Schaevitz® A700 - Series

DC-Operated,
Single and Dual Axis Accelerometer

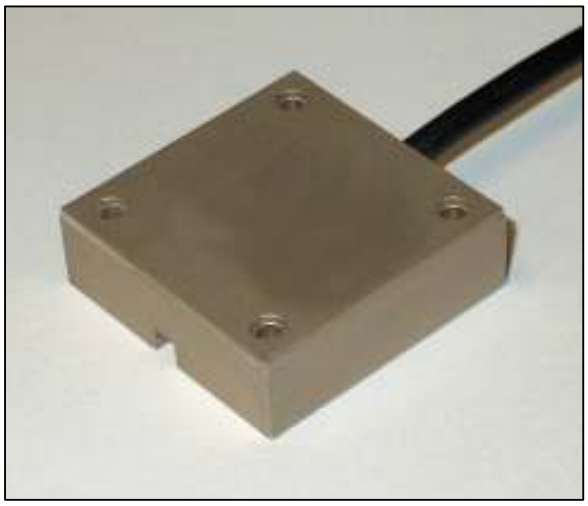
Sherborne Sensors
Clearly the first choice for precision .....

Introduction

The Sherborne Sensors' A700 range of Solid State Accelerometers measure acceleration in single or dual axes. The accelerometer utilises MEM technology and has positive mechanical stops confering excellent shock resistance.

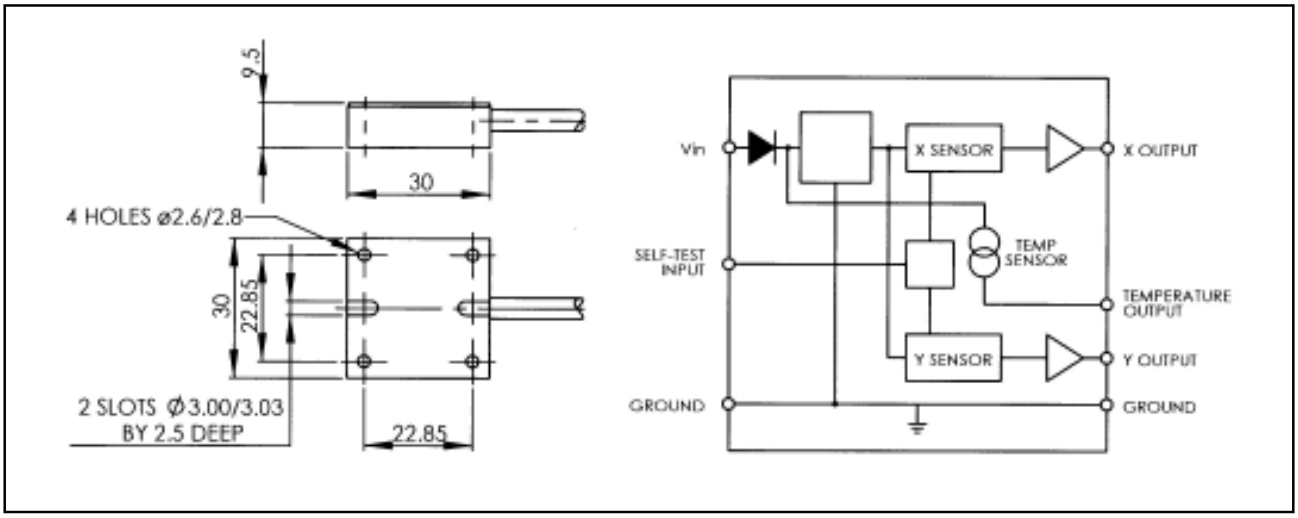
The -0101 version incorporates a temperature sensor enabling each sensor to be indivually characterised over its operational temperature range. A data sheet containing the characteristic output equation is supplied with each sensor enabling errors due to zero offset, sensitivity error, linearity, thermal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

Designed for operation from an unregulated DC power source, the A700 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.



WIRE COLOUR	FUNCTION
RED	6.5 – 18 V Supply[1]
BLACK	Ground[2]
YELLOW	X-Axis output
WHITE	Y-Axis output[3]
GREEN	Temperature output[4]
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



MECO MEASUREMENTS & CONTROLS
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General Specification for -0001 (and -0101 before error correction)

Full Scale Acceleration	0.5 | 1 | 2 | 5	± g
Signal Output	Analog	
Full Scale Output	±1.000 ± 0.020 | ±2.000 ± 0.040	Volts
Zero Offset Voltage	2.5 ± 0.1	Volts
Non-linearity	< ± 0.5	%FSO
Band Width (nominal)	800	Hz (-3dB)
Rise Time	< 1	Second
Warm Up Time	< 60	Seconds
Power Supply	+6.5 to 18	Volts Dc
Power Dissipation	< 30	mW
Electrical Connection	Integral cable	500mm long
Weight	< 50	Grams
Compensated Temperature Range	-18 to +70	Degrees C
Operating Temperature Range	-25 to +85	Degrees C
Thermal Zero Shift	0.03	%FRO/°C
Thermal Sensitivity	0.03	%Reading/°C
Mechanical Shock	> 3500	g (0.5mS, ½ sine)
Humidity/Immersion	IP55	
Insulation Resistance	> 100	MΩ @ 25 volts dc

Additional Specification for -0101 (after error correction)

Accuracy X-Axis	< ± 1	milli g
Accuracy Y-Axis	< ± 1	milli g
Temperature Output	1	µA / kelvin

Characteristic error correction equation supplied with each unit for each axis

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

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

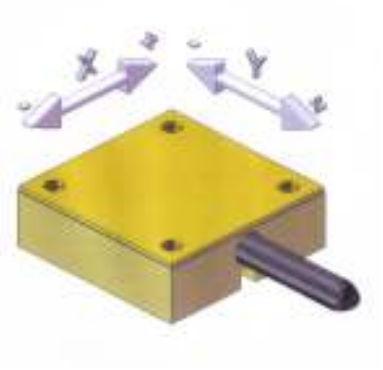
Self-Test Feature

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.

DESIGNATION & ORDERING CODE

A 7 ☐ 0 - 0 ☐ 0 1 - ☐ G

- Series Number
- 1 - Single Axis; 2 - Dual Axis
- 0 – Standard; 1 – Temperature Characterisation included
- 0.5 - ±0.5g; 1 - ±1.0g; 2 - ±2.0g; 5 - ±5.0g



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