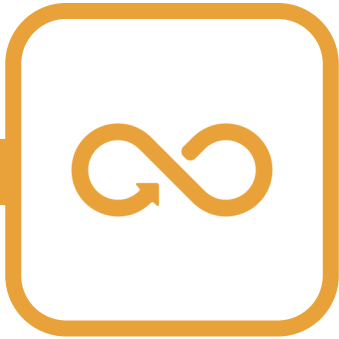


Permaseis – Permanent Seismic Receiver



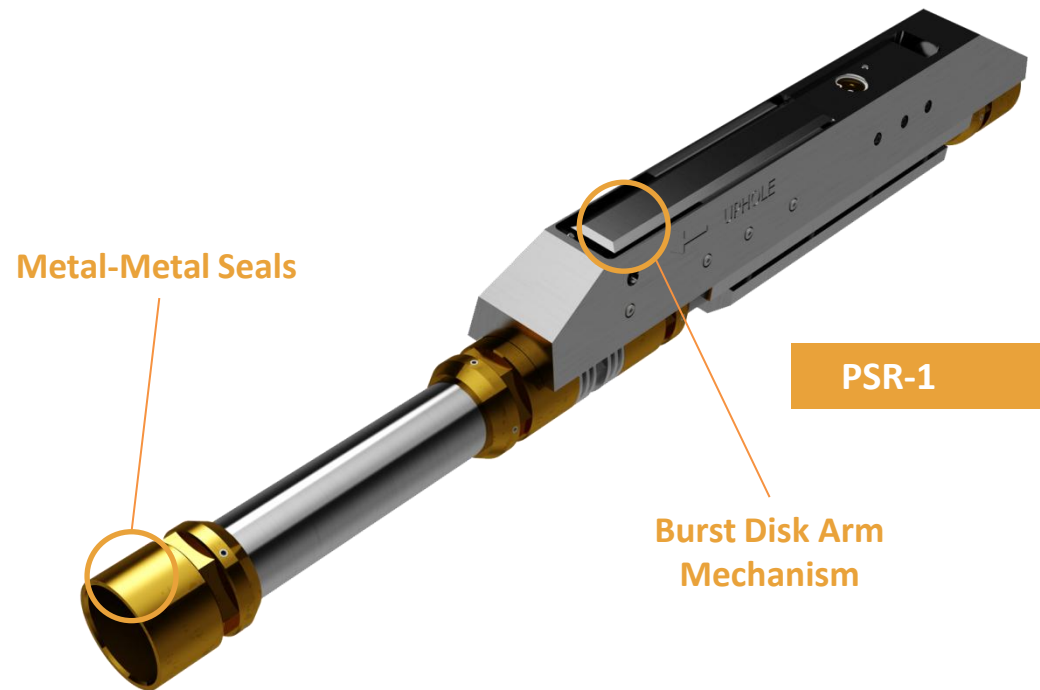
**Main Features**

- Metal to metal seals.
- 20,000 psi (1400 bar) pressure rating.
- 385°F (195°C) temperature rating.
- Simple conversion to analogue mode for use up to 437°F (225°C).
- ACS cooling system.
- 3 component geophones.
- Burst disk operated locking arm.
- Uses standard Avalon surface control panels.
- Selectable Damping and Gain
- Integrated High Side Indicator
- X-series electronic upgrades

**Functionality**

- The Permaseis™ digital array is one of the latest adaptations of our highly regarded Geochain™ array. The system utilises the new PSR-1 downhole receivers along with the standard GSP and GPP surface panels from our Geochain™ system.
- The high continuous temperature rating and the robust telemetry system will ensure semi/permanent operation in the harshest of well environments.
- The tool is developed from the tried and tested ESR and GSR tools and has been designed to provide years of reliable service by utilising metal to metal C-rings throughout. Deployment of the tool is via a standard hepta cable and uses a double booted cable head with a Krytox oil fill to ensure long term integrity.
- In digital mode the tools can be combined to a maximum of 60 levels with 328 ft (100m) spacing between levels. The tool utilises Avalon’s unique Active Cooling System (ACS), this maintains a constant 113°F (45°C) differential between the borehole fluid and the tool’s electronic system. This dramatically improves not only long term reliability, but also allows operation to 385°F (195°C) for weeks at a time.
- The PSR can also be provided in single or dual tool analogue mode to allow even higher operating temperatures. Analogue tools are available in 392°F/437°F (200°C/225°C) versions.

**LEADERS IN BOREHOLE SEISMIC TECHNOLOGY**



*Permaseis Specifications*

• <b>Max number of tools:</b>	• 60 (Digital) 2 Analogue HT & EHT
• <b>Dynamic Range:</b>	• >100db
• <b>Noise Floor:</b>	• <75 nV
• <b>Distortion:</b>	• <0.02%
• <b>Bandwidth:</b>	• 15-1,600 Hz
• <b>Sensors:</b>	• 15Hz Omnidirectional Geophone Dual or Quad
• <b>Max Temp:</b>	• 385°F (195°C) Digital / 392°F (200°C) HT / 437°F (225°C) EHT (Analogue)
• <b>Max Pressure:</b>	• 20,000 psi (1400 bar)
• <b>Projected lifespan:</b>	• 10 year at 302°F (150°C)
• <b>Control Panels:</b>	• GSP

