



Model DYN-P-5000
100g/200g/500g/2000g/6000g
Product Manual



Product Support

If at any time you have questions or problems with the DYN-P-5000 sensors, please contact a Dynalabs engineer at:

Phone: +90 312 266 33 34 (9 a.m. to 5 p.m., UTC +3)

E-mail: info@dynamalabs.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

The piezoresistive accelerometers are based on micro-electro-mechanical systems (MEMS) technology. Piezoresistive accelerometers are used for high impact applications in automotive industry such as crash testing. 5000 Series Dynalabs triaxial accelerometers feature a wide range up to 5,000 Hz and excellent shock resistance up to 10,000 g. 5000 series accelerometers are lightweight. They have reliable aluminum housing with IP68 protection class. These sensors have integrated cable with configurable length and connection options.

DYN-P-5000 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-P-5000 has the following components:

- MEMS Sensor
- Calibration Certificate
- Product Manual



2.3) Specifications

Table 1: Specifications datasheet

Full scale acceleration	(g)	5010 ±100	5020 ±200	5050 ±500	5200 ±2000	5600 ±6000
Sensitivity	(mV/g)	0.6	0.6	0.3	0.15	0.15
Frequency range (±5%)	(Hz)	1,200	1,400	2,000	4,500	5,000
Non-linearity (full scale)	(%)	1	1	1	1	2
Shock survivability	(g)	5,000	5,000	5,000	5,000	10,000
Transverse Sensitivity	%	<3	<3	<3	<3	<3
Damping Ratio		0.9	0.6	0.6	0.3	0.3
Zero Acceleration Output	(mV)	±25	±25	±25	±25	±25

Environmental

Table 2 Environmental specifications datasheet

Protection Level	IP 68
Operating Voltage	10V – 20 V
Operating Temperature	-40 °C to +100 °C
Isolation	Case isolated



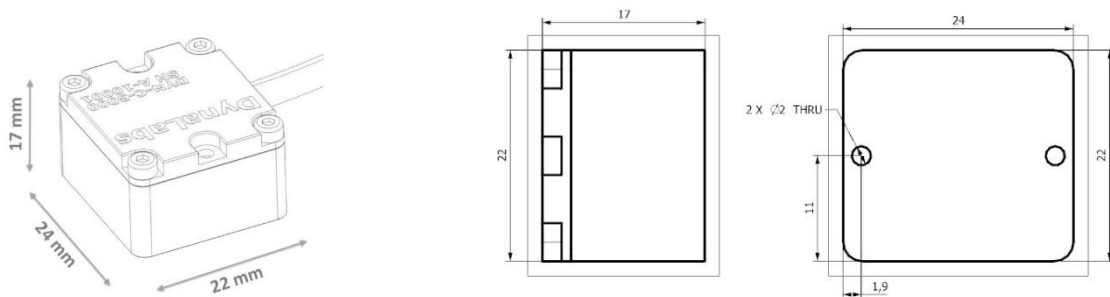
Physical

Table 3 Physical specifications datasheet

Sensing Element	MEMS Piezoresistive
Housing Material	Aluminum
Connector (Optional)	D-Sub 9 or 15 pin, Lemo, Binder
Mounting	Adhesive or screw mount
Base plate (Optional)	Aluminum
Weight (without cable)	20g

2.4) Outline Drawing

The dimensional properties of DYN-P-5000 sensors are given below.



3) Operation and Installation

3.1) General

The general sensor connector configuration is given below;

Cable Code/Pin Configuration:

- | | | |
|------------------|--------------------|---|
| • Red | : V + | Power supply voltage +10 V to +20 VDC. |
| • Black | : Ground | Power GND |
| • X-Axis: Yellow | : Signal(+) | Positive, analog output voltage signal. |
| | Purple : Signal(-) | Negative, analog output voltage signal. |
| • Y-Axis: Blue | : Signal(+) | Positive, analog output voltage signal. |
| | Green : Signal(-) | Negative, analog output voltage signal. |
| • Z-Axis: White | : Signal(+) | Positive, analog output voltage signal. |
| | Orange : Signal(-) | Negative, analog output voltage signal. |

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 5000 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.



5) Declaration of Conformity

DynaLabs



*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.*

Murat Aykan, Technical Manager

Ankara, 15.07.2021

