

## AC-63 Triaxial Force Balance Accelerometer

### Features

- Superior signal: noise ratio
- Offset Stability
- Temperature and drift compensation
- No installation adjustments required
- Digital Sensor Control (DSC)
- Disable my DSC and do it the old way
- Full Scale:  $\pm 2g$  ( $\pm 1g$  or  $\pm 4g$  optional)
- Robust suspension system



### Outline

The AC-63 accelerometer is based on a force balance servo accelerometer concept having a new innovative and rugged mass suspension system. **The 3.7 gr. mass improves the signal to noise ration. The dual magnetic system and positions sensors offer symmetrical controls for the accurate electronic centring of the mass.** At rest the accelerometer servo mechanism is in balance and no electrical output is generated. Acceleration of the AC-63 will result in an **electrical output proportional to the current used to keep the mass centred.** This accelerometer output signal is calibrated to "g" gravity so that the current scale factor of the AC-63 is in units of milli-amps per g. **Because of the symmetrical dual magnetic and positioning system incorporated with the force balance servo accelerometer principle, the accelerometer can not arbitrarily change its scaling or drift out of calibration.**

**A Digital Sensor Control (DSC) is used to provide the AC-63 with exceptional user friendly features.** At turn on the DSC nulls all outputs including the vertical channel. This powerful feature allows the users to install the AC-63 and turn it on. **Time consuming offset adjustment and instrument levelling are not necessary.**

The DSC provides exceptional offset stability and measurement accuracy by continually survey the offset and keep it nulled. Micro acceleration turns off the offset survey system. The user may choose to switch off the DSC and make manual offset and levelling adjustments.

The DC response allows the sensor to be easily repaired, tilt tested or recalibrated in the field. With the help of the TEST LINE the AC-63 accelerometer can be completely tested assuring proper operation and accurate acceleration measurement.

# SPECIFICATIONS AC-63

## General Characteristics

Application: Strong Motion earthquake survey & industrial applications requiring rugged sensors

Configurations: AC-63 Triaxial Orthogonal package

Full Scale Range:  $\pm 2g$  Std ( $\pm 1g$ , or  $\pm 4g$  optional)

## Sensor Element

Type: Servo Force Balance

Dynamic Range:  $> 120$  dB

Nonlinearity:  $< 0.1$  %

Hysteresis:  $< 0.01$  %

Cross Axis:  $< 0.2$  %

Bandwidth: From DC to 100 Hz  
200 Hz Optional

Damping: 0.5 to 0.7 critical

Output:  $0 \pm 5$  V Standard  
 $2.5 \pm 2.5$  V Alternative

Output options: Current loop :  
- 0 to 20 mA

Differential voltage output :  
-  $0 \pm 5V$  or  $0 \pm 2.5 V$

Offset Drift: Negligible  
Compensated by DSC

## Power:

Supply Voltage:  $\pm 9$  to 15 VDC, single supply

Consumption: 70 mA @12 VDC (average)

**Connector:** 12 poles metallic, shielded, male

**Mating:** Binder / Coninvers type RC

**Surge Protection:** All pins are protected by <sup>TM</sup>Transzorb

## Connector Pin Configuration

Pin 1-6: signal output for axis X, Y, Z

Pin 7,8: Test Input

Pin 9-10: + 12 VDC power supply

Case: Shielded Ground

## Environment/Housing

**Package Type:** Cast aluminium, surface mount sealed access cover.

Package Size: 160 X 160 X 90 mm

Weight: 3.0 kg

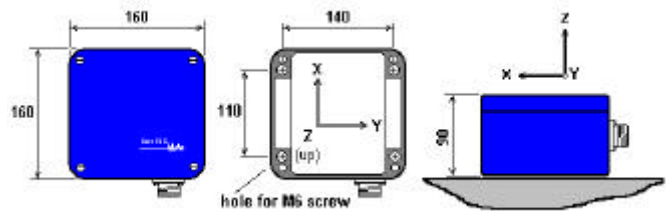
Index of Protection: IP 65  
IP 68 optional

Temperature Range: - 20 to 70 °C (operating)  
- 40 to 85 °C (non-operating)

Humidity: 0 to 100 % (non-condensing)

Orientation: Can be mounted in any orientation. Each axis offset is automatically zero'ed at turn-on. No more installation adjustment. Just install and turn on! Vertical 1g bias is automatically compensated.

## Mounting:



**Standard AC-63:** 2 g, sensor mating connector, installation and instructions manual.

## Options:

Output: Current loop module  
Differential output module

Cable & connector: Cable with shielded twisted pairs for any length (including matting sensor connector) with open end  
Cables for connection to GeoSIG recorder  
Connector on user specification mounted at cable end

Housing: Watertight IP68 housing  
Stainless steel protective

## Ordering Information

Specify: Type AC-63, g range, enclosure options, special cable lengths & recorder connection

## Specifications subject to change