Tri-Axis Accelerometer

O 030 345 007 XXX

This accelerometer provides three axes' measurements in a single robust package. It measures the acceleration on the X, Y & Z axes and provides a voltage output for each which correlates to the g force present on that axis.

Each unit is calibrated to compensate for thermal drift, which allows for accurate measurements to be achieved over a wide ambient temperature range

- Three output models available:
  - Analogue Voltage
  - CAN Bus
  - Analogue Voltage & CAN Bus
- Up to ±40 g measurement range
- Variable, IIR, 8th-Order Butterworth filter

EXAMPLE APPLICATIONS

- Chassis g-force monitoring

ELECTRICAL

- Supply voltage: 8 - 16 V_{DC}
- Supply current: Analogue output: 20 mA
  Models with CAN: 35 mA

MEASUREMENT SPECIFICATION

- g range: CAN: ±40 g
  Analogue*: ±10 g, ±20 g and ±40 g
- g measurement accuracy: ±2% of range
- 0 g offset: ±20 mg
- Thermal sensitivity drift: 0.01 %/°C
- g drift over operating temp. range: ±0.5 mg/°C
- Cross axis sensitivity: <0.75 % at ±1 g (1 % max.)
- Cut-off frequency accuracy: ±2 % of frequency

CABLE AND CONNECTION

- 26 AWG, Unscreened, typ. 1000 mm
- Analogue:
  - 5-Core, Viton sleeved
- CAN:
  - 4-Core, DR25 sleeved
- Analogue & CAN:
  - 7-Core, DR25 sleeved

MECHANICAL

- Weight: <45g
- Aluminium body, hard anodised and dyed black.
- Integrated cable boss for strain relief to the sensor body

ENVIRONMENTAL

- Maximum humidity: 100%
- Ambient operating temp: -40°C to 125°C
- Resistant to standard motorsport fluids
- Vibration: 40 Hz to 2 kHz, 40 g, any axis
- Shock: 50 g, any axis

* Analogue voltage model parameters are fixed and only configurable during production.

Get in touch
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ANALOGUE OUTPUT

- Cut-off filter (fixed during calibration):
  - 40 – 100 Hz (20 Hz increments)
  - 150 – 350 Hz (50 Hz increments)
  - No-Filter (1 kHz 1st order hardware filter)
- Different cut-off frequencies available on each individual axis (fixed during calibration)
- Output voltage†† (per axis):
  - 0.5 V ±0.02 V = Full-scale negative
  - 2.5 V ±0.02 V = 0 g
  - 4.5 V ±0.02 V = Full-scale positive
- Sensitivity:
  - ±10 g = 200 mV/g
  - ±20 g = 100 mV/g
  - ±40 g = 50 mV/g
- Output conversion:
  - ±10 g range:
    - g measurement = (5 x Voltage) – 12.5
  - ±20 g range:
    - g measurement = (10 x Voltage) – 25
  - ±40 g range:
    - g measurement = (20 x Voltage) – 50

SIGNAL	WIRE COLOUR
Power +	Red
Ground	Green
X Axis Signal	White
Y Axis Signal	Yellow
Z Axis Signal	Blue

CAN BUS OUTPUT

- User configurable cut-off filter:
  - 40 – 100 Hz (20 Hz increments)
  - 150 – 350 Hz (50 Hz increments)
  - No-filter (1 kHz 1st order hardware filter)
- Different cut-off frequencies available on each individual axis

SIGNAL	WIRE COLOUR
Power +	Red
Ground	Black
CAN H	Blue
CAN L	Yellow

ANALOGUE & CAN BUS OUTPUT

- User configurable cut-off filter:
  - 40 – 100 Hz (20 Hz increments)
  - 150 – 350 Hz (50 Hz increments)
  - No-filter (1 kHz 1st order hardware filter)
- Different cut-off frequencies available on each individual axis
- Hybrid data output:
  - Raw-Hybrid model: unfiltered data output via analogue and filtered data output via CAN
  - Filtered-Hybrid model: filtered data output via analogue and CAN

SIGNAL	WIRE COLOUR
Power +	Red
Ground	Black
CAN H	Blue
CAN L	White
X Axis Signal	Violet
Y Axis Signal	Yellow
Z Axis Signal	Orange

- CAN message includes acceleration for all three axes
- 1 Mbit/s CAN communications link for configuration and data transmission
- CAN sampling rate configured by host ECU up to 4 kHz (default 100 Hz)
- CAN Tx message identifiers, configured by host ECU, allowing multiple module sharing common bus (Default CAN Rx ID: 0x1B0‡‡)

†† Alternative voltage output ranges available (max. 0.1 V to 4.9 V)
‡‡ CAN Rx identifier can be changed, but only during production

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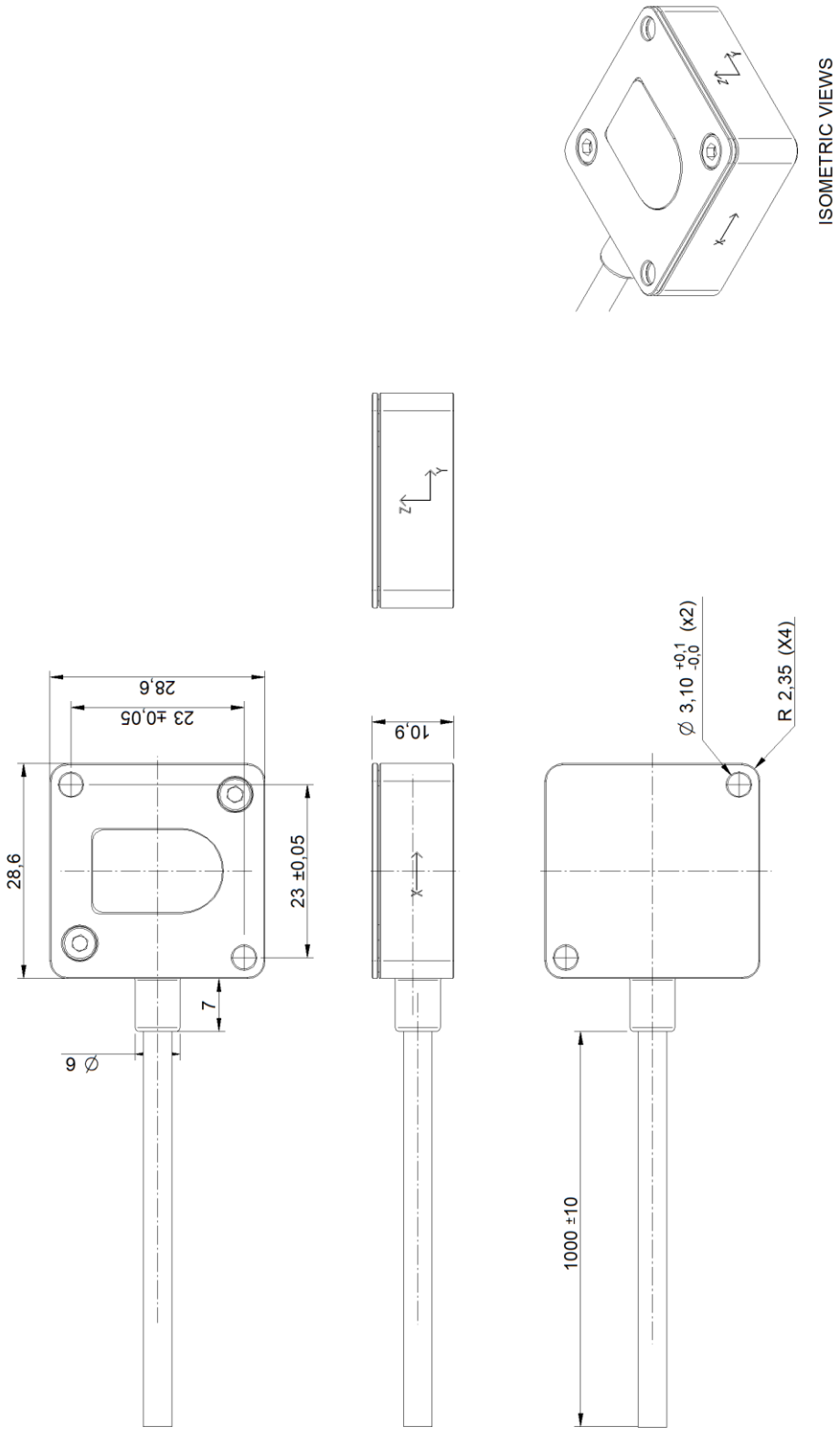

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