

## Features

## Typical Applications

- ❑ Flat response from 120 second to 50 Hz
  - ❑ Output sensitivity of 1200 V/m/s +/-0.5%, factory trimmed.
  - ❑ Measured self noise below NLNM from 35sec to 10Hz.
  - ❑ Remote, automatic electronic mass centering via control and digital lines. No re-centering required within +/-45°C.
  - ❑ No mass locking needed
  - ❑ Electromagnetic Shielding
  - ❑ Corrosion resistant and robust housing
- ❑ Study of local, regional, and teleseismic events
  - ❑ National Seismic networks
  - ❑ Earth mode observations
  - ❑ Site surveys

**arolla**

## Broadband Seismometer

Designed and handmade in Switzerland, **arolla** broadband seismometer is the culmination of years of experience designing high precision, low noise, and reliable seismic equipment.

**Arolla's** versatile, compact, lightweight, and rugged design, make it an ideal choice for many applications and use cases.

From the beginning, the design goals for the **arolla** seismometer were to make the most accurate, most reliable, easy to use/deploy, and consistent quality sensor on the market. Its triaxial design, wide temperature range, low temperature sensitivity, magnetic shielding, precision factory calibration of the sensor response, and robustness help to achieve these goals and beyond.

The introduction of **arolla** marks the launch a new series of seismometers by GeoSIG, which will be complemented with further exciting products.

**TECHNOLOGY**

|                |   |
|----------------|---|
| Feedback       | Electromagnetic force balance with capacitive transducer  |
| Topology       | Orthogonal triaxial X, Y, Z   |
| Mass centering | Automatic procedure during operation can be remotely initiated either via control line or via serial communication interface. |
| Mass lock      | Not required  |

**PERFORMANCE**

|             |  |
|-------------|--|
| Sensitivity | 2x600 V/m/s ±0.5% factory trimmed  |
| Self Noise  | Typically below NLNM from 40 sec to 8.5Hz and within +6dB of NLNM at 120 sec<br>See plot |
| Bandwidth   | 120 sec (0.00833 Hz) to 50 Hz  |
| Cross axis  | ≤ 1% coupling; Including misalignment from axis to case reference                        |
| Clip level  | 17 mm/s up to 1 Hz   |
| Temperature | No re-centering required within ±45 °C   |

**POWER SUPPLY**

|             |  |
|-------------|--|
| Type        | Isolated 9 to 36 VDC                                     |
| Consumption | <1 W typical at 12 VDC                                   |
| Protection  | Over voltage, reverse voltage, ESD, complies with EMC CE |

**INTERFACE**

|                |  |
|----------------|--|
| Connector      | Single 24 pin IP68 hermetic  |
| Output X, Y, Z | Velocity; 40 Vpp differential<br>Mass position; 10 Vpp single ended  |
| Calibration    | Accept analogue test signals to be injected into the individual cells via dedicated calibration coils. Calibration function can be remotely activated and inhibited. |
| Serial         | RS485  |

**PHYSICAL & ENVIRONMENTAL**

|                |   |
|----------------|---|
| Material       | Lightweight rugged aluminium construction (Stainless steel housing optional). |
| Diameter       | 235 mm  |
| Height         | 283 mm incl. feet & handle  |
| Weight         | < 10 kg (< 9.8 liter)   |
| Ingress        | IP68 and NEMA6P; Survives brief periods of submersion to 1m depth             |
| Operating temp | -20 to 60 °C  |
| Humidity       | 0 to 100% non-condensing  |
| Shock          | <a href="#">MIL STD 810G - 516.6 - Shock (air transport)</a>                  |

**INSTALLATION**

|              |  |
|--------------|--|
| Maximum tilt | ± 2°   |
| Orientation  | Handle for ease of installation. LED indicators allow quick deployment on the field. |
| Orientation  | Engraved N direction and alignment groove on sensor housing                          |

