

Overview

The **DynaPortable** wireless sensor is designed to identify symptoms of failure modes or faults in machinery and equipment in a **wide variety of applications**. Due to its ergonomic design, compact size and strong magnetic base, the DynaPortable can be easily attached to machine surfaces with just one hand. A small, lightweight sensor, ideal for carrying anywhere. The solution also has a number of tools available on the **Dynamox Platform** that help analyze data and enable constant monitoring of asset health.

The DynaPortable brings **autonomy and versatility** to data collection through pre-programmed inspection routes in an intuitive, modern software. It is possible to collect data in areas with no network coverage without losing data. All data collected is synchronized when the internet is available.

The **DynaPortable** IoT sensor has a spectral/waveform monitoring mode. In **spectral monitoring**, different tools can be used: spectrum, waveform (linear, circular and orbital), frequency filters, cepstrum, spectral envelope (demodulation), autocorrelation and multi-metrics.

To collect data in the field, download the DynaPredict app, available on Google Play and Apple Store.

Main Applications

- Motors, pumps, and fans
- Compressors and chillers
- Gearboxes (including planetary ones)
- Conveyor belts, screw conveyors, redlers, pneumatic conveyors
- Bearings in high and low-speed assets



Wireless Monitoring

- En-route vibration analysis with app
- Easy installation: mounting via magnetic base
- No cables: no measurement errors and no maintenance and transportation costs
- Online and offline collection: collection in areas with no network coverage without data loss
- Compact sensor with wide frequency range
Long-life battery for multiple collections en route (+ 100,000 collections)
- Sensor with low spectral noise
- Truly simultaneous triaxial measurement
- Remote sensor update
- 18 certifications in 46 different countries

TECHNICAL SPECIFICATIONS	
Dimensions	39 mm x 39 mm x 64 mm (1.54 in x 1.54 in x 2.52 in)
Dimensions	222 g
Material	Case: LEXAN™, Sensor pin and base: Stainless steel 316L, Magnetic base: Neodymium Iron Boron (16 Kg)
Mounting	Magnetic base
Visual Signaling (LED)	Red/green
Accelerometer	MEMS triaxial
Accelerometer Impact Limit	10,000 g in 0.2 ms
Operating Temperature ^{1,2}	-10 °C ≤ T ≤ 84 °C (14 °F ≤ T ≤ 183.2 °F)

BATTERY	
Voltage	3 V
Autonomy ³	Up to 106,000 collections (Aprox. 4,5 years)

COMMUNICATION AND SYSTEM	
Wireless Communication	Bluetooth® 5.3 / 2,400 - 2,483.5 MHz
Free Field Range ⁴	100 m
RF Output Power	0.4 dBm

CERTIFICATION / HOMOLOGATION	
See last page	

1 - It is possible to monitor assets whose temperature exceeds 84 °C (183 °F), especially assets with intermittent characteristics and at an ambient temperature lower than 24 °C (75.2 °F). However, such cases are not covered by Dynamox's warranty policy. Specific condition for application outside explosive atmospheres. 2 - Application at temperatures below 0 °C (32 °F) has an impact on battery life. This effect worsens the lower the temperature, with an estimated 50% reduction in service life in applications at -20 °C (-4 °F). Specific condition for applications outside explosive atmospheres. 3 - Considering a scenario of 100 6.5kHz triaxial samples and 32,000 lines per day and a measurement route with nearby machines. 4 - The amplitude resolution calculated is based on the accelerometer's digital output in µg/LSB or mg/LSB. 5 - Check the setting in the "Spectral Monitoring Settings" table.

SPECTRAL MONITORING AND WAVEFORM

Analysis Tools	Spectrum
	Frequency filters
	Envelope (demodulation)
	Cepstrum
	Spectral waterfall
	Autocorrelation
	Circular and orbital waveform
	Advanced metrics: Multiband RMS, Envelope RMS, peak-to-peak, kurtosis, FC, FC+, carpet energy, energy at 1X and harmonics in velocity, and 1X BPFO, 1X BPFI, 1X BSF, 1X FTF in envelope and Envelope RMS.
Frequency Response ($\pm 5\%$)	5 kHz (z direction) and 1 kHz (x and y directions)
Frequency Response ($\pm 3\text{dB}$)	5 kHz (z direction) and 1 kHz (x and y directions)
Spectral Noise Density	$< 75 \mu\text{g}/\sqrt{\text{Hz}}$
Sample Rate	Up to 26 kHz
Min. Frequency Resolution	0.006 Hz (8 bits) and 0.012 Hz (16 bits)
Min. Amplitude Resolution ¹	16 mg (8 bits) and 61 μg (16 bits)
Amplitude Range	Up to $\pm 16 \text{ g}$
Lines of Resolution (LOR)	98,304 (uniaxial) and 32,768 (triaxial)
Max. Frequency	571 Hz to 13 kHz (configurable)
Max. Acquisition Time ²	172.2 s (uniaxial) and 57.3 s (triaxial)

SPECTRAL MONITORING SETTINGS

TRIAxIAL SIMULTANEOUS

Max. Freq. (Hz)	Duration (s)						RPM Min. ³
13,145	0.08	0.16	0.31	0.62	1.25	2.5	24,0
6,572	0.16	0.31	0.62	1.25	2.5	5.0	12,0
2,629	0.4	0.8	1.6	3.1	6.2	12.5	4,8
1,314	0.8	1.6	3.1	6.2	12.5	24.9	2,4
571	1.8	3.6	7.2	14.3	28.7	57.3	1,0
N. Lines	1,024	2,048	4,096	8,192	16,384	32,768*	-

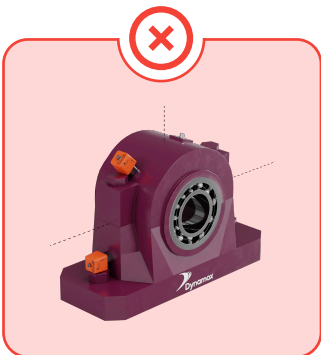
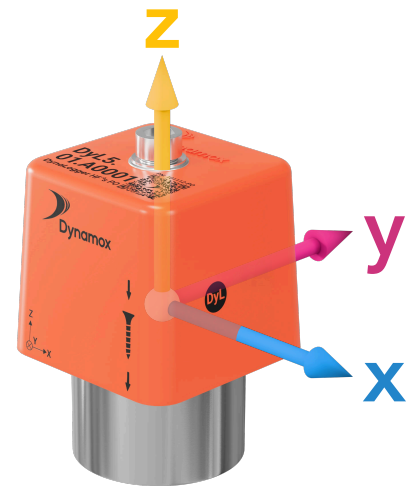
UNIAXIAL

Max. Freq. (Hz)	Duration (s)								RPM Min. ³
13,145	0.08	0.16	0.31	0.62	1.25	2.5	3.7	7.5	8,0
6,572	0.16	0.31	0.62	1.25	2.5	5.0	7.5	15.0	4,0
2,629	0.4	0.8	1.6	3.1	6.2	12.5	18.7	37.4	1,6
1,314	0.8	1.6	3.1	6.2	12.5	24.9	37.4	74.8	0,8
571	1.8	3.6	7.2	14.3	28.7	57.3	86.0	172.0	0,3
N. Lines	1,024	2,048	4,096	8,192	16,384	32,768	49,152	98,304*	-

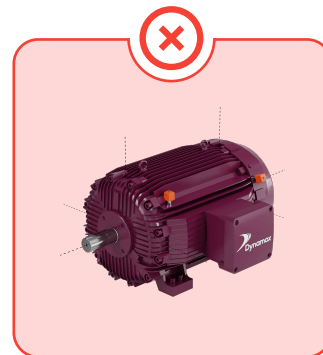
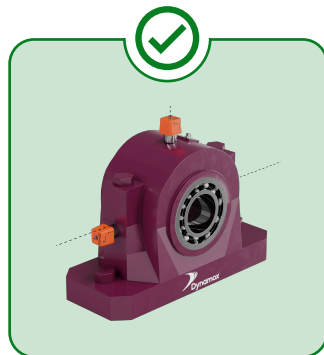
1 - The amplitude resolution calculated is based on the accelerometer's digital output in $\mu\text{g}/\text{LSB}$ or mg/LSB . 2 - Check the setting in the "Spectral Monitoring Settings" table. 3 - Minimum RPM based on the longest measurement considering one full revolution of the shaft. * - Setting available with 8 bits of amplitude resolution.

Quick Positioning Guide

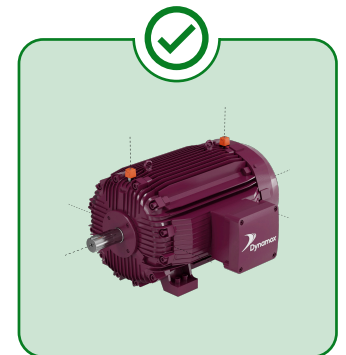
- Define the critical points of the assets that will form part of the route to be monitored in order to position the DynaPortable sensor. Tip: place steel pads on the monitoring points to make them easier to locate and to make the assembly even easier;
- Set up a pre-programmed route for inspection using the DynaSens module and add information observed in the field;
- In the field, position only one DynaPortable sensor per monitoring point, as the sensor performs triaxial measurements. Avoid positioning in areas of the housing where there is a lack of rigidity, such as fins, covers and guards. See recommendations below;
- High temperatures, debris on the surface and sensor drops can lead to partial loss of magnetism in the base. To find out more, read our [article](#);
- Use the DynaPredict application to document sensitive inspection records in a dynamic and quick way, with the support of photo and audio recording resources. The data collected is synchronized to the Dynamox platform via internet connection, where you can further analyze the reports obtained with the inspection results;
- Align one of the axes of the DynaPortable with the actual axis of the machine. These axes are shown in the schematic to the side and on the body of the devices.



It is recommended to position the DynaLogger centrally on the component.

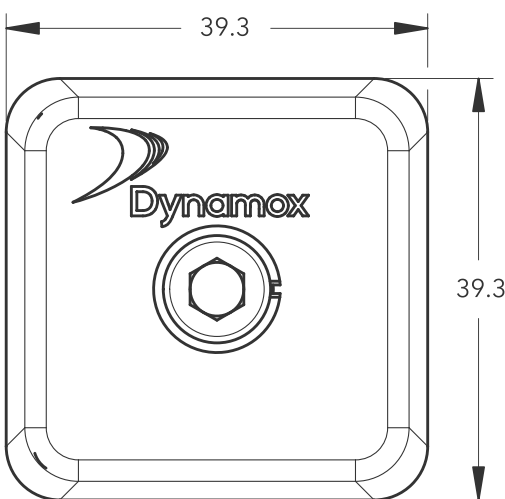


Positioning on cooling fins and covers is not recommended.

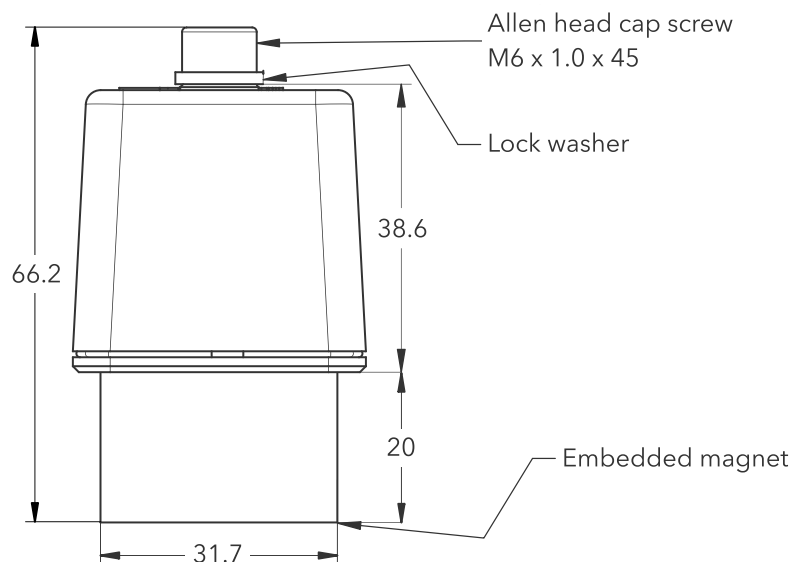


Note: For motors, the recommendation is to position a sensor on the drive side (DS) and another one on the non-drive side (NDS) for complete monitoring.

Technical Drawing

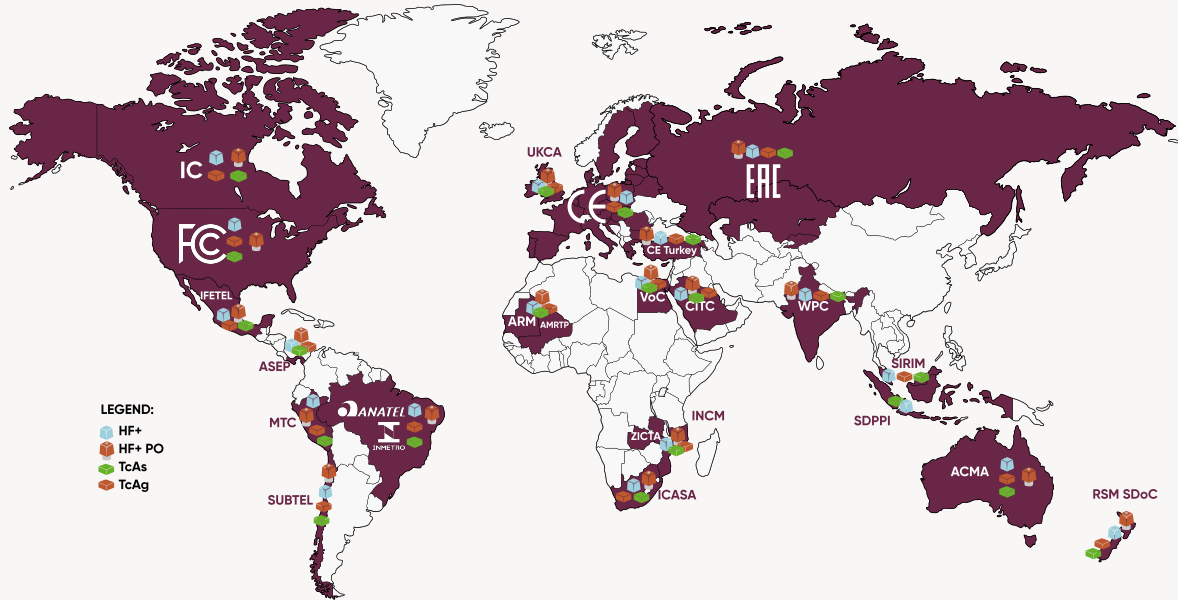


Dimensions in millimeters



CERTIFICATION

Homologation/Certification	ANATEL/CE/ACMA/FCC/IC/INMETRO
Protection Grade	IP66/IP68/IP69
Explosive Atmosphere	Ex ma IIC T6 Ga Ex ta IIIC T85 °C Da



Para mais informações sobre certificações, entre em contato com nosso suporte técnico: www.support.dynamox.net

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