

PRODUCT SUMMARY

TRI-AXIS ACCELEROMETER

VOLTAGE AND CAN BUS OUTPUT



This accelerometer provides three axis measurements in a single robust package.

- Three output models available:
 - Analogue Voltage
 - CAN Bus
 - Analogue Voltage & CAN Bus
- Up to $\pm 40g$ measurement range
- Variable IIR 8th-Order Butterworth filter
- -40 to 125°C operating temperature range

ELECTRICAL

- Supply voltage: 8-16VDC
- Supply current: Analogue output: 20mA
Models with CAN: 35mA

MEASUREMENT SPECIFICATIONS

- CAN model G range: $\pm 40g$
- Analogue model G range: Configurable in production up to $\pm 40g$ ^[1]
- G measurement accuracy: $\pm 2\%$ of reading
- 0g offset: $\pm 20mg$
- Thermal sensitivity drift: 0.01%/°C
- G drift over operating temp. range: $\pm 0.5mg/°C$
- Cross axis sensitivity: $< 0.75\%$ at $\pm 1g$ (1% max.)
- Cut-off frequency accuracy: $\pm 2\%$ of frequency

MECHANICAL

- Weight: $< 45g$
- Housing material: Aluminium body, hard anodised and dyed black. Polyester cable boss for strain relief to the sensor body
- Vibration: 40 to 2000Hz, 40g, any axis
- Shock: 50g, any axis

ENVIRONMENTAL

- Maximum humidity: 100%
- Ambient operating temp: -40°C to 125°C
- Resistant to standard motorsport fluids

CABLE & CONNECTIONS

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

ANALOGUE OUTPUT

- Cut-off filter (fixed during calibration):
 - 40-100Hz (20Hz increments)
 - 150-350Hz (50Hz increments)
 - No-Filter (1kHz 1st order hardware filter)
- Different cut-off frequencies available on each individual axis (fixed during calibration)
- Output voltage (per axis) ^[2]:
 - $0.5 \pm 0.02V$ = Full-scale negative
 - $2.5 \pm 0.02V$ = 0g
 - $4.5 \pm 0.02V$ = Full-scale positive
- Sensitivity:
 - $\pm 10g$ = 200mV/g
 - $\pm 20g$ = 100mV/g
 - $\pm 40g$ = 50mV/g
- Output conversion:
 - $\pm 10g$ range:
G measurement = (5 x Voltage) - 12.5
 - $\pm 20g$ range:
G measurement = (10 x Voltage) - 25
 - $\pm 40g$ range:
G measurement = (20 x Voltage) - 50

CONNECTION

Power +
Ground (Common)
X Axis Signal
Y Axis Signal
Z Axis Signal

WIRE COLOUR

Red
Green
White
Yellow
Blue

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TRI-AXIS ACCELEROMETER

CAN BUS OUTPUT

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

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

- CAN message includes acceleration for three axes
- 1Mbit/s CAN communications link for configuration and data transmission
- CAN sampling rate configured by host ECU up to 4kHz (default 100Hz)
- CAN message identifiers configured by host ECU allowing multiple module sharing common bus (CAN identifier is 0x1B0 ^[3])

ANALOGUE & CAN BUS OUTPUT

- User configurable cut-off filter:
 - 40-100Hz (20Hz increments)
 - 150-350Hz (50Hz increments)
 - No-filter (1kHz 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

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

^[1] Analogue voltage model parameters are fixed and only configurable during production.

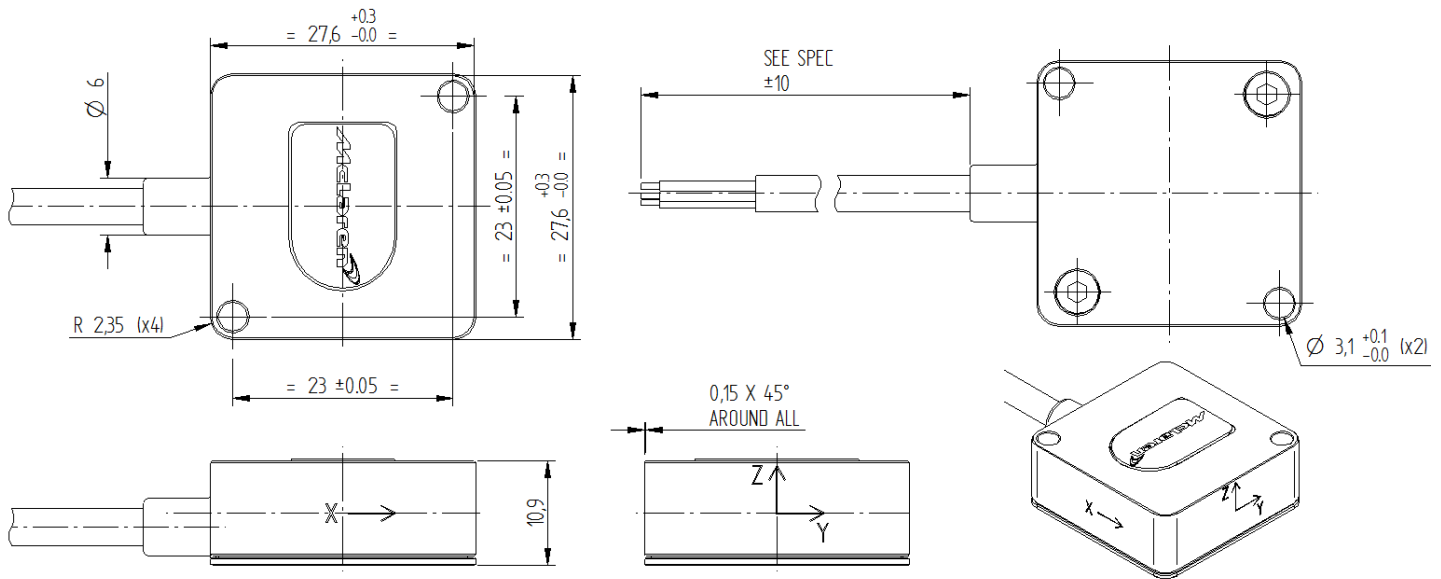
^[2] Alternative voltage output ranges available (max. 0.1 to 4.9V)

^[3] CAN identifier can be changed, but only during production.

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HOUSING DRAWINGS



Dimensions in mm

Order Code	Model Description				
	Model	G Range	-3dB Filter	Voltage Output	Cable Length
O 030 345 007 048	CAN Bus	±40g Range	Adjustable	-	1000mm Cable
O 030 345 007 049	Analogue	±10g Range	60Hz Filter on all axes	0.5-4.5V	1000mm Cable
O 030 345 007 050	Analogue	±20g Range	60Hz Filter on all axes	0.5-4.5V	1000mm Cable
O 030 345 007 051	Analogue	±40g Range	60Hz Filter on all axes	0.5-4.5V	1000mm Cable
O 030 345 007 052	Analogue	±20g Range	250Hz Filter on all axes	0.5-4.5V	1000mm Cable
O 030 345 007 054	Analogue	±25g Range	100Hz Filter on all axes	0.5-4.5V	1000mm Cable
O 030 345 007 055	CAN Bus & Analogue (Filtered-Hybrid)	±40g Range on CAN, ±10g Range on Analogue	Adjustable on CAN & Analogue	0.5-4.5V	1000mm Cable
O 030 345 007 059	Analogue	±10g Range	60Hz on Z, 100Hz on X & Y	0.5-4.5V	1000mm Cable
O 030 345 007 061	Analogue	±40g Range	200Hz Filter on all axes	0.5-4.5V	1000mm Cable

For alternative models, please contact McLaren Applied at sales@mcclaren.com