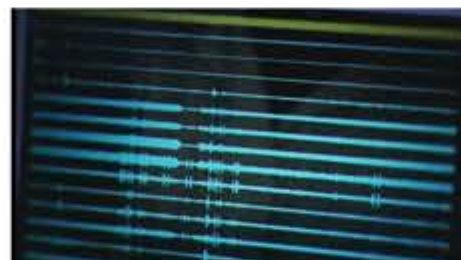


Surface Panels



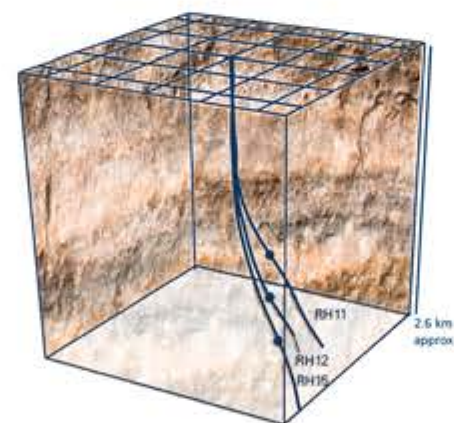
All ASL Downhole tools are fully compatible with our standalone surface power and recording panels, all operated by our in house built ACQ software suite. In addition ASL offers source synchronizers for multiple offset sources, and a wide range of surface test and service ancillaries.

ACQ Acquisition Software



ACQ provides powerful data quality control tools including flexible trace display, comparative spectral analysis, particle motion hodogram, trace plotting and time/depth profile display. The software suite is required for operation of all ASL tools which require a GSP recording panel, and so can also display traces recorded on GSP surface analogue channels.

Avalon Borehole Test Facility



Avalon Sciences has acquired the ABB Offshore System borehole facility at Rosemanowes Quarry, Penryn, in Cornwall, UK. The acquisition of the 871,200 square feet quarry allows testing of borehole equipment within a controlled environment. This provides ASL with an improved method of testing products in real site conditions, and allows problems that may arise in the real world to be addressed. Facilities and wells on the site are available for hire along with field crew. The facility can also be used as part of our ATC field engineer training course.

Avalon Sciences Ltd

Avalon Sciences Ltd (ASL) designs and manufactures advanced borehole seismic equipment for Vertical Seismic Profiling (VSP), permanent/passive seismic monitoring, well/reservoir characterisation and hydraulic fracture event detection.

Avalon Sciences has been at the cutting edge of borehole seismic technology innovation, design and manufacturing for over 20 years. A household name in VSP and downhole microseismic equipment, Avalon Sciences is dedicated to providing the best bespoke solution to meet the client needs whilst providing the greatest possible customer service and support; remotely and on-site.

MULTI LEVEL HIGH TEMPERATURE BOREHOLE SYSTEMS



LEADERS IN BOREHOLE SEISMIC TECHNOLOGY

Geochain™ Multi-Level System



Geochain™ is established as the complete VSP digital seismic system, operating up to 50 satellites for maximum logging and recording efficiency and is the result of over five years of research and development. The system is made up of individual satellites from our tried and tested ASR1 borehole geophone of which hundreds are now in use worldwide. The ASR 1 tools can be configured with a variety of sensor packs (fixed and gimballed) in order to provide the optimum solution in a multitude of different survey conditions.



Main Features

- Up to 50 satellites
- Real time data transmission
- 3 Component sensor pack
- Unique active cooling system for continuous operation at 180°C
- Up to 200m (>600') between satellites

Quick and easy conversion from Analogue to Digital operation
Gapless recording for passive monitoring surveys

Geochain™ Slim Multi-Level System



The GeochainSlim™ is the next development of the field proven Geochain™ system. The established extra high sensitivity Geochain™ Quad geophone sensor pack has now been integrated into the GSR design and is now available as a standard configuration.

The GeochainSlim™ array has been designed for use in open or cased holes with all locking arms opening simultaneously to reduce survey time. A maximum bandwidth of 1600Hz, very low electronic noise levels, new gapless recording functionality*, and slim size make the system ideal for VSP, Microseismic and Hydraulic Fracturing Surveys.



Main Features

- Slim 1 11/16" (43mm) Outside Diameter
- Quad OMNI-2400 geophones
- Active cooling system for continuous operation at 180°C
- Up to 200m (>600') between satellites

Ideal for both VSP and Microseismic survey
Up to 100 Satellites
High side indicator to determine tool rotation
Gapless recording for passive monitoring surveys



Geochain™ EHP Multi-Level System

	Geochain	Geochain EHP	Geochain Slim
Max No Receivers	50 Satellites		100 Satellites
Length	35" / 884mm		44" / 1135mm
Diameter	3" / 76.2mm	3.25" / 82.55mm	1 11/16" / 46.87mm
Dynamic Range	>112dB @ 0dB pre-gain		
A/D Converter	24 bit Delta-sigma		
Distortion	<0.02%		
DC Offset	Self-Calibration		
Max Temp	400°F (204°C) Analogue or 356°F (180°C)		
Max Pressure	25,000 psi / 1750 bar	35,000 psi / 2100 bar	20,000 psi / 1400 bar
Max Data Rate	1.536 Mbit/sec		
Min Data Rate	256kbit/sec		
Wireline	7 Conductor Heptacable		
Surface Panel	GPP & GSP-1 (Digital) DCP-2 & GSP-1 (Analogue) WMP (Optional Wireline QC Tool)		

Geochain™ Extra High Pressure (EHP) is one of the latest evolutionary branches of the established Geochain™ VSP digital seismic system, operating with up to 50 satellites for maximum logging and recording efficiency within the most hostile of high pressure environments. The Geochain™ EHP system is fully compatible with all standard Geochain™ electronics and sensor modules in addition to all standard surface control panels.

Main Features

- 30,000psi (2100 bar) pressure rating
- Up to 200m (>600') between up to 50 Satellites
- Real time data transmission
- 3 Component sensor pack
- Unique active cooling system for continuous operation at 180°C
- Quick and easy conversion from analogue to digital operation
- Gapless recording for passive monitoring surveys



Advanced Sparker Tool

The Advanced Sparker Tool (AST) has been developed to provide a high energy repeatable downhole seismic source. The primary use of the AST would be with seismic sensors deployed in an adjacent well or wells to provide cross well imaging or sensor orientation of fracture monitoring instrumentation. When the AST is deployed with the Geochain™ system it will be possible to provide single well imaging. With a low power requirement of 100W and high energy output of 1000J the AST is a versatile downhole seismic source which can be deployed in various configurations.

Main Features

- Peak 1000J Energy Output per shot
- Tool Bandwidth 10-4000 Hz
- 150°C and 10,000 psi rated
- 3" Diameter

