

## FEATURES

- Borehole package
- Submersible to 300 m or more
- Velocity transducer

These seismometers are short-period vertical instruments designed to operate in shallow and deep boreholes with a minimum inside diameter of four inches. The instruments contain 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 (stainless for GS-13BH) case with a waterproof connector suitable for submersion to a depth of 300 m.

GS-21 and GS-13BH have a stronger magnet, exhibiting the lowest high frequency self noise on the market.

## BOREHOLE SHORT-PERIOD SEISMOMETER

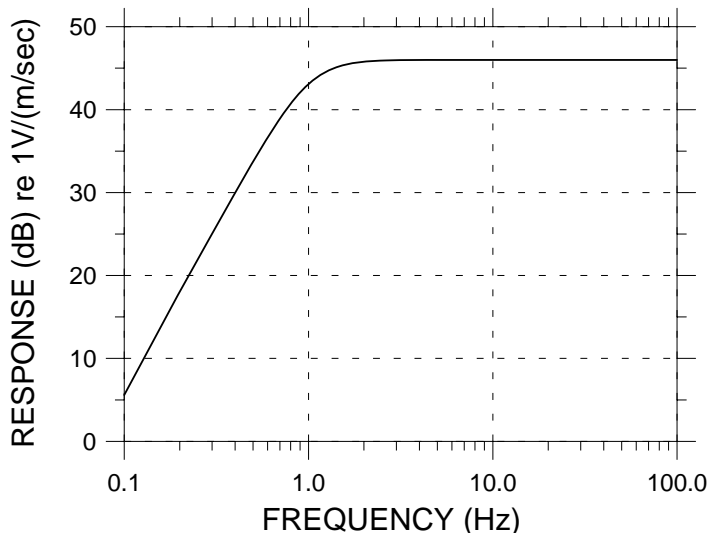
### MODELS GS-13BH, GS-21 and 20171



# SHORT-PERIOD SEISMOMETER MODELS GS-13BH, GS-21 and 20171 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.) ±1%
<b>Mass position vs temperature</b>	± 1.5 mm over operating temperature range
<b>Transducer</b>	
Type	Moving coil (velocity)
Damping	Electromagnetic
Generator constant <sup>*)</sup>	2,000 / 458 / 650 V/(m/s)
Coil Resistance	
GS-13BH	9,100 ohm ±10% (standard) CDR = 81,000 ohm
GS-21	467 ohm ±10% (standard) CDR = 3,400 ohm
20171	6,560 ohm ±10% (standard) CDR = 8,400 ohm
Maximum mass travel	6.4 mm (0.25 in.) pp
<b>Calibration coil</b>	
Motor constant	4.5 / 0.1975 / 0.1975 N/A
Resistance	29 / 24 / 24 ±3 ohm @25°C
Allowable current	
Intantaneous/Sustained	100 mA/10 mA
<b>Temperature range</b>	
Operating	-2 to 49°C (30 to 120°F)



## PHYSICAL CHARACTERISTICS

### Dimensions (nominal)

<b>Diameter</b>	95 mm (3.75 in.)
<b>Length</b>	98 cm / 118 cm / 118 cm
<b>Net weight</b>	28 kg / 27 kg / 30.8 kg
<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

### Connectors:

<b>GS-13BH</b>	Receptacle TBD
	Mating plug TBD
<b>GS-21 and 20171</b>	Receptacle PT07A-10-6P
	Mating plug PT06W-10-6S

<sup>\*)</sup> Alternate transducer coils are available on special order. Please consult factory for details.

