DynaLogger TcAg

Datasheet Feb. 2023

Overview

The **TcAg** DynaLogger is designed to identify the tendency and severity of defects in **machinery and equipment in general** according to ISO 20816. Using acceleration and contact temperature sensors, **TcAg** can also monitor anomalies in **unusual equipment and structures such as suspensions, support idler frames, servers, pipes and valves**. Additionally, the solution has an **online platform**, with no need for local installation, with several tools that assist in data analysis and allow the constant monitoring of the assets' health.

The **TcAg** DynaLogger provides **complete telemetry monitoring**. In this type of monitoring, it is possible to configure in bands that contemplate **several types of metrics** such as: acceleration, velocity and displacement in RMS, peak, peak to peak and crest factor, as well as skewness, kurtosis and contact temperature. During the analysis of the acquired data, different tools can be used such as: **removal of stopped machine, alert configuration, e-mail alerts, moving average, data aggregation, comparison between monitoring points and predictability (average time to A2).**

Wireless Monitoring Solution

- One of the smallest sensors on the market
- Long-life battery
- Easy mounting
- Minute-to-Minute Monitoring
- Over 40 telemetry metrics that can be applied in different frequency bands up to 2.5 kHz
- Monitoring of rotating machines in general according to ISO 20816
- Truly simultaneous triaxial measurement
- Remote sensor update

Main monitored assets

- Rotating machines in general
- Machine structures: chassis, suspensions and springs, rails, etc.
- Train wheelsets
- Support Idler Frames and rollers
- Belt vehicles bearing housing
- Busbars and electrical panels
- Brakes
- Occupational vibration

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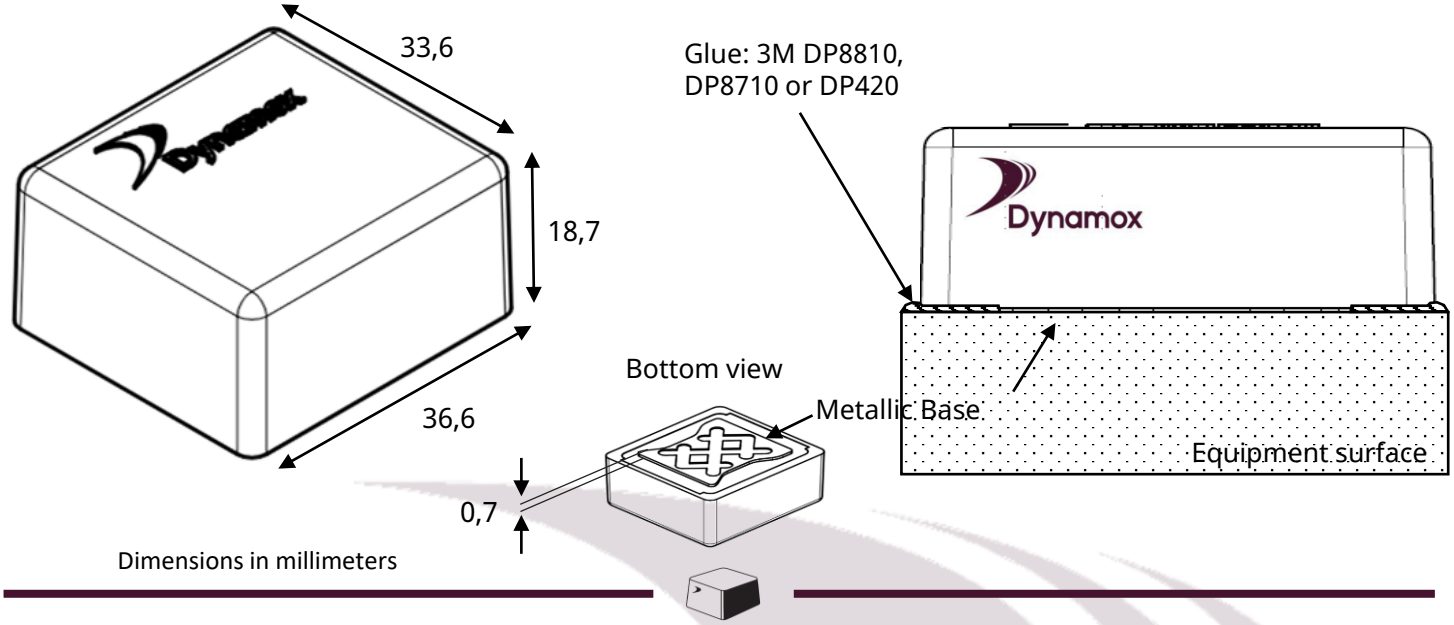
Technical Specifications	
Model	TcAg
Dimensions	36,6 x 33,6 x 18,7 mm
Weight	33,8 g
Material	LEXAN™
Color	Orange
Mounting	Glued
Visual Signaling (LED)	Red / Green
Accelerometer	MEMS triaxial
Impact Limit	3.000 g in 0,5 ms
Recommended Temperature Range[1,2]	-20°C ≤ T ≤ 84°C
Certification	
Homologation / Certification	ANATEL/CE/ACMA/FCC/IC
Battery	
Voltage	3 V
Autonomy[3]	3 to 5 years
Continuous Monitoring (Telemetry)	
Intervalo de Sampling Period	1 to 60 min
Monitored Metrics	RMS Acceleration, Peak and Peak to Peak
	RMS Velocity, Peak and Peak to Peak
	RMS Displacement, Peak and Peak to Peak
	Acceleration Skewness
	Acceleration Kurtosis
	Acceleration Crest factor (CF)
	Acceleration Crest factor + (CF+)
	Contact Temperature
Temperature resolution	0,01°C
Frequency Bands	3 Hz to 2,5 kHz (configurable)
Monitoring Profiles[4]	2 profiles
Frequency Response (± 3 dB)	2 kHz
Dynamic Range	Up to ±16 g
Memory[5]	51.200 samples (configurable)
Communication and System	
Bluetooth	BLE 5.3 / 2400 – 2483,5 MHz
Free Field Range[6]	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.
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.
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 - Monitoring profiles can be understood as set configurations of vibration metrics (in velocity, acceleration and displacement) in a given frequency band.
5 - Each telemetry metric corresponds to the allocation of a sample in memory. In practice, the time to fill the memory depends on the sample interval and number of metrics configured. It is important to remember that when a data collection is performed (App or Gateway), the memory is emptied.
6 - Reference in free field. Bluetooth communication distance may vary with obstacles, interference and device (cell phone or Gateway)

Geometric dimensions



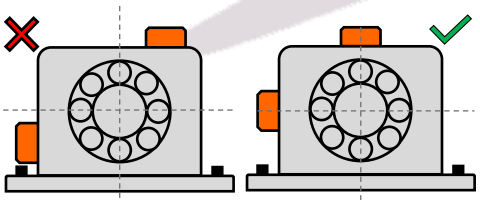
Quick Mounting Guide

- Define the critical points of the machines to be monitored for the DynaLoggers installation;

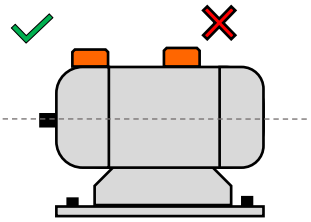
- It is only necessary to install one DynaLogger per monitoring point, because the devices are triaxial;

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

- Align one of the axes of the DynaLogger 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 to install the DynaLogger centrally on the component.



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

Regarding the types of mounting, the TcAs DynaLogger can be:

Glued: After cleaning the site, apply adhesive glue to cover the entire sensor base. Dynamox recommends the adhesives DP8810, DP8710 and DP420 from 3M.

Magnetic Basis: Can be used in occasional cases where easy removal is desired. Not recommended for permanent installations, due to loss of high frequency response.

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