

## AAA700

### Single and Dual Axis Accelerometer

- Ranges  $\pm 0.5$  g up to  $\pm 5$  g
- Non-Linearity  $< \pm 0.5$  % FSO
- Supply Voltage +6.5 to +18 VDC
- Analog Output  $\pm 1.0$  V ( $\pm 0.5$  g) and  $\pm 2.0$  V (other ranges)



The Sensor Series AAA700 of Solid State Accelerometers measures acceleration in single or dual axes. The accelerometer utilises MEM technology and has positive mechanical stops conferring excellent shock resistance.

The -0101 version incorporates a temperature sensor enabling each sensor to be individually characterised over its operational temperature range. A data sheet containing the characteristic output equation is supplied with each sensor enabling errors due to zero offset, sensitivity error, linearity, thermal zero shift and thermal sensitivity shift to be minimised. By entering the equation coefficients into the host operating software, cost-effective high accuracy acceleration sensing may be achieved.

Designed for operation from an unregulated DC power source, the AAA700 is packaged in a robust aluminium alloy housing with an integral shielded cable connection; the shield is connected to the sensor case. The cable may, as an option, be fitted with an electrical connector.

#### ■ General Specification for -0001 (and -0101 before error correction)

Full Scale Acceleration	$\pm 0.5$ g	$\pm 1$ g, $\pm 2$ g, $\pm 5$ g
Full Scale Output	$\pm 1.000$ V $\pm 0.020$ V	$\pm 2.000$ V $\pm 0.040$ V
Signal Output	Analog	
Zero Offset Voltage	2.5 V $\pm 0.1$ V	
Non-Linearity	$< \pm 0.5$ % FSO	
Band Width (nominal)	800 Hz (-3 dB)	
Rise Time	$< 1$ s	
Warm Up Time	$< 60$ s	
Power Supply	+6.5 to +18 VDC	
Power Dissipation	$< 30$ mW	
Electrical Connection	Integral cable 500 mm long	
Weight	$< 50$ gram	
Compensated Temperature Range	-18 °C to +70 °C	
Operating Temperature Range	-25 °C to +85 °C	
Thermal Zero Shift	0.03 % FRO/°C	
Thermal Sensitivity	0.03 % Reading/°C	
Mechanical Shock	$> 3500$ g (0.5 ms, $\frac{1}{2}$ sine)	
Humidity/Immersion	IP55	
Insulation Resistance	$> 100$ M $\Omega$ @ 25 VDC	

#### ■ Additional Specification for -0101 (after error correction)

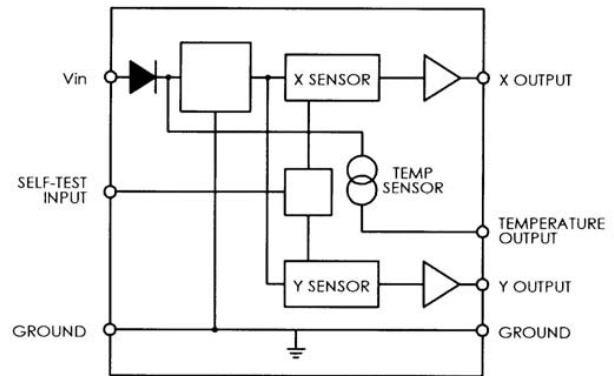
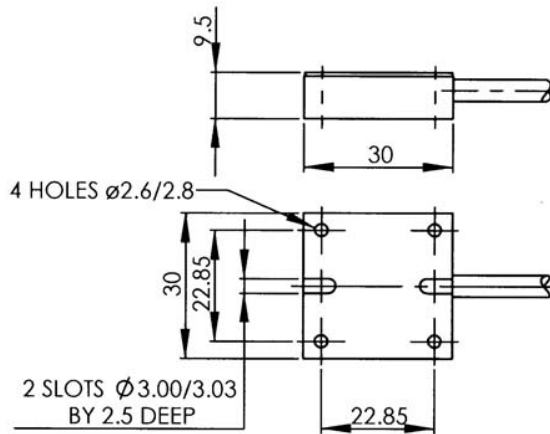
Accuracy X-Axis	$< \pm 1$ milli g
Accuracy Y-Axis	$< \pm 1$ milli g
Temperature Output	1 $\mu$ A/K

Characteristic error correction equation supplied with each unit for each axis

$$\text{Acceleration (g)} = \frac{(V - AT + C)}{G \times (BT + D)}$$

where V and T are voltage and temperature outputs respectively from the accelerometer, and A, B, C, D and G are calibration constants.

### ■ Dimensions



Dimensions in mm, approx. values

### ■ Electrical Connections

WIRE COLOUR	FUNCTION
RED	6.5 ... 18 V Supply <sup>(1)</sup>
BLACK	Ground <sup>(2)</sup>
YELLOW	X-Axis output
WHITE	Y-Axis output <sup>(3)</sup>
GREEN	Temperature output <sup>(4)</sup>
BLUE	Self-test input

- (1) power supply input is reverse-polarity protected
- (2) electrical ground is isolated from the case
- (3) for dual axes version
- (4) used on -0101 version

### ■ Self Test Feature

The sensor is fitted with a self-test feature. When activated by applying 5 volts to the self-test connection the output will change by approximately 4 volts.

### ■ Ordering Information

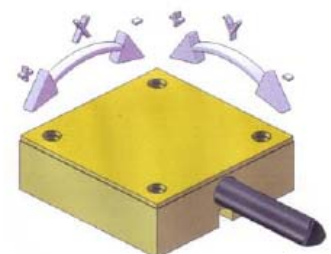
AAA7  0 - 0  01 -  G

**Series Number**

1 = Single Axis  
2 = Dual Axis

0 = Standard  
1 = Temperature Characterisation included

0.5 = Range ±0.5 g  
1 = Range ±1 g  
2 = Range ±2 g  
5 = Range ±5 g



Our policy is to improve specification of our products continuously, so technical and production details can be changed without any notice.