



# AC-2x Accelerometer

## Overview

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 ageing stability because of the very simple principle, the AC-2x rarely requires maintenance.

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

The AC-2x is housed in a sealed cast aluminium housing with the dimensions 195 x 112 x 95 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 GeoSIG recorders.



## Key Features

- ◀ Full scale  $\pm 0.1$ ,  $0.2$ ,  $0.5$ ,  $1$ ,  $2$  and  $4g$  jumper selectable (NPP:  $\pm 0.5$ ,  $\pm 1$  and  $\pm 2g$  full scale)
- ◀ Bandwidth  $0.1$  Hz to  $100$  Hz (optional  $200$  Hz)
- ◀ Excellent temperature stability
- ◀ Strong-motion, free field and industrial applications
- ◀ Different housing and mounting options are available
- ◀ Single bolt mounted enclosure provides up to  $\pm 10^\circ$  of levelling adjustment
- ◀ Integrated bubble level

NPP version of the product is available; specification upon request.  
Full scale for NPP version is  $0.5g$ ,  $1g$ , and  $2g$ .

# AC-2x Accelerometer

## Specifications

### General Characteristics

Application: Strong Motion earthquake survey  
Industrial applications requiring high sensitivity

Configurations:

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

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

Full scale range: Jumper selected in range  $\pm 0.1$ ,  $\pm 0.2$ ,  $\pm 0.5$ ,  $\pm 1$ ,  $\pm 2$  and  $4g$  for  $\pm 10$  V diff at output  
AC-23 NPP:  $\pm 0.5$ ,  $\pm 1$  and  $\pm 2g$

### Sensor Element

Type: Servo-accelerometer based on geophones with feedback

Dynamic range:  $> 140$  dB correlated mean RMS noise amplitude (per-bin) with respect to  $4g$  full scale

Non-linearity:  $0.1\%$

Accuracy:  $\pm 0.4$  dB max over the bandwidth

Cross axis sensitivity:  $1\%$

Bandwidth:  $0.1$  Hz (1 pole) to  $100$  Hz (1 pole)  
optional  $200$  Hz

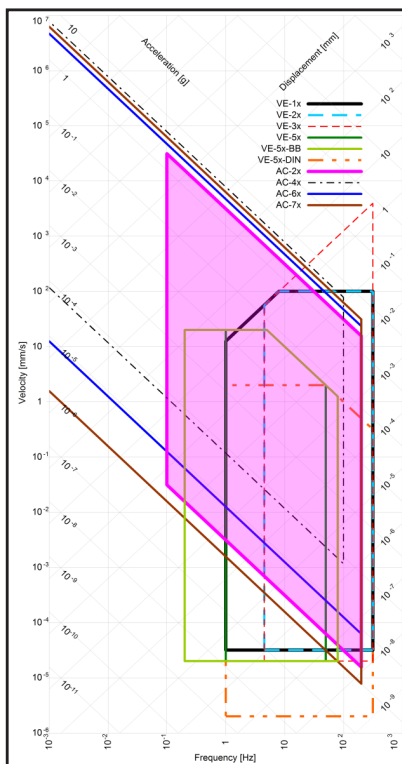
Damping:  $0.7$  critical

Offset drift:  $< 1$  mV/°C

Span drift:  $< 200$  ppm/°C

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

Measuring range: See plot



### Power

Supply voltage:  $12$  VDC regulated ( $10$  to  $15$  V)  
Consumption:  $26$  mA typical,  $140$  mA max. @  $15$  VDC  
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:  $195 \times 112 \times 95$  mm

Weight:  $2.5$  kg

Index of protection: IP 65

optional IP 68

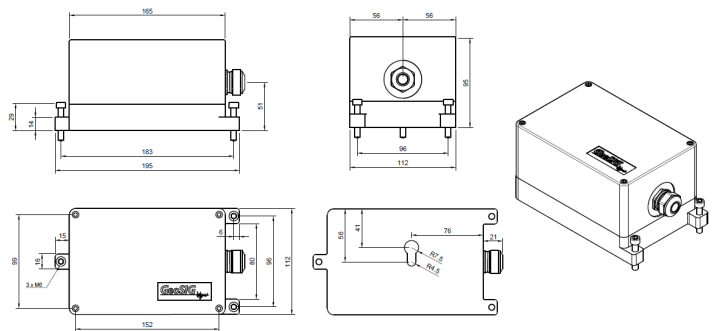
Temperature range:  $-20$  to  $+70$  °C (operating)

$-40$  to  $+90$  °C (non-operating)

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

Orientation: Floor or wall mounting (to be specified with order)

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



Standard AC-23 floor mounted, full scale  $\pm 2g$ ,  $2$  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

Stainless steel protective housing

As internal sensor

Mounting: Wall mounted

### Ordering Information

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