AC-63 / AC-62 / AC-61-DH Downhole Accelerometer

**Features**

- Full Scale ± 2 g (0.5, 1, 3 or 4 g optional)
- Bandwidth DC to 100 Hz optional to 250 Hz
- Dynamic range >120 dB
- Temperature and drift compensation
- Robust suspension system
- Fits in 4" (100 mm) borehole
- Same basic specifications as AC-63

**Outline**

The AC-63-DH is a reliable Force Balance Accelerometer tailored for borehole applications, based on the latest MEMS (Micro Electro-Mechanical Systems) technology.

The DC response allows the sensor to be easily repaired, tilted 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.

The downhole housing contains the entire sensor system. The sensor is connected through Overvoltage Protection to the recorder at the surface with a cable.

Using inclinometer tubes and the provided guiding wheels, the sensor can be inserted in the borehole with a defined orientation.

The AC-63-DH accelerometer is directly compatible with the GeoSIG recorders.
Specifications AC-63 / AC-62 / AC-61-DH Downhole Accelerometer

General Characteristics
Application: Earthquake and structural monitoring and measuring

Configurations:

<table>
<thead>
<tr>
<th></th>
<th>Triaxial</th>
<th>Biaxial</th>
<th>Uniaxial</th>
<th>Axes</th>
<th>Alignment**</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-62-H**:</td>
<td></td>
<td></td>
<td></td>
<td>X – Y</td>
<td>H – H</td>
</tr>
<tr>
<td>AC-62-V**:</td>
<td></td>
<td></td>
<td></td>
<td>X (or Y) – Z</td>
<td>H – V</td>
</tr>
<tr>
<td>AC-61-H**:</td>
<td></td>
<td></td>
<td></td>
<td>X (or Y)</td>
<td>H</td>
</tr>
<tr>
<td>AC-61-V**:</td>
<td></td>
<td></td>
<td></td>
<td>Z</td>
<td>V</td>
</tr>
</tbody>
</table>

** H: Horizontal, V: Vertical

Full Scale Range: ± 2 g
optional ± 0.5, ± 1, ± 3, ± 4 g

Sensor Element
Type: Force Balance Accelerometer
Dynamic Range: >120 dB effective at ± 3 g full scale
Nonlinearity: < 0.1 %
Hysteresis: < 0.01 %
Cross Axis: < 0.2 %
Bandwidth: From DC to 100 Hz optional up to 250 Hz
Damping: 0.7 critical
Offset Drift: 100 ug / °C
Span Drift: 75 ppm / °C
Full Scale Output: ± 10 V differential
optional 0 ± 5 V single ended
Measurement Range: See Plot

Power
Supply Voltage: 9.2 to 15 VDC, single supply
Consumption: 70 mA @12 VDC (average)

Connector
Several options exist. See separate sheet.
Surge Protection: All pins are protected

Connector Pin Configuration
Pin 1-2, 3-4, 5-6: Signal output for axis X, Y, Z
Pin 7-8: Test input, Digital test-pulse (0 – 12 V)
Pin 9-10: +12 VDC Power Supply
Pin 11-12: Auxiliary input (reserved)
Case: Shielded ground

Environment/Housing
Housing Type: Aluminium cylinder
Fully sealed and resin filled
Housing Size: Diameter 55 mm, length 420 mm
Weight: 3.5 kg
Index of Protection: IP 68, up to 10 bar water pressure
Temperature Range: - 40 to 85 °C (operating)
- 40 to 85 °C (non-operating)
Humidity: 0 to 100 %
Orientation: Using 3” inclinometer casing (Figure 1) with included guidewheels (Figure 2).

Standard AC-6x-DH
Full scale 2 g, sensor mating connector and user manual on CD.
Borehole cable length to be defined.

Accessories
DH-TUBE
3” inclinometer casing as in figure 1 in sections of 3 meters with coupling elements.
Installation kit: All required tools and fixation consumables for up to 100 meters of casing.

Ordering Information
Specify: Type of AC-6x-DH, acceleration full scale, depth of borehole and total cable length.

Figure 1
Figure 2

Specifications subject to change without notice
Copyright © GeoSIG Ltd, 20.09.2012/ GS_AC-63-DH_Leaflet_V08.doc