

MAS1002

Single Axis MEMS Capacitive Accelerometer Sensor



Main Features

- Single Axis MEMS Capacitive Accelerometer
- Range: $\pm 2g$, Excellent Bias Stability
- Output: Differential Output / Single-Ended Output
- Dynamic Range: $\geq 100dB$, Bandwidth (-3dB): 200Hz
- Low Noise: $\leq 2.5\mu grms/\sqrt{Hz}$
- Non-linearity: 0.1%FS (Full Range)
- Extremely Reliable in Harsh Environment
- Wide Operating Temperature Range: $-40\sim+85^{\circ}C$

MAS1002 single axis MEMS capacitive accelerometer is one type of high performance vibration monitoring sensor based on MEMS technologies. It adopts 7~40V or 5V power supply, and integrates self test function, it adopts high performance accelerometer, the dynamic range can reach 100dB.

MAS1002 accelerometer has passed the strictest tests, it enjoys excellent performance in noise, dynamic range, non-linearity, repeatability, temperature drift, shock proof, etc. this product is an ideal option for seismic monitor, vibration monitoring, high speed train/metro train, test platform of vibration and shocking, structure health monitoring, etc.

- ✓ 12-Step Quality Control, Super Reliability, More Functions
- ✓ Adopting Original Big Brand Component, High-class Material, Competitive Price

- ✓ Real Actual Precise after Calibration, Perfect Performance
- ✓ Successful Applications in Tens of Fields, More than 1000 Customers are Using

Typical Applications



Seismic Monitor



Railway Technology



Monitoring & Control



Structure Health Monitoring

Super Reliability & Performance

www.SkyMEMS.com Mobile: +86 133 7203 8516
Skype: skymems

Copy Right Reserved © 2019 Nanjing Sky MEMS Technology co., Ltd.
Focus on MEMS Measurement & Control Technologies, Products include:

MEMS Acc	MEMS Gyro	IMU	Vertical Gyro	AHRS
INS	GNSS/INS	E-compass	Inclinometer	FOG

MAS1002

Single Axis MEMS Capacitive Accelerometer Sensor

Technical Specifications

Type	MAS1002	Remarks
Axis Number	1	
Range	±2g	
Zero Bias	±100mV	
Scale Factor Sensitivity (Differential Output)	1800±20mV/g	
Scale Factor Sensitivity (Single-Ended Output)	1000±20mV/g	
Bandwidth (-3dB)	200Hz	(adjustable)
Output Noise	2.5µg/√Hz	
Non Linearity	0.1%F.R	
Cross-axes Influence	3%	
Bias Temperature Coefficient	±0.2mg/°C	
Scale Factor Temperature Coefficient	120ppm/°C	
Resistance (MΩ)	100MΩ	
Output Voltage (Differential Output)	0~ ±3.6V OutP :0.5~4.5V OutN: 0.5~4.5V	OutP, OutN full range output
Output Voltage (Single-Ended Output)	2.5±2V	full range output
Self Test Function		
Frequency	19Hz	square wave output
Duty Ratio	50%	
Amplitude	0.8g	peak value
Self Test Threshold Voltage	4Vmin 5Vmax	High level is valid
Electrical Specs		
Working Voltage	7~40V or 5V±3%	
Working Current	≤25mA	
Startup Time	20ms	
Environment Performance		
Operating Temperature	-40~+85°C	
Storage Temperature	-55~+125°C	
Shock Resistance	6000g	
Physical Specs		
Dimensions	37×30×25mm	
Casing	aluminum alloy	
Weight	30grams (without lines)	76 grams (with lines)

MAS1002

Single Axis MEMS Capacitive Accelerometer Sensor

Pins Definition

Pins Definition of Differential Output Interface

No.	Line color	Definition	Function
1	Red	VCC	Power Input (7~40V or 5V±3%)
2	Black	GND	GND
3	Blue	X_OUTP	X axis output
4	Green	X_OUTN	
5	Purple	Y_OUTP	Y axis output
6	Grey	Y_OUTN	
7	Yellow	Z_OUTP	Z axis output
8	Brown	Z_OUTN	
9	White	ST	self test input (high level power is valid, input 5V)

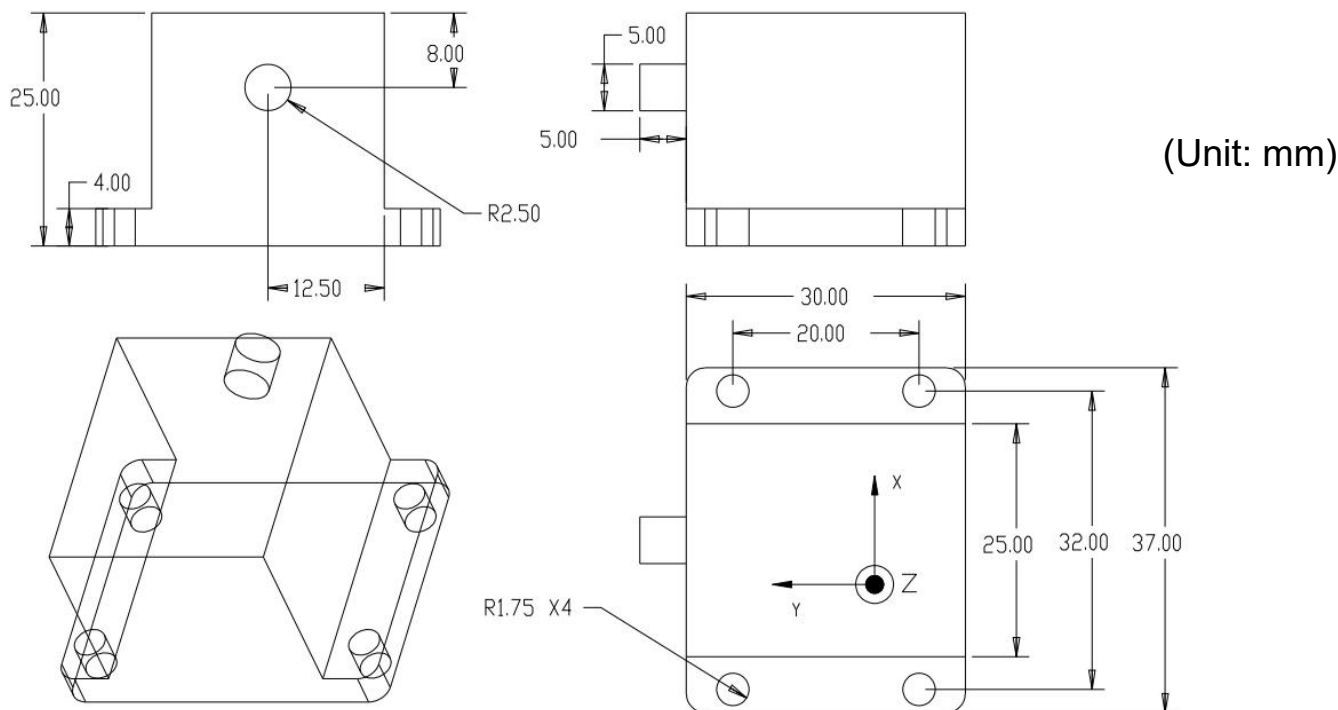
Pins Definition of Single-Ended Interface

No.	Line color	Definition	Function
1	Red	VCC	Power Input (7~40V or 5V±3%)
2	Black	GND	GND
3	Blue	X_OUT	X axis output
5	Purple	Y_OUT	Y axis output
7	Yellow	Z_OUT	Z axis output
9	White	ST	self test input (high level power is valid, input 5V)

MAS1002

Single Axis MEMS Capacitive Accelerometer Sensor

Dimensions



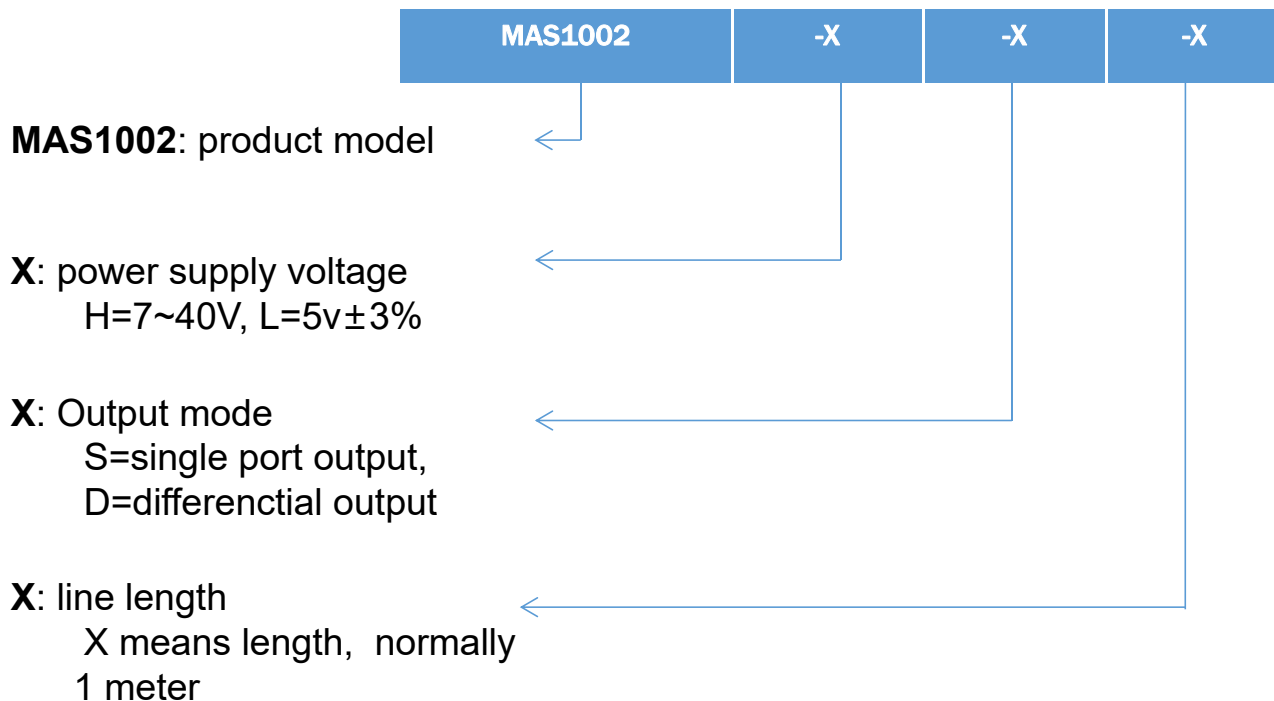
Cautions

Use Restrictions	
Maximum working voltage	40V or 5.15V
Proximity effect	The accelerometer is very sensitive to the surrounding capacitance, if the object is very close (mm level) to the accelerometer, this may influence the accelerometer's performance. In order to get good performance, the distance between the accelerometer and other objects should be more than 1cm, or the surface that close to the accelerometer is GND.
ESD caution	ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

MAS1002

Single Axis MEMS Capacitive Accelerometer Sensor

Order Information



For example, MAS1002-L-D-1 means that 1 axis, ± 2g range, 5V power supply, 1meter length line accelerometer sensor