DynaLabs

Model DYN-C-3000-DE

Range [g]: 2, 4, 8, 10, 20, 40, 50, 100, 200, 500

Product Manual

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Product Support

If at any time you have questions or problems with the DYN-C-3000-DE 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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1) Introduction

Capacitive accelerometers are based on proven micro-electro-mechanical systems (MEMS) technology. These capacitive accelerometers are reliable and long-term stable. These sensors are Differential Ended type DC response sensors. The advantage of these sensors is their outstanding temperature stability, lightweight and low cost. These sensors feature standard reliable aluminum housing with protection class IP68. Steel housing is also possible.

Dynalabs 3000DE series accelerometers provide an outstanding noise performance from 25 to 170 µg/√Hz. These accelerometers provide a wide frequency range (±3dB) from 1,500 Hz to 3,000 Hz.

DYN-C-3000-DE sensors offer the following options;

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

2) General Information

2.1) 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.

2.2) System Components

The DYN-C-3000-DE has the following components:

- MEMS Sensor

- Calibration Certificate

- Product Manual

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2.3) Specifications

Table 1: Specifications datasheet

Full scale acceleration	**(g)**	**3002DE ±2**	**3004DE ±4**	**3008DE ±8**	**3010DE ±10**	**3020DE ±20**	**3040DE ±40**	**3050DE ±50**	**3100DE ±100**	**3200DE ±200**	**3500DE ±500**
Frequency range (±3dB)	(Hz)	1,500	1,500	1,500	1,500	1,500	1,500	3,000	3,000	3,000	3,000
Non-linearity (full scale)	(%)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Noise (in band)	(µg/ √Hz)	25	25	25	80	75	110	35	50	80	170
Scale factor (nominal)	(mV/g)	1,600	800	400	320	160	80	80	40	20	8
Shock survivability	(g)	5,000	5,000	5,000	5,000	5,000	5,000	6,000	6,000	6,000	6,000

Environmental

Table 2 Environmental specifications datasheet

Protection Level	IP 68
Operating Voltage	6 V – 40 V
Operating Temperature	-40 °C to +100 °C
Operating Current Consumption mA	21 mA
Isolation	Case isolated

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Physical

Table 3 Physical specifications datasheet

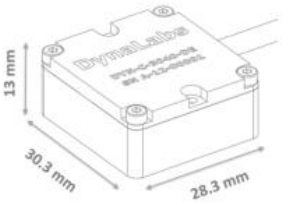
Sensing Element	MEMS Capacitive
Housing Material	Aluminum or Steel
Connector (Optional)	D-Sub 9 or 15 pin, Lemo, Binder
Mounting	Adhesive or screw mount
Base plate (Optional)	Aluminum or Steel
Weight (without cable)	19g (aluminum) 44 g (steel)

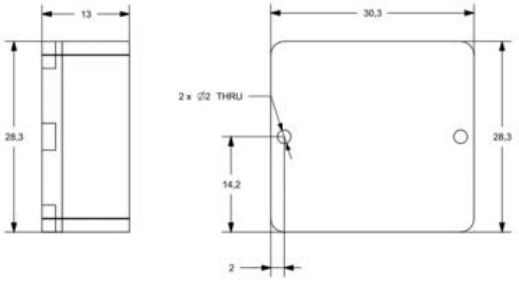
2.4) Outline Drawing

The dimensional properties of DYN-C-3000-DE sensors are given below.

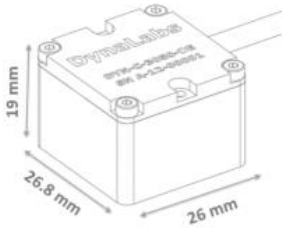
Technical Drawings:

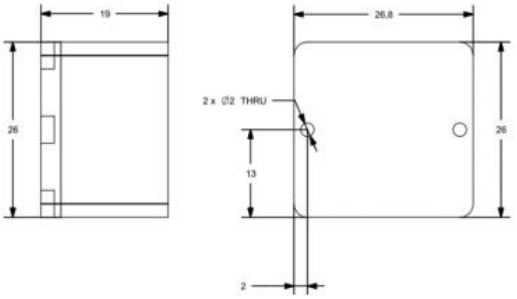
± 2g to ± 40g:





± 50g to ± 500g:





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3) Operation and Installation

3.1) 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-Axis : Yellow	: Signal(+)	Positive, analog output voltage signal for differential mode
Purple	: Signal(-)	Negative, analog output voltage signal for differential mode
• Y-Axis: Blue	: Signal(+)	Positive, analog output voltage signal for differential mode
Green	: Signal(-)	Negative, analog output voltage signal for differential mode
• Z- Axis: White	: Signal(+)	Positive, analog output voltage signal for differential mode
Orange	: Signal(-)	Negative, analog output voltage signal for differential mode

WARNING

Never connect the power supply and/or the power ground to yellow, purple, blue, green, white and/or orange cables.

Never connect the power supply to the power ground. Always use a clean power source and check the voltage range.

4) Sensor Static Calibration Verification

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

When the acceleration value of 3000DE series sensors is entered into the data acquisition system, the sensor shows +1 g with the effect of gravity, which is in the direction of the axis to be calibrated.

When the sensor is positioned in the opposite direction to the axis to be calibrated, the arrow shows -1g as shown below under 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.

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5) Declaration of Conformity

DynaLabs CE

This declaration of conformity is issued under the sole responsibility of the manufacturer. The product(s) are developed, produced and tested according to 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 above mentioned products meet all the requirements of the above mentioned standards and regulations.

Canan Karadeniz, General Manager

Ankara, 15.07.2021