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SEISMIC ASIA PACIFIC

SEISMIC ASIA PACIFIC PTY LTD

Seismic Asia Pacific Pty Ltd

The Equipment Integration Specialists

Rental Equipment Brochure – Hydrographic, Oceanographic & Autonomous Systems

ABOUT SEISMIC ASIA PACIFIC PTY LTD

Established in 1959, Seismic Asia Pacific Pty Ltd is a leading provider of Hydrographic, Oceanographic, Geophysical and Navigation Systems within Australia and throughout Southeast Asia.

With its Corporate Office located in Salisbury, Queensland Australia, Seismic Asia Pacific provides both hardware and software equipment and system solutions to local government, defence, and resource related sectors.

Seismic Asia Pacific has sales and maintenance offices located in Australia, China, Indonesia, Philippines, Singapore, and Thailand.

Seismic Asia Pacific and its associated companies are fully independent hydrographic and geophysical equipment suppliers and marine survey equipment manufacturer. Offering rental or sale opportunities, new and "experienced" equipment to the oil and gas industry, seismic contractors, environmental agencies, governmental agencies, and universities.

Seismic Asia Pacific remains associated with various leasing vendors in the industry, which enables them to compete in both pricing and service in sales, rental, support, and equipment integration on a global scale. With offices world-wide there is no project we cannot assist with.

Seismic is a company that excels in the delivery and support of COTS products and the leasing of major exploration and research equipment worldwide. Seismic is cognizant of international hydrographic operations, navigational and positioning requirements, and in-service support requirements. We have the experience and capability to provide low-risk and cost-effective commercial, technical, project management and logistic solutions.

For many companies, it is not practical to make significant capital investments in new equipment that will spend more time on a shelf than in the field.

Leasing Advantages:

- Reduce expensive equipment inventory;
- Maximize cash flow and avoid unnecessary debt;
- Access equipment on-demand as needed.

Over the past thirty years Seismic has specialized in the fields of hydrographic, navigation and positioning, seismic and mine warfare data logging and processing systems, and associated sensors in the leasing, supply, installation, and maintenance of related Commercial-Off-The-Shelf (COTS) products.

The company has matured concurrently with the development of more sophisticated sensors and standardization of COTS logging and processing systems. SAP has excelled in the COTS domain, with increasing sustained sales and major project awards being achieved throughout Australasia and Southeast Asia.

SEISMIC ASIA PACIFIC PTY LTD

Click on each category for our wide range of leasing equipment!

Unmanned & Remote Systems

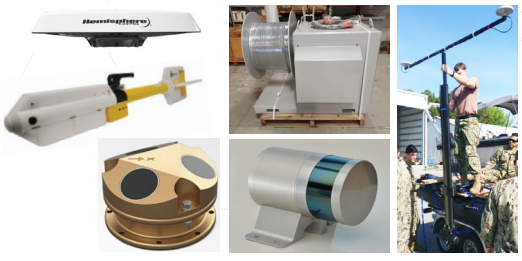
Multi-Beam Echo Sounder

Side Scan Sonar

Inertial Navigation System (INS)

Profilers

Geophysical



And Many More…!

Norbit WINGHEAD i80s multibeam Bathymetric System

SUPERIOR PERFORMANCE ULTRA HIGH-RESOLUTION INTEGRATED 3D&4D MEDIUM RANGE MOTION STABILISED BATHYMETRIC SYSTEM

Designed to perform in extreme operational environments with high vessel motion, this cylindrical ultra-high resolution curved array bathymetric system, allows for rapid anywhere anytime mobilisation.

NORBIT WINGHEAD “S” series sonars are based on a state-of-the-art analogue and digital platform featuring powerful signal processing capabilities, offering active roll and pitch stabilized bathymetry plus several imagery and backscatter outputs as standard ensuring the highest quality survey data performance. With broad R&D expertise, NORBIT has developed - from the ground-up - exciting new technology that allows existing and new applications to benefit from the advantages offered by a compact wideband curved-array multibeam sonar.

The NORBIT WINGHEAD i80S is a compact ultra-high resolution curved array broadband multibeam sonar designed for use in the most demanding operational environments. Characterised further by a small form factor; low power draw and tight integration, WINGHEAD i80S installation can occur on surface survey platforms ranging from small USVs to large vessel permanent hull mounts.

Supported by DCT (NORBIT Integrated Data Acquisition Software) for efficient survey data acquisition.

Features

- Active Roll & Pitch Stabilisation
- 80kHz Bandwidth
- Backscatter Outputs (Intensity, Sidescan, Snippet Sidescan, Snippets, Water Column)
- Multidetect
- Pipeline Mode
- Simple Ethernet Interface
- Integrated Sound Velocity Probe
- 1024 Dynamically Focused Beams
- Mounting Bracket Included
- FM & CW Processing
- Exceeds IHO Special Order, CHS Exclusive Order & USACE New Work

NORBIT WINGHEAD i79h

SUPERIOR PERFORMANCE ULTRA HIGH-RESOLUTION CURVED ARRAY BATHYMETRIC SYSTEM

NORBIT introduces the first cylindrical ultra-high resolution curved array bathymetric system, designed for rapid anywhere anytime mobilization featuring the highest standard industry leading integrated GNSS/INS positioning system.

NORBIT WINGHEAD sonars are based on a state of the art analogue and digital platform featuring powerful signal processing capabilities, offering roll stabilized bathymetry and several imagery and backscatter outputs ensuring the highest quality survey data performance. With broad R&D expertise, NORBIT has developed - from the ground-up - exciting new technology that allows existing and new applications to benefit from the advantages offered by a compact wideband curved-array multibeam sonar.

The NORBIT WINGHEAD i79h is a compact ultra-high resolution curved array broadband multibeam sonar offering tight integration with GNSS/INS (Applanix OceanMaster) that is designed for use in the most demanding operational environments such as under bridges or in rough sea conditions. Characterised further by a small form factor; low power draw and tight integration, WINGHEAD i79h installation can occur on surface survey platforms ranging from small USVs to large vessel permanent hull mounts.

Supported by DCT (NORBIT Integrated Data Acquisition Software) for efficient survey data acquisition

NORBIT- iWBMS EKINOX NT TURNKEY MULTIBEAM SONAR SYSTEM

COMPACT AND HIGH-RESOLUTION CURVED ARRAY BATHYMETRIC MAPPING SYSTEM BY NORBIT.

This all-in-one tightly integrated broadband multibeam turnkey solution offers high resolution bathymetry over a wide swath. The high-end sonar with SBG Ekinox GNSS/INS embedded into the unit ensures fast and reliable mobilisation and highest quality sounding for surveys in all conditions.

The WBMS-series are based on a flexible sonar platform that utilizes the latest in analogue and digital signal processing. With broad R&D expertise, NORBIT has developed, from the ground-up, exciting new technology that allows existing and new applications to benefit from the advantages offered by a compact wideband curved-array multibeam sonar.

- Multibeam Sonar with Integrated
- Inertial Navigation System & Integrated NTRIP Client
- 80kHz Bandwidth
- Roll-stabilisation
- Backscatter outputs (Intensity,
- Sidescan, Sidescan Snippets, Snippets, Water Column)
- Multidetect
- Simple Ethernet Interface
- Integrated Sound Velocity Probe
- Hydrodynamic Fairing
- Mounting Bracket Included
- FM & CW Processing
- Flexible Power
- Exceeds IHO Special Order, CHS Exclusive Order & USACE New Work

NORBIT Winghead i77h
SUPERIOR PERFORMANCE ULTRA HIGH-RESOLUTION CURVED ARRAY BATHYMETRIC SYSTEM.

NORBIT introduces the first cylindrical ultra-high-resolution curved array bathymetric system, designed for rapid anywhere anytime mobilization featuring the highest standard industry leading integrated GNSS/INS positioning system.

NORBIT WINGHEAD sonars are based on a state-of-the-art analogue and digital platform featuring powerful signal processing capabilities, offering roll stabilized bathymetry and several imagery and backscatter outputs ensuring the highest quality survey data performance. With broad R&D expertise, NORBIT has developed - from the ground-up - exciting new technology that allows existing and new applications to benefit from the advantages offered by a compact wideband curved-array multibeam sonar.

The NORBIT WINGHEAD i77h is a compact ultra-high resolution curved array broadband multibeam sonar offering tight integration with GNSS/INS (Applanix OceanMaster) that is designed for use in the most demanding operational environments such as under bridges or in rough sea conditions. Characterised further by a small form factor; low power draw and tight integration, WINGHEAD i77h installation can occur on surface survey platforms ranging from small USVs to large vessel permanent hull mounts.

Supported by DCT (Data Collection Tool) for efficient survey data acquisition.

Key Features:

- Multibeam Sonar with Integrated Inertial Navigation System & Integrated NTRIP Client
- 80kHz Bandwidth
- Roll-stabilisation
- Backscatter outputs (Intensity, Sidescan, Sidescan Snippets, Snippets, Water Column)
- Multidetect
- Pipeline Mode
- Simple Ethernet Interface
- Integrated Sound Velocity Probe
- 1024 Dynamically Focused Beams
- Mounting Bracket Included
- FM & CW Processing
- Exceeds IHO Special Order, CHS Exclusive Order & USACE New Work

NORBIT- iWBMSh STX HIGH-END TURNKEY MULTIBEAM SONAR SYSTEM

For High Resolution 3D&4D Bathymetric Survey

5-210° FLEXIBLE SECTOR (SHALLOW WATER IHO SPECIAL ORDER >155°) DEPTH RANGE 0.2-275m (160m TYPICAL)

Go-anywhere, go-anytime ultra-high 3D resolution curved array bathymetric mapping solution featuring industry leading GNSS/INS positioning system from NORBIT.

This most compact, highest resolution, tightly integrated, broadband multibeam sonar solution offering a curved array and GNSS/INS that is suited for the most demanding environments (Applanix OceanMaster). The iWBMSh STX is ready for rapid mobilisation and delivers highest XYZ performance for the price.

The iWBMSh STX is fully integrated with the highest performing sensors to work in the most challenging environments (under bridges or in rough sea conditions). Small form factor, low power draw and tight integration allow installation on any survey platform (permanent hull mount or pole mount). NORBIT STX uses rapid electronic transmit beam scanning to combine proven 2D bathymetry into 3D georeferenced bathymetry. For dredge application, a 4D experience is achieved by visualising the change in 3D bathymetry as a function of time. Hands-free system tuning ensures quality data on the first survey. Supported by DCT (Data collection Tool) for data acquisition.

NORBIT iWBMS Turnkey Multibeam Sonar System

Introducing the all-new, compact and high resolution curved array bathymetric mapping system by NORBIT.

This all-in-one tightly integrated broadband multibeam turnkey solution offers high resolution bathymetry over a wide swath. The high-end sonar with globally leading GNSS/Inertial Navigation System embedded into the unit ensures fast and reliable mobilization and highest quality sounding for installations in all conditions.

The WBMS-series are based on a flexible sonar platform that utilizes the latest in analog and digital signal processing. With broad R&D expertise NORBIT has developed, from the ground-up, exciting new technology that allows existing and new applications to benefit from the advantages offered by a compact wideband curved-array multibeam sonar.

Available Rental Equipment.

NORBIT iWBMS 400 kHz with 80 kHz bandwidth (Freq. agility 200-700 kHz) integrated with Applanix Wavemaster II INS and Real-time Sonar Head Sound Velocity Sensor.
0.9°x1.9°@400kHz, 0.5°x1.0°@700 kHz, depth range 0.2-275m. Optional iLiDAR.

NORBIT iWBMS 160-400 kHz fully selectable, up to 80 kHz bandwidth integrated with Applanix Wavemaster II INS and Real-time Sonar Head Sound Velocity Sensor.
2.0°x2.0°@200kHz, 1.0°x1.0°@400kHz, depth range 0.2-500m. Optional iLiDAR.

NORBIT iWBMSh 400 kHz with 80 kHz bandwidth (Freq. agility 200-700 kHz) integrated with Applanix Oceanmaster INS and Real-time Sonar Head Sound Velocity Sensor.
0.9°x1.9° @400kHz, 0.5°x1.0°@700 kHz, depth range 0.2-275m. Optional iLiDAR.

NORBIT iWBMS NT 400 kHz with 80 kHz bandwidth integrated with Applanix Wavemaster II INS and Real-time Sonar Head Sound Velocity Sensor.
0.9°x0.9°@400kHz, 0.5°x0.5°@700kHz, depth range 0.2-300m. Optional iLiDAR.

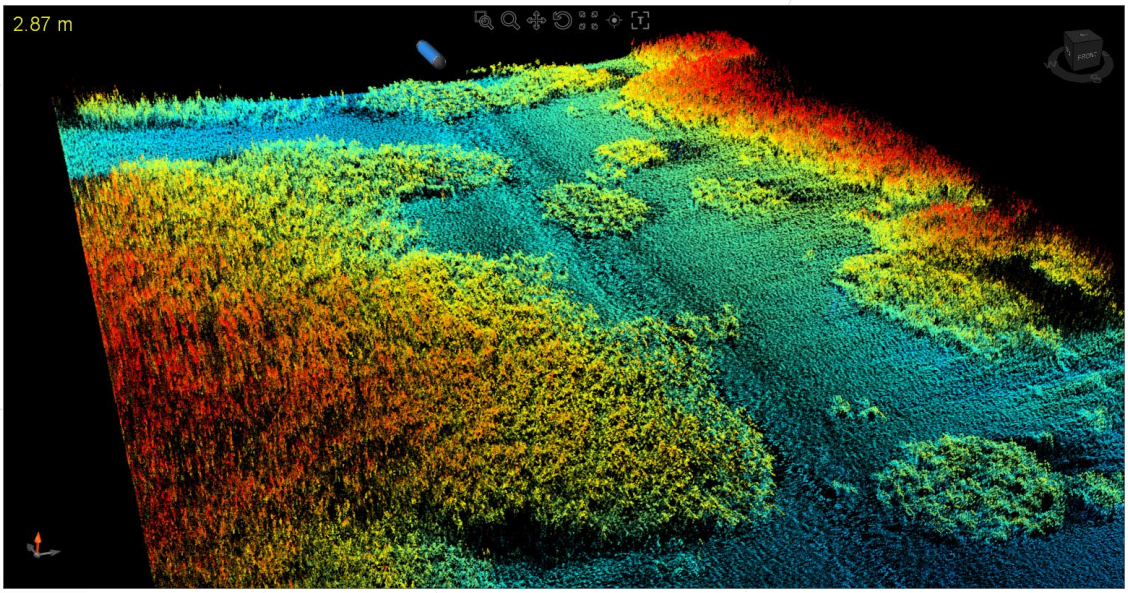
NORBIT iWBMSh STX 400kHz with 80 kHz bandwidth (Freq. agility 200-700 kHz) WBMS STX 3D Bathymetric System integrated with Applanix OceanMaster OEM version GNSS/INS and Real-time Sonar Head Sound Velocity Sensor.
0.9°x0.9° @400kHz, 0.5°x0.5°@700kHz, depth range 0.2-300m. Optional iLiDAR.

PING DSP 3DSS-DX-450

RUGGED WORKHORSE FOR CRITICAL OPERATIONS NDAA COMPLIANT UAVS FOR INDUSTRY

The 3DSS-DX utilizes state-of-the-art acoustic transducer array technologies, SoftSonar™ electronics, and advanced signal processing techniques to produce superior swath bathymetry and 3D side-scan imagery. This patented technology is able to resolve multiple concurrent acoustic arrivals, separating backscatter from the seabed, sea-surface, water-column and multipath arrivals. The result is stunning 3D side-scan imagery spanning the entire water-column, and superior swath bathymetry from a compact, easy-to-use sonar.

- Proven Bathymetry Accuracy and Repeatability (IHO Exclusive Order).
- High Resolution True 3D Imagery.
- Real-time 3D point cloud display and target capture software.
- Simultaneous 3D Side-scan, 2D Side-scan, and Bathymetry data outputs.
- Wide swath coverage, up to 14 times water depth.
- Patented processing techniques as well as beamforming eliminates multipath and surface reflection interference.
- Support for 3rd party hydrographic survey hardware and software.
- Compact, Low Power, easy-to-use. Suitable for ASV and AUV applications.



MARITIME ROBOTICS OTTER

A COST-EFFECTIVE TURN-KEY SOLUTION FOR BATHYMETRIC SURVEYS IN SHELTERED WATERS.

Maritime Robotics' Otter USV is the ultimate hydrographic survey tool for mapping sheltered and enclosed waters. With tight integration between the on-board control system which enables autonomy and the multi-beam echo sounder, a bathymetric survey can be executed with a simple, streamlined workflow.

The Otter USV is the smallest member of the Maritime Robotics USV family. With a footprint of only 200 x 108 x 106.5cm (78.7" x 42.5" x 41.9"), it fits into any small cargo van for convenient transportation to survey sites. With a weight of 65kg assembled, and with the ability to be disassembled into parts weighing less than 20kg, a single operator can launch the Otter from a jetty, lake or riverside, or the beach.

The autonomous future is electric the Otter is equipped with electric thrusters that are powered by up to four powerful and easily interchangeable battery packs. This gives the Otter a best-in-class endurance for its size, operating up to 20 hours at 2kn. The battery solution is built with off-the-shelf components, providing easy access to spare parts all over the world.

The Otter can be controlled via a graphical user interface: Maritime Robotics' vehicle control station (VCS), or a mobile phone app. The app provides manual joystick-like control, while VCS has several control modes, such as course and speed control, heading control, or waypoint control. For waypoint control, the operator can easily plan missions consisting of individual waypoints, or use templates for creating common patterns such as lawnmower surveys. Furthermore, live monitoring of sensor data quality parameters and visualisation of actual data are provided in VCS, and sensor parameters can be adjusted in VCS as well.

The Otter's robust catamaran design and the tightly integrated bathymetric survey sensors make this system a cost-effective turn-key solution for bathymetric surveys in sheltered waters such as small lakes, canals, rivers, ponds, and harbour areas.

OTTER RENTAL IS SUBJECT TO CONDITIONS.

IM SOLUTIONS MARINE DRONE 13000

MARINE DRONE 1300 is a multi-mission, flexible shallow

Water (up to less than 10cm) Unmanned Surface Vehicle and easy to transport and deploy.

MARINE DRONE 1300 is a very versatile multi-sensor (ADCP, single beam, environmental sensor) autonomous surface platform. Delivered with a backpack, the MONODRONE 1300 is very easy to deploy in the most difficult to access areas. He can support up to 28kg of payload.

THE MARINE DRONE 1300 endurance is more than 3 hours at 1.2ms depending on the weather conditions.

The hydrodynamic shape design of MONODRONE 1300 induce a stable platform for the survey and thereby delivers high-quality data.

An autonomous boat that can sail precisely in accordance with pre-programed mission planning. A cutting edge technology which make the survey safe an affordable with a diversity of applications, all the while maintaining the highest standards of data quality.

THE MARINE DRONE 1300 is an accessible, easy-to-deploy technology that keeps operators safe.

EQUIPPED WITH SYQWEST STRATABOX

IF1200A HEXACOPTER

RUGGED WORKHORSE FOR CRITICAL OPERATIONS NDAA COMPLIANT UAVS FOR INDUSTRY

American Made Commercial Heavy-Lift Hexacopter Drone

Initially built for Department of Defense (DOD) customers, the IF1200 was designed to support heavier lift capacities, longer flight times, and more rugged operation than the foreign-made systems it was replacing.

Designed with an open-system architecture, the IF1200 can be configured for any aerial application and integrated with third party technology to achieve a specific capability.

LIDAR PAYLOAD INTEGRATIONS

Capable of supporting any Lidar system under 8 kgs. RTF Configurations are available through a strategic partnership with GeoCue and Frontier Precision. The IF1200 supports multiple systems that include Lidar sensors from AstraLite, Riegl, Optech, and Quanergy.

OPTICAL INTEGRATION WITH CAMERAS

The IF1200 supports a range of optical cameras leveraging complete camera control and the ability to write GNSS data directly on the image for photogrammetry and inspection applications.

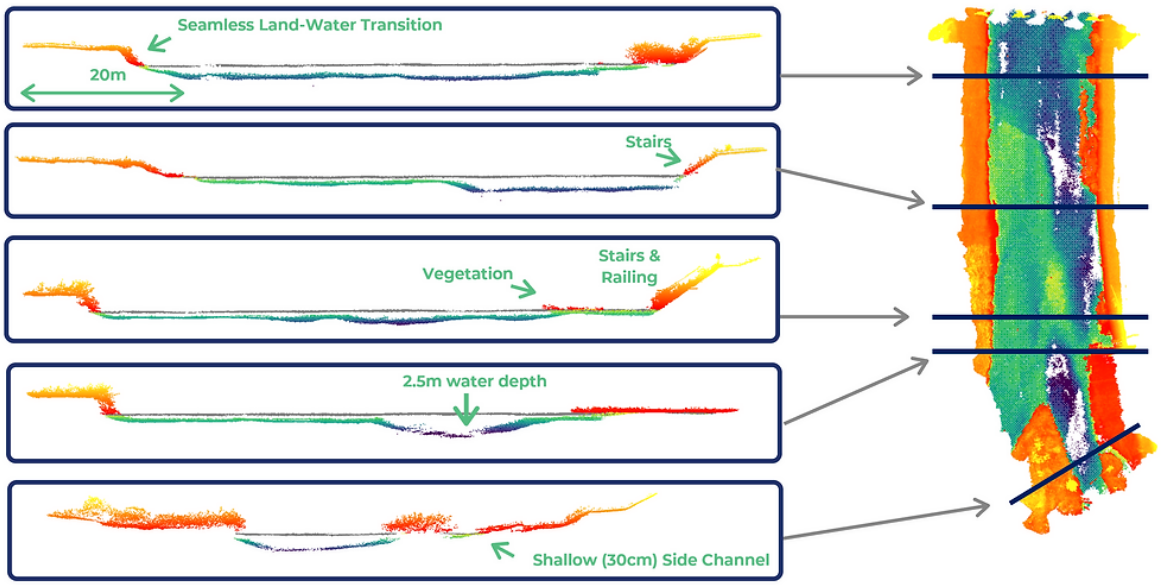
DIMENSIONS	1445 x 1315 x 705 mm (56.9 x 51.8 x 27.8 inches)
FLIGHT TIME	24 min
MAX TAKEOFF WEIGHT	22.0 kg (48.5 lbs)
MAX PAYLOAD WEIGHT	8.6 kg (19 lbs)
WIND RESISTANCE	Continuous – 10 m/s (19.4 knots) Gusts – 12 m/s (23.3 knots)
MAX DRONE SPEED ASCENT	Ascent – 5 m/s (16 ft/s)
MAX DRONE SPEED DESCENT	Descent – 3 m/s (10 ft/s)
MAX DRONE SPEED GROUND	Ground – 22 m/s (49 mph)
OPERATING TEMPERATURES	-10°C – 40°C (14°F – 104°F)
OPERATING SOFTWARE	PX4 (Modified Hexarotor 6001

IF1200A SUBJECT TO CONDITIONS

LiteWave EDGE

LiteWave's EDGE ™ is the world's first small-scale topographic and bathymetric scanning LiDAR that can detect small underwater objects, measure shallow water depth, and survey critical underwater infrastructure from a small UAV platform.

LiteWave's patented 2-in-1 topo-bathy LiDAR overcomes the limitations of traditional bathymetric LiDAR, measuring underwater features at centimeter-level depth resolution. From coastal mapping and surveying, to infrastructure inspection and military logistics, the applications of our LiDAR are numerous and widespread.



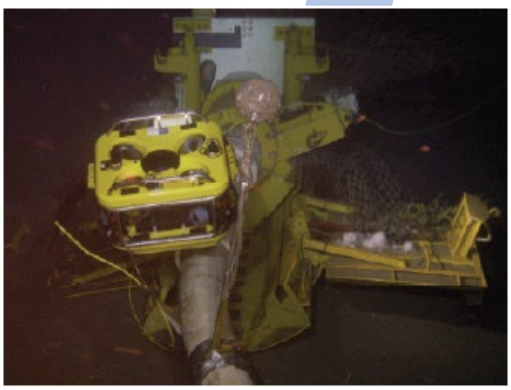
LiDAR Performance

Accuracy	1 cm
Precision	0.5 cm
Laser Wavelength	532 nm
Typical Altitude	20m - Bathy; 40m - Topo
Depth Penetration	> 1.5 Secchi Depth
Pulse Repetition Rate	20 kHz (design option)
Laser Beam Footprint	33 cm at 30 m (11 mrad divergence)

System Specifications

Weight	5 kg
Dimensions	27 cm x 23 cm x 19 cm
Power Supply	Internal Li-Ion Battery - 1-hour lifetime
Data Interface	USB Flash Drive
Data Volume	1 GB / 10 Minutes
Laser Class	Class 3R Laser Product according to IEC 60825-1:2014
Nominal Ocular Hazard Distance (NOHD)	5.5m (Eye Safe at >5.5m from output aperture)

OCEAN MODULES V8 Sii Remotely Operated Vehicle



The V8 Sii is the next-generation ROV under the six degrees of freedom concept. A unique control system allows unlimited pitch and roll through a full 360 degrees with maintained platform stability. These features have been proven tremendously advantageous for tasks such as hull inspections, wreck documentation, underwater equipment repair, video and sonar recording and tool operation.

The V8 Sii ROV is the most flexible and capable Inspection Class ROV in the world today, its operational abilities by far exceed those of any other vehicle of comparable size and weight currently available.

RT SYS µAUV NEMOSENS®

NemoSens is a compact autonomous underwater vehicle (AUV) designed for applications in the fields of Science and Industry.

Lightweight and affordable, its open LINUX architecture allow users develop their own navigation algorithm for greater flexibility and maximal use.

Mission coverage can be extended thanks to swarm technology and possibility to deploy multiples AUV. NemoSens is also compatible with all RTSYS products range such as diverheld systems or beacons.

Software functions and measurement sensors (within a 2-kg limit) can be added on demand, so get ready to extend your range.

Navigation capacities

- Depth: down to 300 m
- Speed: 2 to 8 knots
- Autonomy: > 10 hours

Dimensions

- Length: 900 mm
- Diameter: 124 mm
- Weight: < 9 kg

Klein 4K-SVY SIDE SCAN SONAR

The KLEIN 4K-SVY is the first in a new series of Professional Survey Side Scan Sonars.

Designed specifically to meet the new industry standards for Offshore Renewable Energy and Oil/Gas Survey operations.

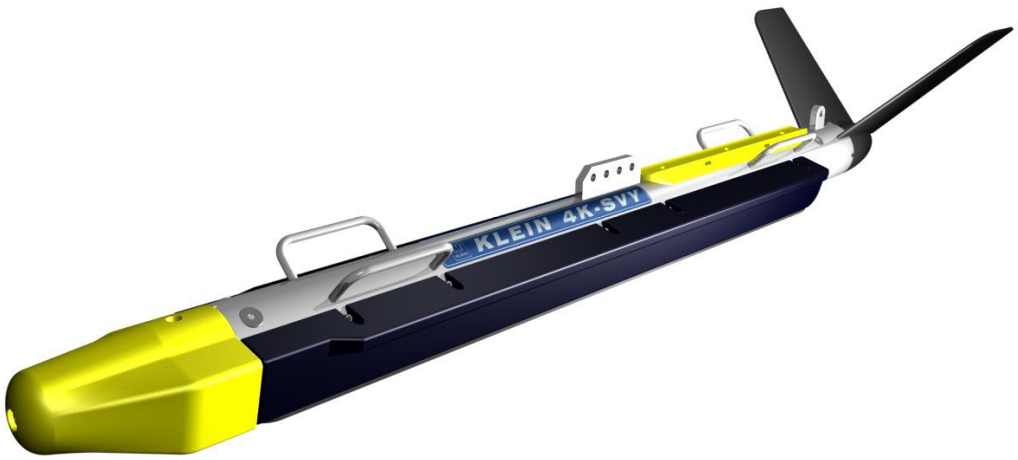
SURVEY and HIGH-DEFINITION SIMULTANEOUS MODES of operation with optimized range and resolution dependent configurations.

Tru-Bottom™ tracking reduces data processing overhead, with a dedicated altimeter for optimized bottom tracking.

Klein's innovative BLUE TECHNOLOGY™ transducers and advanced processing algorithms produce unmatched image quality and range performance.

Key Features:

- Dual Modes of Operation: SURVEY/HIGH DEFINITION (300 kHz / 600 kHz)
- Depth Rated to 2000 m
- Accurate Target Positioning at Survey Speeds
- Enhanced Motion Tolerance
- Tru-Bottom™ Tracking



KLEIN MA-X VIEW 600™ Powered by Klein BLUE TECHNOLOGY

INTEGRATED GAP FILLER – INCREASED SURVEY EFFICIENCY - UNSURPASSED VALUE

Klein Marine Systems introduces the industry's first integrated single beam side scan and gap filler sonar.

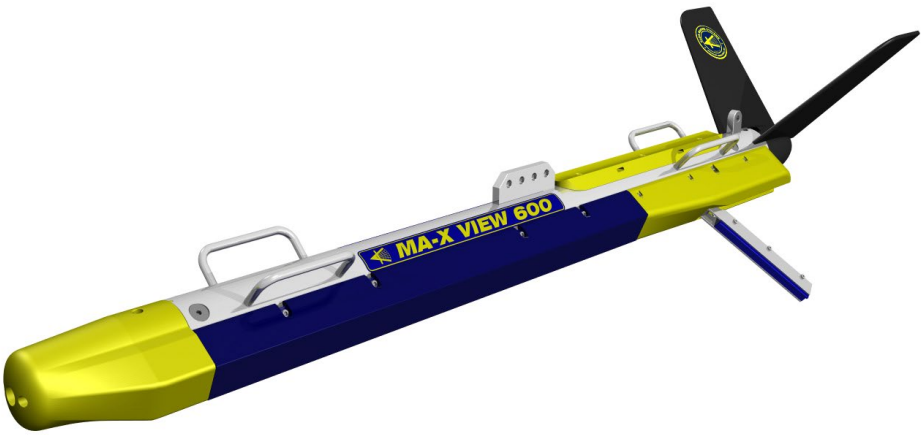
MA-X VIEW 600 side scan sonar delivers unprecedented focused 600kHz imagery at an optimum range of 50 meters per side with capability of reaching 120 meters per side.

MA-X Technology (Patent Pending) provides imaging of the nadir zone (gap) with the same interpretive characteristics of side scan sonar improving survey times by approximately 40%. This means 40% less survey time at sea, 40% less fuel consumption and a higher probability to complete the survey in a window of good weather!

Superior image quality combined with an increase in efficiency provide an unmatched value proposition.

Key Features:

- Complete Nadir Coverage
- 40% increase in survey efficiency
- 600 kHz Side Scan/850 kHz Nadir
- Broadband CHIRP
- Klein BLUE TECHNOLOGY for Superior imaging performance
- Depth Rated to 300 m
- Ergonomic design and one-man deployable
- Smart Telemetry
- Operates on AC or DC Power



SBG Navsight Inertial Navigation System with Apogee Marine IMU

SHALLOW TO DEEP WATER

Extremely easy to set up and highly versatile, Navsight Apogee grade delivers the best performance under GNSS outages, making it ideal for challenging Shallow to Deepwater applications.

Navsight Apogee consists of an Apogee grade Inertial Measurement Unit and connected to Navsight, a rugged processing unit embedding the fusion intelligence and the GNSS receiver (option).

INS Inertial Navigation Systems greatly improves navigation data in all conditions. Position information are fused in real-time with inertial data to provide a robust trajectory when GNSS outages occur (crossing a bridge, surveying a river near several mountains, etc.). In this example, the Apogee sensor is connected to an external GNSS receiver and a DVL for even better performance.

AML Multi-Parameter Profiler & Logger

The X2•Series is a highly configurable family of multiparameter sondes designed for a wide range of data collection applications. Use one instrument for a variety of applications and depth ranges thanks to exchangeable technology.

X2change™ is the industry's leading family of field-swappable sensor heads. Each sensor head contains its own embedded calibration and can be moved from instrument to instrument without impacting accuracy. Changing sensors is easy: simply unscrew one sensor head and replace it with another.

X2•Series instrumentation reduces complexity while maintaining the premium performance.

AML-3 – 500M CONDUCTIVITY, TEMPERATURE, PRESSURE AND SOUND VELOCITY SENSOR

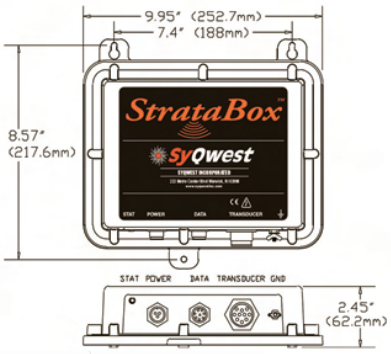
AML MINOS X – 6000M CONDUCTIVITY, TEMPERATURE, PRESSURE AND SOUND VELOCITY SENSOR

AML MINOS X – 4000M CONDUCTIVITY, TEMPERATURE, AND PRESSURE SENSOR

SYQWEST Stratabox Sub Bottom Profiler

The StrataBox is a portable high-resolution marine sediment imaging instrument capable of delivering 6cm of marine sediment strata resolution with bottom penetration of up to 40 meters. It is designed exclusively for inshore and coastal geophysical marine survey up to 150 meters of water depth.

The StrataBox-HD now uses FM CHIRP processing. FM CHIRP enhances and improves vertical layer sediment resolution significantly. Same seafloor bottom represented by CHIRP processing versus CW signal processing.



GEOMETRICS G-882 Magnetometer

The model G-882 cesium-vapor marine magnetometer provides a high performance instrument delivering high resolution results in all types of survey applications. The G-882 is a low cost, compact system designed for professional surveys in shallow or deep water. The G-882 magnetometer's digital output can be recorded with any serial data logger but its full potential is obtained when used with MagLog Lite™ software to log, display and print GPS positioned measurement results. The performance and reliability of the G–882 make it the best value of any marine magnetometer available today.

The G-882 is designed for operation from small vessels for shallow water surveys as well as for large survey vessels for deep tow applications (4,000 psi rating, telemetry over steel coax available to 10Km). Being small and lightweight (40 lbs net, no extra weights) it is easily deployed and operated by one person. Power may be supplied from a 24 to 30 VDC battery power or the included 110/220 VAC power supply. The standard G-882 tow cable includes a Vectran strength member and can be built to up to 700m (no telemetry required). The shipboard end of the tow cable is attached to an included junction box or optional on-board cable for quick and simple hookup to power. Output data can be recorded on any Windows 98, ME, NT, 2000 or XP computer equipped with RS-232 serial ports. Best of all, the rugged G-882 is designed for and has been used successfully everywhere in the world for all types of applications.

Winch – Side Scan Sonar

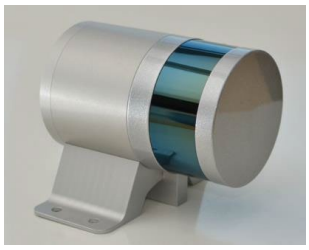
Side Scan Sonar winch with 900m armoured cable.

NORBIT CARBON FIBRE "PORTUS" MOUNTING POLE

Built specifically for NORBIT's integrated sonar systems the new PORTUS Pole fits in a single airline checked luggage case. With combined weight of 60lbs/27kg including wheeled hard ski case, it is safely transported to your next vessel of opportunity and setup by a single person. Multi-directional carbon fiber weave shaped from a streamlined body capsule provides unprecedented rigidity while enabling sustained survey speeds of 8-knots with pole fully extended. The kit includes both tall and short antenna mast each with fixed/known offsets with repeatable patch test alignments for rapid mobilization and accurate site investigations/clearance surveys.

- Setup and survey!
- Designed specifically for NORBIT integrated WBMS
- Corrosion Resistant & Fully Hydrodynamic
- Flex-Free Carbon Fibre
- Collision Kick-Up - Survey at 8 knots
- Ultra-Lightweight, Complete kit: 18.6kg (41lbs)+Case 8.6kgs (19lbs)
- Airline Single Checked Luggage Piece
- Ultra-Fast Mobilization – Repeatable offsets/patch test
- Built-In Cable Protection/Management

NORBIT iLiDAR OPTION FOR IWBMS



The NORBIT iLiDAR is the most compact terrestrial mapping sensor fully integrated with a high resolution bathymetric multibeam system. With 300k data points per second it is an ideal tool for mapping above water surface terrain for a complete picture from a single pass. A robust single cable connects the IP67 iLiDAR sensor head to the topside Sonar Interface Unit (SIU) – with fewer connections, a rapid integration and compact size, surveys are easily carried out from any sized platform by personnel with minimal expertise.

NORBIT's iLiDAR laser is an all-new multi-sensing concept that combines multiple tightly integrated sensors into one hardware platform with a single LAN connection to survey laptop. Supported sensors include any combination of bathymetric multibeam echo- sounder, forward looking sonar, forward looking bottom detection and iLiDAR. Range **100m.**

Nortek VM AWAC 600kHz ADCP

The Nortek vessel mounted current profiler is designed to be mounted on slow moving vessels such as seismic ships, diving vessels, dredgers, cable layers, etc. The design is focused on 24/7 operations and the software is tightly integrated with the ships navigation system. The navigator can easily identify the along and across track ocean currents from the software display and take necessary corrective actions depending on the strength of the currents.

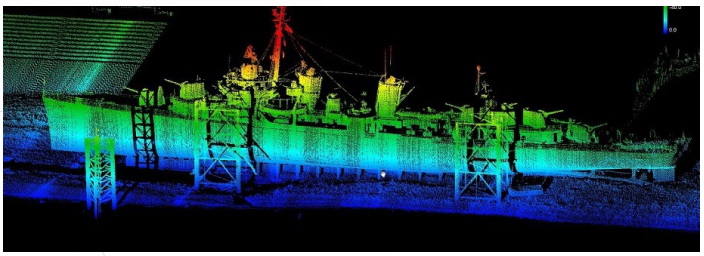
Hemisphere V113 GPS Smart Antenna

The Hemisphere GPS Vector V113™ Compass SMART antennas utilize all of the recent innovations in Hemisphere GPS' Crescent® and Vector technology. New Cross-Dipole low-multipath antennas are separated by 50 cm between phase centers, resulting in better than 0.3 rms heading performance while delivering position accuracy of better than 60 cm 95% of the time when using SBAS (EGNOS, MSAS, & WAAS) or Beacon corrections.

The V113 DGPS heading SMART antennas support both NMEA 0183 and NMEA 2000 interfacing, enabling a seamless choice of communications protocols with Hemisphere GPS' messaging. Crescent Vector technology delivers accurate and continuous performance, including position, heading, heave, pitch and roll.

Hypack® Max & Hysweep® Multibeam Processing Software

The system software will be the HYPACK® MAX. HYPACK® is the most widely used hydrographic software package in the world. It provides all of the tools necessary to complete hydrographic survey requirements. It provides tools to design the survey, collect data, apply corrections to soundings, remove outliers, plot field sheets, export data to CAD, compute volume quantities, generate contours, create side scan mosaics and create/modify electronic charts.



The system software for the Multibeam system will be the HYPACK® & HYSWEEP®. HYSWEEP® is a module that provides for the calibration, data collection and data processing of multibeam sonar data inside the HYPACK® package. HYSWEEP® has been integrated to almost all multibeam systems, including Elac. With over 500 HYSWEEP® users on six continents, HYSWEEP® has proven to be powerful, cost effect and easy to learn.

Although software packages provided by multibeam manufacturers might be great at data collection, they are usually weak when it comes to generating final products. What's great about HYSWEEP® is that it is fully integrated into HYPACK®, allowing you access to all of the great final product routines, including volume computations using your multibeam data.

HYPACK® contains powerful tools that allow quick design of the hydrographic survey.

GTI- NuSeis

Next Generation Seismic Technology

GTI's NuSeis™ autonomous nodal seismic recording technology enables data acquisition of the highest quality, with unprecedented operating efficiency, and optimal HSE performance, manufactured to the highest quality standards.

Smaller. Lighter. Faster. Stronger

The NRU-1C™ is a self-contained 1C autonomous nodal seismic recording unit with 24-bit digitization, internal high sensitivity geophone 5Hz Standard (2Hz, 4.5Hz, 5Hz, 10Hz, or other), integrated high sensitivity GNSS/GPS, and high-speed USB download, and BLE comms, 8gB data storage (expandable 16, 32, 64, 128), SEG standard Seg D, and Seg Y data formats. The unit is a wireless, IP68 rated water- tight, continuous or "epoch programable" autonomous nodal recording unit.

Plant this sensor to a depth of 10 cm would require a hole to be drilled to a diameter in the order of 4.5 cm and then 'conditioned' with the NuSeis Manual Deployment Tool to guarantee a press fit to maximise signal quality.

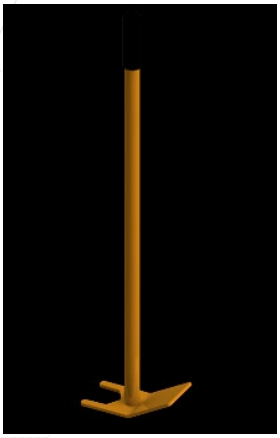
NuSeis Stealth. More and more customers want their nodes planted in the ground with little or no surface exposure. This stealth approach to receiver deployments can not only provide you better data because the node is not picking up any material surface wind or mechanical noise, it also enables the sensors to go undetected by local populations.

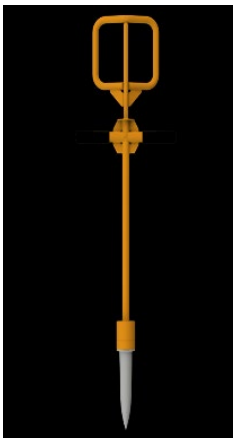
Weight of sensor is 600 gm and 45-day battery duration (based on 12 hour/day recording duration).

Features

- Self-contained nodal seismic recording unit
- 1 channel, 24-bit digitization
- Internal and/or external battery
- Internal or external geophone
- Integrated, high sensitivity GNSS
- High-speed USB download
- Robust two-part, water-tight polymer assembly
- Aluminium locking rings
- 4 stainless steel contacts for charging & data offload

The portable case contains one panel of eight data management ports, and two panels of eight charging ports. The case is wheeled and has an integrated retractable moving handle for easy transport.





Blast Vibration & Overpressure Monitor

Includes:

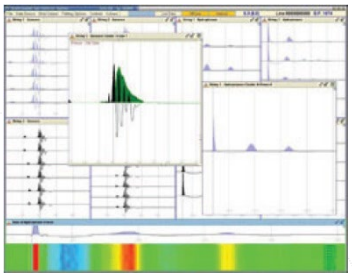
- Linear Microphone
- Triaxial Geophone
- Rechargeable 6V Sealed Gel Cell Battery Charger, Optimate Pro8

SERCEL SEAL Data Acquisition System

The Seal is the new large capacity and high-resolution seismic data acquisition system designed for marine towed streamers acquisition. It derives its high reliability and versatility from SERCEL's extensive experience in cable telemetry systems and from the use of the most advanced electronics and workstation technology.

The Seal supports extremely long offset recording as well as an unlimited streamer number for increased productivity and data quality. The Seal system has been designed to match the industry's expectations for true zero dead time continuous recording, crucial for multi-vessel acquisitions such as Wide Azimuth and undershooting.

SEAMAP GunLink 2000



The GunLink - 2000 is the Seamap On-Board Gun Controller and Hydrophone Acquisition System. It is expandable to control up to 256 guns and acquire data from up to 512 Near Field Hydrophones with 24 bit resolution at 0.1ms sampling.

SEAMAP RGPS Buoylink

Our GPS Tracking System monitors precise locations for gun floats, paravanes, chase boats, forward nav buoys and tail buoys. The system provides up to 32 inputs and interfaces directly with the shipboard's central navigation system.

Key Features

- Ruggedised: Shock mounted electronics package mounted in stainless steel housing provides reliable operation on gun floats and tail buoys.
- Software Support: Available with software patch for Spectra™ by Concept Systems.
- Dual Function: Each module is equipped with both standard RS 485 data output and optional spread spectrum radio output.
- Accuracy: Proven sub-meter accuracy.
- Controller: Standard 19" rack mount 16 channel on-board controller available.

ION Compass Birds

Streamer depth control is a vital element in towed streamer acquisition. Maintaining the streamer at a predefined target depth optimizes the bandwidth of the acquired seismic data, maximizing both the resolution and the survey to survey repeatability of the resulting seismic images.

Streamer depth controllers, also known as birds, protect the investment of seismic acquisition contractors by allowing the vessel operator to bring the cable to the surface in shallow water or to dive the cable to avoid shipping traffic.

ION Sleevegun

I/O has been providing air guns to the seismic industry since acquiring the Exploration Products Division of Western Geophysical in 1996.

The I/O Sleeve Gun offers several key benefits over traditional air guns.

Improved safety - Sleeve Guns can be retrieved and deployed without being pressurized.

Signature reliability and 4D repeatability – Traditional air guns use multiple ports, and the resulting discharge of air becomes rapidly disorganized. In a compact array, these disorganized bubbles can interfere with each other in an unpredictable and non-repeatable fashion. I/O's Sleeve Gun uses a single 360 degree port, resulting in a predictable, spherical bubble with a reliable and repeatable interaction with adjacent guns.

Available in two series and several volumes

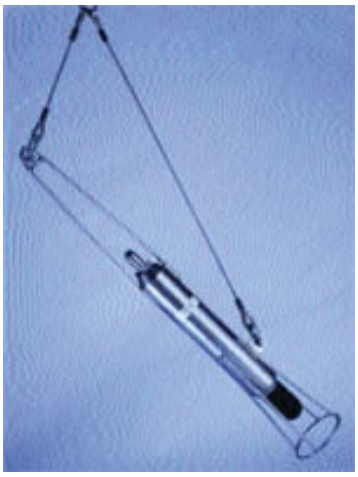
- Sleeve Gun-IC in three sizes (10in3,20in3,40in3)
- Sleeve Gun-IIC in five sizes (70in3,100in3,150in3,210in3,300in3)
- Chamber inserts are available for further volume adjustment(in5in3increments)
- Precise timing
- Routine service internal line excess of 250,000 shots
- Long-life wear surfaces and wear indicators to prevent unnecessary part replacement
- Deploy and Retrieve without high pressure being applied to the guns
- Patented low-impedance polarized timing coil yields maximum tolerance to leakage

BOLT 1900 LLX & LLX-T, 1500LL

Carefully engineered and thoroughly tested, BOLT's Long-Life™ Air Gun has proven to be one of the marine seismic industry's most reliable source for a decade.

The Long-Life™ design has resulted in air guns that consistently produce 500,000 or more trouble-free shots before requiring significant maintenance.

I/O DigiRANGE II Streamer Acoustics



- DSP based architecture provides an advanced signal set and detection method
- Designed for demanding seismic environments
- Advanced reflection detection and rejection algorithms
- Maximum range 1200 m
- Common Windows-based shipboard system supports depth control, acoustic and heading sensor measurements
- Efficient range creation capability
- Retry capability to improve completion rates
- Up to 600 two-way range measurements per shot interval
- Supported with Input/Output worldwide sales and service
- Modular package
- Multi power options

The DigiRANGE acoustic system provides observations of acoustic transit times between specific locations (nodes) on marine seismic streamers, tail buoys, energy sources, nav buoys and hull mounts. The system determines time measurements between nodes of the network with a resolution of 0.05ms. Multiple streamer configurations and multiple vessel configurations are supported.

Marine Analogue Hydrophone Streamer

Marine Analogue Hydrophone Streamer with 75m active section and a 50m integrated tow cable on an Aluminium reel. Adaptors and cables are also available to match (deck end system) other instruments, such as seismographs. (We can also manufacture streamers to meet specific requirements.)

Some features of a 75m Active section with a 50m integrated lead are as follows:

- 3 x5mm Vectran Rope Stress members
- 28 pairs of Wires (4 spare pairs)
- 45mm Spacers (Seamux type)
- 144 export Hydrophones (6 per group @ 3.125m spacing)
- 1 x 75M PU Skin
- Gel filled
- 1 x Tail connector with Swivel

Containerized Source

40FT CONTAINER - DOUBLE HANDLING AND DEPLOYMENT SYSTEM

- 9ft x 40ft container c/w ABS cert approval
- 3 x 4 x 6 Reinforced I-Beams for guns
- I-Beam load tested to 1 Ton foundation for Gun Umbilical Winch
- Full size door c/w lock and 2 windows c/w lock
- Rear wall of container has 2 large removable doors
- Electrical Connections and Florescent Lights

High Pressure Control Panel for 2 Gun reels:

- Stainless steel hydraulic pipe from gun reel to stern control. Hydraulic hose to utility winch fabricate foundation for control.
- 2 x unit gun umbilical reels. Single drum driven by wheel hub and hydraulic motor, complete with automatic failsafe brake, brake valve and mechanical locking device at 4 points.
- One end fitted with bearing, heavy duty shaft with center hole for slip ring entry
- Slip Ring with Center Air Pass through
- Mounting base skid / frame c/w 4 x lifting pad eyes

HYDRAULIC POWER PACK 220V / 3 PHASE / 50-60HZ

2 x 40HP electrical motor with flange mount driving hydraulic gear pump through a driving coupling bell housing Complete star-delta box starter motor Oil Tank inspection cover, oil level, relief valve, pressure gauge, filter and temperature gauge

Power pack Specification:

- Pump flow 601/Min
- System pressure 3000PSI
- Horsepower Req 40HP

Hydraulic Wire Remote Control

Utility Winches -2 units hydraulic winch pull-master, Model PL2, driven by hydraulic motor, heavy-duty gear box fitted with automatic fail-safe brake system.

Real Time Systems HotShot

Standard Features

- Each unit fi res 1 to 4 guns with 0.1 msec resolution and supports “Bolt”, “G”, “Sleeve”, and “GI” guns.
- Multiple units can be combined for use up to 16 guns.
- PC graphic display of all gun signatures.
- Sensor confi guration for hydrophone, shuttle, or PCB sensor.
- Intuitive menu-driven user interface.
- Real time Q/C alarms for gun timing errors and autofi re detection.
- Line Q/C and Statisical Reports.
- Master/Slave multiple offset shooting. 16 bit hydrophone signature, depth and manifold pressure optional.

PC System Components

- Windows based graphical user interface.
- Shot data log and reports.
- Sensor signature display.
- Gun performance graphs and history.
- Solenoid power supply.
- Four channel solenoid power supply. Daisy chains to 16 channels.
- Sensor test mode for system self-test.
- Sealed case for water-tight transport.
- 75 to 150VDC programmable fi ring voltage.

Remote Radio Link

- Multiple gun location control.
- Real time fi eld time break.
- Digital gun data transmission.
- Digital hydrophone transmission.

SERCEL GeoWaves®

GeoWaves® is a Digital multi-level (up to 32) Downhole Seismic Array to record vertical seismic profiles (VSP). It can also be used for semi-permanent installation in a fixed position in the well for passive monitoring (hydraulic fracturing mapping or reservoir monitoring) or to record heavy surveys such as 3D VSP and 4D VSP around the well for detailed and time-lapse reservoir imaging.

Benefits of using GeoWaves®:

- All Downhole tools can be connected to the same WAVELAB Acquisition Unit for real-time recording.
- Light weight equipment.
- Easy connection / disconnection.
- Resistant to extreme well environments.
- Easy maintenance.

SERCEL MaxiWave™

MaxiWave™ is a 100-level Digital Downhole Seismic Array to record vertical seismic profiles (VSP). It can also be used for semi-permanent installation in a fixed position in the well for passive monitoring (hydraulic fracturing mapping or reservoir monitoring) or to record heavy surveys such as 3D VSP and 4D VSP around the well for detailed and time-lapse reservoir imaging.

MaxiWave™ rests spooled on a reel, for fast & easy deployment at reasonable cost.

- The telemetry data rate on a standard wireline cable is 4 Mbps (7 times usual available rate)
- Available as a pre-connected string on a drum, minimizing deployment effort
- Full testing while deployed
- All levels of the tool are interchangeable for ease of maintenance

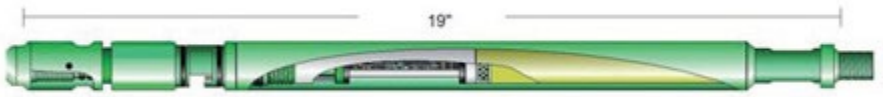
SERCEL SlimWave™

SlimWave™ is a small diameter digital multi-level downhole seismic array for up to 12 levels. It benefits from the same technological advances as GeoWaves™ with the additional benefit of being usable in very small diameter wells or through any completion restriction thanks to its reduced diameter (1 in. 11/16, standard for production logging tools).

Benefits of using SlimWave™:

- Can be deployed in small diameter wells.
- All downhole tools can be connected to the same WAVELAB Acquisition Unit for real-time recording.
- Light weight equipment.
- Easy connection / disconnection.
- Resistant to extreme well environments.
- Easy maintenance.

METROLOG PRM5 Downhole Gauge



Enhanced Reliability

Metal-to-metal seal for a better protection of the electronic board. Low maintenance gauge operated by anyone in less than 10 mins. Battery laterally connected avoids disconnection in operation.

METROLOG Breakthrough

External communication port reduces maintenance cost and time. Electronic protected and insulated from vibrations. 4 times redundant memories to insure a higher security of your data. Smart battery system displays the remaining power of your cells.

Applications

For accurate reservoir monitoring, static/dynamic gradient and build-up. Production testing and artificial lift control, multi-well survey without reprogramming.

SERCEL 428XL DSU3

As the need for improved seismic signal quality has increased, the importance of new sensor technology has become clear. SERCEL has introduced a new addition to the 408UL system, the Digital Sensor Unit (DSU). The DSU is an integrated package made up of station electronics and a digital accelerometer based on MEMS (Micro machined Electro-Mechanical Sensor) technology. The DSU offers the same LINK configuration as the current system but with fully integrated digital accelerometers as part of the electronics package. The DSU is available in both three-component or one-component versions.

A link of DSUs can be used in conjunction with 408UL or 428XL systems adding greater capability to these systems. FDUs with analog sensors and DSUs with digital accelerometers can be used within the same spread under control of a single central unit. In addition, the DSU is fully supported by all software functions and telemetry flexibility in the 408UL and 428XL.

The DSU, as all electronics in the 408UL or 428XL, is fully testable. A full set of tests are run by the system automatically all day to ensure an ongoing high quality signal on every shot.

SERCEL UNITE

In order to address the growing demands of the geophysical industry for large channel counts in difficult environment and total flexibility in layout and telemetry modes, SERCEL has added UNITE cable-free system to its portfolio of industry-leading seismic acquisition products.

The UNITE range gives an easy access to frontier areas like difficult terrains, sensitive environments or urban zones thanks to the reduction of the system weight and cable deployment.

As no limitation of distance between receivers is set, UNITE gives also access to specific surveys.

UNITE customers can choose between two telemetry modes:

- Real time mode: Data will be immediately transferred to server
- Autonomous mode: Data will be stored in a non-volatile memory

Advantages:

More Flexibility: *Licence-free WLAN radio*

Immune to interference, and free from conflict with voice band radio, WLAN technology is now the most widely used in industrial environments. License-free, this wireless transmission can be used almost anywhere without prior authorization.

More Reactivity: *Wireless harvesting capability*

UNITE is the only system able to harvest all data through wireless technology. Data can be retrieved in situ and thus available for processing early in the survey.

More Productivity: *Harvesting during production*

Designed with a unique data management system, RAUs will continue to record while data is being retrieved. No interruption to production is necessary, data or QC can be retrieved at any time for examination.

UNITE makes the logistics easier and more convenient. Whether in mountains, swamp or marsh zone, time-consuming tasks such as cable deployment and other maintenance operations are no longer a problem.