



# HGS (INDIA) LIMITED



## SPECIFICATION SHEET – GEO**fb**a200

### Force Balance Accelerometer

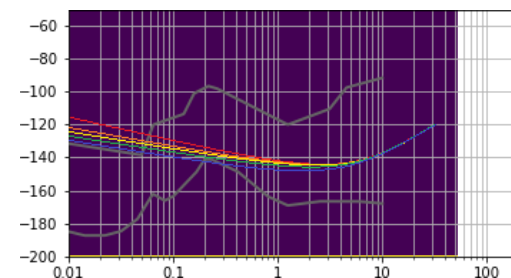
The GEO**fb**a200 (C-type) is a very low-noise triaxial force-balance accelerometer with a large dynamic range, suitable for seismology, hazard mitigation and civil engineering applications. The instrument has both a flat response to ground acceleration from DC to 200 Hz and a stable phase response within the passband. Output range is 40V<sub>pp</sub> 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 its 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 GEO**fb**a200 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.



*GEO**fb**a200*

### System Features

- 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
- Operation Range: -20 +65°C



*GEO**fb**a200 self noise*  
 Red: 4g, orange: 2g, yellow: 1g, green: 0.5g, blue: 0.25g



HGS (INDIA) LIMITED  
 158, Sector-4, IMT Manesar, Gurugram-122050, Haryana, INDIA  
 Tel: +91 (0124) 4681800  
 Email: [sales@hgsindia.com](mailto:sales@hgsindia.com) | Website: [www.hgsindia.com](http://www.hgsindia.com)



<b>GEOfba200 Specifications</b>	
<b>Performance</b>	
Topology	Triaxial accelerometer
Technology	Force balance with capacitive displacement transducer
Dynamic Range	Better than 155dB Better than 160dB @1Hz/1Hz BW
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 line	Calibration enable line Electronic
Offset zeroing	Automatic and/or manually operated
Damping	0.7 critical
Linearity	0.1% of full range
Noise	<10ng $\sqrt{Hz}$
Communication	Serial port, SOH & commands
<b>Power</b>	
Power	Isolated 9-18Vdc, 1.1W typical quiescent
Protection	Reverse polarity, under/over voltage protection
Temperature	-20 to +70°C
<b>Housing</b>	
Casing	Hard anodized aluminum casing or stainless steel, IP68
Connector	Military type, 19 pins, IP68
Dimensions	X=108mm Y= 148mm Z= 75mm
Weight	1.3kg
Mounting	Three leveling legs and central and slotted base for single bolt mating
Leveling	Integrated bubble level
Humidity	100%
Waterproof	IP68, immerse 2m for 72H

<b>Ordering Information</b>	
<b>Item Description</b>	<b>HGS Part No.</b>
GEOfba200	MK001591



HGS (INDIA) LIMITED  
 158, Sector-4, IMT Manesar, Gurugram-122050, Haryana, INDIA  
 Tel: +91 (0124) 4681800  
 Email: [sales@hgsindia.com](mailto:sales@hgsindia.com) | Website: [www.hgsindia.com](http://www.hgsindia.com)

Version 1.0

