

## AC-23 / AC-22 / AC-21 Accelerometer

### Features

- Full Scale  $\pm 2$  g (options down to  $\pm 0.1$  g)
- Bandwidth 0.1 Hz to 100 Hz (optional 200 Hz)
- Dynamic range > 125 dB
- Excellent temperature stability
- Strong-Motion, Free field and Industrial applications
- Downhole version (AC-23-DH) is also available
- Different housing and mounting options are available
- Single Bolt Mounted Enclosure provides up to  $\pm 10^\circ$  of Levelling Adjustment



### Outline

The AC-23 package is a triaxial accelerometer sensor designed for Strong Motion and industrial applications where a high sensitivity is required.

The AC-2x series are state-of-the-art servo-accelerometers based on standard exploration geophone mass-spring system with electronic feedback. Having remarkable temperature and aging stability because of the very simple principle, the AC-2x rarely requires maintenance.

The outstanding dynamic range performance and linearity of the AC-2x which is more than 125 dB at  $\pm 2$  g full scale within the 0.1 to 50 Hz range, makes this accelerometer a perfect sensor for many applications.

Triaxial, biaxial and uniaxial configurations are all available in surface and downhole models, complementing the versatile useability of the AC-2x.

The AC-2x is housed in a sealed cast aluminium housing with the dimensions of 195 x 112 x 96 mm. The housing also offers a single bolt mounting system with three levelling screws. Stainless steel housings as well as internal mounting inside GSR-xxAH housing options are available.

With the help of the TEST LINE the sensor can be easily and completely tested. Full scale is user selectable on site by setting the internal jumpers.

The AC-2x accelerometer is directly compatible with the GeoSIG recorders.

# Specifications AC-23 / AC-22 / AC-21 Accelerometer

## General Characteristics

Application: Strong Motion earthquake survey  
Industrial applications requiring high

sensitivity

Configurations:

AC-23 or AC-23i\*:

AC-22-H or AC-22-Hi\*:

AC-22-V or AC-22-Vi\*:

AC-21-H or AC-21-Hi\*:

AC-21-V or AC-21-Vi\*:

	Triaxial	Biaxial	Uniaxial	Axes	Alignment**
AC-23 or AC-23i*	■			X-Y-Z	H-H-V
AC-22-H or AC-22-Hi*		■		X-Y	H-H
AC-22-V or AC-22-Vi*			■	X (or Y) - Z	H-V
AC-21-H or AC-21-Hi*			■	X (or Y)	H
AC-21-V or AC-21-Vi*			■	Z	V

\* i : Internal sensor \*\* H: Horizontal, V: Vertical

Full Scale Range: Jumper selected in range  
 $\pm 0.2, \pm 0.5, \pm 1, \text{ or } \pm 2 \text{ g}$   
for  $\pm 10 \text{ V}$  diff at output  
Optional range:  $\pm 0.1, \pm 0.25, \pm 0.5 \text{ or } \pm 1 \text{ g}$   
for  $\pm 10 \text{ V}$  diff at output

## Sensor Element

Type: Servo-accelerometer based on geophones  
with feedback

Dynamic Range:  $>125 \text{ dB}$  effective at  $\pm 2 \text{ g}$  full scale

Linearity:  $0.1 \%$

Accuracy:  $\pm 0.4 \text{ dB}$  max over the bandwidth

Cross Axis Sensitivity:  $1 \%$

Bandwidth:  $0.1 \text{ Hz}$  (1 pole) to  $100 \text{ Hz}$  (1 pole)  
optional  $200 \text{ Hz}$

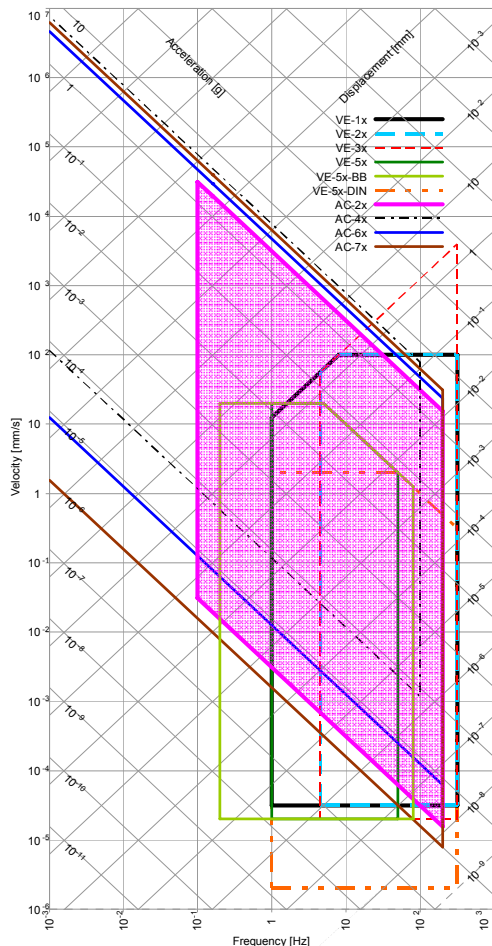
Damping:  $0.7$  critical

Offset Drift:  $< 1 \text{ mV}/^\circ\text{C}$

Span drift:  $< 200 \text{ ppm}/^\circ\text{C}$

Full Scale output:  $0 \pm 10 \text{ V}$  differential (20 Vpp)  
optional  $2.5 \pm 2.5 \text{ V}$  single-ended (5 Vpp)  
 $0$  to  $20 \text{ mA}$  current loop

Measuring Range: See Plot



## Power

Supply Voltage: 12 VDC regulated (10 to 15 V)

Consumption: 40 mA @ 12 V

Mating: Binder / Coninvers type RC

Overvoltage 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

Case

Shielded Ground

## Environment/Housing

Housing Type:

Cast aluminium  
Sealed access cover

Housing Size:

195 x 112 x 96 mm

Weight:

2.5 kg

Index of Protection:

IP 65

Temperature Range:

optional IP 68  
 $-20$  to  $70 \text{ }^\circ\text{C}$  (operating)  
 $-40$  to  $90 \text{ }^\circ\text{C}$  (non-operating)

Humidity:

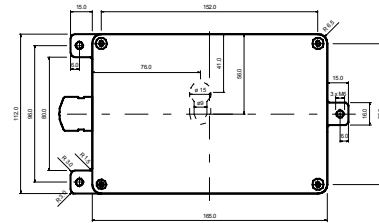
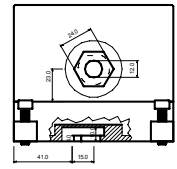
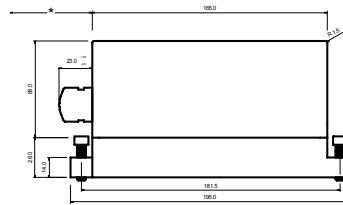
$0$  to  $100 \%$  (non-condensing)

Orientation:

Floor or wall mounting (to be specified in order)

Mounting:

Single bolt, surface mount, adjustable  
within  $\pm 10^\circ$



\* Minimum Space Allowance for the Connector and Cable:  
Sensor with Connector: 300 mm from sensor housing  
Sensor with Cable Inlet: 200 mm from sensor housing

## Standard AC-23

Floor mounted, Full scale  $\pm 2 \text{ g}$ ,  
2 m cable with cable inlet and  
recorder mating connector, concrete  
anchor bolt and user manual on CD

## Options

Cable & connector:

Cable connector  
Metallic, Shielded, IP67, 12 pins, male  
optional MIL, Bendix PT07A 14-19P  
Cable with shielded twisted pairs for any  
length (including mating sensor  
connector) with open end  
Cables for connection to GeoSIG recorder  
Connector on user specification mounted  
at cable end

Housing:

Watertight IP 68 housing  
Downhole housing (AC-2x-DH)  
Stainless steel protective housing

Mounting:

As internal sensor  
Wall mounted

## Ordering Information

Specify:

Type of AC-2x, full scale range, and other  
applicable options