

# DynaLogger TcAg

PN 101101 | NCM 9027.89.99 | HS 9002789

Datasheet 2024.08



## Overview

The wireless **TcAg** sensor 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 IoT sensor **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)**.

## IoT 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 (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

<b>Model</b>	TcAg
<b>Dimensions</b>	36.6 x 33.6 x 18.7 mm
<b>Weight</b>	33.8 g
<b>Material</b>	LEXAN™
<b>Color</b>	Orange
<b>Mounting</b>	Glued
<b>Visual Signaling (LED)</b>	Red / Green
<b>Accelerometer</b>	MEMS triaxial
<b>Impact Limit</b>	3,000 g in 0.5 ms
<b>Operating temperature<sup>1,2</sup></b>	-10°C ≤ T ≤ 84°C
<b>Certified operating temperature for use in explosive atmosphere</b>	-10°C ≤ T ≤ 79°C

## Certification

<b>Homologation / Certification</b>	ANATEL/CE/ACMA/FCC/IC/INMETRO* *For information about other certifications, please refer to the last page
<b>Protection Grade</b>	IP66/IP68/IP69
<b>Explosive Atmosphere</b>	Ex ma IIB T6 Ga Ex ta IIIC T85 °C Da

## Battery

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

## Continuous Monitoring (Telemetry)

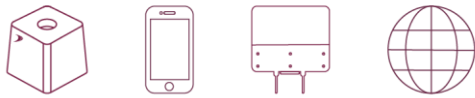
<b>Intervalo de Sampling Period</b>	1 to 60 min
<b>Monitored Metrics</b>  <b>*Under development</b>	RMS Acceleration, Peak* and Peak to Peak*
	RMS Velocity, Peak* and Peak to Peak*
	RMS Displacement, Peak* and Peak to Peak*
	Acceleration Skewness*
	Acceleration Kurtosis*
	Acceleration Crest factor (CF)*
	Acceleration Crest factor + (CF+)*
	Contact Temperature
<b>Temperature resolution</b>	0.01°C
<b>Frequency Bands</b>	3 Hz to 2.5 kHz (adjustable)
<b>Monitoring Profiles<sup>4</sup></b>	2 profiles
<b>Frequency Response (± 3 dB)</b>	2 kHz
<b>Dynamic Range</b>	Up to ±16 g
<b>Memory<sup>5</sup></b>	51,200 samples (asjustable)

## Communication and System

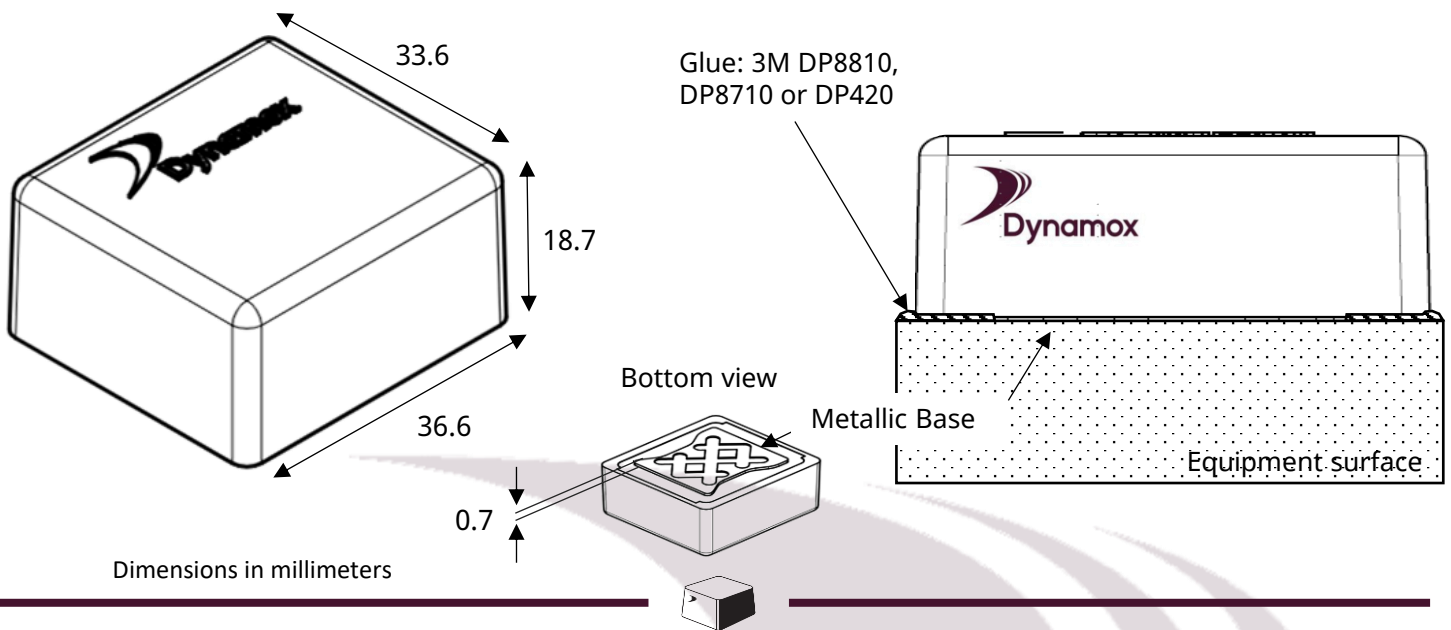
<b>Bluetooth</b>	BLE 5.3 / 2,400 - 2,483.5 MHz
<b>Free Field Range<sup>6</sup></b>	100 m
<b>RF Output Power</b>	0.4 dBm
<b>App Communication</b>	Android and iOS

<sup>1</sup> 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. <sup>2</sup> 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. <sup>3</sup> Estimated value for telemetry intervals of 3 minutes and operating temperature between 20°C and 60°C. <sup>4</sup> Monitoring profiles can be understood as set configurations of vibration metrics (in velocity, acceleration and displacement) in a given frequency band. <sup>5</sup> 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. <sup>6</sup> Reference in free field. Bluetooth communication distance may vary with obstacles, interference and device (cell phone or Gateway)



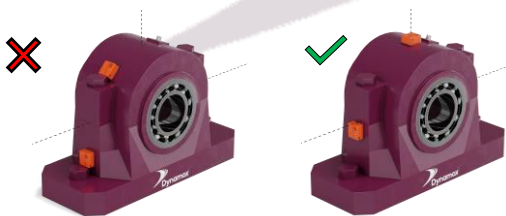


## Geometric dimensions

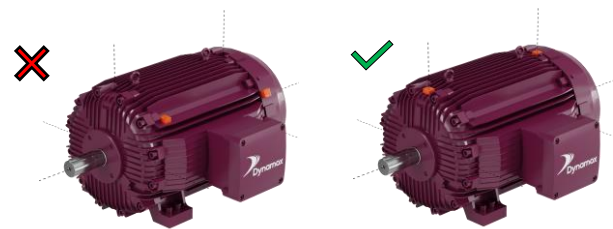


## Quick Mounting Guide

- 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 TcAg 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.





## Certification/Countries

INMETRO, FCC, CE, ACMA, IC, MTC,  
IFETEL, SUBTEL, ICASA, WPC, RSM SDoC,  
CITC, CE Turkey, ASEP, ZICTA, AMRTP,  
ARM, INCM, UKCA, VoC, EAC

Brazil, USA, Austria, Belgium, Bulgaria, Cyprus,  
Croatia, Czech Republic, Denmark, Estonia,  
Finland, France, Germany, Greece, Hungary,  
Ireland, Italy, Latvia, Lithuania, Luxembourg,  
Malta, Netherlands, Poland, Portugal, Romania,  
Slovakia, Slovenia, Spain, Sweden, Australia,  
Canada, Peru, Mexico, Chile, South Africa, India,  
New Zealand, Saudi Arabia, Turkey, Panama,  
Zambia, Mali, Mauritania, Mozambique,  
Inglaterra, Scotland, Wales, Egypt, kazakhstan,  
Russia, Belarus, Armenia, Kyrgyzstan

Dynamox recommends that at the end of the devices' useful life, disposal is carried out in accordance with local legislation applicable to electronic products.

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