

## FEATURES

- Borehole package
- Submersible to 30 m
- Velocity transducer

The seismometer is a short-period vertical instrument designed to operate in shallow and deep (300m) boreholes with a minimum inside diameter of four inches. The instrument contains a five kilogram mass with a fixed magnet, moving coil transducer. An external mass lock is provided to facilitate shipping and handling prior to installation. Additional features include an electromagnetic calibrator, adjustable natural period and mass position, stable mass position versus temperature, and period versus mass position. Various generator constants from about 100 to about 2,000 V/(m/s) are available. The instrument is housed in an electroless nickel plated steel case with a waterproof connector suitable for submersion to a depth of 300 m.

GS-21A has a stronger magnet for a lower self noise, being the lowest self noise short period borehole seismometer in the world.

## BOREHOLE SHORT-PERIOD SEISMOMETER

### MODEL 20171 and GS-21A



# SHORT-PERIOD SEISMOMETER MODEL 20171 and GS-21A SPECIFICATIONS

## OPERATING CHARACTERISTICS

|                                     |   |
|-------------------------------------|---|
| <b>Mode of Operation</b>            | Vertical, adjustable for tilts up to 10 degrees from vertical |
| <b>Natural frequency</b>            | Adjustable from 0.75 to 1.05 Hz                               |
| <b>Inertial mass</b>                | 5 kg (11.0 lbs.) $\pm 1\%$                                    |
| <b>Mass position vs temperature</b> | $\pm 1.5$ mm over operating temperature range                 |
| <b>Transducer</b>                   |   |
| Type                                | Moving coil (velocity)  |
| Damping                             | Electromagnetic   |
| Generator constant                  | 650 V/(m/s)   |
| GS-21A                              | 2000 V/(m/s)  |
| Coil Resistance 20171               | 7084 ohm $\pm 10\%$ (standard)<br>CDR = 8400 ohm              |
| GS-21A                              | 6720 ohm $\pm 10\%$ (standard)<br>CDR = 64251 ohm             |
| Maximum mass travel                 | 6.4 mm (0.25 in.) pp  |
| <b>Calibration coil</b>             |   |
| Motor constant                      | 0.1975 $\pm 0.002$ N/A  |
| Resistance                          | 24 $\pm 3$ ohm @25°C  |
| <b>Allowable current</b>            |   |
| ntantaneous/Sustained               | 100 mA / 10 mA  |
| <b>Temperature range</b>            |   |
| Operating                           | -2 to 49°C (30 to 120°F)                                      |

## PHYSICAL CHARACTERISTICS

|                             |  |
|-----------------------------|--|
| <b>Dimensions (nominal)</b> |  |
| <b>Diameter</b>             | 95 mm (3.75 in.)                           |
| <b>Length</b>               | 1.185 m (46.69 in.)                        |
| <b>Net weight</b>           | 30.8 kg (68 lb.)                           |
| <b>Shipping weight</b>      | 45.3 kg (100 lb.)                          |
| <b>Shipping volume</b>      | 0.226 m <sup>3</sup> (8 ft. <sup>3</sup> ) |
| <b>Seismometer bulk</b>     | 4.2  |
| <b>Connectors</b>           |  |
|                             | Receptable PT07A-10-6P                     |
|                             | Mating plug PT06W-10-6S                    |
| <b>Diameter</b>             | 95 mm (3.75 in.)                           |
| <b>Length</b>               | 1.185 m (46.69 in.)                        |
| <b>Net weight</b>           | 30.8 kg (68 lb.)                           |
| <b>Shipping weight</b>      | 45.3 kg (100 lb.)                          |

\*Alternate transducer coils for 20171 are available on special order. Please consult factory for details.