

# DynaLogger TcAg

## Overview

The wireless **TcAg** sensor was developed to identify the tendency and severity of defects in **machines and equipment in general** in accordance with ISO 20816. Using acceleration sensors and a contact temperature sensor, the **TcAg** can also monitor anomalies in **unusual equipment and structures such as suspensions, frames, servers, pipelines, and valves**. Additionally, the solution includes an **online platform**, with no need for local installation, featuring various tools that assist in data analysis and allow for constant monitoring of asset health.

The IoT sensor **TcAg** DynaLogger provides **complete telemetry monitoring**. The configurable telemetry monitoring covers global vibration metrics and contact temperature on a minute-by-minute basis. 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 IoT Monitoring

- One of the smallest sensors on the market
- Long-life battery
- Easy mounting
- Minute-to-Minute Monitoring
- Monitoring of rotating machines in general according to ISO 20816
- Truly simultaneous triaxial measurement
- Remote sensor update

## Main Applications

- Rotating machines in general
- Machine structures: chassis, pins, suspensions and springs, rails, etc.
- Hydraulic cylinders
- Coated piping
- Train bogies
- Stands and rollers
- Track vehicle bearings
- Busbars, transformer terminals, and electrical panels
- Brakes
- Occupational vibration

## TECHNICAL SPECIFICATIONS

Dimensions	36.6 mm x 33.6 mm x 18.7 mm (1.44 in x 1.32 in x 0.74 in)
Weight	33.8 g
Material	LEXAN™
Mounting	Glued
Visual Signaling (LED)	Red/green
Accelerometer	MEMS triaxial
Accelerometer Impact Limit	3,000 g in 0.5 ms
Operating Temperature <sup>1,2</sup>	-10 °C ≤ T ≤ 84 °C (14 °F ≤ T ≤ 183.2 °F)
Certified Operating Temperature for Explosive Atmospheres	-10 °C ≤ Tamb ≤ 79 °C (14 °F ≤ T ≤ 174.2 °F)
	-10 °C ≤ Tamb ≤ 88 °C (14 °F ≤ T ≤ 190.4 °F) batches ≥ 06 <sup>3</sup>

## BATTERY

Voltage	3 V
Autonomy <sup>4</sup>	5 years

## COMMUNICATION AND SYSTEM

Wireless Communication	Bluetooth® 5.3 / 2,400 - 2,483.5 MHz
Free Field Range <sup>5</sup>	100 m
RF Output Power	0.4 dBm

## CONTINUOUS MONITORING (TELEMETRY)

Monitoring Interval	1 to 60 min
Monitored Metrics *under development	RMS Acceleration
	RMS Velocity
	Contact temperature
Temperature Resolution	0.01 °C (32.018 °F)
Frequency Bands	3 Hz to 2.5 kHz (adjustable)
Frequency Response (± 3 dB)	2 kHz
Dynamic Range	Up to ±16 g
Memory <sup>6</sup>	51,200 samples (adjustable)

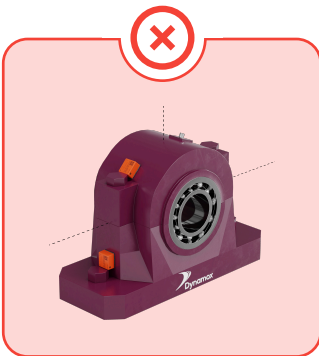
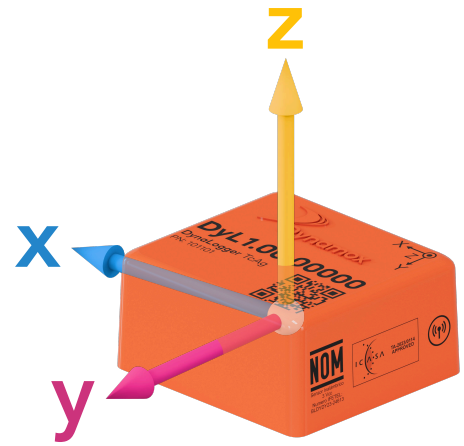
## CERTIFICATION / HOMOLOGATION

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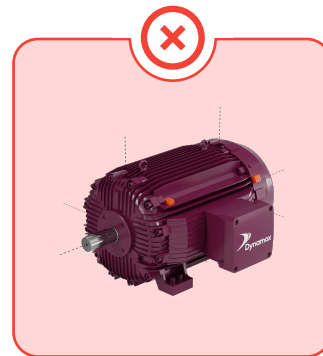
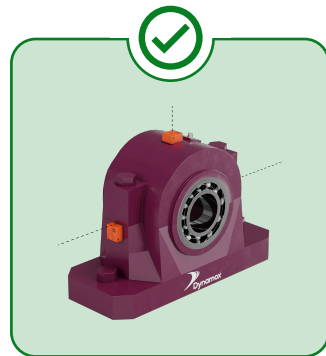
1 - It is possible to monitor assets whose temperature exceeds 84 °C (183.2 °F), especially assets with intermittent characteristics and with room temperature below 24 °C (75.2 °F). However, Dynamox does not provide warranty in these cases. Specific condition for application outside explosive atmospheres. 2 - The application at temperatures below 0 °C (32 °F) 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 (-4 °F). Specific condition for application outside explosive atmospheres. 3 - This temperature specification is valid for batches above DyL1.06.AXXXX of the TcAg model. 4 - Estimated value for a standard monitoring condition with telemetry intervals from 5 to 30 minutes, and operating temperature between 20 °C (68 °F) and 60 °C (140 °F). 5 - Reference in free field. Bluetooth® communication distance may vary with obstacles, interference and device (cell phone or Gateway). 6 - 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.

# Quick Installation Guide

- Define the critical points of the machines to be monitored for the DynaLogger 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 to the side 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.

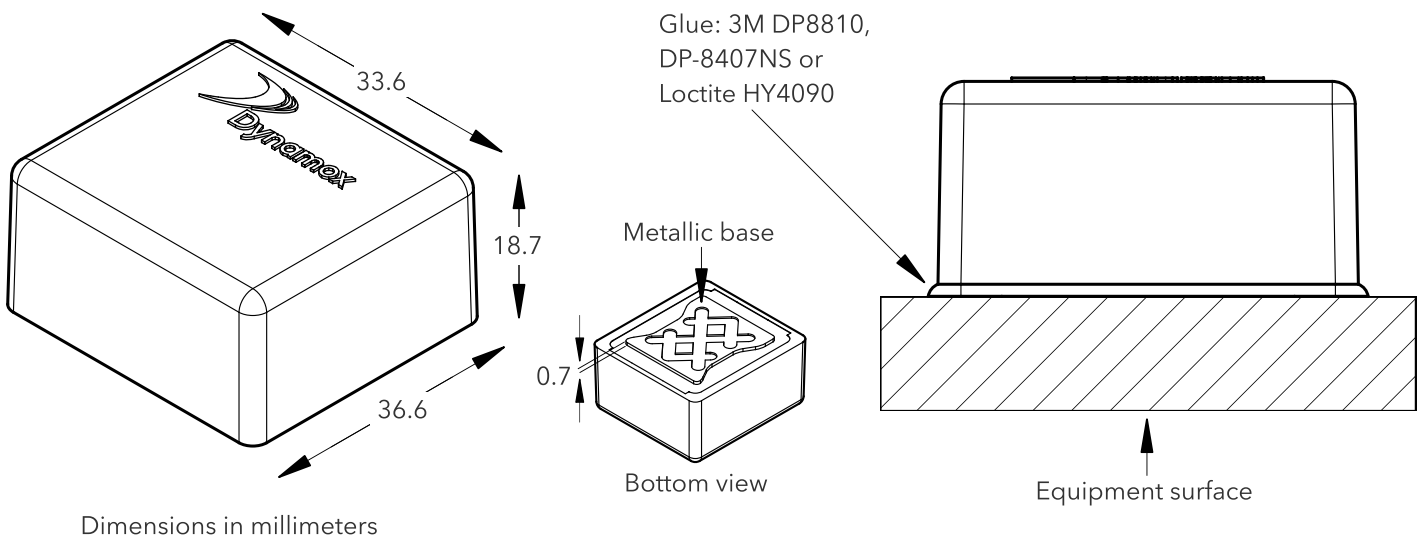


Note: For motors, the recommendation is to install a sensor on the drive side (DS) and another one on the non-drive side (NDS) for complete monitoring.

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

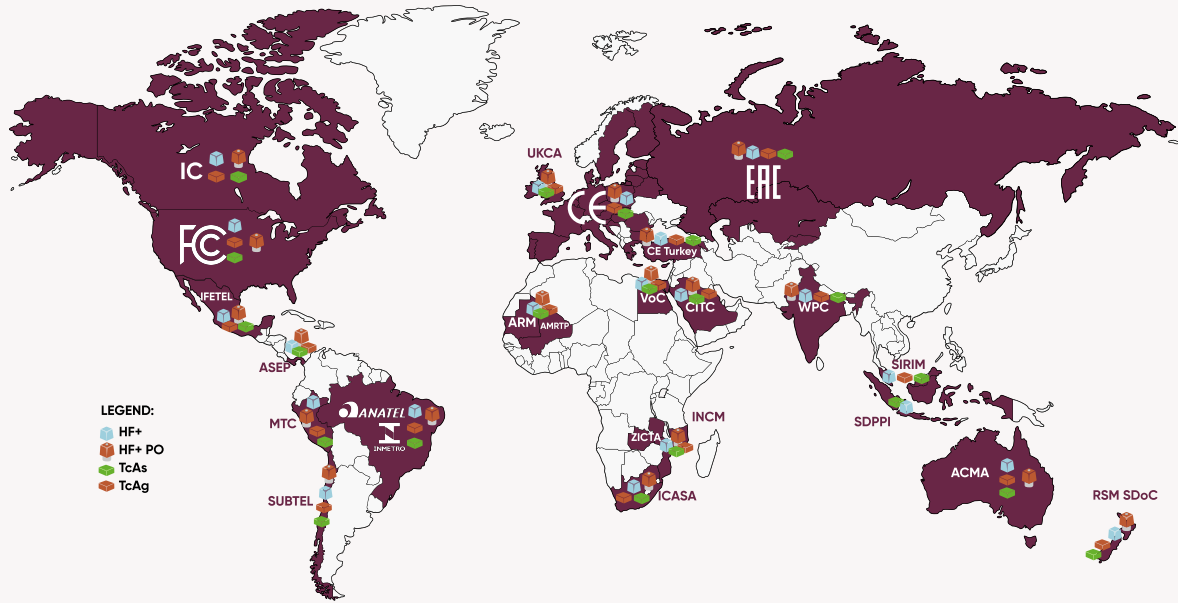
**Glued:** After cleaning the site, apply adhesive glue to cover the entire sensor base. The adhesives DP8810, DP8710, DP420, DP-420NS and DP-8407NS from 3M, and the adhesive HY4090 from Loctite are approved by Dynamox for use with the sensor.

## Technical Drawing



## CERTIFICATION

Homologation/Certification	ANATEL/CE/ACMA/FCC/IC/INMETRO/IECEX/ATEX
Explosive Atmosphere	<p>IECEX/ATEX/INMETRO (batches <math>\geq</math> 06):</p> <ul style="list-style-type: none"> <li>• Ex ia IIC T4 Ga</li> <li>• Ex ia IIIC T88°C Da</li> <li>• IP66/IP68/IP69K</li> </ul> <p>INMETRO (batches <math>&lt;</math> 06):</p> <ul style="list-style-type: none"> <li>• Ex ma IIC T6 Ga</li> <li>• Ex ta IIIC T85 °C Da</li> <li>• IP66/IP68/IP69</li> </ul>



For more information about certifications, contact our technical support at: [www.dynamox.net/contact-us](http://www.dynamox.net/contact-us)

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