



MS2004+ Force Balance Servo Accelerometer

The MS2004+ is a triaxial, high dynamic range servo accelerometer based on state-of-the-art MEMS technology.

Its small dimensions, rugged and splash-proof design and excellent reliability make the MS2004+ the perfect match for seismic instrumentation.

The micromachined capacitive force feedback (servo) accelerometer in most applications outperforms traditionally used electromechanical FBA's. Using MEMS technology, this small high precision triaxial accelerometer shows environmental and reliability performance similar to integrated circuits. Its flat frequency – and phase response together with the very low short- and long-term drift provides true engineering data that require no post-processing.

The MS2004+ from SYSCOM comes factory calibrated, equipped with a fully comprehensive self-test function and requires no re-calibration.

Technical Specification MS2004+

Performance

Acceleration Sensing Element

Principle	The sensing element is an analog force feedback accelerometer featuring a variable capacitance, silicon bulk-micromachined acceleration sensor (MEMS) and a custom low-power mixed-signal integrated circuit (ASIC). The MEMS/ASIC custom design forms a DC coupled analog servo accelerometer.
Hysteresis	None
Noise	typ. 400 ng rms/ $\sqrt{\text{Hz}}$ (10 - 1000 Hz)
Natural frequency	Frequency response DC to >1000 Hz
Shock survival	1500 g (0.5 ms half sine)
Vibration survival	60 g (20-2000 Hz, peak-peak)
Operating temperature	-40 to +85 °C

MS2004+ triaxial sensor

Measuring range	± 2 g standard, ± 1 g
Scale factor temp. drift (± 2 g)	typ. <150 ppm/°C
Zero point offset drift (± 2 g)	typ. <300 $\mu\text{g}/^\circ\text{C}$
Orientation	Triaxial, horizontal (floor) mounting or vertical (wall) mounting
Non-Linearity	<0.1 % of full scale
Frequency amplitude response	Constant 0 to 150 Hz (error <1%)
Frequency phase response	Constant 0 to 50 Hz (error <1%)
Dynamic range (± 2 g)	typ. 120 dB (100 Hz BW)
Supply voltage	± 6.5 V to ± 12 V
Current consumption	typ. 45 mA
Output voltage	± 4 V single-ended (differential on request)
Self-test	Test-pulse
Cross axis rejection	>40 dB

Physical Characteristics

Housing	Aluminum, 85 x 75 x 58 mm (W x L x H)
Connector	Metallic self-latching push-pull connector with positioning key (LEMO)
Weight	0,5 kg
Protection degree	IP 65 (splash-proof)

Ordering Information

		Product Codes
MS2004+ triaxial	Horizontal mounting, 1 g FS	14.11.3201
MS2004+ triaxial	Horizontal mounting, 2 g FS	14.11.3202
MS2004+ triaxial	Vertical mounting, 1 g FS	14.11.3211
MS2004+ triaxial	Vertical mounting, 2 g FS	14.11.3212
MS2004+ uniaxial	Horizontal mounting, horizontal axis, 2 g FS	14.11.3222
MS2004+ uniaxial	Horizontal mounting, vertical axis, 2 g FS	14.11.3232