

# AS1 Series

## MEMS Triaxial Accelerometer



### KEY FEATURES

- Triaxial MEMS accelerometer
- 4-20mA or 0.5 to 4.5V Output
- -40 to +85°C
- IP67 protection
- Ranges +/-2g to +/-16g
- Self-test function

### APPLICATIONS

- Bridge-strike monitoring
- Machine control
- Structural Monitoring
- Low frequency vibration monitoring
- Motion measurements

### Description/Application information

The AS1 Series Accelerometer is a versatile analogue DC accelerometer with 4-20mA or 0.5 to 4.5V output. Using a low-noise Monocrystalline silicon capacitive micromachined sensing element, the signal is internally compensated for linearity and long-term stability. Low power consumption and EMC/RFI shielded makes this a versatile and affordable accelerometer for many varied applications.

Available in ranges from  $\pm 2g$  to  $\pm 16g$  and analogue output, this DC coupled accelerometer has a frequency range from 0Hz to 200Hz.

The AS1 has a rugged plastic body with M6 brass screw fixings and incorporates a shielded PUR cable, IP67 protected for maximum durability. The accelerometer includes a self-test function for verification of sensor integrity.

### Measurement ranges

|                    | $\pm 2g$             | $\pm 4g$              | $\pm 10g$             | $\pm 16g$             |
|--------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Frequency response | 0-200Hz              | 0-200Hz               | 0-200Hz               | 0-200Hz               |
| Noise Density      | $<80\mu g/\sqrt{Hz}$ | $<100\mu g/\sqrt{Hz}$ | $<120\mu g/\sqrt{Hz}$ | $<150\mu g/\sqrt{Hz}$ |
| Resonant Frequency | 2.4KHz               | 2.4KHz                | 2.4KHz                | 5.5KHz                |

# AS1 Series

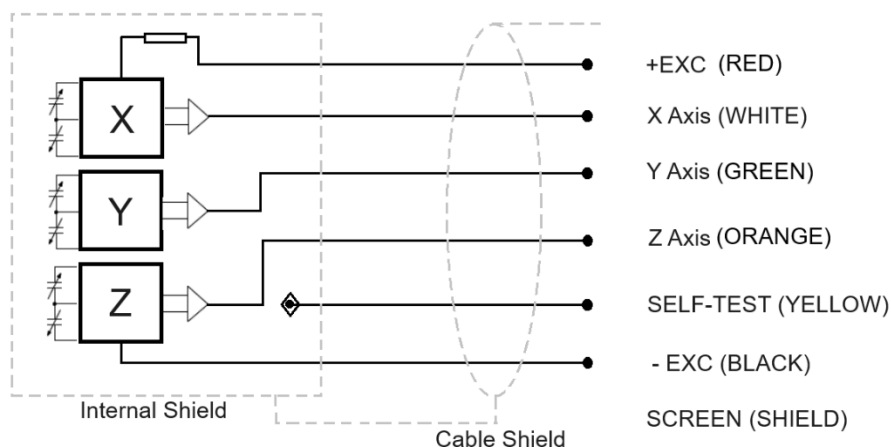
## MEMS Triaxial Accelerometer



### Specifications

|                             |                             |                              |
|-----------------------------|-----------------------------|------------------------------|
| Technology                  | MEMS Capacitive             |                              |
| Range options               | $\pm 2g$ to $\pm 16g$       | Enquire for other options    |
| Resolution                  | $<1mg$                      |                              |
| Zero acceleration           | 2.5V (Voltage output)       | 12mA (current output)        |
| Full scale output           | 0.5 to 4.5V (Voltage)       | 4-20mA (current output)      |
| Non-Linearity               | $\pm 0.5\%$                 | @150Hz BFLS                  |
| Measuring axis              | X,Y,Z                       | Triaxial                     |
| Power off-on repeatability  | $<2mg$                      |                              |
| Frequency Response          | 0 - 200Hz                   | Integral low-pass filter     |
| Bandwidth                   | 200Hz                       | @ 3Db                        |
| Shock                       | $>100g@11ms$                | (half sine wave)             |
| Shock recovery time         | $<1ms$                      |                              |
| Operating temperature range | $-40$ to $+80^{\circ}C$     |                              |
| Storage temperature range   | $-40$ to $+80^{\circ}C$     |                              |
| Power supply                | 9-36V DC                    |                              |
| Max current consumption     | 65mA                        | @12V DC                      |
| Cable material              | PUR with braided shield     | 3 metres as standard         |
| Cable size                  | 6 x 0.14mm conductors       | Braided shield               |
| Dimensions                  | 70.5 x 45 x 15mm            | Not including cable          |
| Weight                      | 73.5grams                   | Without cable                |
| Recommended Screws          | M6 threaded                 | Not supplied                 |
| Recommended screw torque    | Up to 2Nm                   |                              |
| Body Material               | Nylon 6-6 30% GF moulded    | With brass M6 fixing inserts |
| Case isolation              | $>100M$ Ohms @500V          | With Fully potted interior   |
| Noise density @ 10Hz        | $80\mu g/\sqrt{Hz}$ (low g) | $150\mu g/\sqrt{Hz}$ (16g)   |
| Max Calibration uncertainty | $<1mg$                      |                              |
| Protection                  | IP67                        |                              |
| Electrical protection       | EMC and RFI shielded        |                              |
| Reliability                 | MIL-HDBK-217                | Grade two                    |
| Self-test                   | $\pm 1g$ @ 10Hz square wave | When grounding ST wire       |

### Electrical Connection



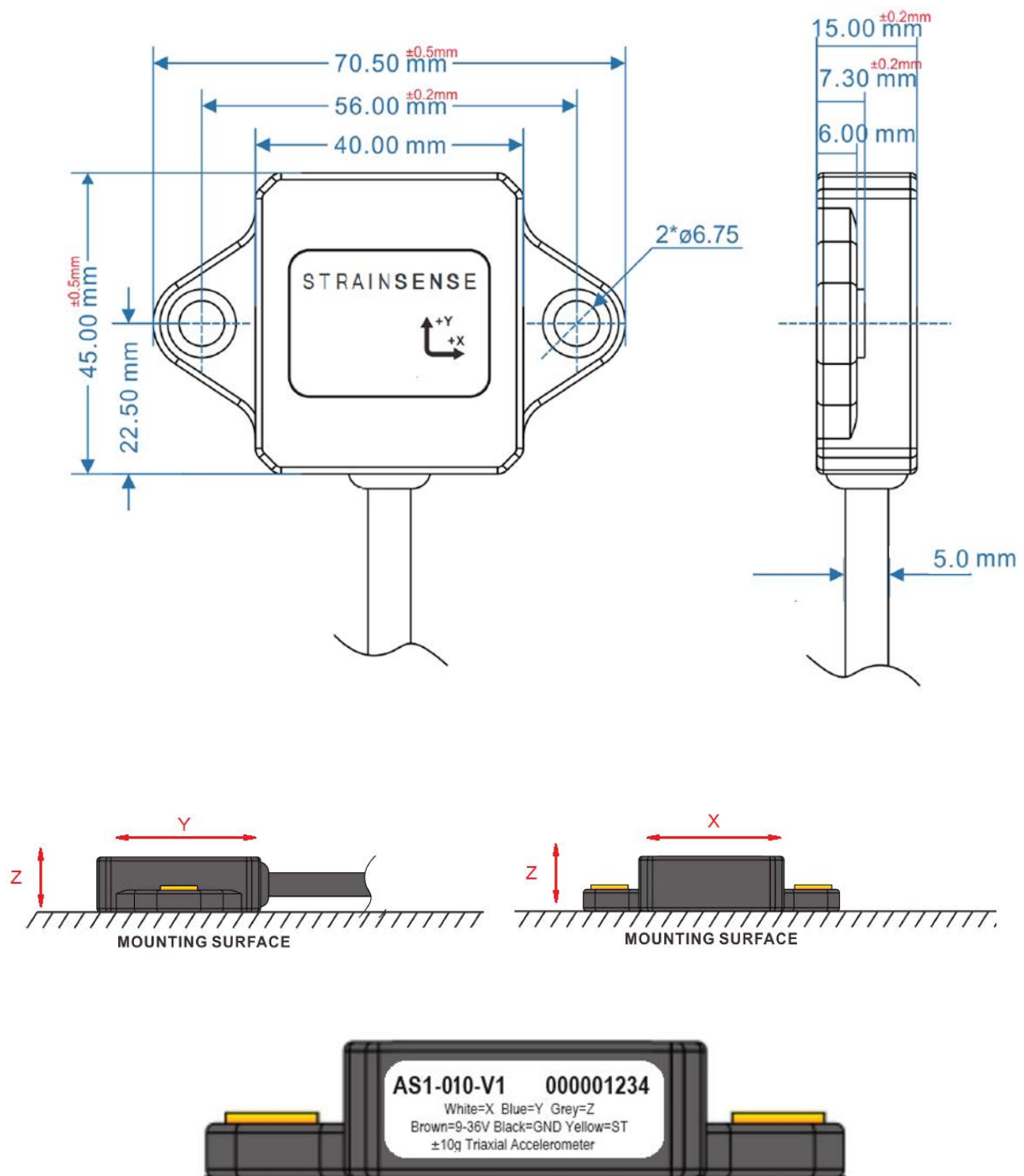
Cable: 6 Wire PUR Screened

# AS1 Series

## MEMS Triaxial Current Accelerometer



### Diagrams



Example Label showing part number, serial number and wiring

Ordering information

|                       |  |     |      |     |       |
|-----------------------|--|-----|------|-----|-------|
| Example product code: |  | AS1 | -010 | -A1 | -L03M |
| Model                 | AS1  |     |      |     |       |
| Range                 |  |     |      |     |       |
| 002                   | = ±2g  |     |      |     |       |
| 004                   | = ±4g  |     |      |     |       |
| 010                   | = ±10g   |     |      |     |       |
| 016                   | = ±16g   |     |      |     |       |
| Output                |  |     |      |     |       |
| V2                    | = 0.5 to 4.5V  |     |      |     |       |
| A1                    | = 4-20 mA  |     |      |     |       |
| Cable length          |  |     |      |     |       |
| LXXM                  | = Length in metres where x is the length (default is 3 metres) |     |      |     |       |

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