

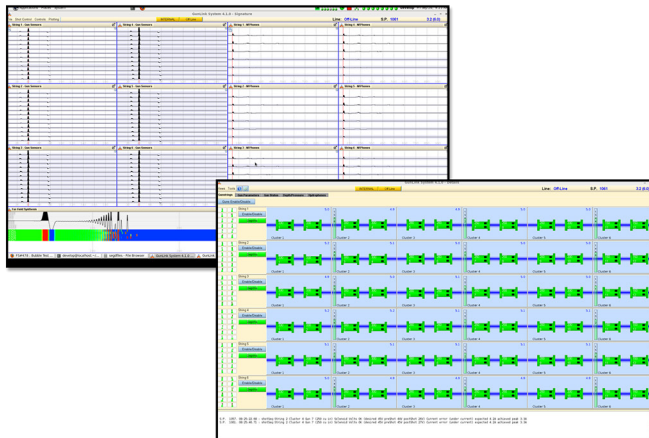


**SEAMAP**  
A MIND Technology Business

## SEAMAP GUNLINK™ 2000

ON-BOARD SOURCE CONTROLLER AND HYDROPHONE DATA ACQUISITION SYSTEM

*The GunLink 2000 is the first phase of Seamap's range of new generation source control systems.*



- Gun Capacity: Firing and Sensor Circuits for up to 256 guns (128 GI Guns).
- Near Field Phone Monitoring: Up to 512 near field phone 24 bit inputs sampled continuously at 0.1mS.
- Depth and High Pressure Inputs: 24 depth or high pressure inputs per Gun Control Unit with 7 compressor / manifold pressure inputs and one atmospheric pressure input accommodated via the Timing Control Unit.
- User Interface: Twin screen Graphical User Interface allows for simple operator monitoring and control as well as indicating deterioration of gun performance.
- MOB Interface: Direct interface to vessel's MOB system to disable gun firing if a MOB incident occurs.
- Fault Detection & Self Diagnosis: System software provides a full suite of on-line help, internal fault detection and diagnosis.

The system provides on-board firing control and sensor timing monitoring of up to 256 standard guns (128 GI guns) and is capable of receiving hydrophone data from up to 512 near field phones.

The GunLink 2000 comprises of a Host Computer, Timing Control Unit (TCU) and a number of Gun Control Units (GCU), each capable of controlling up to 16 guns. The TCU generates the system timing signals and interfaces with the seismic recording and navigation systems. Timing is derived from an internal GPS receiver and distributed to the GCU's. Each GCU contains circuitry to monitor individual gun fire times, near field phone data, gun depth, air line pressure and solenoid coil current. The GCU also provides the firing pulse to each gun at the calculated time for a programmable period and voltage. The analog circuitry allows each near field phone and firing sensor to be monitored continuously using a 24 bit A/D converter sampling at 0.1mS thus providing increased gun firing accuracy and auto-fire detection.

The Host Computer runs the main operating and control software under the LINUX operating system and provides the main system control and display functions. The software has been designed to be both intuitive and simple to use, providing the operator with real time data and easily recognizable indications of deteriorating gun performance.

### Specifications:

| General System Features              |                                                                                                                                                                                                                                                  |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Total Number of Guns</b>          | 256 (128 GI Guns)                                                                                                                                                                                                                                |
| <b>Monitored Variables</b>           | <ul style="list-style-type: none"> <li>• Gun Fire Time</li> <li>• Near field phone signals (up to 2 per gun)</li> <li>• Depth sensor and air line pressure (up to 24 inputs per 16 gun control unit)</li> <li>• Solenoid coil current</li> </ul> |
| <b>Controlled Variables</b>          | <ul style="list-style-type: none"> <li>• Gun fire time</li> <li>• Gun firing pulse length and voltage</li> </ul>                                                                                                                                 |
| <b>Ancillary Monitored Variables</b> | <ul style="list-style-type: none"> <li>• Atmospheric Pressure</li> <li>• Up to 23 compressor and umbilical line pressure inputs</li> </ul>                                                                                                       |
| <b>Remote Pressure Displays</b>      | Large format digital pressure displays to display umbilical pressures on the gun deck                                                                                                                                                            |
| <b>Supported Guns</b>                | <ul style="list-style-type: none"> <li>• Bolt 1500 and 1900 series Guns</li> <li>• Seamap Sleeve Guns</li> <li>• Sercel G and GI Guns</li> </ul>                                                                                                 |
| <b>Safety Features</b>               | <ul style="list-style-type: none"> <li>• Key controlled remote and local system disable</li> <li>• Bleed resistors on each solenoid output dump charge at system disable</li> <li>• Interface to vessel's MOB system</li> </ul>                  |

| System Performance           |                                                                       |
|------------------------------|-----------------------------------------------------------------------|
| <b>Timing Resolution</b>     | 0.1 mS                                                                |
| <b>Fire Detect Window</b>    | up to 1024 mS                                                         |
| <b>Synchronization Modes</b> | Automatic (Additional algorithms available as required)               |
| <b>Fire Detect Method</b>    | Sensor or Hydrophone selectable                                       |
| <b>Fire Time Pick Method</b> | Zero crossing, level detect, peak detect or combinations of all three |
| <b>Data Time Stamping</b>    | All date time stamped to GPS time                                     |

| Software                                                |                                                                                                                                                                       |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Graphical at-a-glance status screen</b>              | Continuous update for each gun to indicate gun fire; errors (faults); auto fire; double pops; depth; pressure and timing performance                                  |
| <b>Text Based Status in Tabular Format For Each Gun</b> | Physical addressing; volume; timing error value; gun fire delay value; aim point offset value; depth value; array assignment; operational status and fault indication |
| <b>Input Power/Voltage</b>                              | 110 to 240 Volt AC, 50/60 Hz                                                                                                                                          |
| <b>Mounting Heights</b>                                 | 19" Rack Mount in Instrument Room; TCU = 2U; GCU = 7U                                                                                                                 |

**Seamap (U.K.) Ltd.**  
 Unit 34, The Maltings, Charlton Estate  
 Shepton Mallet, Somerset, BA4 5QE, U.K.  
 Tel: +44 [0] 1749 342223  
 Fax: +44 [0] 1749 347588  
 Email: seamapsales@mind-technology.com

**MIND Technology**  
 2002 Timberloch Place, Suite 400  
 The Woodlands, TX 77380  
 United States of America  
 Tel: +1 281-353-4475

**Seamap Pte Ltd.**  
 51 Changi North Crescent  
 Singapore 499626  
 Tel: +65 6545 1054  
 Fax: +65 6545 0585