

In-Water Hydrophone Data Acquisition and Gun Controller System

- **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** : 16 depth and 16 high pressure inputs per 16 gun module with 23 compressor / manifold pressure inputs and one atmospheric pressure input.
- **User Interface** : Dual screens allow operator monitoring and control as well as indicating deterioration of gun performance.
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- **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.

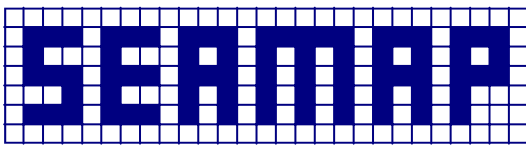


The GunLink 3000 is the second phase of Seamap's range of new generation hydrophone monitoring and gun control systems. The system provides in-water firing control and sensor timing monitoring of up to 256 standard guns (128 GI guns) and is capable of receiving hydrophone data from up to 512 near field phones. The GunLink 3000 moves the system electronics in to the water allowing it to be mounted close to the gun array, thus reducing umbilical diameters, increasing umbilical lengths and allowing shorter offsets.

The GunLink 3000 comprises of a Host Computer, Timing Control Unit (TCU) an In-Water Module (IWM) for each gun string and a Gun Plate Module (GPM) for each gun plate. 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

IWM's. Each IWM contains circuitry to monitor individual gun fire times and solenoid coil current. The IWM also provides the firing pulse to each gun at the calculated time for a programmable period and voltage. The GPM's are mounted on each gun plate and monitor the near field phone data, gun depth and air line pressure. The in-water 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.



GunLink 3000

Specifications

General System Features	
Total Number of Guns	256 (128 GI Guns)
Monitored Variables	Gun fire time Near field phone signals (Optionally up to 2 per gun) Depth sensor and air line pressure (Up to 16 inputs per 16 gun control unit) Solenoid coil current
Controlled Variables	Gun fire time Gun firing pulse length and voltage
Ancillary Monitored Variables	Atmospheric pressure Up to 23 compressor and umbilical line pressure inputs
Remote Displays	Large format digital pressure displays to display umbilical pressures on the gun deck.
Supported Guns	Bolt 1500, 1900 and APG I/O Sleeve Gun G and GI Gun
Safety Features	Key controlled remote and local system disable. Bleed resistors on each solenoid output dump charge at system disable. Interface to vessel's MOB system.
System Performance	
Timing Resolution	0.1 mS.
Fire Detect Window	120 mS.
Synchronization Modes	Automatic (Additional algorithms available as required)
Fire Detect Method	Sensor or Hydrophone selectable
Fire Time Pick Method	Zero crossing, level detect, peak detect or combinations of all three.
Data Time Stamping	All data time stamped to GPS time
Software	
Graphical at-a glance status screen	Continuous update for each gun to indicate Gun fire; errors (faults); auto-fire; double pop; depth; pressures and timing performance for each gun.
Text based status in tabular format for each Gun	Physical addressing; volume; timing error value; gun fire delay value; aim point offset value; depth value; array assignment; operational status and fault indication.
Input Power	110 to 240 Volt AC, 50/60 Hz;
Dimensions	19" Rack Mount in Instrument Room; TCU = 2U;

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