DynaLogger HF+s PO

Datasheet May. 2023

Overview

The DynaLogger **HF+s PO** is designed to identify failure mode symptoms or defects in machinery and equipment in **a wide variety of field applications**. Due to its broad frequency spectrum, the HF+s PO delivers complete triaxial vibration monitoring for **low to high-speed equipment**. In addition, the solution features an **online platform**, with no local installation required, with several tools that assist in data analysis and enable constant monitoring of asset health.

The **HF+s PO** DynaLogger has monitoring mode of spectral/waveform. In **spectral monitoring**, different tools can be used: spectrum, waveform (linear, circular and orbital), frequency filters, cepstrum, spectral envelope (demodulation), autocorrelation and multimetrics.

Wireless Monitoring Solution

- Compact sensor with wide frequency range.
- Long battery life.
- High resolution in frequency and amplitude.
- Low speed applications (less than 10 RPM).
- Sensor with low spectral noise.
- Truly simultaneous triaxial measurement.
- Remote sensor updating.

Main assets monitored

- Motors
- Pumps
- Fans
- Gearboxes
- Rollers and Brakes
- Compressors and chillers
- Wind turbines
- Bearings in assets with high and low speed

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Technical Specifications	
Model	HF+s PO
Dimensions	39 x 39 x 64 mm
Weight	222 g
Case material	LEXAN™
Material of pin and base	INOX 316L
Color	Orange
Mounting	Embedded Magnet
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
Battery	
Voltage	3 V
Autonomy[3]	Up to a year
Communication and System	
Bluetooth	BLE 5.3 / 2400 – 2483,5 MHz
Free Field Range[4]	100 m
RF Output Power	0,4 dBm
App Communication	Android and iOS

1 It is possible to monitor assets whose temperature exceeds 84°C, especially assets with intermittent characteristics and with room temperature below 24°C. However, Dynamox does not provide warranty in these cases. Specific condition for application outside explosive atmospheres. **2** The application at temperatures below 0°C impacts the battery autonomy. This effect worsens the lower the temperature, estimating a reduction of about 50% of useful life in applications at -20°C. Specific condition for application outside explosive atmospheres. **3** Estimated value for a standard monitoring condition with 1 or 2 daily spectral collections, telemetry intervals of 5 to 30 minutes and operating temperature between 20°C and 60°C. **4** Reference in free field. Bluetooth communication distance may vary with obstacles, interference and device (cell phone or Gateway)

Spectral Monitoring and Waveform

Analysis Tools	Spectrum
	Frequency filters
	Envelope (demodulation)
	Cepstrum
	Spectral Waterfall
	Autocorrelation
	Circular and orbital waveform
	Advanced metrics: Multiband RMS, peak to peak, Kurtosis, FC, FC+, Carpet Energy, and RMS Envelope.
Frequency Response (± 5%)	5 kHz
Frequency Response (± 3dB)	5 kHz
Spectral noise density	< 75 µg/√Hz
Sample Rate	Up to 26 kHz
Minimum Frequency Resolution	0,006 Hz (8 bits) and 0,012 Hz (16 bits)
Minimum Resolution in Amplitude[1]	16 mg (8 bits) and 61 µg (16 bits)
Amplitude Range	Up to ±16 g
Lines of Resolution (LOR)	98.304 (uniaxial) and 32.768 (triaxial)
Maximum Frequency	571 Hz to 13 kHz (configurable)
Maximum Collection Time[2]	172,2 s (uniaxial) and 57,3 s (triaxial)

Spectral Monitoring Settings

Triaxial Simultaneous

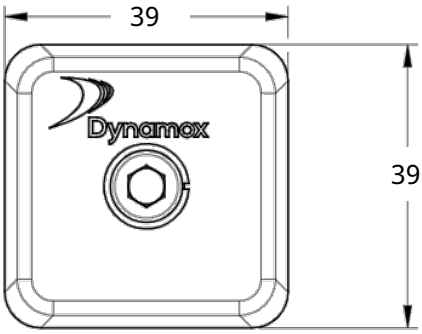
Max. Freq. (Hz)	Duration (s)						RPM min.[3]
13.145	0,08	0,16	0,31	0,62	1,25	2,5	24,0
6.572	0,16	0,31	0,62	1,25	2,5	5,0	12,0
2.629	0,4	0,8	1,6	3,1	6,2	12,5	4,8
1.314	0,8	1,6	3,1	6,2	12,5	24,9	2,4
571	1,8	3,6	7,2	14,3	28,7	57,3	1,0
N. Lines	1.024	2.048	4.096	8.192	16.384	32.768*	-

Uniaxial

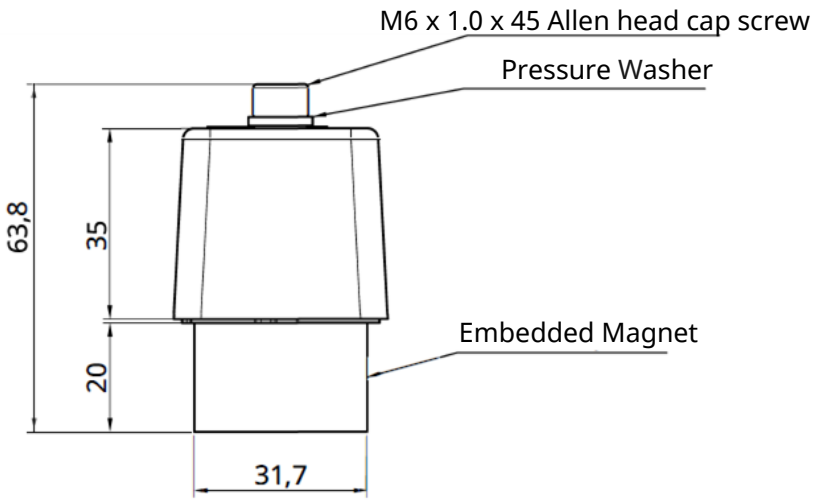
Max. Freq. (Hz)	Duration (s)								RPM min.[3]
13.145	0,08	0,16	0,31	0,62	1,25	2,5	3,7	7,5	8,0
6.572	0,16	0,31	0,62	1,25	2,5	5,0	7,5	15,0	4,0
2.629	0,4	0,8	1,6	3,1	6,2	12,5	18,7	37,4	1,6
1.314	0,8	1,6	3,1	6,2	12,5	24,9	37,4	74,8	0,8
571	1,8	3,6	7,2	14,3	28,7	57,3	86,0	172,0	0,3
N. Lines	1.024	2.048	4.096	8.192	16.384	32.768	49.152	98.304*	-

1 - Calculated amplitude resolution is based on the accelerometer digital output in µg/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

Geometric dimensions



Dimensions in millimeters



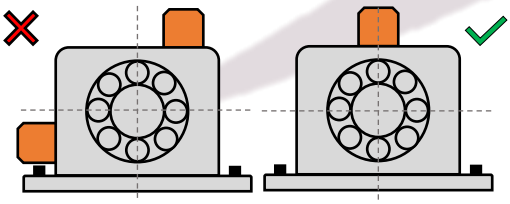
Quick Mounting Guide

- Define the critical points of the machines to be monitored for the HF+s PO positioning;

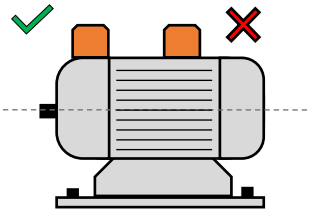
- It is only necessary to position one HF+s PO per monitoring point, because the devices are triaxial;

- Avoid positioning in areas of the housings that present any stiffness loss. Example: cooling fins, covers, and protections. Try to position in rigid parts of the machine, preferably near the bearings;

- Align one of the axes of the HF+s PO with the actual axis of the machine. These axes are shown in the schematic above and on the body of the devices. A detailed installation guide can be found at Dynamox's support website.



It is recommended, as much as possible, to position the HF+s PO centrally in the component.



Positioning on cooling fins and covers is not recommended.
Note: For motors, the recommendation is to position a sensor on the coupled side and another one on the opposite side for complete monitoring.

Regarding the types of mounting, the HF+s PO DynaLogger should be fixed with magnetic basis.

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