

GEOfba200

Force Balance Accelerometer

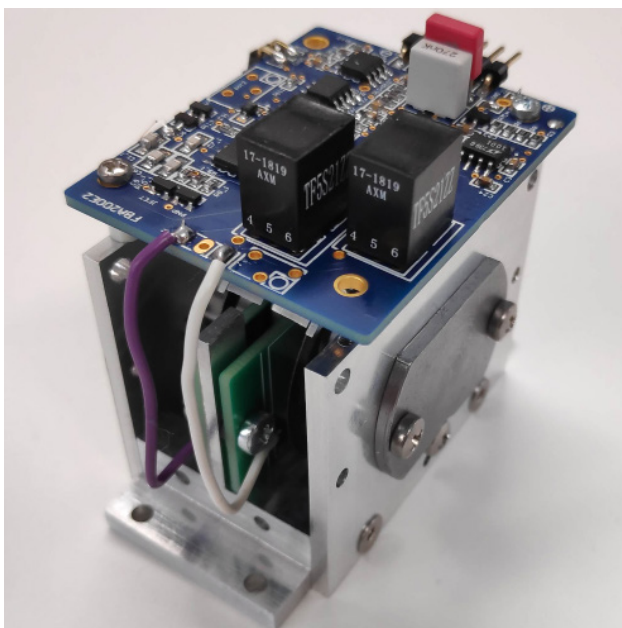
- Low noise accelerometer for high precision and high dynamic range
- Selectable full scale range +/-4g to +/-0.25g standard, higher gain set custom available
- Wide passband DC to 200Hz, higher corner frequency custom available
- Simple installation using a central fix bolt
- Electronically adjustable DC offset
- Power 9-18Vdc, 1.1W
- Waterproof IP68 aluminum or stainless-steel casing



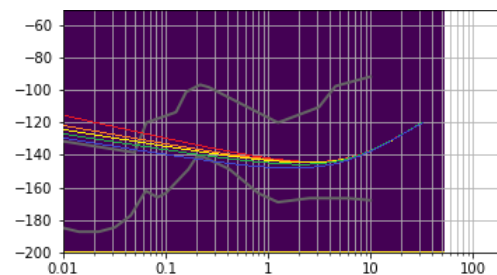
FEATURES

The GEOfba200 is a very low-noise triaxial force-balance accelerometer with a large dynamic range, suitable for seismology, hazard mitigation and civil engineering applications. The instrument has both a flat response to ground acceleration from DC to 200 Hz and a stable phase response within the passband. Output range is 40Vpp differentially and supports variety range of gain sets from +/-4g to +/-0.25g in the standard configuration and availability for higher gain set under request. Due to it's high dynamic range which exceeds 155dB the sensor provides from on-scale recording of earthquake motions to structural seismic noise monitoring and allows engineers to study motions at higher frequencies. The sensor allows easy field calibration through its calibration line.

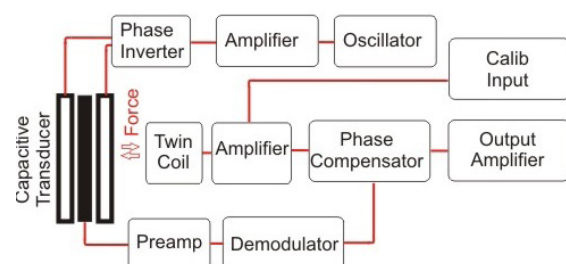
Inside the GEOfba200 there are three similar accelerometers, orthogonally placed. The sensor is operating according to the force-balance principle as closed-loop sensor (servo accelerometer). The motion of the seismic mass is monitored from a very sensitive capacitive transducer and a very low noise VHF preamplifier. The demodulator generates in-phase and low noise seismic signal which is fed back to the seismic mass through a phase compensator, a power amplifier and a fully symmetrical force actuator consisting of a double coil-magnet system. This design eliminates any non-linearity due to lack of symmetry. The output amplifier sets the selectable acceleration gain between +/-4g to +/-0.25g.



GEOfba200 sensing element mechanism



GEOfba200 self noise
Red: 4g, orange 2g, yellow 1g, green 0.5g, blue 0.25g



GEOfba200 block diagram



INSTRUMENT SPECIFICATIONS

PERFORMANCE

Topology	Triaxial accelerometer
Technology	Force balance with capacitive displacement transducer
Dynamic Range	Better than 155dB
Bandwidth	DC-200Hz standard, higher corner frequency available under request
Range	User selectable +/-4g, +/-2g, +/-1g, +/-0.5g, +/-0.25g, higher gain set available under request
Output	Differential 40Vpp
Output impedance	100 ohms
Calibration	Calibration line
Calibration control	Calibration enable line
Offset zeroing	Electronic, manually operated
Damping	0.7 critical
Linearity	0.1% of full range
Cross axis rejection	0.001g/g

HOUSING

Casing	Hard anodized aluminum casing or stainless steel, IP68
Connector	Military type, 19 pins
Dimensions	Diameter = 139mm Height = 109mm
Weight	2.6kg
Mounting	A single mounting bolt and three adjustable leveling feet
Leveling	Integrated bubble level
Humidity	100%
Waterproof	IP68, immerse 2m for 72H

POWER

Power	Isolated 9-18Vdc, 1.1W typical quiescent
Protection	Reverse polarity, under/over voltage protection
Temperature	-20 to +70°C



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