

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

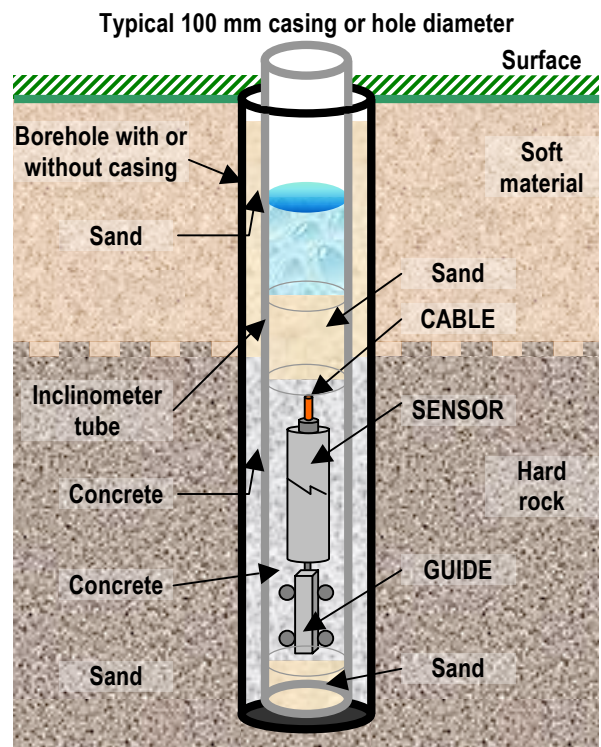
The AC-63-DH is a reliable Force Balance Accelerometer tailored for borehole applications, based on the latest MEMS (Micro Electro-Mechanical Systems) technology.

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

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:

AC-63:

AC-62-H**:

AC-62-V**:

AC-61-H**:

AC-61-V**:

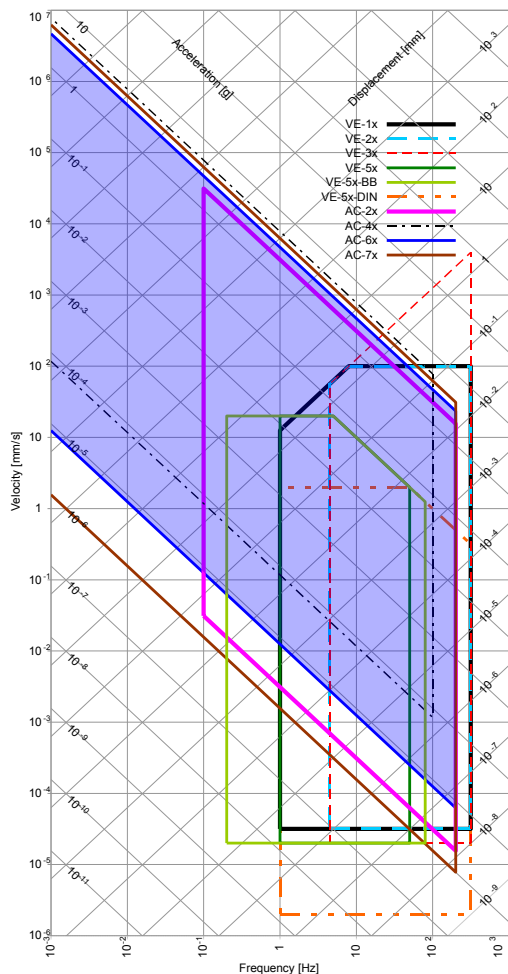
| | Triaxial | Biaxial | Uniaxial | Axes | Alignment** |
|-----------|----------|---------|----------|--------------|-------------|
| AC-63 | ■ | ■ | ■ | X-Y-Z | H-H-V |
| AC-62-H** | | ■ | | X-Y | H-H |
| AC-62-V** | | ■ | | X (or Y) - Z | H-V |
| AC-61-H** | | | ■ | X (or Y) | H |
| AC-61-V** | | | ■ | Z | V |

** H: Horizontal, V: Vertical

Full Scale Range: ± 2 g
optional $\pm 0.5, \pm 1, \pm 3, \pm 4$ 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 $\mu\text{g} / ^\circ\text{C}$
 Span Drift: 75 ppm / $^\circ\text{C}$
 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

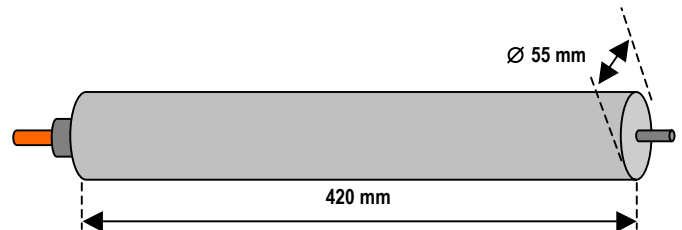
Pin 1-2, 3-4, 5-6: Signal output for axis X, Y, Z
 Pin 7-8: Test input, Digital test-pulse (0 - 12 V)
 Pin 9-10: +12 VDC Power Supply
 Pin 11-12: Auxiliary input (reserved)
 Case: Shielded ground

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 $^\circ\text{C}$ (operating)
 - 40 to 85 $^\circ\text{C}$ (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