**HF Plus
Vibration and
Temperature
Sensor**

Dynamox HF Plus Vibration and Temperature Sensor User Guide

Contents

Dynamox HF Plus Vibration and Temperature Sensor

Product Information

Specifications:

- **Models:** HF+, HF+s, TcAg, TcAs
- **Compatibility:** Android (version 5.0 or above) and iOS (version 11 or above)
- **Devices:** Smartphones and tablets

Product Usage Instructions

Accessing the System

- **Mobile App Installation:**

  To configure the DynaLoggers, spots, and machines, download the DynaPredict app from the Google Play Store or App Store.

  Note: Ensure you are logged in with your Google account matching your Android device's Play Store account.
- **Accessing the Web Platform:**

  To access the hierarchical sensor and gateway structure and view data, log in to

  https://dyp.dynamox.solutions with your credentials.

Structuring the Asset Tree:
Before placing sensors in the field, create a proper asset tree structure with standardized monitoring points. This structure should align with the company's ERP software.

Introduction

The DynaPredict solution includes:

- DynaLogger with vibration and temperature sensors and internal memory for data storage.
- Application for data collection, parameterization, and analysis on the shop floor.
- Web Platform with data history and a Gateway, an automatic collector of data from the DynaLoggers, which can
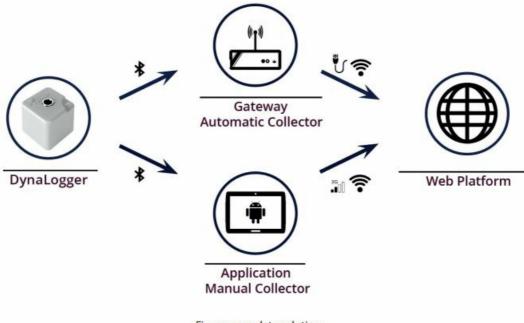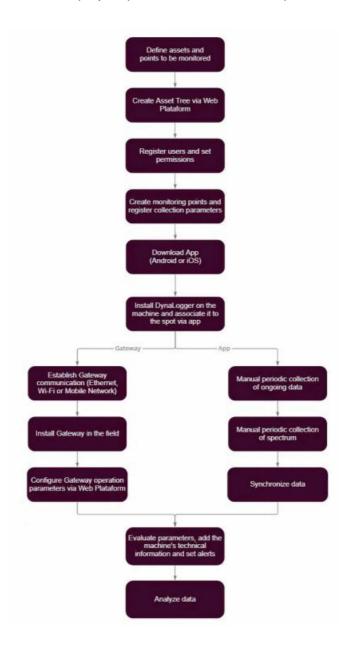
be used to automate data collection.

Figure: complete solution

The flowchart below presents a basic step-by-step outline for the use and operation of the complete solution:

Accessing the system

Mobile App installation

- To configure the DynaLoggers, spots, and machines, it is necessary to download the "DynaPredict" app. The app is available on Android (version 5.0 or above) and iOS (version 11 or above) devices, and it is compatible with smartphones and tablets.
- To install the app, simply search for "dynapredict" on the app store of your device (Google Play Store/App Store) and complete the download.
- It is also possible to download the Android version on a computer by accessing the Google Play Store.
- Note: you must be logged in to your Google account and it must be the same as the one registered in the Play Store of your Android device.
- To access the app or the Dynamox Web Platform, it is necessary to have access credentials. If you have already purchased our products and do not have credentials, please contact us via e-mail (**support@dynamox.net**) or via telephone (+55 48 3024-5858) and we will provide you with the access data.
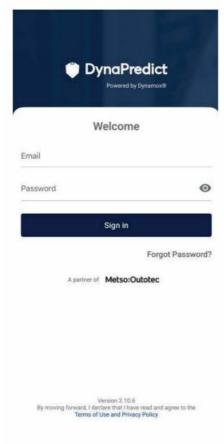

Figure: App login screen

- This way, you will have access to the app and will be able to interact with the DynaLogger. To learn more about the app and its features, please read the "DynaPredict App" manual.

Access to the Web Platform

- To create the hierarchical sensor and gateway installation structure, as well as to access the entire history of vibration and temperature measurements collected by the DynaLoggers, users have a complete Web Platform at their disposal.

- Simply access the link **https://dyp.dynamox.solutions** and log in to the system with your access credentials, the same ones used to access the app.
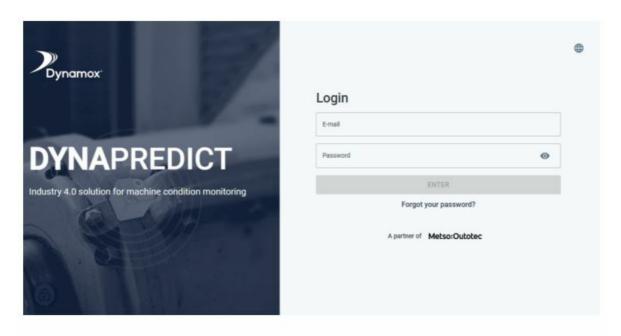

Figure: DynaPredict Web Platform - Login Screen

- Now you will have access to the Web Platform and will be able to consult the data of all the registered DynaLoggers.
- To learn more about how the Platform works and its features, please read the "DynaPredict Web" manual.

Structuring the Asset Tree

- Before placing the sensors on the selected asset in the field, we recommend ensuring that the asset tree (hierarchical structure) is properly created, with the monitoring points already standard-ized, waiting to be associated with the sensor.
- To learn all the details and understand how to perform the asset tree structuring process, please read the Asset Tree Management section.
- This facilitates work in the field and ensures that the monitoring points are registered in the correct structure.
- The asset tree structure should be defined by the customer and, preferably, follow the standard already used by the company in ERP software (SAP, for example).
- After creating the asset tree via the Web Platform, the user should ideally also register the monitoring point (called spot) in the tree structure, before going into the field to perform the physical installation of the sensors.
- The figure below shows an example of an asset tree.

Figure: Asset Tree

- After finishing these procedures, the user can finally go into the field and perform the physical installation of the sensors on the machines and components registered in the asset tree.
- In the article "Spots Creation", it is possible to obtain details of the creation process of each spot within the Web Platform, and in the article "User Management", it is possible to obtain information about the creation and authorizations of different users.
- After finishing these procedures, the user can finally go into the field and perform the physical installation of the sensors on the machines and components registered in the asset tree.
- More details regarding this process are present in the "Web Platform Manual".

Positioning the DynaLoggers

- Before carrying out the installation of the sensors on the machines, here are a few recommendations.
- The first step, in the case of explosive atmospheres, is to consult the product datasheet for possible restrictions.
- Regarding measurements of vibration and temperature parameters, they should be taken on rigid parts of the machinery. Installation on fins and in fuselage regions should be avoided, as these may present resonances, attenuate the signal, and dissipate heat. In addition, the device should preferably be positioned on a non-rotating part of the machine.
- Since each DynaLogger takes readings on three axes orthogo-nal to each other, it can be installed in any angular direction. How-ever, it is recommended that one of its axes (X, Y, Z) is aligned with the direction of the machine shaft.
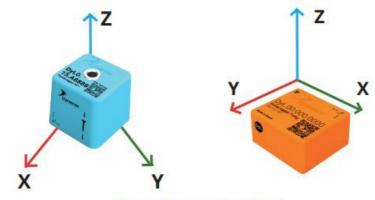
Figure: Axes orientation
Left: HF+ DynaLogger   Right: TcAg DynaLogger

- The images above show the orientation of the DynaLogger axes. This can also be seen on the label of each device. The correct positioning of the device should consider the orientation of the axes and actual orientation in the installation on the machine.
- Listed below are some good practices for device installation/mounting.
  1. The DynaLogger must be installed in a rigid part of the machine, avoiding regions that may present localized resonance.
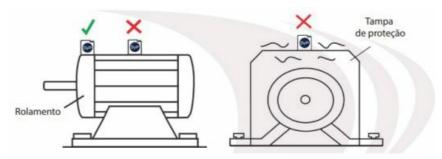

Figure: Installation recommendations

  2. Preferably, the DynaLogger should be centered on the components, such as bearings.
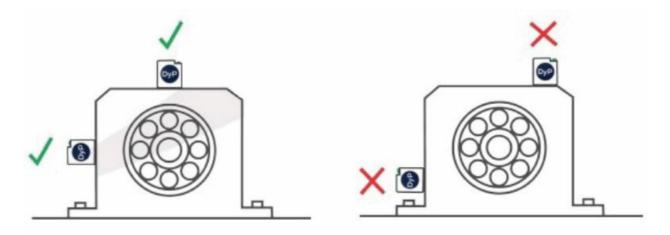

Figure: Installation recommendations

  3. It is recommended to keep the DynaLogger at a fixed point, that is, to define a definite installation spot for each device to obtain repeatability in measurements and quality data history.
  4. It is recommended to verify that the surface temperature of the monitoring point is within the recommended limits (-10°C to 79°C) for use of the DynaLoggers. Using the DynaLoggers at temperatures outside the specified range will void the product warranty.

Regarding the actual installation locations, we have created a suggestion guide for the most common machine types. This guide can be found in the "Monitoring applications and best practices" section of the Dynamox Support website (support.dynamox.net).

Mounting

- The mounting method is one of the most critical factors for measuring vibration. A rigid attachment is essential to avoid incorrect data reading.
- Depending on the type of machine, the monitoring point, and the DynaLogger model, different mounting methods can be used.

Screw mounting
Before choosing this mounting method, check that the installation point on the equipment is thick enough for drilling. If so, follow the step-by-step procedure below:

- **Drilling the Machine**

  Drill a tapped hole with an M6x1 thread tap (supplied in kits with 21 DynaLoggers) at the measuring point. At least 15 mm deep is recommended.
- **Cleaning**
  - Use a wire brush or fine sandpaper to clean any solid particles and incrustations from the surface of the measuring point.
  - After surface preparation, the DynaLogger mounting process begins.
- **DynaLogger mounting**

  Position the DynaLogger at the measurement point so that the base of the device is fully supported on the installed surface. Once this is done, tighten the screw and spring washer* supplied with the product, applying an 11Nm tightening torque.

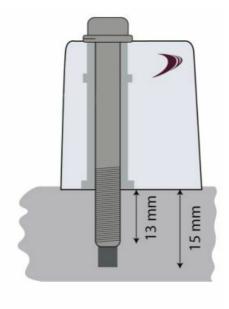 *The use of a spring washer/self-locking is essential to obtain reliable results.

Figure: Screw mounting

Adhesive Mounting

Glue mounting can be advantageous in some cases:

- Mounting on curved surfaces, that is, where the base of the DynaLogger will rest fully on the surface of the measurement point.
- Mounting in components that do not allow drilling of at least 15mm.
- Mounting in which the Z axis of the DynaLogger is not positioned vertically about the ground.
- TcAs and TcAg DynaLogger installation, as these models only allow glue mounting.
  For these cases, in addition to the traditional surface preparation described above, chemical cleaning should also be carried out on-site.

Chemical cleaning

- Using an appropriate solvent, remove any oil or grease residue that may be at the installation site.
- After surface preparation, the glue preparation process should begin:

Preparation of the glue
The most suitable adhesives for this type of mounting, according to tests carried out by Dynamox, are 3M Scotch Weld Structural Adhesives DP-8810 or DP-8405. Follow the preparation instructions described in the manual of the adhesive itself.

Figure: Glue mount DynaLogger installation

DynaLogger Mounting

- Apply the glue so that it covers the entire base of the bottom surface of the DynaLogger, completely filling the center hole. Apply the glue from the middle to the edges.
- Press the DynaLogger on the measurement point, orienting the axes (drawn on the product label) most appropriately.
- Wait for the curing time indicated in the glue manufacturer's manual to ensure good fixation of the DynaLogger.

Registering a DynaLogger (Getting Started)

- After attaching the DynaLogger to the desired location, its serial number* must be associated with the spot previously created in the asset tree.
  *Each DynaLogger has a serial number to identify it:

Figure: HF+ DynaLogger – Serial number on the top of the device

- The process of registering a DynaLogger in a spot must be done via the Mobile App. Therefore, make sure you have downloaded the App on your smartphone before going to the field to install the sensors.
- By logging in to the App with your access credentials, all sec-tors, machines, and their divisions will be visible, as previously cre-ated in the asset tree via the Web Platform.
- To finally associate each DynaLogger in its respective monitoring site, simply follow the procedure detailed in the "Application Manual".
- At the end of this procedure, the DynaLogger will be working and collecting vibration and temperature data as configured.

Additional information

- "This product is not entitled to protection against harmful interference and may not cause interference to a properly authorized system."
- "This product is not suitable for use in domestic environments because it may cause electromagnetic interference, in which case the user is required to take reasonable steps to minimize such interference."
- For more information, visit Anatel's website: **www.gov.br/anatel/pt-br**

CERTIFICATION

The DynaLogger is certified to operate in explosive atmospheres, Zone 0 and 20, according to INMETRO certification:

- **Model:** HF+, HF+s TcAs and TcAg
- **Certificate number:** NCC 23.0025X
- **Marking:** Ex ma IIB T6 Ga / Ex ta IIIC T85°C Da – IP66/IP68/IP69
- **Specific conditions for safe use:** Care must be taken regarding the risk of electrostatic discharge. Clean with a damp cloth only.

ABOUT COMPANY

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FAQ

- **How can I access the DynaPredict app?**
  You can download the app from the Google Play Store or App Store on your Android (version 5.0 or above) or iOS (version 11 or above) device.
- **How do I create the asset tree structure?**
  To create the asset tree structure, follow the guidelines provided in the Asset Tree Management section of the manual.

Documents / Resources

Dynamox DynaPredict – Quick Start Guide Descriptive Manual HF+, HF+s, TcAg, TcAs models	**Dynamox HF Plus Vibration and Temperature Sensor** [pdf] User Guide HF, HF s, TcAg, TcAs, HF Plus Vibration and Temperature Sensor, HF Plus, Vibration and Temperature Sensor, Temperature Sensor, Sensor

References

- **Support**
- **User Manual**