DynaLabs DYN-C-1000-SI Analog Capacitive Accelerometer Instruction Manual

Contents

DynaLabs

DynaLabs DYN-C-1000-SI Analog Capacitive Accelerometer

Specifications

- **Model:** DYN-C-1000-SI
- **Range [g]:** 3, 5

Product Support

If at any time you have questions or problems with the DYN-C-1000-SI sensors, please contact a Dynalabs engineer at:

Phone: +90 312 386 21 89 (9 a.m. to 5 p.m., UTC +3)
E-mail: info@dynalabs.com.tr

Warranty

Our products are warranted against defective materials and workmanship for one year. Defects arising from user errors are not covered by the warranty.

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Introduction

Capacitive accelerometers are based on proven micro-electro-mechanical systems (MEMS) technology. These capacitive accelerometers are reliable and long-term stable. They have a DC response. The advantage of these sensors is their outstanding temperature stability, high-frequency response, and low noise-high resolution. These sensors have a reliable aluminum housing with IP68 protection class.
Dynalabs 1000SI series uniaxial accelerometers provide an ultra-low noise performance from 0.7 to 1.2 µg/√Hz. These accelerometers provide excellent bias and scale factor stability and a wide frequency range (±3dB) from 550 Hz to 700 Hz.

DYN-C-1000-SI sensors offer the following options;

- Custom Cable Length (5m standard cable)
- Custom Housing Material
- Custom Connector
- Base plate (Optional)

General Information

Unpacking and Inspection
Dynalabs products provide adequate protection for undamaged products to be transported. Document the damages that occur indirectly during the transport and contact the customer representative.

System Components
The DYN-C-1000-SI has the following components:

- MEMS Sensor
- Calibration Certificate
- Product Manual

Specifications
Table 1: Specifications datasheet

Full-scale acceleration	**(g)**	**1003SI** **± 3**	**1005SI** **± 5**
White Noise	(µg/√Hz)	0.7	1.2
Noise (Integrated over 0.1Hz to 100Hz)	(µg)	8	13
Dynamic range (0.1Hz to 100Hz)	(dB)	108.5	108.5
Scale Factor Sensitivity	(mV/g)	900	540
Bandwidth (±3dB)	(Hz)	550	700
Operating power consumption	(mW)	90	90

Environmental
Table 2 Environmental specifications datasheet

Protection Level	IP 68
Operating Voltage	6 V – 40 V
Operating Temperature	-40 °C to +100 °C
Isolation	Case isolated

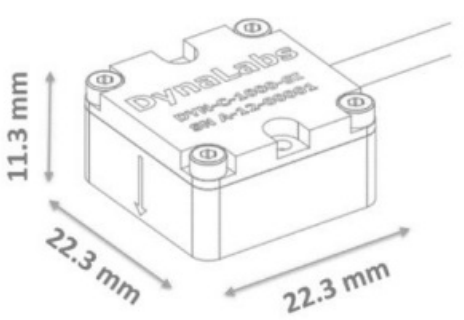
Physical
Table 3 Physical specifications datasheet

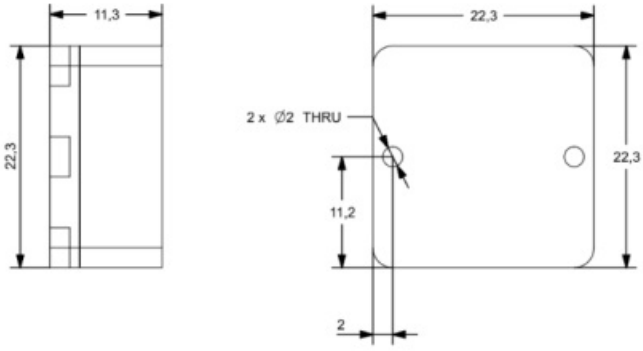
Sensing Element	MEMS Capacitive
Housing Material	Aluminum or Steel
Connector (Optional)	D-Sub 9 or 15 pin, Lemo, Binder
Mounting	Adhesive or screw mount
Base plate (Optional)	Aluminum or Steel
Weight (without cable)	15 g (aluminum) 30 g (steel)

Outline Drawing

The dimensional properties of DYN-C-1000-SI sensors are given below.

Technical Drawings





Operation and Installation

General

The general sensor connector configuration is given below;

Cable Code/Pin Configuration:

- **Red:** V + Power supply voltage +6 to +40 VDC
- **Black** Ground Power GND
- **X:** Yellow: Signal(+) Positive, analog output voltage signal for differential mode
- **Blue:** Signal(-) Negative, analog output voltage signal for differential mode

WARNING

- Never connect the power supply and/or the power ground to yellow and/or blue cables.
- Never connect the power supply to the power ground. Always use a clean power source and check the voltage range.

Sensor Static Calibration Verification

Using gravity, voltage values are measured in the + and – gravity directions, providing a value of ±1 g. The measurement should be made as follows;

- When the sensitivity value of 1000SI series sensors is used with the data acquisition system, the sensor shows +1 g with the effect of gravity in the direction of the arrow sign.
- When the sensor is in the opposite direction of the arrow, it shows -1 g with the effect of gravity.

Using gravity, the voltage values that provide 1 g in the + and – directions are measured and compared with the catalog value. The calibration value should be close to the catalog value with a 10% tolerance. Sensor catalog sensitivity values are given in Table 1.

Declaration of Conformity

This declaration of conformity is issued under the sole responsibility of the manufacturer. The product(s) are developed, produced, and tested according to the following EC- directives:

- 2014/35/EU – Low Voltage Directive (LVD)
- 2006/42/EU – Machinery Safety Directive
- 2015/863/EU – RoHS Directive

Applied standards:

- EN 61010-1:2010
- EN ISO 12100:2010
- MIL-STD-810-H-2019 (Test Methods: 501.7- High Temperature, 502.7- Low

Temperature, 514.8- Vibration, 516.8 – Shock)
DYNALABS MÜHENDİSLİK SANAYİ TİCARET LİMİTED ŞİRKETİ declares that abthe ove-mentioned products meet all the requirements of the above-mentioned standards and regulations.

Canan Karadeniz, General Manager

Ankara, 15.07.2021

Canan Karadeniz, General Manager
Ankara, 15.07.2021

FAQ

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Documents / Resources

	DynaLabs DYN-C-1000-SI Analog Capacitive Accelerometer [pdf] Instruction Manual DYN-C-1000-SI, DYN-C-1000-SI Analog Capacitive Accelerometer, DYN-C-1000-SI, Analog Capacitive Accelerometer, Capacitive Accelerometer, Accelerometer

References

- User Manual