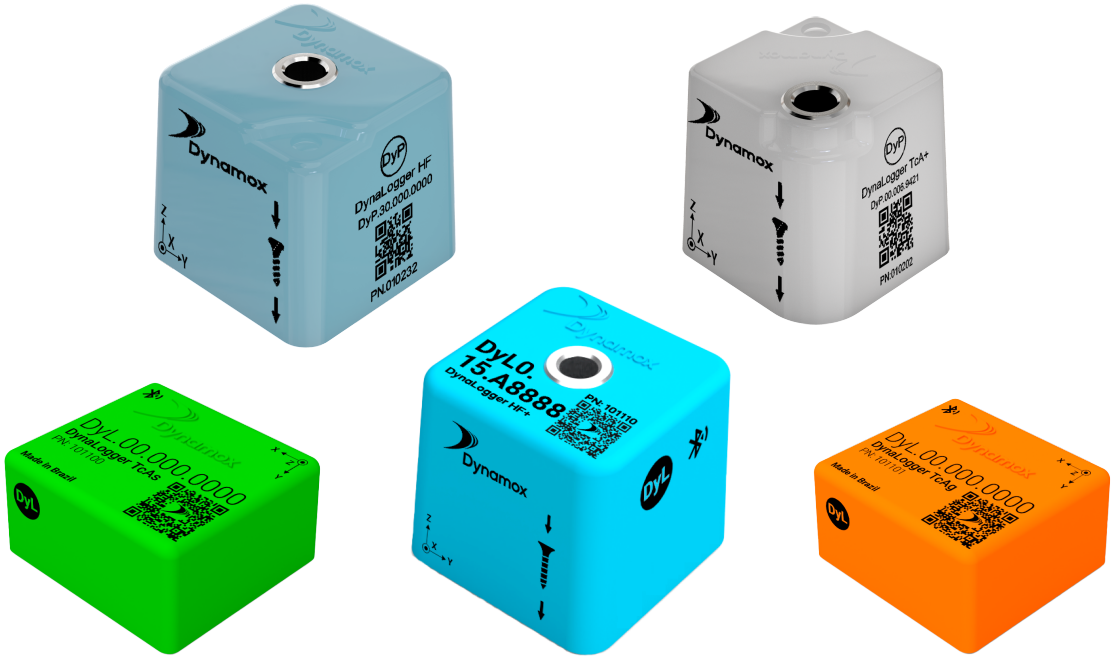

DynaPredict - Quick Start Guide

DynaPredict Manual - Quick Start - Version 3 – September 2022
Public Document

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1. Introduction

The complete solution includes:

• DynaLogger, with vibration and temperature sensors and internal memory for data storage.

• Application, for data collection, action and analysis on the shop floor;

• Web Platform, with historic data and diagnostic tools for data analysis.

In addition, a DynaGateway could be added to the solution in order to automate data collection from the DynaLoggers and send the data directly to the Web Platform.

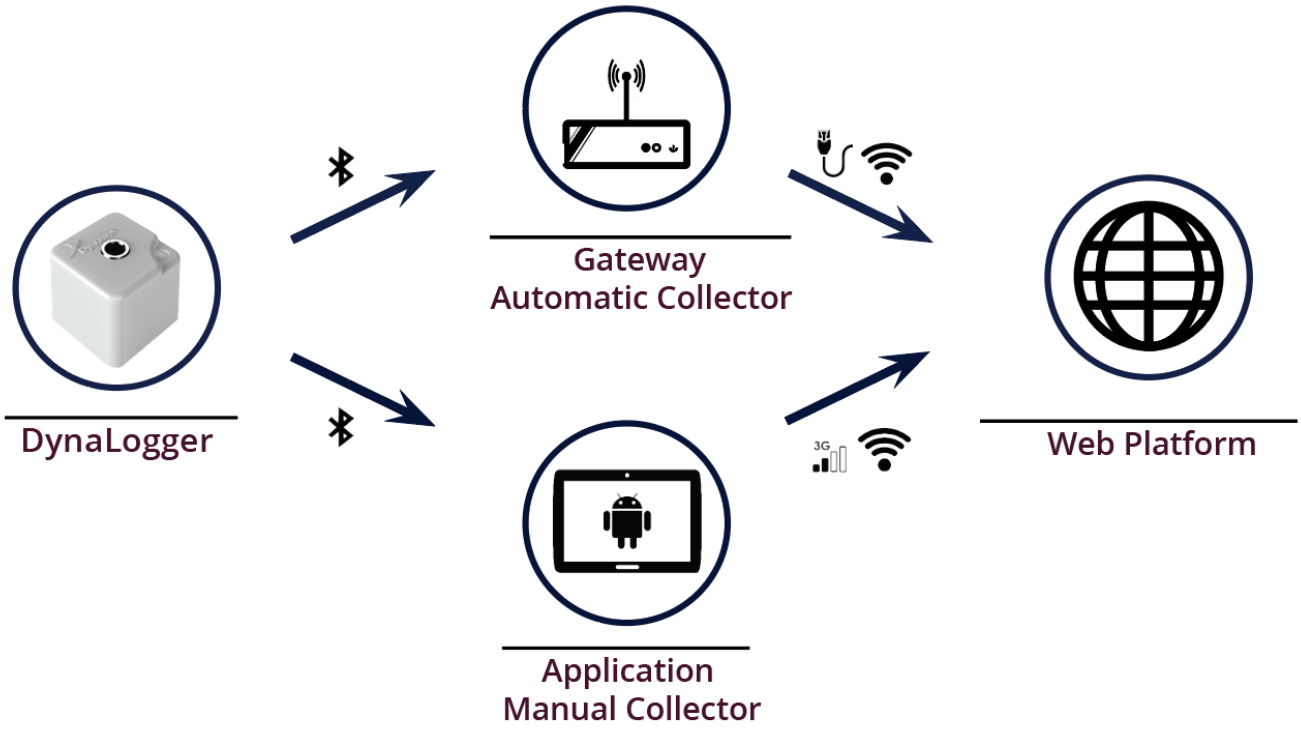

Figure: DynaPredict Solution

The flowchart below shows a basic step-by-step outline of how the solution works:

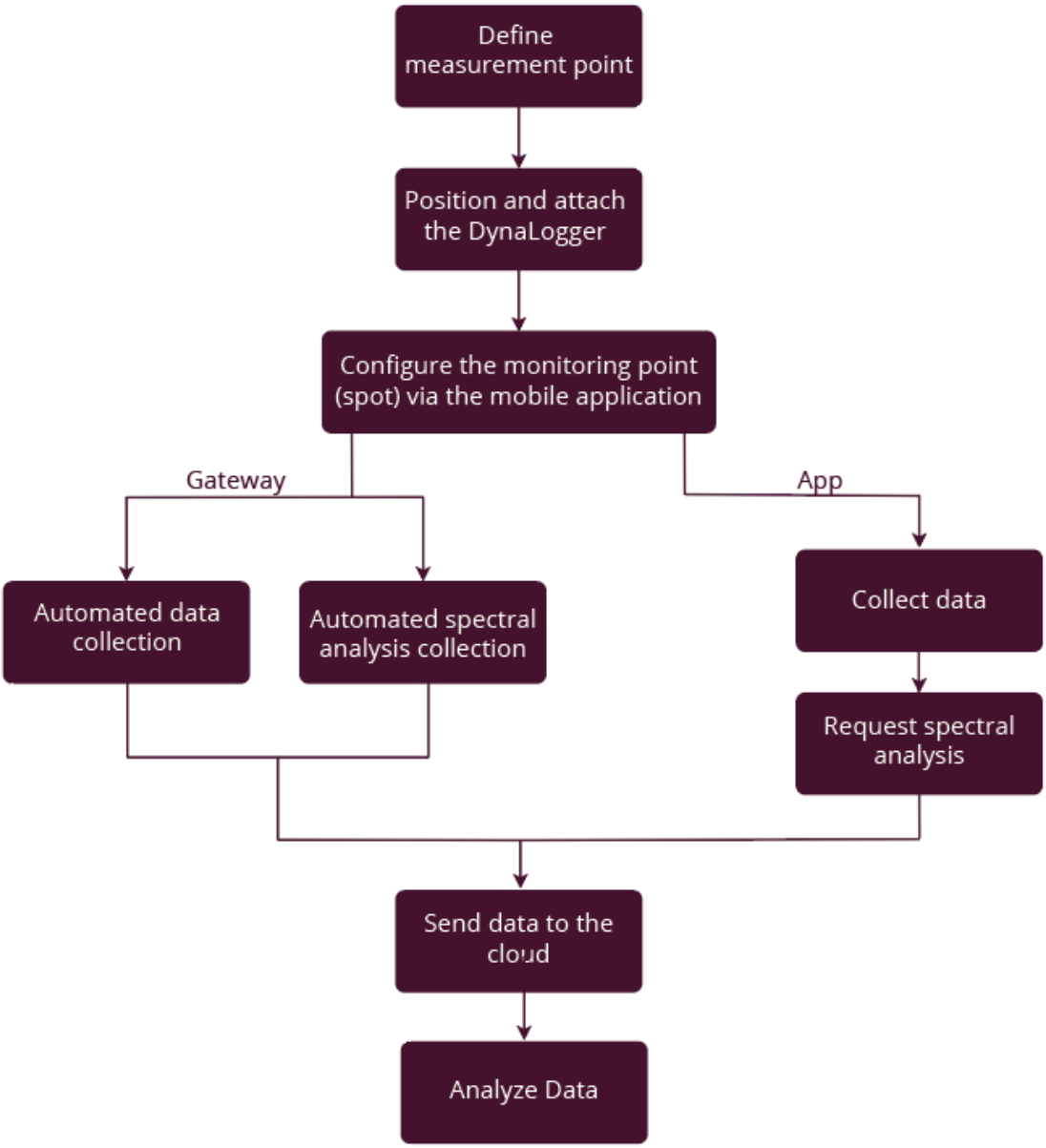

Figure: Flowchart Vision

2. Accessing the system

Install Mobile App

To configure data loggers, 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 is compatible with smartphones and tablets.

To install the app, simply search for "dynapredict" on the app store of the device (Google Play Store/App Store) and complete the download.

It is also possible to download the Android version from a computer by accessing the link: https://play.google.com/store/apps/details?id=solutions.dynamox.predict

Note: You must be logged in to your Google account and it must be the same that is registered on the Play Store of your Android device.

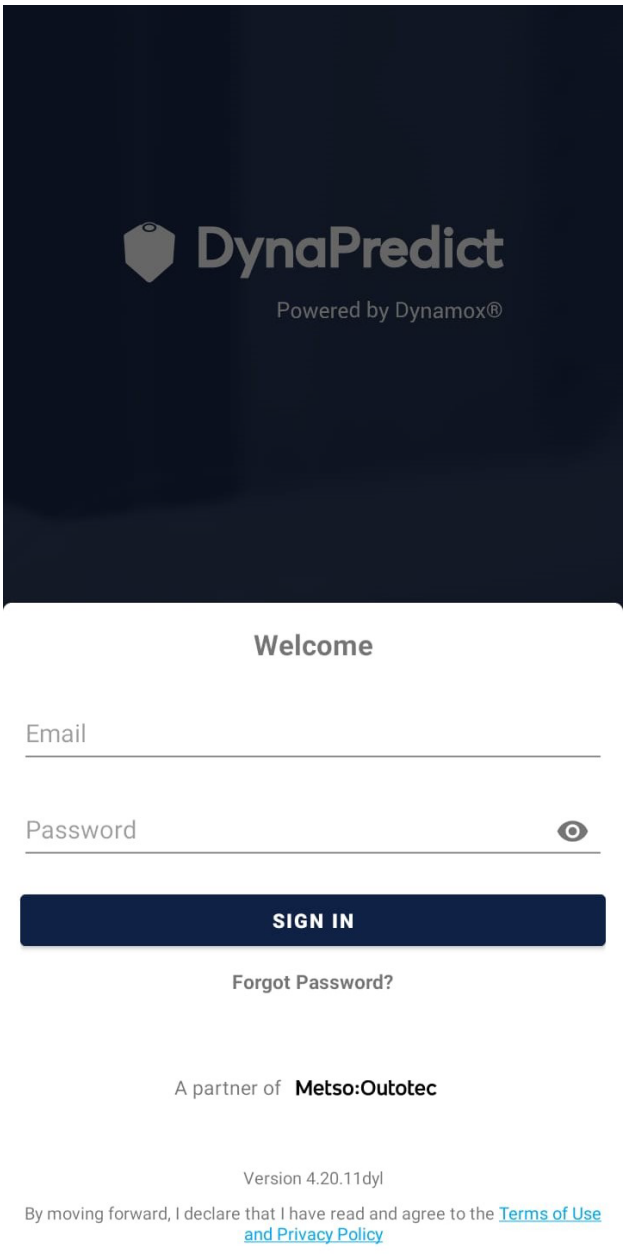

Figure: App login screen

Access to the Web Platform

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

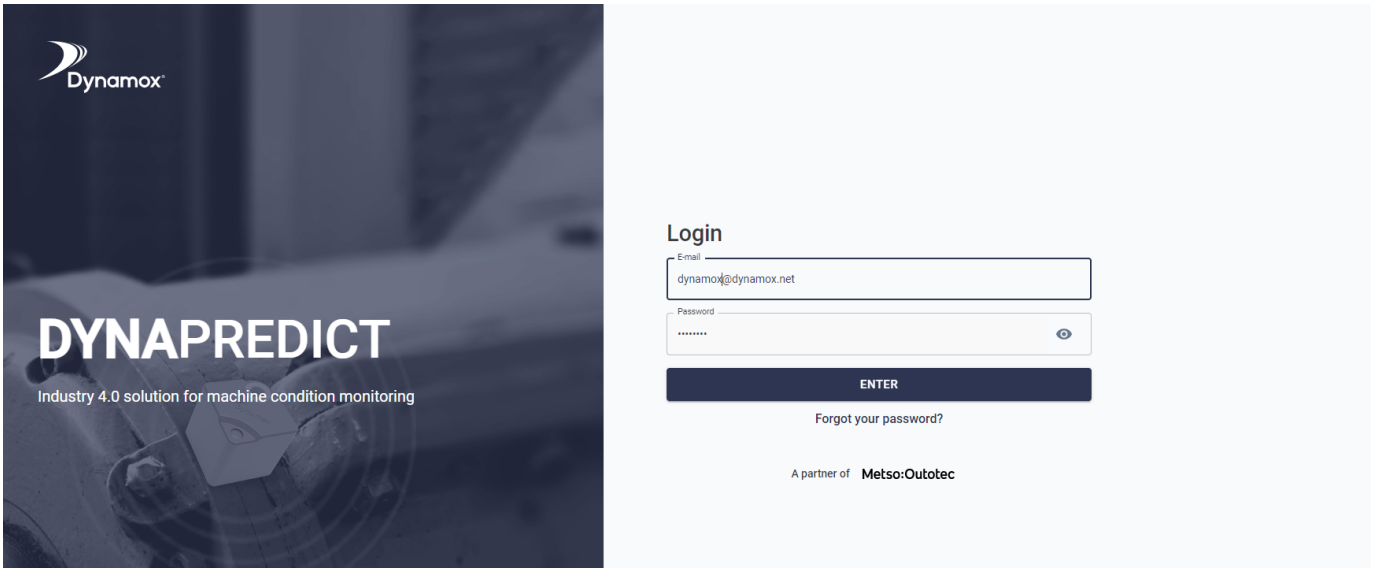

Figure: DynaPredict Web Platform - Login Screen

Simply access the link https://dyp.dynamox.solutions and log in to the system with your access credentials.

Now you'll have access to the Web Platform and can consult the data of all the registered DynaLoggers.

To learn more about the operation of the Platform and its features, please read the "DynaPredict Web Platform" manual.

3. Structuring the Asset Tree

Before placing sensors in the field, it is recommended to ensure that the asset tree (hierarchical structure) is properly created, with the monitoring points already standardized waiting for the sensor that will be associated to it. To learn all the details and understand how to perform the asset tree structuring process, please read the article Asset Tree Manegement.

This facilitates the work in the field and ensures that the 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 the spot) in the tree structure, before going into the field to perform the physical installation of the sensors. The image in the next page shows an example of an asset tree.

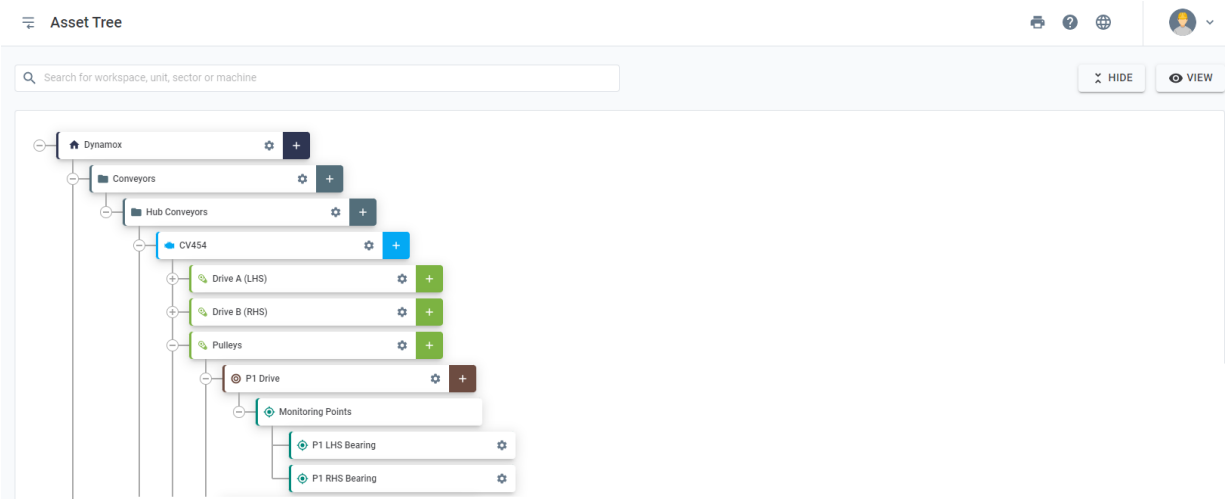

Figure: Asset Tree

With these procedures completed, the user can finally go into the field to perform the physical installation of the sensors on the machines and components registered in the 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.

More details regarding this process are present in the following articles of this section.

4. Positioning the DynaLoggers

Before carrying out the physical installation of the sensors on the machines, here are a few recommendations:

The first step, in the case of explosive atmospheres, is to consult possible restrictions on the product datasheet.

Regarding to vibration and temperature parameter measurements, these 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 the DynaLoggers take readings on three orthogonal axes, they can be installed in any angular direction. However, it is recommended that one of the axes (X,Y,Z) be aligned with the machine shaft.

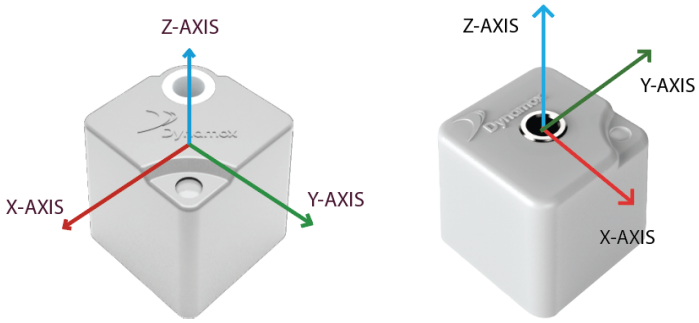

Figure: Axes orientation
Left: DynaLogger TcA+. Right: DynaLoggers HF and HF+

The images above show the orientation of the DynaLogger axes. This can also be seen on the label attached to the devices. The correct positioning of the device should take into account the axis and orientation of the machine.

1. The DynaLogger must be installed in a rigid part of the machine, avoiding regions that may present localized resonance;
2. Preferably, the DynaLogger should be centered in relation to critical components, such as bearings;
3. It is recommended to keep the DynaLogger at a fixed point, i.e., to define a definite installation for each device in order to obtain repeatability in measurements and a history of quality data;
4. It is recommended to verify that the surface temperature of the monitoring point is within the recommended limits (-10ºC to 84ºC) for the use of 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 on our Support page (https://support.dynamox.net), in the section “Applications and good monitoring practices”.

5. Mounting

The mounting method is one of the most critical factors for measuring vibration. A rigid attachment is essential for avoiding false readings and data.

Depending on the type of machine and position, different mounting methods could be used. To get the best results from the DynaPredict solution, screw mounting is recommended. To do this, the installation surface must be prepared first, as described below.

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 threaded hole with an M6x1 threaded tap (supplied in kits with 21 DynaLoggers) at the point of measurement, at least 15mm deep.

Cleaning

Using a wire brush or fine sandpaper, clean any solid particles and scale on the surface of the measurement point.

After surface preparation, the DynaLogger attachment process should begin.

DynaLogger mounting

Position the DynaLogger at the measurement point so that the base of the device is completely supported by the installation

surface. Once this is done, tighten the screw and spring washer* supplied with the product, applying a tightening torque of 11Nm.

** Use of spring washer is critical to achieving reliable results.*

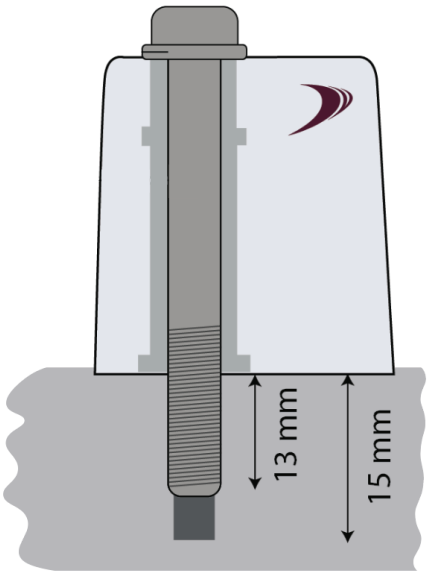

Figure: Screw Mounting

Adhesive Mounting

Glue mounting can be advantageous in some cases:

- Mounting on curved surfaces, that is, where the DynaLogger base will not be fully supported on the surface of the measurement spot;
- Mouting in components that do not allow drilling of at least 15mm;
- Installations on in which the DynaLogger's Z axis is not positioned vertically in relation to the ground;
- Installations of DynaLogger TcAs and TcAg, since these models only allow glue mounting.

For these cases, in addition to the traditional surface preparation described above, chemical cleaning must 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 Adhesive

The most suitable adhesives for this type of fixation, according to tests conducted by Dynamox, are the Scotch Weld DP-8810 or DP-8405 structural adhesives from 3M. Follow the preparation instructions described in the manual of the adhesive itself.

Dynalogger Mounting

Apply the glue so that it covers the DynaLogger's entire bottom surface, completely filling the center hole. Apply the glue from the middle to the edges.

Figure: DynaLogger installation with glue fixation

Press the DynaLogger on the selected location, orienting the axes (drawn on the product label) in the most appropriate way.

Wait for the curing time indicated in the manual of the glue manufacturer itself, in order to guarantee the good fixation of the DynaLogger.

6. Registering a DynaLogger - Getting Started

After attaching the DynaLogger in the desired location, you must associate its serial number* with the spot created earlier in the asset tree.

*Each DynaLogger has a serial number that identifies it:

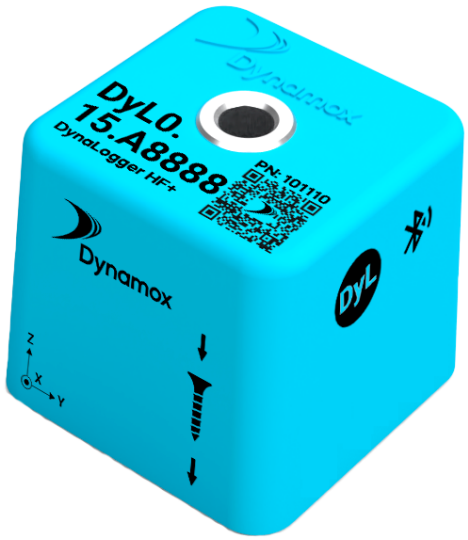

Figure: DynaLogger HF+ - Serial number on the top of the device

The process of registering a DynaLogger to a spot is done via Mobile Application. Therefore, make sure you have downloaded the App on your smartphone before going to the field to install the sensor.

By logging into the App with your access credentials, all sectors, machines, and their divisions will be visible, as previously created in the asset tree via the Web Platform.

To finally associate each DynaLogger to its respective monitor-ing site, simply follow the procedure detailed in the article Associate a DynaLogger to the spot.

At the end of this procedure, the DynaLogger will be working and collecting vibration and temperature data as configured.

FCC STATEMENT

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Body-worn Operation

comply with RF exposure requirements, a minimum separation distance of 20cm must be maintained between the

user's body and the handset, including the antenna. Thirdparty belt-clips, holsters, and similar accessories used by this

device should not contain any metallic components. Bodyworn accessories that do not meet these requirements may

not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

IC STATEMENT

This device complies with Industry Canada licence-exempt RSS standard(s)

Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
To comply with RF exposurerequirements, a minimum separation distance of 20cm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body-worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.
Ce dispositif est conforme aux normes autoriser-exemptes du Canada RSS d'industrie
L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.Cet équipement est conforme avec l'exposition aux radiations IC définies pour un environnement non contrôlé. L'utilisateur final doit respecter les instructions de fonctionnement spécifiques pour satisfaire la conformité aux expositions RF. Cet émetteur ne doit pas être co-localisées ou opérant en conjonction avec une autre antenne ou transmetteur.
Pour se conformer aux exigences d'exposition aux radiofréquences, une distance minimale de 20 cm doit être maintenue entre le corps de l'utilisateur et le combiné, y compris l'antenne. Les pinces de ceinture, les étuis et autres accessoires similaires utilisés par cet appareil ne doivent pas contenir de composants métalliques. Les accessoires portatifs qui ne répondent pas à ces exigences peuvent ne pas se conformer aux exigences d'exposition RF et doit être évitée. Utilisez uniquement l'antenne fournie ou une antenne approuvée.

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