Teledyne Marine Seismic
Solutions from a Single Supplier
Through organic growth and acquisitions, Teledyne Marine has amassed a series of core technologies and expertise to address the needs of the seismic industry.

The Teledyne Marine Seismic group, comprised of AG Geophysical, Bolt, Real Time Systems, and Geophysical Instruments, supplies the world’s marine seismic fleets with high-quality ruggedized submersible connectors, energy sources, source management systems, and complex hydrophone systems for geophysical surveys and other marine market applications.

Allied contributions from ODI and Impulse add capabilities for subsea electrical and optical connectivity to create Life of Field Seismic systems for continuous monitoring in harsh environments.

Land-based seismic applications are served by Teledyne Cable Solutions, providing application-specific bulk cable and assemblies that withstand the rugged conditions found in surveying, fracturing or drilling.

Our products synchronize and monitor arrays of sound sources used in seismic surveys. We design and manufacture seismic sensor and sensor arrays for subsurface geological structure mapping, identifying features likely to contain hydrocarbon deposits under land and sea, and surveying below the ocean floor to facilitate pipe laying and structure placement.

### Applications
- 2D, 3D, and 4D Seismic Surveys in Deep Water, Transition Zone and Vertical Seismic Profiling
- High-resolution Surveys
- Remote Recording and Control Surveys (GPS/Radio Link)
- Temporary/Portable Surveys
- Source Monitoring
- Drilling (Platform Vertical Seismic Profile (VSP))
- Drilling (Platform Check Shot)
- Random Fire Operation Pattern Surveys
- Life of Field Seismic Systems
- ROV, Remote Sensing and Buoys
- Land Fracturing and Drilling

### Products
- **Geophysical Hydrophone Arrays**: Records the acoustic source sound wave return
- **Real Time Systems Controller/Synchronizer**: Manages the timing of the sources and records all of the Q/C functions for later analysis
- **Seismic Source Management Systems**
- **Acoustic Source Cluster**
- **Acoustic sources, standard and environmentally friendly**
  *See eSource case study on page 7*

### Bulk Cable and Assemblies
- **Rugged Depth and Pressure Transducers**
- **Near-Field Hydrophones**
- **Acoustic Source Synchronization Valves**
- **Streamers/Hydrophones/Geophones**
- **Terminations**
- **Bulk Cable Interconnects**
- **Acoustic Source Cable Streamer Interconnect**
- **Ruggedized, Waterproof, Interconnect**
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1. Connector Housings and Inserts
2. Non-Acoustic Sections
3. Streamer Sections
4. Tail Swivels
5. Weak Links
6. Submersible Streamer Interconnect
7. Streamer Hydrophones
8. Smart Hydrophone
9. Inline Cables, Connectors, and Transducers
10. Acoustic Sources
11. Source QC (SSMS)
12. Source DC (SSWS)
13. Slip Rings and Deck Leaders
14. SmartSource Gun Controller/DC

Life of Field Seismic (LoFS) Systems

Teledyne Marine Seismic

Onshore Seismic Surveys and Land Fracturing & Drilling

Marine Seismic Components and Systems for Extreme Environment Survivability

Optical and Hybrid Wet Mate Connectors meet requirements for lower optical return loss

Subsea Pressure-Balanced Distribution Units allow modularity and field expansion

Electro-Optical Field-Accorded Subsea Cable Terminations (FACTs) combine power and data elements for a streamlined field architecture

Fully-Sealed Junction Boxes designed for the most demanding applications

Ruggedized Bulk Cable for harsh environments

Professional Industrial Storage and Deployment Reels for power, data signal, and grounding cables

Truck and Trailer Engine, Transmission, and Lighting Harnesses designed for reliable connectivity in tough conditions

APC Optical Wet Mate Connectors meet requirements for lower optical return loss
The combined resources of the Teledyne Seismic Scientific collection, a world class research laboratory with the technical depth to develop technologies designed for demanding offshore applications. Combined with our staged-gate new product development approach and rigorous reliability and qualification testing, these capabilities result in dependable operational performance validated through science.

Additional Capabilities

- Microelectromechanical Systems (MEMS)
- Inertial Navigation Systems (INS) and gyrocompasses
- Chip Scale Atomic Clocks (CSAC)
- Joint Industry Project with Webb Research for the development of a swept source for environmentally-sensitive regions
- Measure wave action, salinity and temperature with a wide variety of sensors and software
- Deploy subsea vehicles for operational and environmental support
- In-line machining and tooling
- Over 65,000 square feet of manufacturing and support area
- 24-hour field support

Innovation & Product Development

The Teledyne Marine Seismic group operates two facilities located in the greater Houston, TX region, and a European support facility, all with advanced machining, manufacturing and testing capabilities. An experienced and well-trained workforce delivers integrated, highly reliable product solutions, all from a single, established source to ensure a secure supply chain.

Facilities

- Purpose-built streamer assembly and repair facilities
- Pressure vessels for hydrostatic testing
- Acoustic test facilities

Case Studies

eSource™: Environmentally-Conscious Exploration

Expanding environmental regulations the world over are requiring tighter control of the acoustic sources’ bandwidth. As we learn more about marine mammal hearing sensitivities, there is a greater need for an environmentally conscious acoustic energy source for marine seismic exploration. As a result, Teledyne Bolt developed a bandwidth-controlled acoustic source that maximizes the sound frequencies in the range identifiable as hazardous to marine life. The design required greater than usual attention to engineering detail due to an increase in mechanical control and sophistication.

The main challenge was to engineer and qualify a higher stress design to be as reliable as ever. The resulting product, eSource, is a tool that tailors output to limit high frequency emissions to better meet regulation. This mitigation of high frequency energy comes with no compromise to the low frequency information crucial to seismic exploration. The benefit of this environmentally conscious source is the ability to negotiate more easily with environmental organizations.

A Ruggedized Source Connector for Larger Gun Volumes

AG Geophysical responded to field feedback concerning the survival of source connectors on larger than usual acoustic sources. AG Geophysical has developed a ruggedized source connector designed for increased survivability.
Teledyne Marine Seismic

Headquartered in Houston, TX, the Teledyne Marine Seismic group is located in close proximity to many of its customers. The Seismic group is a member of Teledyne Marine, a global organization that delivers innovative products and solutions to the offshore, oceanographic, and defense industries.

Training Available

Reduce your total costs as you increase control over your investments. Learn to install, operate, and maintain Teledyne product systems. Teledyne Marine trains customer technicians upon request. To discuss costs and schedules, contact us.