



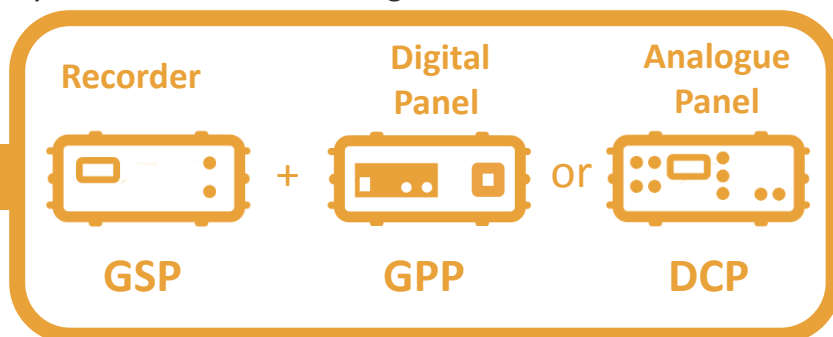
### Main Features

- Ideal for **VSP & Microseismic** surveys.
- Up to 62 satellites.
- 3” Outside Diameter Tool.
- Standard 7 conductor wireline.
- Real time data transmission.
- Multiple 3 component sensor options.
- 24-bit delta sigma convertors.
- Unique Active Cooling System for continuous operation at 385°F (195°C).
- 25,000psi (1700 bar) high pressure rating.
- Up to >600’ (200m) between satellites.
- Gapless recording for passive monitoring surveys.
- Quick and easy conversion from Analogue to Digital operation.
- Tractor Deployable
- New: Integrated high side indicator in every receiver.

### Functionality

- The Geochain™ VSP array has been designed for use in open and cased holes using standard 7 conductor wireline. The array is based on the well proven ASR-1 downhole geophone and can be used in wells up to 25,000 psi (1,750 bar) and hole sizes from 3 1/2”-22” (89 to 559mm).
- The modular nature of the ASR-1 tool allows quick optimisation for various surveys ranging from high temperature deep well check shot to complex high sensitivity microseismic monitoring.

### SURFACE PANELS



## LEADERS IN BOREHOLE SEISMIC TECHNOLOGY

### ASR-1 (HP) Satellite Specifications

|                               |   |
|-------------------------------|---|
| <b>Length</b>                 | 35” (884mm)   |
| <b>Diameter</b>               | 3” (76mm) without nodes   |
| <b>Weight</b>                 | 41lbs (19kg)  |
| <b>Max locking range</b>      | 12” (305mm) Standard or 22” (559mm) with an arm extender                                      |
| <b>Max locking force</b>      | 300 lbs (Standard Arm)  |
| <b>Temperature</b>            | 400°F (204°C) Analogue / 437 °F (225°C) EHT / 385°F (195°C) Digital                           |
| <b>Pressure</b>               | 25,000psi (1750 bar)  |
| <b>Sensors</b>                | 3 Component Gimbal – Sensor SM-4 HT 10Hz<br>3 Component Fixed – SMC 2400 15Hz Omni- Dual/Quad |
| <b>Well Deviation Control</b> | 0°-95°  |
| <b>Panels</b>                 | GPP or GMP & GSP-1 (Digital)<br>DCP-2 & GSP-1 (Analogue)                                      |

### Downhole Specifications

|                               |                                 |              |       |                |
|-------------------------------|---------------------------------|--------------|-------|----------------|
| <b>Max. No. of Satellites</b> | 62                              |              |       |                |
| <b>X-TAS Telemetry</b>        | Sample interval                 | Bandwidth Hz | ASR's | ASR's with DFU |
|                               | 1/4ms                           | 1600         | 8     | 15             |
|                               | 1/2ms                           | 800          | 16    | 30             |
|                               | 1ms                             | 400          | 32    | 60             |
|                               | 1.5ms                           | 266          | 48    |                |
|                               | 2ms                             | 200          | 62    |                |
| <b>Dynamic Range</b>          | >112dB @ 0dB pre-gain (minimum) |              |       |                |
| <b>A/D convertor</b>          | 24 bit Delta-Sigma              |              |       |                |
| <b>Downhole Gain</b>          | 42-54dB                         |              |       |                |
| <b>Distortion</b>             | <0.02%                          |              |       |                |
| <b>DC offset</b>              | Self-calibrating                |              |       |                |
| <b>Max data rate</b>          | 4 Mbit/second                   |              |       |                |
| <b>Min. data rate</b>         | 256kbit/second                  |              |       |                |
| <b>Wireline</b>               | 7 Conductor (Heptacable)        |              |       |                |

### Surface Specifications

|                            |  |
|----------------------------|--|
| <b>Recording panel</b>     | GPP or GMP & GSP-1 (Digital) DCP-2 and GSP-1 (Analogue)          |
| <b>Software</b>            | ASL Acquisition Suite and Copy of VSProwess© Processing Software |
| <b>Cable equalisation</b>  | Fully automatic using internal DSP chip                          |
| <b>Airgun firing pulse</b> | 60 V, 30ms   |
| <b>Test system</b>         | Fully automatic with comprehensive report generation             |
| <b>PC Interface</b>        | USB  |
| <b>Power Requirements</b>  | 100/230 V AC, 47-63 Hz universal input, 30 watts                 |
| <b>Operating Temp</b>      | 32-104°F (0-40°C)  |
| <b>Enclosure</b>           | Standard 19” rack mounting                                       |