleshoot and maintain a GunLink 4000 System. The focus is directed on aspects of the system that are of more interest to observers.	To equip the user with the skills and knowledge to troubleshoot and maintain a GunLink 4000 System. The focus is directed on aspects of the system that are of more interest to mechanics.
Prerequisites	None	GunLink Basic Operator course or equivalent experience with the system.	GunLink Basic Operator course or equivalent experience with the system.	GunLink Basic Operator course or equivalent experience with the system.
Upon completion, students will be able to…	• Interpret the Display software • Configure a descriptive file that identifies the in-water equipment controlled by the GunLink • Follow suggested operational procedures for running a seismic line and recording data • Interpret log messages and apply some basic reasoning to identify faults	• Describe the key GunLink 2000 hardware elements and how they interact with the rest of the equipment • Identify faults on the system and describe their probable cause • Suggest the best possible response for resolving problems • Test a navigation interface and confirm system timing • Replace and configure a GPS internal receiver • Troubleshoot a Gun Control Unit (GCU) Chassis and backplane	• Describe the key GunLink 4000 hardware elements and how they interact with the rest of the equipment • Identify faults on the system and describe their probable cause • Suggest the best possible response for resolving problems • Replace a complete Gun Firing and Sensor Module (GFSM) • Install software on a computer and then set it up as a Host, Spare or Remote machine • Replace the Gun Firing Module from a GFSM	• Describe the key GunLink 4000 hardware elements and how they interact with the rest of the equipment • Identify faults on the system and describe their probable cause • Suggest the best possible response for resolving problems • Replace a complete Gun Firing and Sensor Module (GFSM) • Maintain GunLink Web Database entries and retrieve performance data on the in-water equipment • Replace the Gun Firing Module from a GFSM

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	GunLink Basic Operator	GunLink 2000 Advanced	GunLink 4000 Advanced (Observers)	GunLink 4000 Advanced (Mechanics)
Upon completion, students will be able to… (continued)	• Interact with and maintain the GunLink Web database • Apply software updates and patches and update firmware as necessary	• Interpret Far Field Signature Data • Install GunLink software and complete a network installation of a Remote and Host Computer • Replace an ATX Power Supply on a GCU • Configure a Timing Control Unit (TCU) backplane for external interfaces • Complete an installation of a GunLink system to a mock gun array • Understand the functionality of the fundamental components of the acquisition software - Display • Create Database Backups and understand the process of contract archiving V4SysDetails recovery • Apply software updates and patches and update firmware as necessary	• Replace a Gun Plate Module from a GFSM • Replace a Termination Electronics Module (TEM) • Replace component boards inside a TEM • Replace an Umbilical Power Supply Unit Controller board (UPSUC) • Interpret the GunLink software to aid troubleshooting • Create database backups and understand the process of contract archiving • Update the software and firmware • Interpret Far Field Signature Data	• Replace a Gun Plate Module from a GFSM • Replace a Termination Electronics Module (TEM) • Replace component boards inside a TEM • Replace an Umbilical Power Supply Unit Controller board (UPSUC) • Understand the functionality of the fundamental components of the acquisition software, Display
Course Content	**Basic Seismic Principles:** • Basics of seismic air gun operation • Essential features of a gun controller • Dynamic timing of a source **Introduction to the GunLink System:** • Key components and their organisation • Hardware and software architecture • Cycle Sequence • Analogue to digital conversion **Configure Software:** • Building a configuration by example • Creating new inventory items • Setting Preferences **Data Acquisition:** • GunLink Panel Applet - reinforcing explanation of the host programs and controlling them • Display software • Navigation header interface	**Review of the GunLink 2000 System:** • Spherical divergence model. • Superposition Principle and Hydrophones • Hardware Architecture • Software architecture • Analogue to digital conversion • Gun Tuning Algorithm **Configure Software:** • Building a Configuration by Example • Creating new inventory items **Data Acquisition:** • GunLink Panel Applet • Display Software • Conventional versus Sub-Source Cycling • Multi-point Firing Scheme • Navigation Header Interface • System Timing • Recording Long-Phone hydrophone traces	**Introduction to the GunLink 4000 System:** • Key features • Key components and their organisation • Hardware Architecture • Software architecture • Analogue to digital conversion **Configure Software:** • Differences between GL4K and GL2K • Configuration Examples **Data Acquisition:** • GunLink panel applet • Display software • Conventional versus Sub-Source Cycling • Multi-point Firing Scheme • Navigation header interface • System timing • Auto-Fire Options • Signature Capture	**Introduction to the GunLink 4000 System:** • Key features • Key components and their organisation • Hardware Architecture • Software architecture • Analogue to digital conversion **Array Troubleshooting:** • Bus Monitor Software **Configure Software:** • Differences between GL4K and GL2K • Configuration Examples • GunLink Web maintenance of configurations • Swapping guns in GunLink Web • Swapping solenoids in GunLink Web **Data Acquisition:** • GunLink panel applet • Display software • Navigation header interface • System timing

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Course Content (continued)	**Timing Control Unit:**
	• Basic operation
	GunLink Web:
	• Line Summaries
	• Gun performance summaries
	• Depth and Pressure status displays
	• Gun Delay and Error Statistics
	• Graphical Representation
	• Inventory Management
	• Maintenance and Reports
	Operational Procedures:
	• Master Fire Mode
	  • Conventional
	  • Sub Source
	  • Multi-Point
	• Soft Start
	• Sensor Signature Capture and Interpretation
	• Using the Smart Pick Detection Algorithm
	• Host System Preferences
	• Auto-Fire Options
	• Learning by recovering from a broken interface
	Database Management:
	• Summarising Data
	• Contract Archiving
	Applying Software Patches:
	• Automatically and Manually Updating Firmware
	Troubleshooting:
	• Tasks for various software components
	• Hardware related troubleshooting
	• Seeking further support
		• Recording SEGD and merging hydrophone traces with third party software.
		Timing Control Unit:
		• Input / Output Jumper Settings
		• Replacing PSU
		• Replacing Backplane
		• Swapping transducer cards from a GCU
		GunLink Web:
		• Retrieving Data and Maintenance
		GPS Receiver:
		• Configuring and testing
		GCU Chassis:
		• COMMS Signals, Ethernet Traffic, Voltage Rails
		• Replacing an ATX Power Supply
		• Replacing a Front Panel Assembly
		• Replacing a Front Panel Switch
		Maintenance and Reports:
		• Far Field Signature Synthesis
		Interpretation:
		• Real-World Application
		Troubleshooting:
		• Scientific Linux Commands
		• Useful Networking Commands
		• GunLink Specific Commands
		• GunLink Scripts
		• Tasks for various software components
		• Hardware related troubleshooting
		• Software Installation
		• Computer Setup as Host or Remote
			• Recording Long-Phone hydrophone traces
			• Recording SEGD and merging hydrophone traces with third party software.
			Timing Control Unit (TCU):
			• Input / output jumper settings
			UPSUC and Lambda Power Supplies:
			• Front panel controls and menus
			• Fault conditions
			• Replacing boards
			Deck Lead Breakout Module (DLBM):
			• Front panel indicators
			• Fault-finding on the DLBM
			Winch Reel Interface Module:
			• Installation
			• Replacing Media Converters
			TEM:
			• Components and interfacing
			• Board replacement
			• Differences in TEM design
			Array Connections:
			• Power and telemetry lines
			• 16-Way cable connections
			GFSM:
			• Module description and variants
			• Bus architecture
			• Fault finding
			• Replacement
			• Repair options
			Far Field Signature Synthesis Interpretation:
			• Superposition principle
			• Real-World application
			Troubleshooting Q&A session
				Timing Control Unit (TCU):
				• Input / output jumper settings
				• Replacing Power Supply Unit (PSU)
				• Replacing backplane
				UPSUC and Lambda Power Supplies:
				• Front panel controls and menus
				• Fault conditions
				• Replacing boards
				Deck Lead Breakout Module (DLBM):
				• Front panel indicators
				• Fault-finding on the DLBM
				Winch Reel Interface Module:
				• Installation
				• Replacing Media Converters
				TEM:
				• Components and interfacing
				• Board replacement
				• Umbilical Termination Module
				• Disassembly and assembly
				• How to swap a TEM
				Array Connections:
				• Power and telemetry lines
				• 16-Way cable connections
				GFSM:
				• Module description and variants
				• Bus architecture
				• Fault finding
				• Replacement
				• Repair options
				Maintenance and Reports
				Troubleshooting Q&A session

Seamap Training Courses

Our courses normally require a minimum number of six delegates, but we would be willing to discuss fewer numbers of delegates. We can accommodate larger groups but would prefer to have a practical number of delegates to make for effective instruction. The maximum number of delegates will be advised at the time of booking. Courses are a combination of lecture with the use of a projector and flipchart, software driven examples, and hands-on practical work. We will aim to provide a dual-screen workstation for each student but, for larger classes, students will be able to work together at a single workstation.

If delegates are unable to attend a course as scheduled then we would require notice at least 10 working days before the course commences otherwise the course fee will be charged in full.

Seamap reserves the right to cancel or change the dates, times or location of a confirmed course with 30 days' notice. In the event of cancellation of a confirmed course by Seamap, Seamap shall not be held in any way responsible for any costs, including airfare or other transport costs, hotel expenses, or other damages the client may incur.

Seamap shall not be held responsible for any hotel costs, expenses or damages incurred by the delegates.

Seamap must be in receipt of a purchase order to guarantee places. Seamap reserves the right to cancel courses if attendance is too low. To avoid disappointment, please book early as demand for places is high.

Course Venue

The training staff are normally based in the UK but for delegates' convenience, the courses can be held in Singapore in which case all trainer's expenses will be charged to the client. Please email sales@seamap.com for details.

The course agendas detailed above are outlines of the material covered. Please note that actual content may change as we like to adapt the course to suit the personnel, their specific requests and their company's use of GunLink. The GunLink course expands the user's knowledge to the system's true capabilities.

Students are provided with a set of course notes as well as stationery for making their own notes and are not required to bring anything to the course. All certificates will be handed out at the end of the course or posted to your company's head office shortly after course completion.

Lunch is provided and refreshments are available throughout the course. If delegates have particular dietary requirements, special requirements, allergies or are registered disabled then please email seamapsales@mind-technology.com with details at least 5 working days in advance of the course start date. All information will be treated in the strictest of confidence. All enclosed public places, including training rooms, are non-smoking. We therefore ask delegates to respect these at all times during their stay. All accommodation and travel to and from the course is the responsibility of the delegate. The course runs from 09:00 until 17:30 each day. To ensure course content isn't missed we do ask that you book any return flights with a departure time of no earlier than 20:00 on the last day of the course.

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