

## THREE COMPONENT FEEDBACK ACCELEROMETER

### SIGMA $\Sigma$ - TS4G - ACC

**SIGMA  $\Sigma$  - TS4G - ACC** force feedback accelerometer is based on a truly rectilinear suspension system. Three axis strong motion accelerometer is housed in an 'O' ring sealed Hard Anodised water proof Aluminium case.

The system is self-contained, except for the power source. An isolated dc-dc converter ensures galvanic isolation of the system and operates from 9 to 36 Volts.

The analogue feedback accelerometer has an extremely large dynamic range exceeding 157 dB at 1 Hz.

The sensor analogue differential outputs are interfaced to the differential inputs of the digitiser.

The photo Figure 1 shows the sensor Mil-Spec connector turret. The connector turret allows easy connection to the sensor. All the connectors are water proof with O ring seals to a depth of 2 meters of water.



Full-scale low and high gain sensitivity is digitally user-adjustable from  $\pm 4.0$  g to  $\pm 0.5$  g on all components of the sensor.

The standard frequency pass band is flat to acceleration from DC to 350 Hz.

Detailed sensor calibration information is provided with every sensor, including sensor dc calibration levels, frequency responses of the instrument and the transfer function in poles/zeros notation.

It is extremely simple to install sensor, single point slotted base bolt point ensures that the sensor to be fixed firmly to the installation point. Three levelling feet ensure that the sensor to be levelled and locked to the installation bolt.

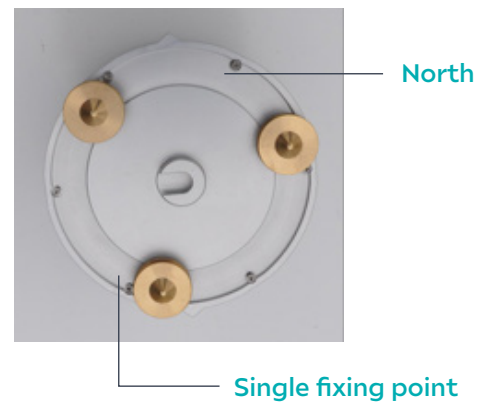
*The product specifications and the stated data are subject to change without prior notice.*

The North/South ordination points are machined on the sensor base and the sensor component fixing crews are fixed with dowel pins to achieve highest possible orientation accuracy. The errors in pointer to the sensor orientation is less than  $\pm 0.1$  degrees.

After installation the sensor output offsets are nulled electronically, without exposing the insides of the accelerometer.

The digital sensor noise performance is better than  $0.15 \mu \text{ m/s}^2/\sqrt{\text{Hz}}$ . The sensor dynamic range exceeds 157 dB at 1 Hz.

The accelerometer is provided with different connector options. Either with GaiaCode D type waterproof connectors or Mil-spec. connectors.



**Figure 1:**  
Accelerometer base with fixing point and Orientation indicators machined to the base of the sensor

## TECHNICAL SPECIFICATIONS

### Standard Frequency Response:

Flat Acceleration response DC to 350 Hz

### Analogue sensor sensitivity: Differential:

$2 \times 0.5 \text{ V/m/s}^2$  for } 20 Vdc Output

Configurable,  $\pm 4g$ ,  $\pm 2g$ ,  $\pm 1g \pm 0.5g$

The sensor sensitivity is configurable according to customer's requirement.

### SENSOR CONTROL LINES:

Centre the sensor mass positions: Serial (RS 232) and Logic line control.

Offset Adjustment: On demand and On power up.

Calibration On/Off: Serial (RS 232) and Logic control line

Calibration signal: can be applied to each axis. The calibration signal can be any form of signal.

Feedback calibration constant: Provided in the calibration document for each sensor axis.

Cross axis Rejection:  $0.001g/g$ . Three axis orthogonal Rectilinear suspension system.

Linearity:  $<0.1\%$  of full scale

Hysteresis:  $<0.1\%$  of full scale

Lowest spurious Resonance: 550 Hz for vertical and horizontal modules.

Operating temperature: -20 to 75 degrees centigrade

Power Supply: +9 - +36 V DC, Galvanically Isolated Supply input.

Power Consumption: Less than 700 milli Watts

Isolation and transient Protection: Sensor casing is isolated for the signal ground and sensor input power. All outputs are transient protected.

### PHYSICAL:

#### Power/signal connector:

- Mil-spec connectors on the connector turret
- GaiaCode D type Connectors GaiaCode D type connector is waterproof connector designed and manufactured for GaiaCode.

Case diameter: 165 mm

Case height: 125 mm with Mil-Spec Connector.

North South Pointer: Machined to the base. North- Black Pointer. South-white Pointer.

Base plate, Casing and top cap: Hard Anodised Aluminium. Environmental: IP-68

Weight: 2.3 Kg

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