

## Sensor Pack :

- Simple and cost effective to switch over Geochain™ Mono/Dual geophone pack to Quad Pack. Only 2 minutes to change sensor pack !!
- 4 geophones on each axis (12 total) to maximise sensitivity.
- Utilises 2400 Ohm 15 Hz Omni Geophone
- Large Bandwidth 1600Hz for high frequencies
- 200 °C Temperature Rating

## Electronics

- Can easily replace 42dB electronic module with low noise / high gain 54 dB digitiser, ideal for maximising signal to noise ratio.



Electronic Digitiser	Sensor Pack Geophones per axis (Total)	Overall Sensitivity
Standard 42dB Gain Digitiser	Single Geophone (3 per pack)	4,838 V/m/s
Standard 42dB Gain Digitiser	Dual Geophone (6 per pack)	7,700 V/m/s
Standard 42dB Gain Digitiser	Quad Geophone (12 per pack)	10,950 V/m/s
Upgrade 54dB High Gain Digitiser	Single Geophone (3 per pack)	24,750 V/m/s
Upgrade 54dB High Gain Digitiser	Dual Geophone (6 per pack)	47,200 V/m/s
Upgrade 54dB High Gain Digitiser	Quad Geophone (12 per pack)	86,350 V/m/s

**Quad Sensor Packs display twice the amplitude compared to Geochain Dual Packs !!**

## Extra High Pressure Receiver ASR-EHP

- 30,000 PSI Pressure Rating
- Up to 225 °C Analogue Temperature Rating (180 °C Digital Mode)
- 3 1/4 " Diameter, based on the ASR-1 Downhole receiver.
- Can be used as single/dual analogue or in digital Geochain mode alongside a Gamma/Tractor Tool.

## Extra High Temperature Receiver ASR-EHT (3" External Diameter)

"The next step in the evolution of ASL's High Temperature Receiver"

- 225 °C Operation
- 20,000 PSI Pressure Rating
- Quick and easy to upgrade existing High Temperature ASR Receivers.
- Single or Dual Analogue Application.
- SM-45 VHT 15Hz 3 Component Geophones.

Unlike conventional HT receivers that rely on thermal shielding the ASR-EHT uses 225°C electronics to allow for several days use at elevated temperatures, ideal for fracture monitoring operation in hot well conditions.

## Tractor Operation with Geochain Digital System!

The Geochain system has now run dozens of successful horizontal deployments using both Aker and WellTec tractors. All 700 existing ASR tools (the backbone of the Geochain system) are fully tractor capable and a Geochain system requires only a tractor switching sub (GCN-10) to allow a tractor to be deployed at the bottom (or anywhere else) of the string.



## Rigid Inter Tool Connector (RITC)

Available in standard or slim diameter

- Modular construction (Up to 25ft per section)
- HP bulkhead protection throughout
- Can stack units for 50 or 100 ft spacing
- Knuckle joint option
- Precise alignment
- 20,000 & 25,000 psi rating
- 200 °C rating
- Low maintenance

The RITC is a modular rigid connecting system for use with analogue ASR or digital Geochain tools. It allows the tools to be deployed in highly deviated or horizontal wells with precise alignment of all the locking arms and sensors. The connection can be totally rigid by using just RITC-05 sections or knuckle joints (RITC-07) can be used to provide flexibility. A single knuckle joint can be used or a pair fitted above and below the rigid section. The RITC-05 has an in line connection allowing stacking to increase the tool separation.

## Geochain now operational up to 100 Levels !!!!!

Ideal for 3D VSP Surveys

- Uses same ASR-1 receivers as in existing Geochain system.
- A simple upgrade to the TAS (Telemetry Adapter Section) and GPP (Geochain Power Panel) and the addition of a single x-over ITC is all that is required.
- 2 ms Sample Interval using one DBU unit.



## ASL Borehole Seismic Receiver Upgrades



- Geochain Quad Sensor Pack and High Gain Electronics !
- Extra High Pressure and Temperature Receivers !
- Rigid Inter Tool Connectors
- Tractor Operation
- Geochain now up to 100 Receivers !!