

DynaLogger TcAg

PN 101101 | NCM 9027.89.99 | HS 9002789

Datasheet Set. 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**, which does not require 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 RMS displacement, 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: **removal of idle machine, alert configuration, e-mail alerts, moving average, data aggregation, comparison between monitoring spots and predictability (average time to A2)**.

Wireless Monitoring Solution

-  One of the smallest sensors on the market
-  Long battery life
-  Easy mounting
-  Minute-by-minute monitoring
-  Over 40 telemetry metrics that can be applied in different frequency bands up to 2.5 kHz (under development)
-  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



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
Operating temperature^{1,2}	-10°C ≤ T ≤ 84°C
Certified operating temperature for use in explosive atmosphere	-10°C ≤ T ≤ 79°C

Certification

Homologation / Certification	ANATEL/INMETRO/FCC/CE/IC/ACMA/ICASA/WPC/IFETEL/MTC/SUBTEL/AMRTP/ZICTA/RCM SDoC/CITC
Protection Degree	IP66/IP68/IP69
Explosive Atmosphere	Ex ma IIB T6 Ga Ex ta IIIC T85°C Da

Battery

Voltage	3 V
Autonomy³	3 to 5 years

Continuous Monitoring (Telemetry)

Sampling Period	1 to 60 min
Monitored Metrics *Under development	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 Profiles⁴	2 profiles
Frequency Response (± 3 dB)	2 kHz
Amplitude Range	Up to ±16 g
Memory⁵	51,200 samples (configurable)

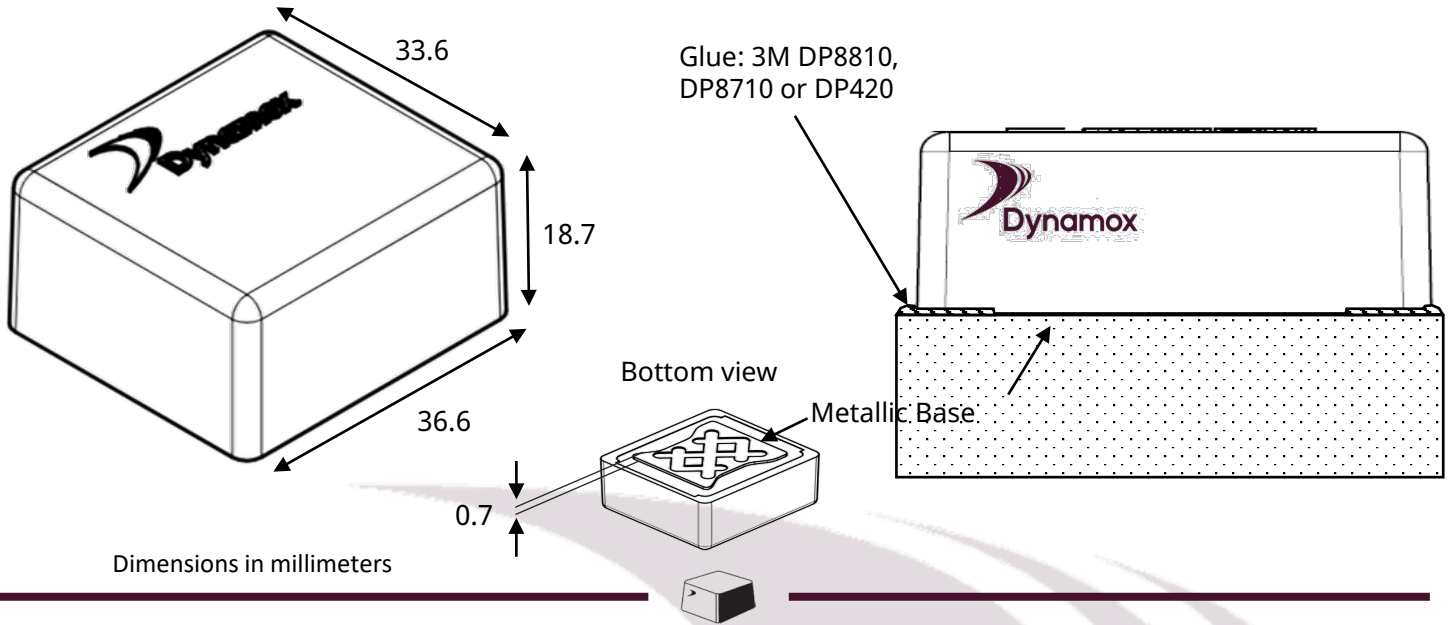
Communication and System

Bluetooth	BLE 5.3 / 2400 - 2483.5 MHz
Free Field Range⁶	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** 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)

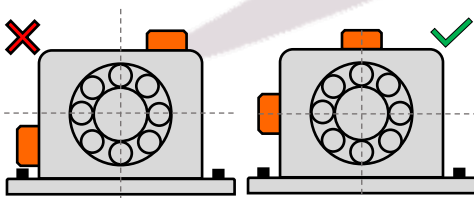


Geometric dimensions

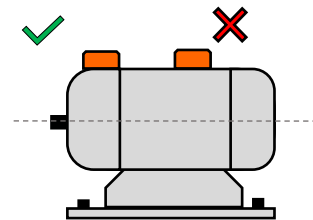


Quick Mounting Guide

- Define the critical points of the machines to be monitored for the installation of the DynaLoggers.
- 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, it is recommended to install a sensor on the drive end and another one on the non-drive end for complete monitoring.

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

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


Magnetic Base: It can be used in specific cases where easy removal is desired. Not recommended for permanent installations, due to loss of high frequency response.





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