User Manual

VibePro

Powered by B&D Industrial

VibePro

VibePro is a signal analyzer software designed to be used with the iPad and VibePro Wireless and Wired Accelerometers.

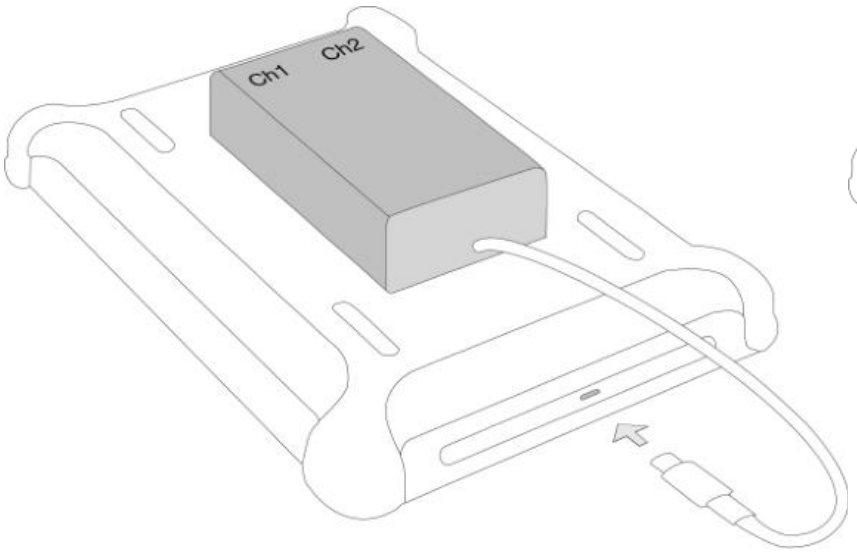
VibePro can be used to analyze the vibration spectrum of the signal, collect data of a pre-designed route, generate a complete report and send it by email, store it in the VibePro cloud server or save it locally.

Web-based post-processing software is also available.

Connectivity

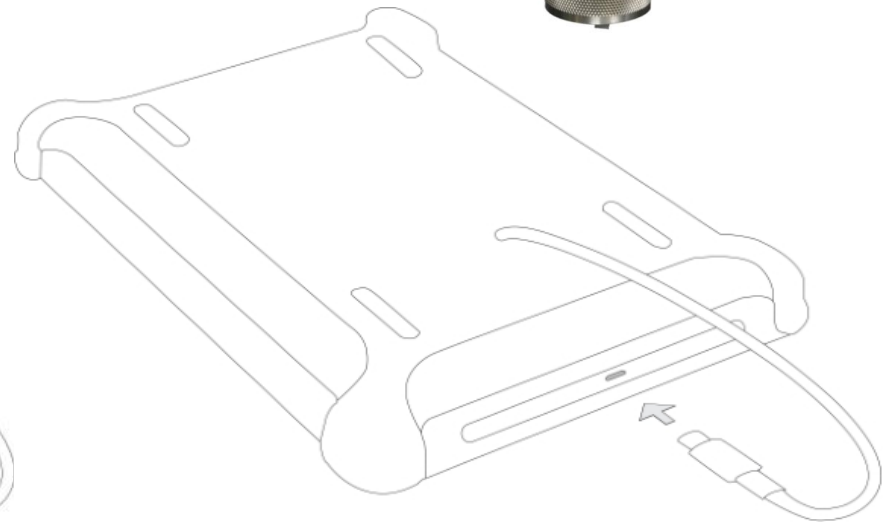
Wired DAQ

VibePro requires the iPad to be connected to a Data Acquisition Box (DAQ) in order to acquire up to two channels of vibration data. The DAQ must be connected to the iPad's Dock port as shown.



Wireless Sensor

This step is also required to use the wireless device



Connectivity

Wired DAQ

After connecting the DAQ to the iPad's dock port, the user must connect the sensors that will be used by the VibePro, in the example below an accelerometer is connected to Ch1.

The next step is to run VibePro software by selecting the VibePro icon in the iPad's main menu screen.

Connectivity

Wireless Sensor

After connecting the wireless receiver to the iPad's dock port, the user must turn the sensor on using the push button. If the receiver and sensor are paired, the red LED light will start blinking. While VibePro is measuring, the red LED will remain solid.

The next step is to run VibePro software by selecting the VibePro icon in the iPad main menu screen.

Main Menu

Single Measurement

Route Measurement

Viewer & Trends

Report Manager

Settings

Advanced Viewer

Help (VibePro Manual)

Settings and Tools

Description

Tap on the “Settings” button in the main menu to display the General Settings View. These setting apply to the entire app.

Select units of measure for vibration amplitude and frequency

Select between Easy and Pro collection modes

Select between Easy and Pro collection modes

Enter the route due time period for data collection (optional).

Turn on to allow editing plants, machines, and points in the Hierarchy View.

Tap to open the sensor calibration window

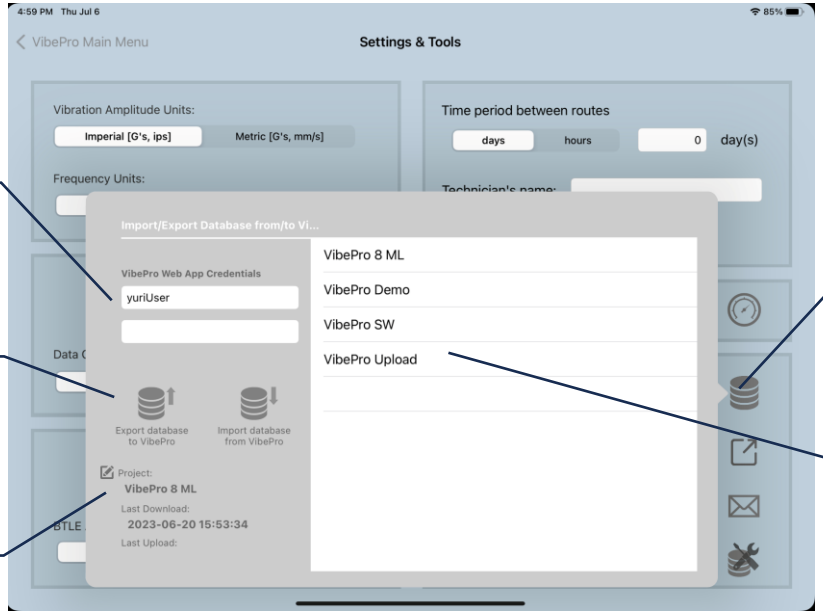
Tap to open the upload - download window.

Save or email the database file using these buttons

Settings and Tools

Database Operations

Tap the database icon to open the upload - download window.



Enter your username and password to operate

Tap an appropriate button to upload or download your database file

The project name and dates of the latest download and upload are shown here

Tap the database icon to open the upload - download window

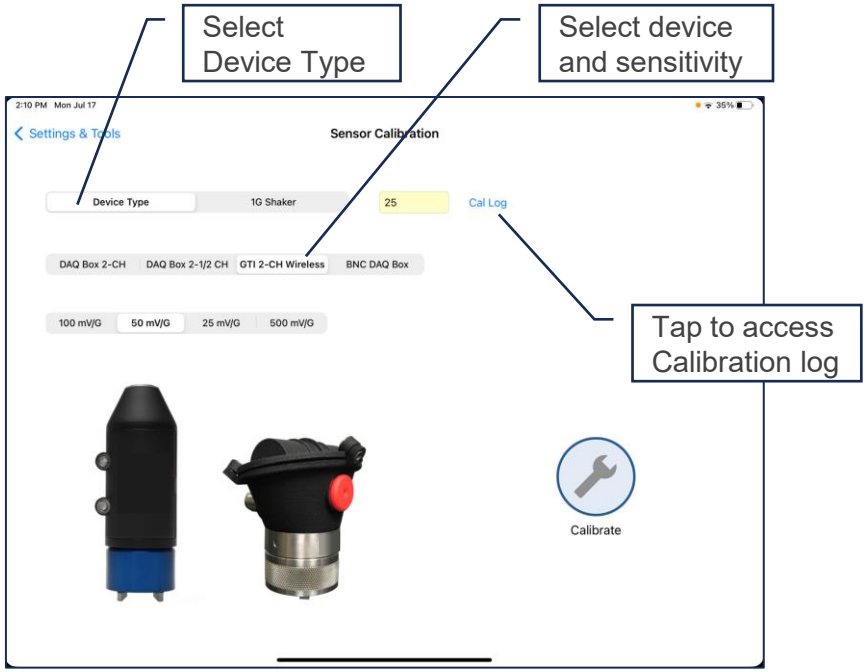
Select a project to upload or download from the list

Settings and Tools

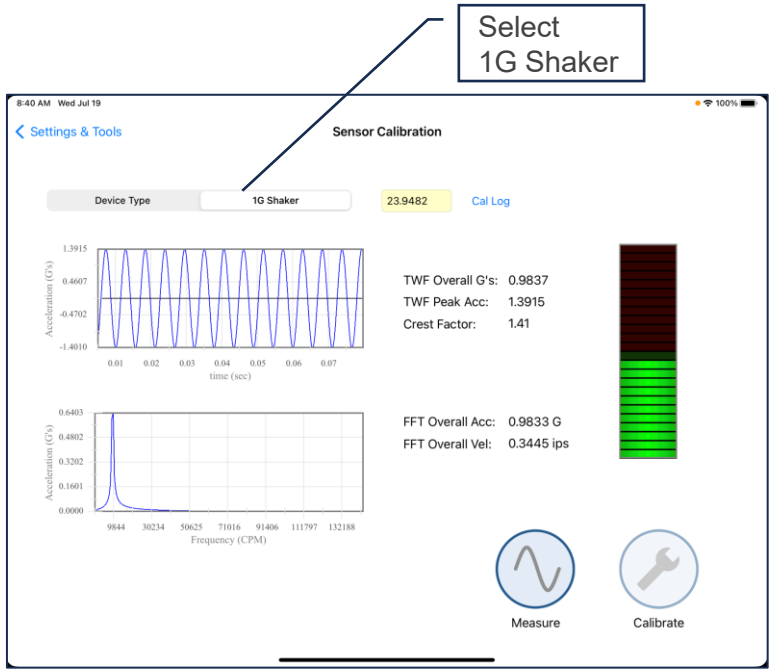
Calibration

Tap on the “Calibration” button to open the sensor calibration window. There are two ways to calibrate your sensor.

To perform calibration with the default device types, select the “Device Type” option from the selector, and pick the type of device and sensibility of the accelerometer from the selectors. Tap on the “Calibrate” button to complete calibration.



To calibrate using a 1g calibrated shaker, select the “1G shaker” option from the selector, mount the sensor on the shaker, connect the accelerometer to CH1 and turn on the shaker and sensor. Tap on the “Measure” button and wait for the signal to show, then tap on the “Calibrate” button.

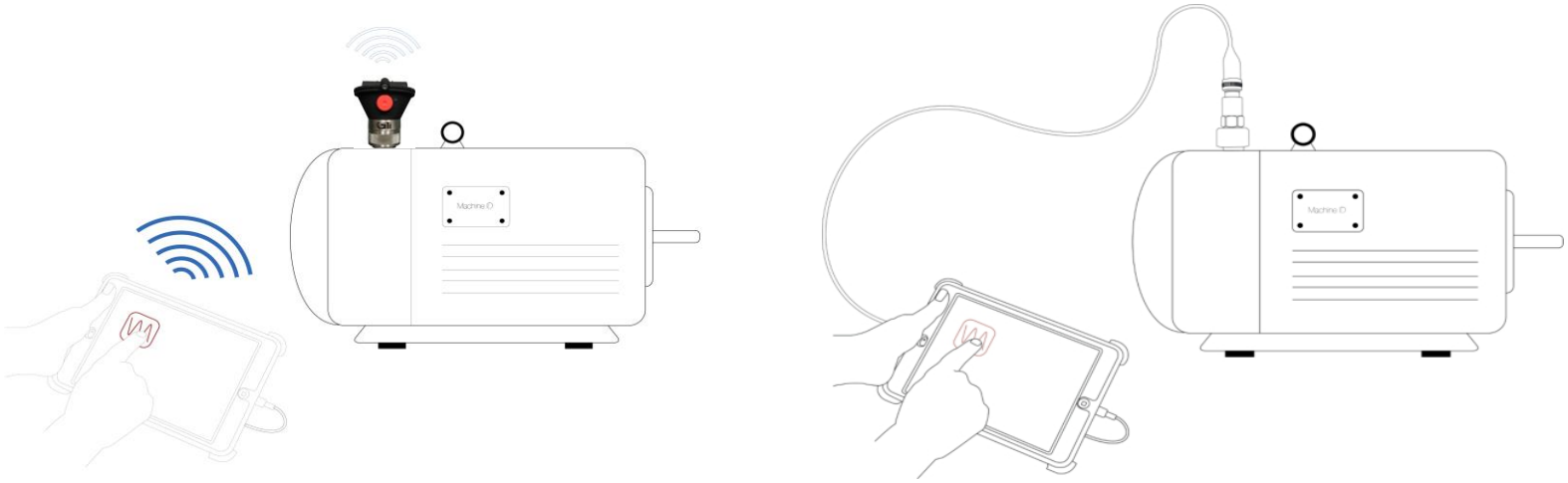


Single Measurement

Operation

The single measurement option is specially designed to perform a one-time vibration analysis, generate a PDF report, save it locally in the iPad or email it. Before doing a vibration analysis with VibePro, it is important that the next steps have been followed:

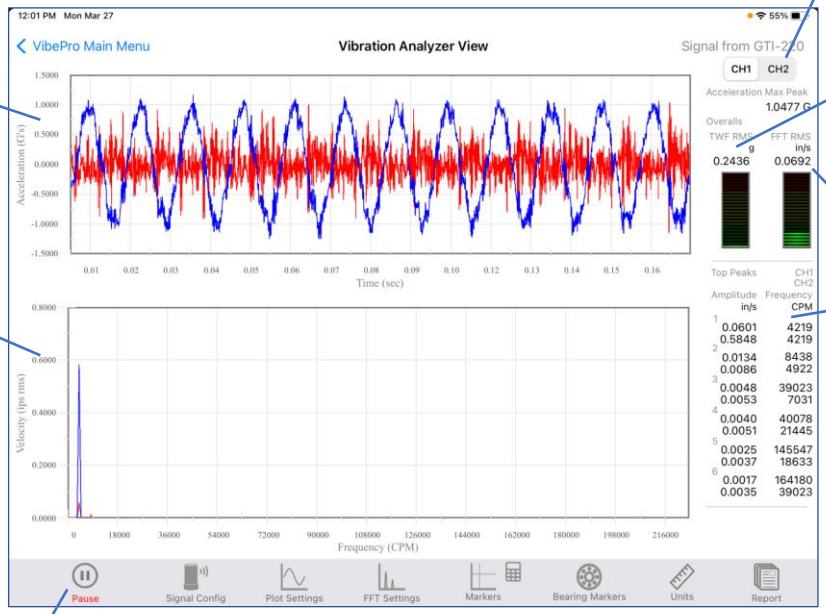
- The DAQ is connected to the iPad dock port.
- The Wired sensor is connected to the DAQ, or the Wireless sensor is ON.
- The sensor is firmly attached to the machine.



Single Measurement

Vibration Analyzer View

The Single-Measurement view provides an easy user interface to analyze vibration.



Channel switch for Overalls indicators

Time Waveform (TWF) plot

TWF Overall value indicator

FFT Overall value indicator

Frequency Spectrum (FFT) plot

List of top spectrum peaks

Run – Pause Button
Starts and stops live data updates

Single Measurement

Data Acquisition Configuration

Fmax Selector
Determines the analysis bandwidth

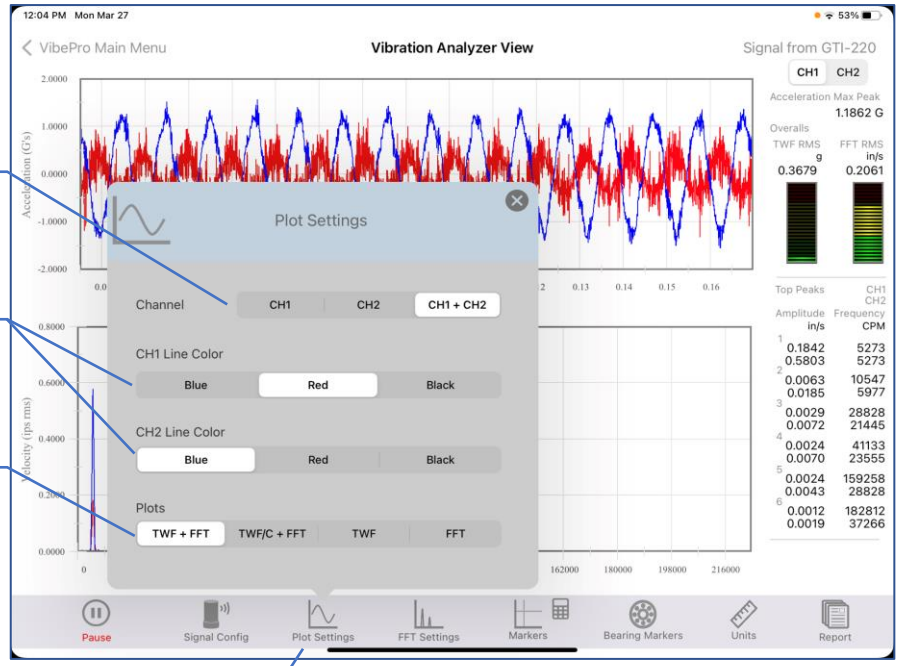
Lines of Resolution (LOR) Selector

Data acquisition parameters computed based on Fmax and LOR selections

Data Acquisition Configuration Button

Single Measurement

Plot Settings



Sensor Channel Selector

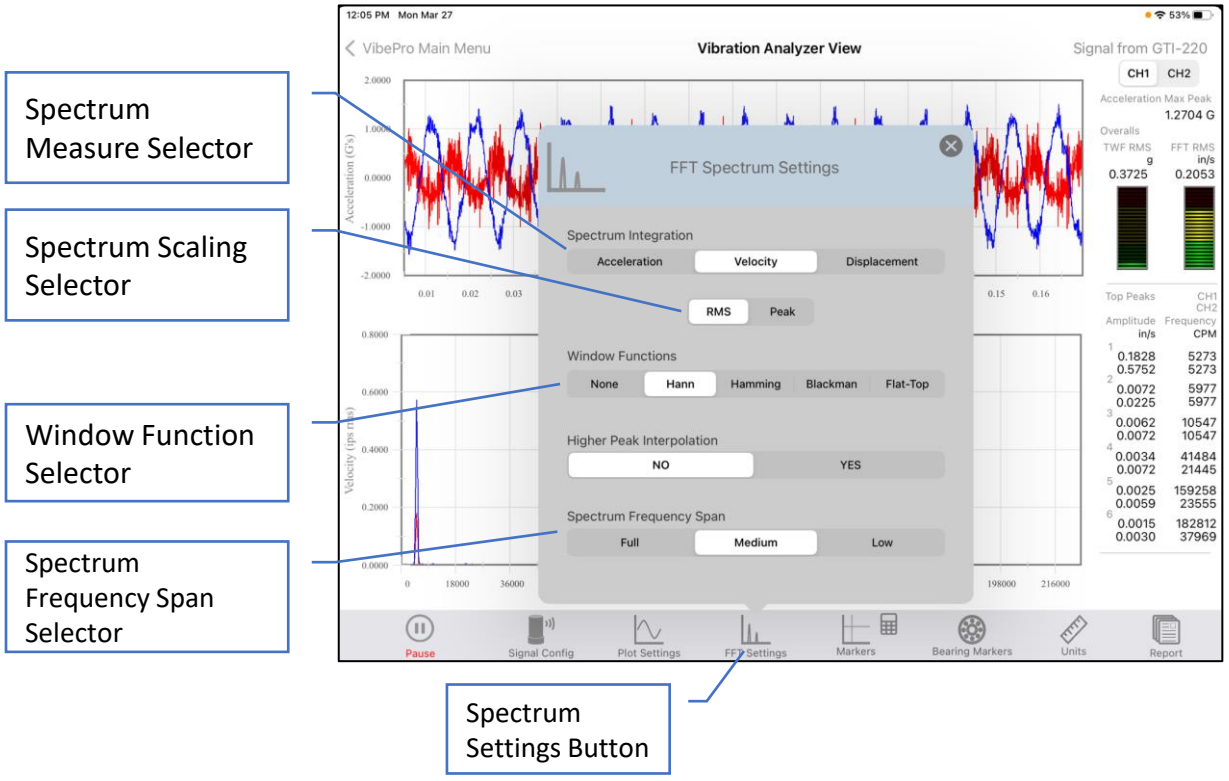
Line Color Selectors per Channel

Plot Type Selector

Plot Settings Button

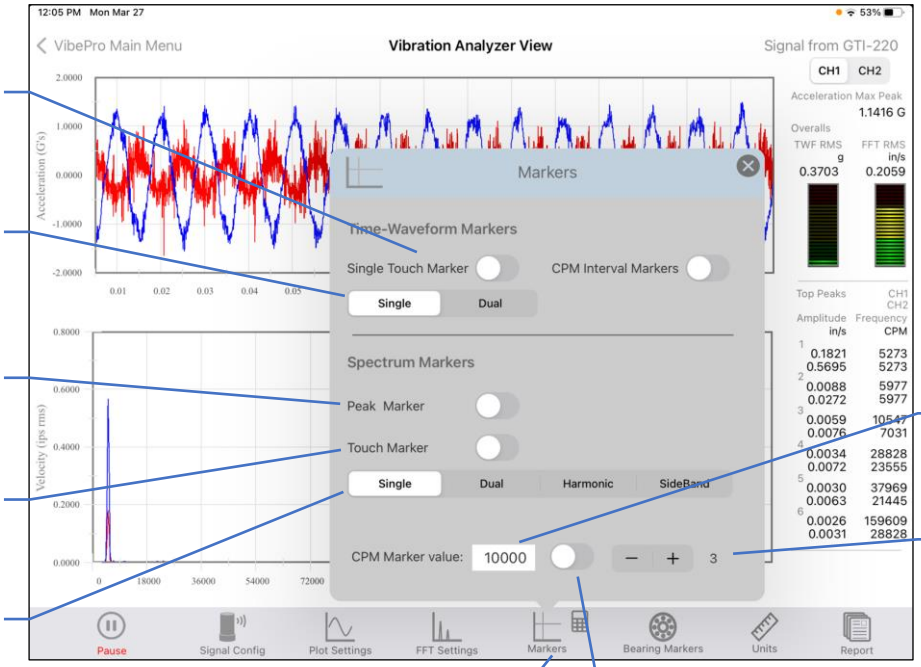
Single Measurement

Spectrum Settings



Single Measurement

General Markers



Time Waveform Marker Switches

Time Waveform Touch Marker type Selector

Peak Marker (Max value) Switch

Spectrum Touch Marker Switch

Time Waveform Touch Marker type Selector

Machine rotating speed entry field

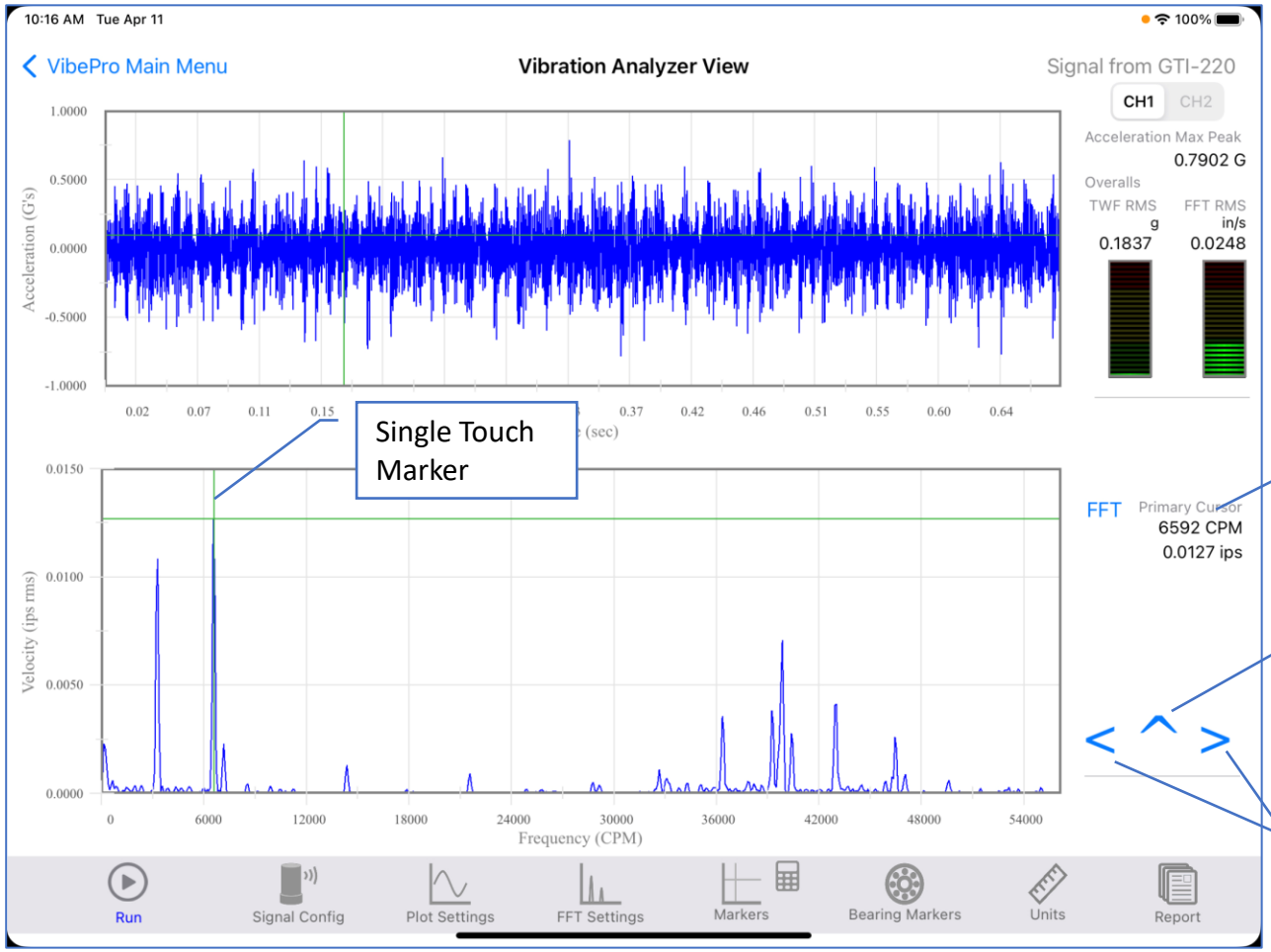
Number of speed frequency harmonics to display

General Markers Settings Button

Rotating speed frequency Marker Switch

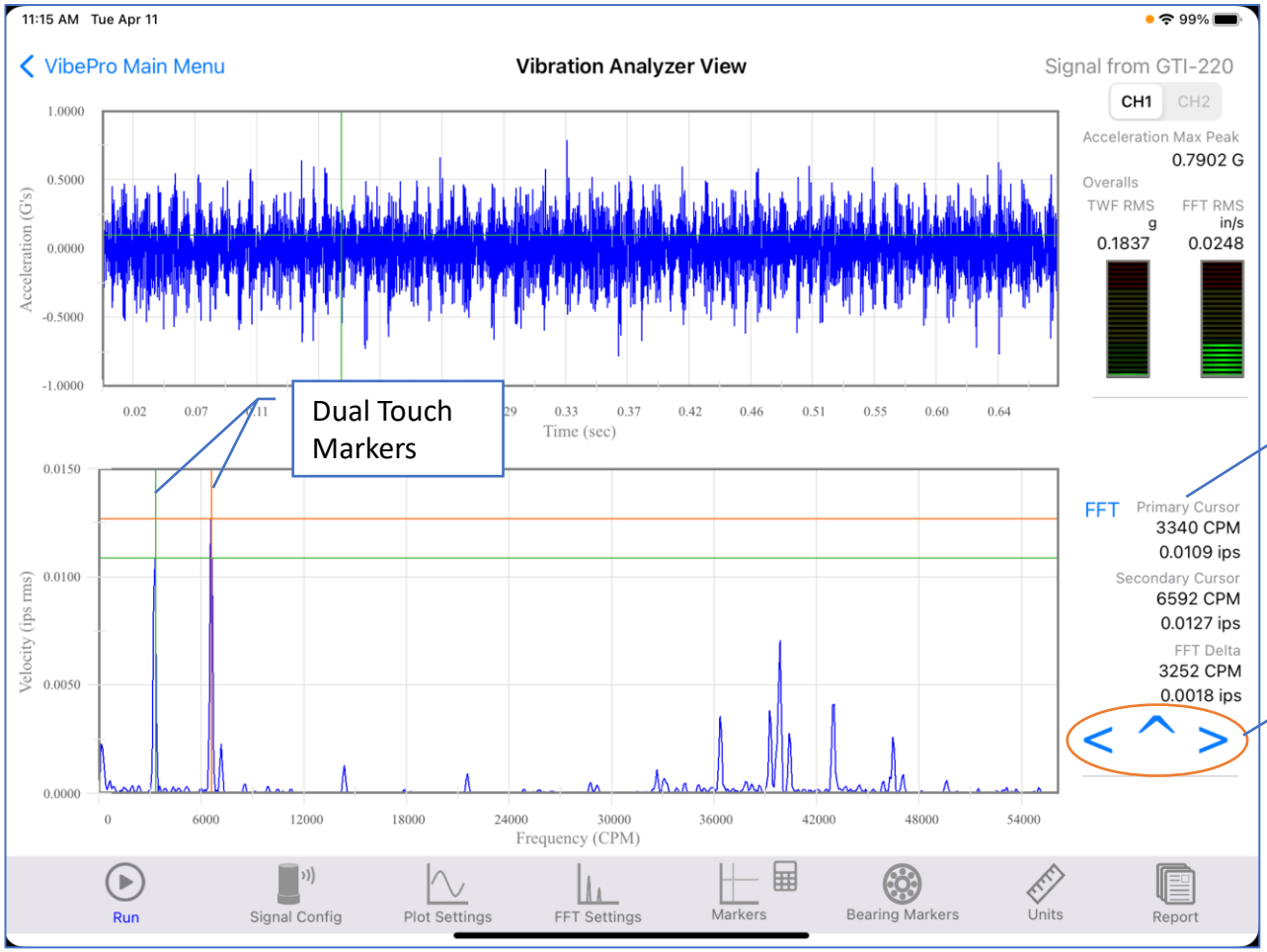
Single Measurement

General Markers: Single



Single Measurement

General Markers: Dual

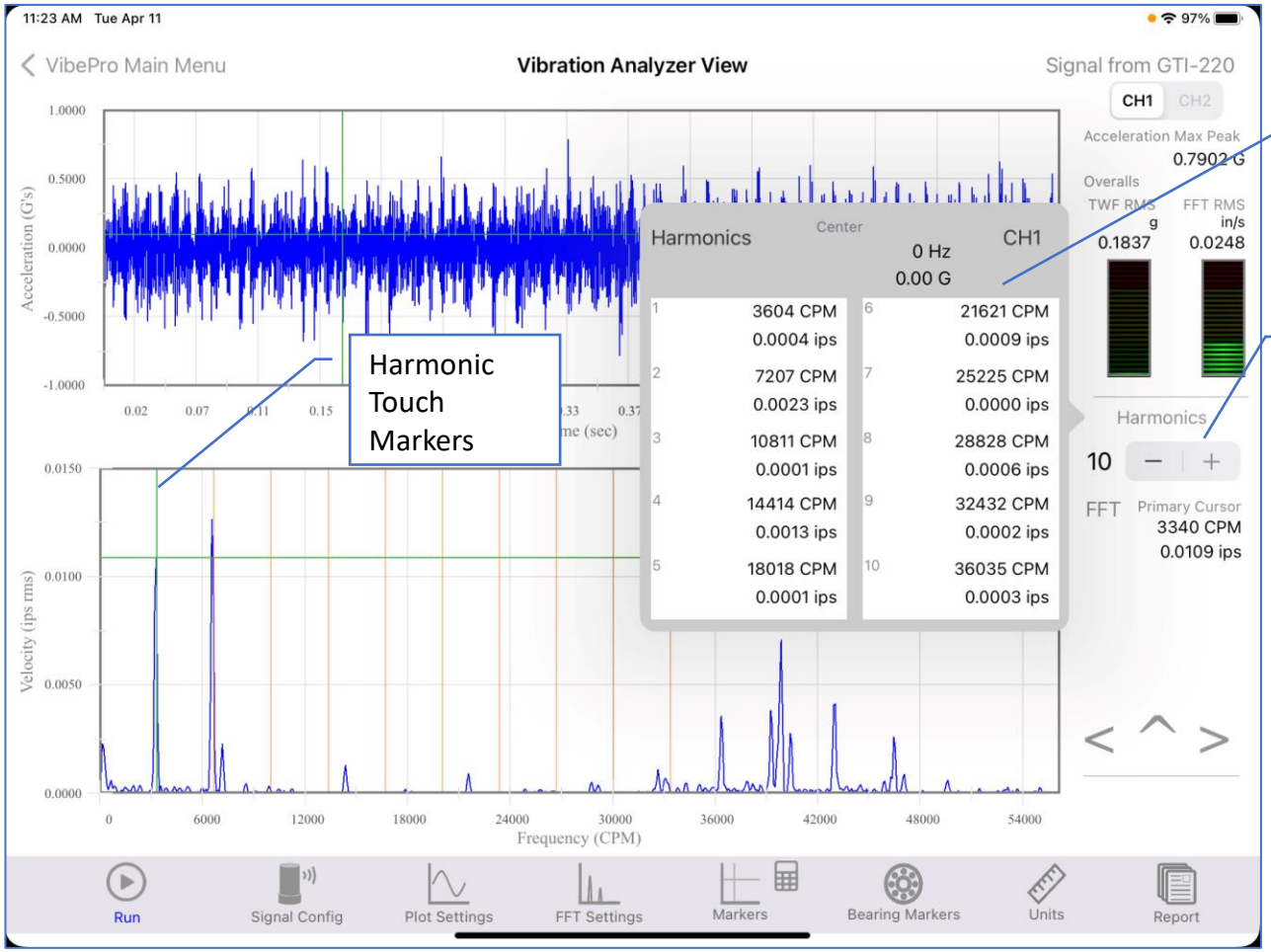


Dual Touch Marker values

Dual Touch Marker fine adjustment buttons for active marker (last touched)

Single Measurement

General Markers: Harmonic

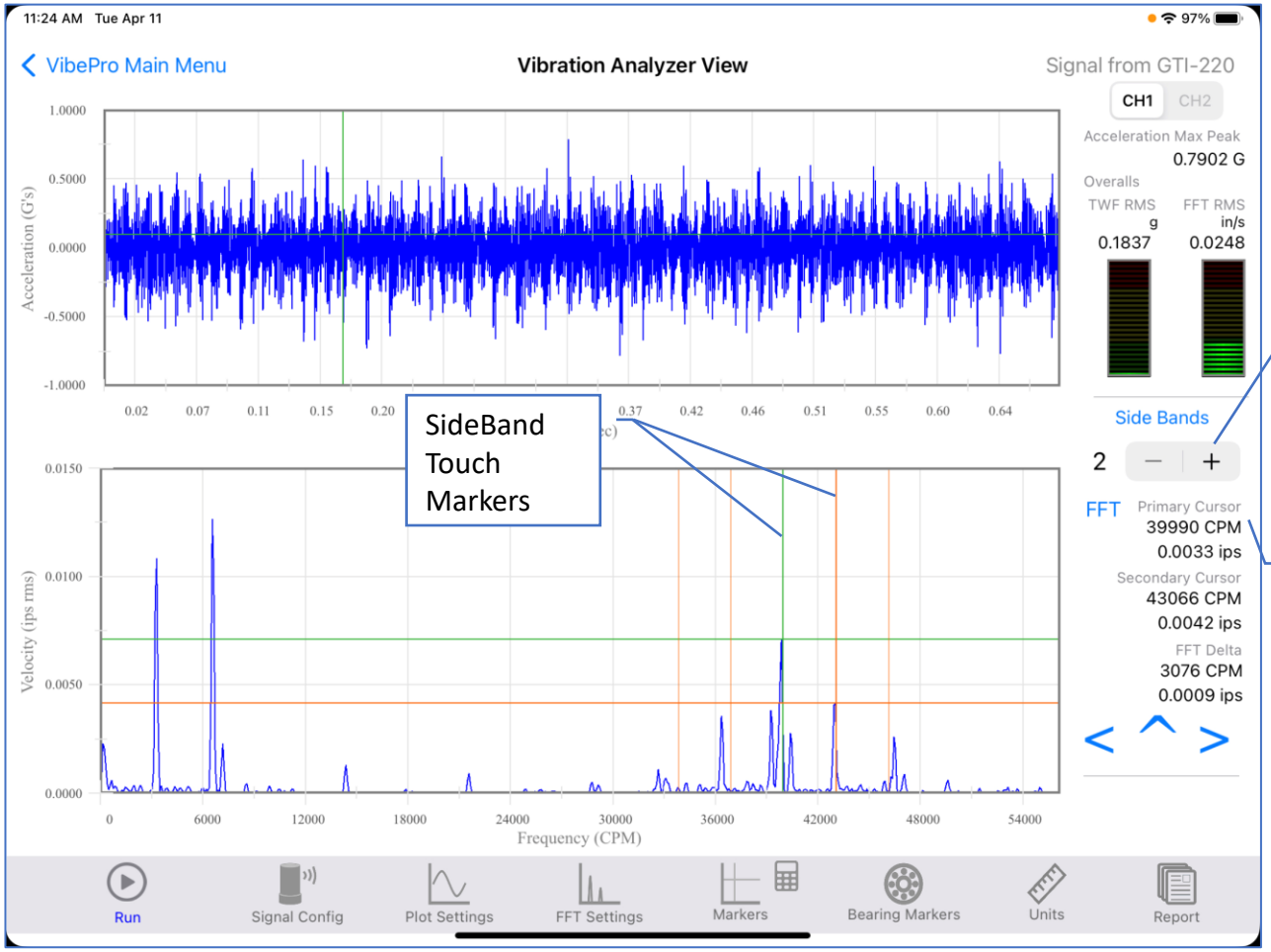


Harmonic Touch Marker values

Selector for the number of Harmonics to display (10 max)

Single Measurement

General Markers: SideBand

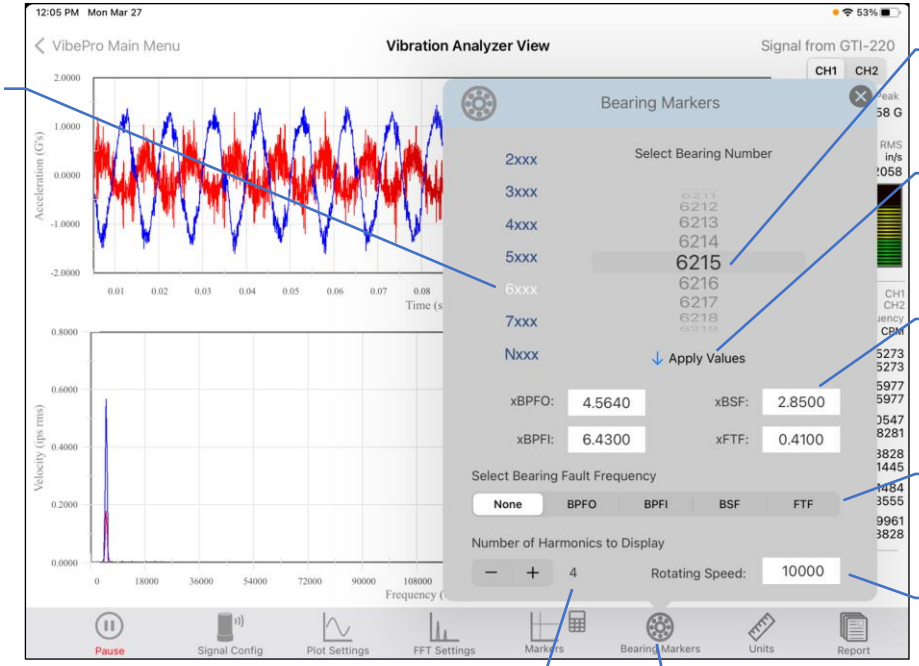


Selector for the number of Side Bands to display (per side, 5 max)

Side Band Touch Marker values for Primary (green) and Secondary (bright orange) lines

Single Measurement

Bearing Markers



Select the bearing series

Bearing model Selector

Touch to apply bearing frequency multipliers

Bearing frequency multipliers manual entry fields

Bearing frequencies to display Selector

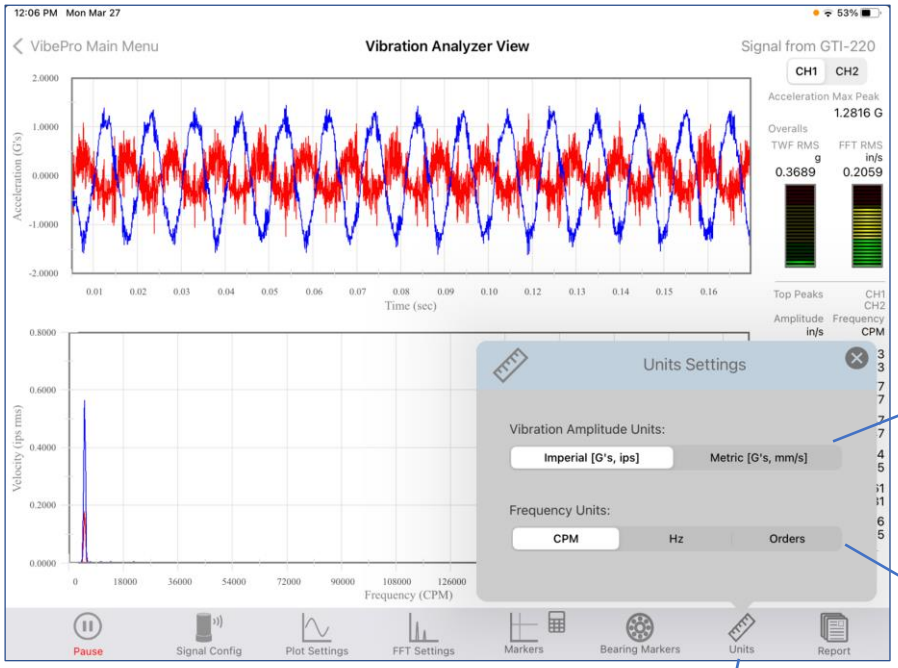
Machine rotating speed entry field

Number of bearing frequency harmonics to display

Bearing Markers Settings Button

Single Measurement

Units



Units of Measure System Selector

Frequency units Selector

Units of Measure Settings Button

Single Measurement

Report

Tap to sign the report

Enter Company, Machine ID,and Technician Name

Enter Notes (optional)

Add a picture to the report from camera or file

Report preview

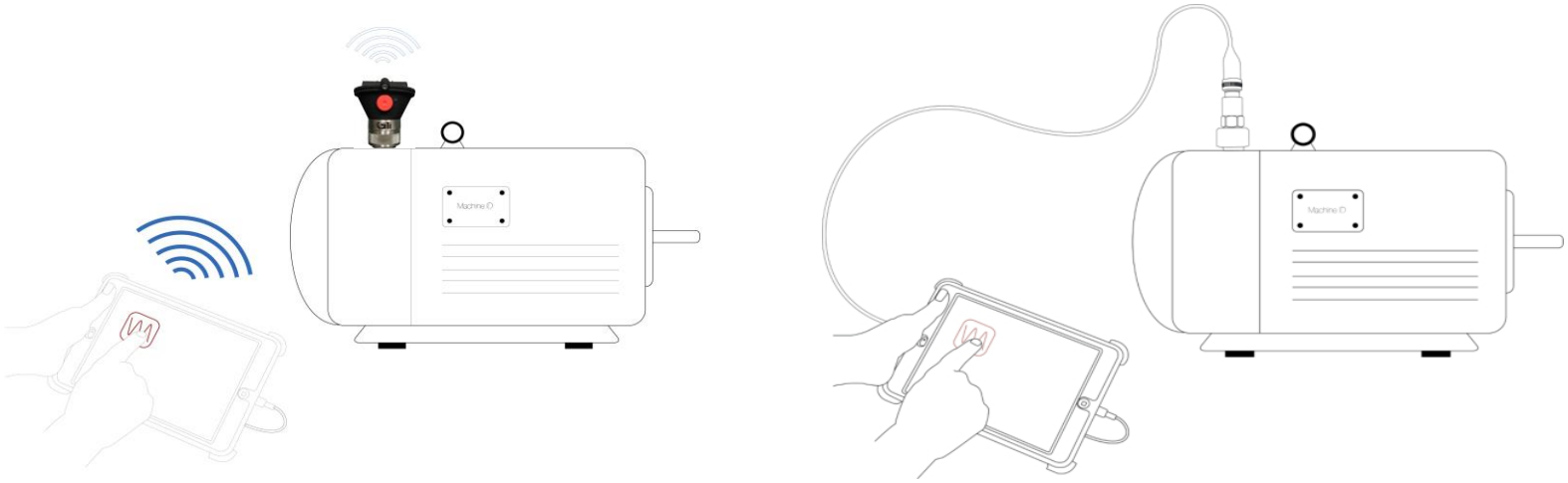
Print, email, save, or upload report to VibePro cloud

Hierarchy Measurement

Operation

Before doing a vibration analysis with VibePro, it is important that the next steps have been followed:

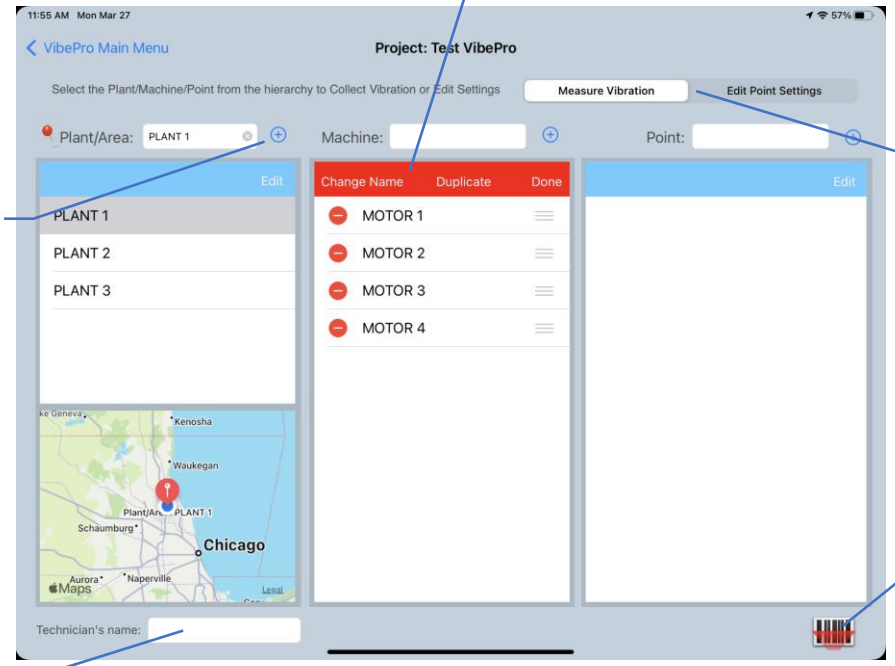
- The DAQ is connected to the iPad dock port.
- The Wired sensor is connected to the DAQ, or the Wireless sensor is ON.
- The sensor is firmly attached to the machine.



Hierarchy Measurement

Creating a Hierarchy

Edit, clone, or delete items in the list by activating the Edit mode



Enter the plant name and tap the + button to add it to the database. Use the same process for machines and points

Toggle between two modes for Points: Measure Vibration and Edit Point Settings

Enter the technician's name in this field

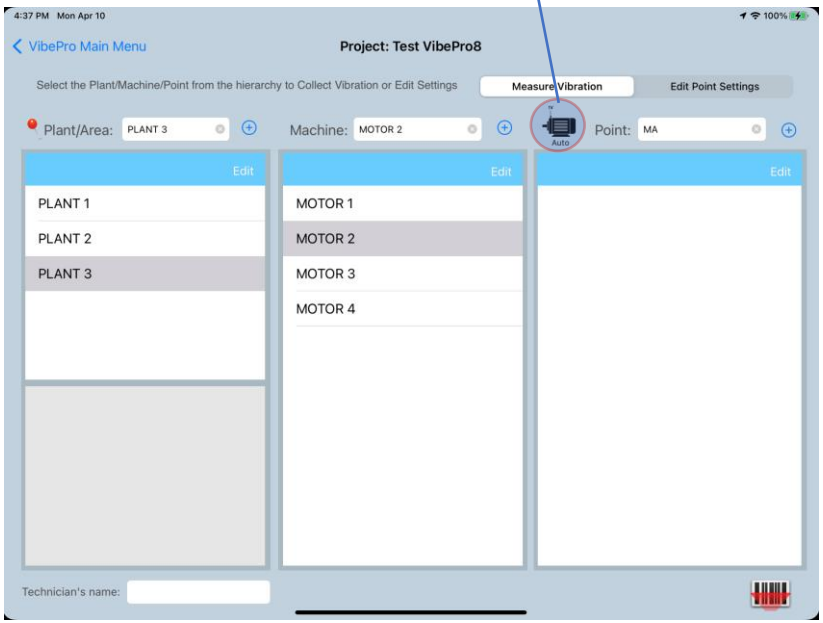
Scan QR code in the web app or on the Machine to jump to the selected machine in the hierarchy

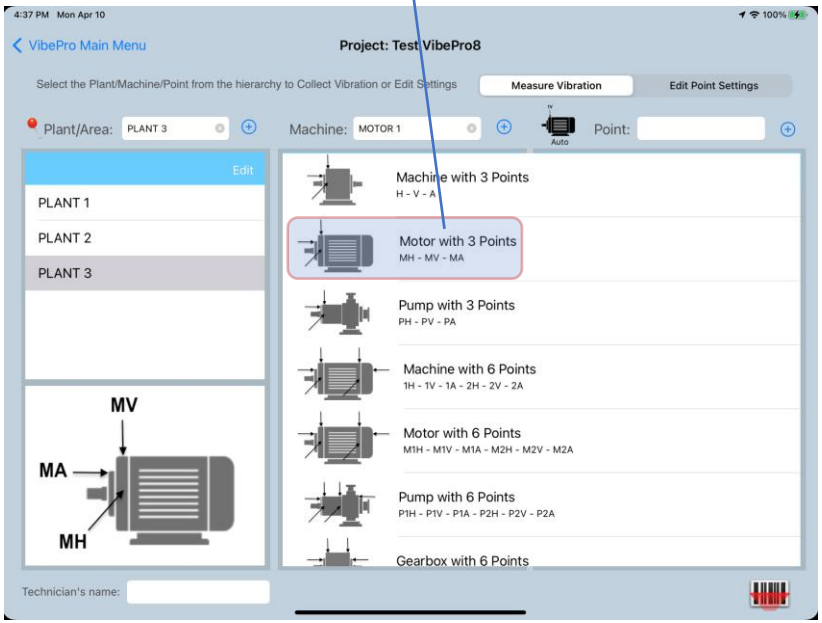
Hierarchy Measurement

Creating a Hierarchy

To quickly add asset of predefined measurement Points to a machine, tap on the Machine Library button.

A list of different machine configurations will appear. Tap on the selected option and the Points will be generated automatically.

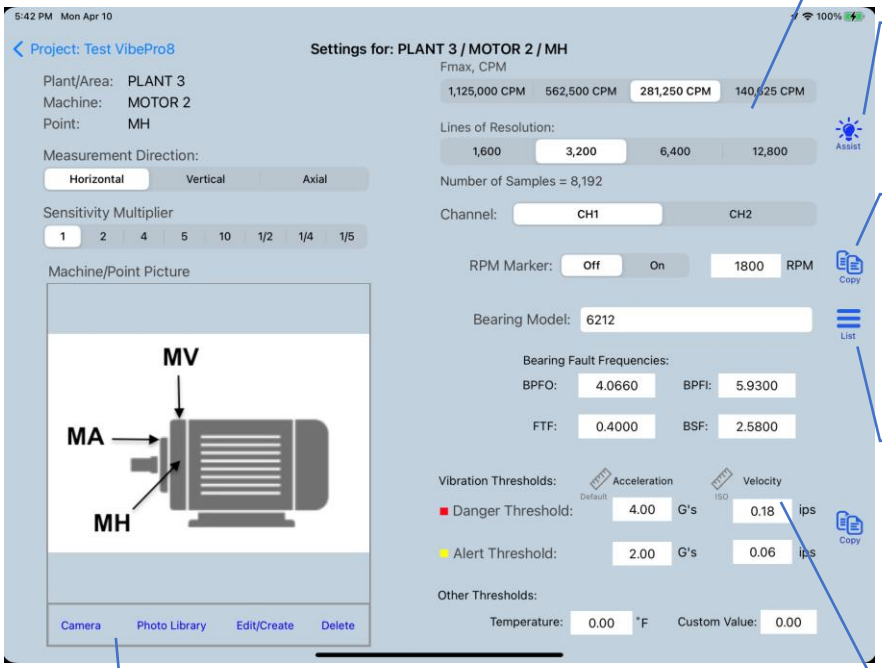




Hierarchy Measurement

Creating a Hierarchy

The Point Settings View will customize the measurement parameters for each hierarchy Point.



Select the Spectrum Fmax and the Lines of Resolution, which will define the data acquisition sampling rate and number of samples.

Tap the Assist button to select a predefined combination for the most common machines.

Enter the machine RPM; selecting the "ON" option will turn on the RPM marker in the spectrum. Tap on the "Copy" button to copy this value to all the points of this machine.

Tap on the Bearing List button to display a list of bearing models. Select one model to populate the bearing fault frequencies fields. Alternatively, the fault frequencies values can be typed in each field.

Alert and Danger thresholds can be entered for this measurement point or automatically selected from the ISO-10816 Standard. The ISO-10816 chart will appear by tapping on the ISO button.

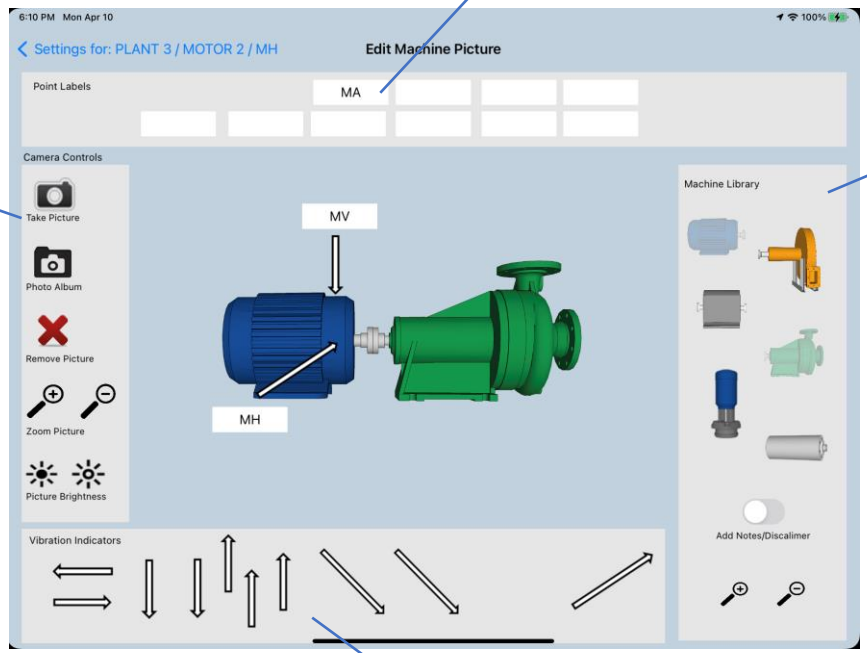
A picture of the machine from the camera or library can be saved at this point. This picture will be the same for all Points of this machine.

Hierarchy Measurement

Creating a Hierarchy

To edit or create a machine picture, tap on the “Edit/Create” button below the picture in the Point Settings View. A new view will display.

Drag the point labels to each position. The labels are auto-generated for the points created in the hierarchy.



Add pictures from the camera or photo library into the working area.

Generic machine images can be added from the right panel.

Drag and drop the arrows from the bottom panel to indicate the direction of vibration measurement.

Hierarchy Measurement

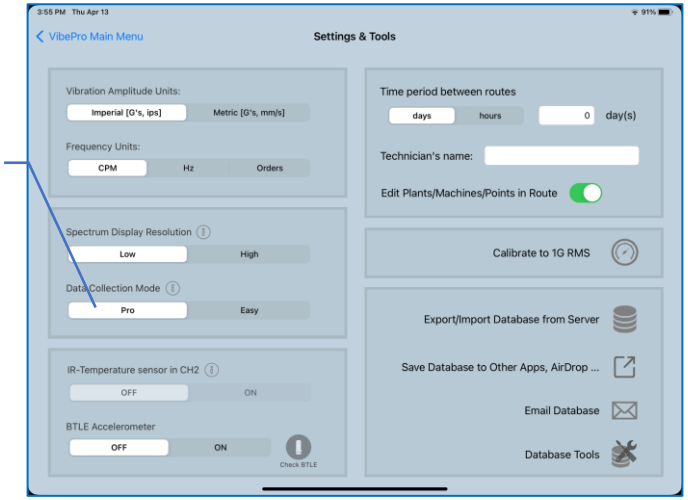
Collecting Data

There are two different User Interfaces to Collect Vibration Data:

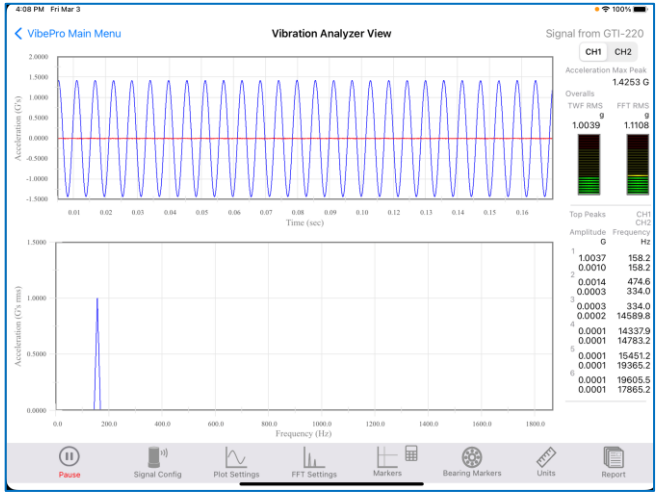
1. Pro Mode: With the option to display the Time Waveform and the Spectrum, so the user can perform an analysis while collecting data.

2. Easy Mode: It's a simple User Interface with Vibration Level Bars and the option to see the point vibration trend and machine picture. This option also allows to add observation notes to the measurement.

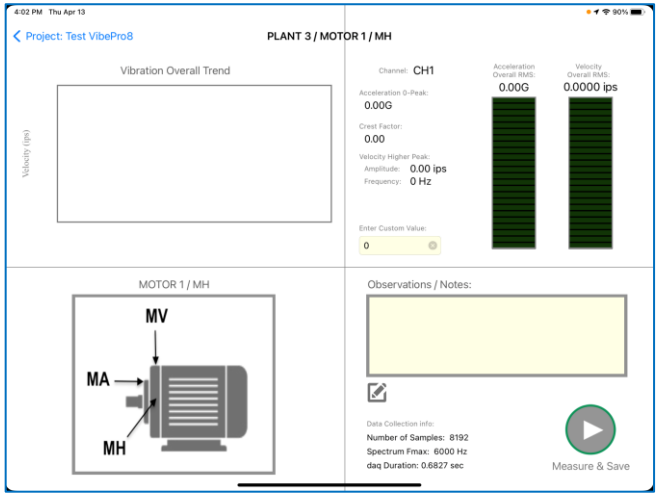
The type of Data Collection View can be selected in the General Settings Screen in the "Data Collection Mode".



1

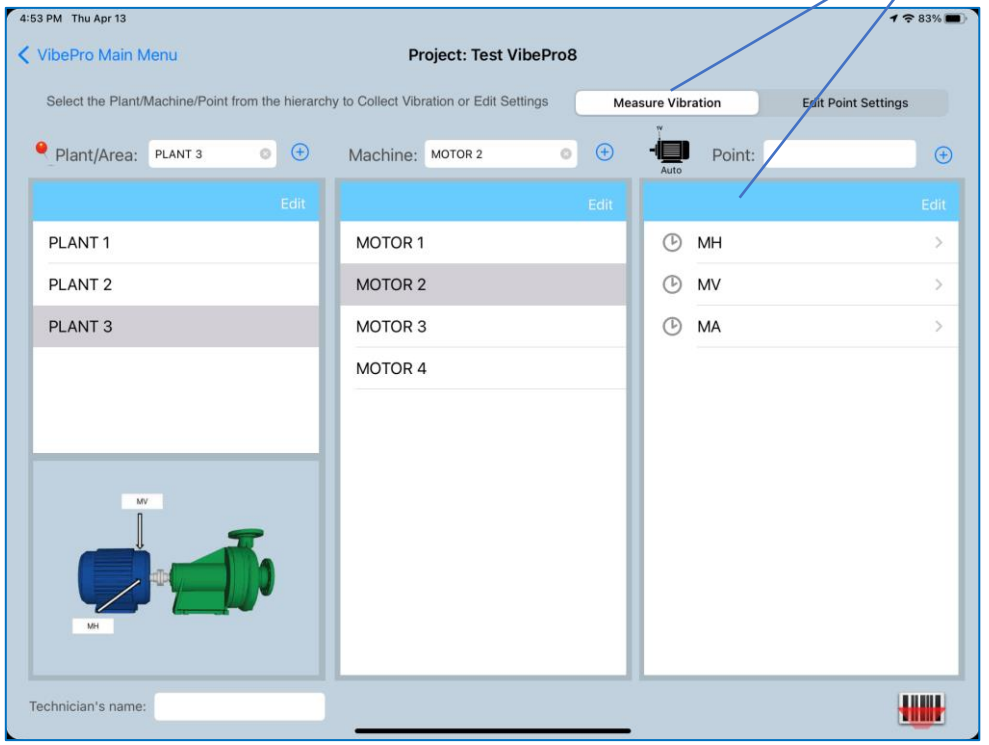


2



Hierarchy Measurement

Collecting Data

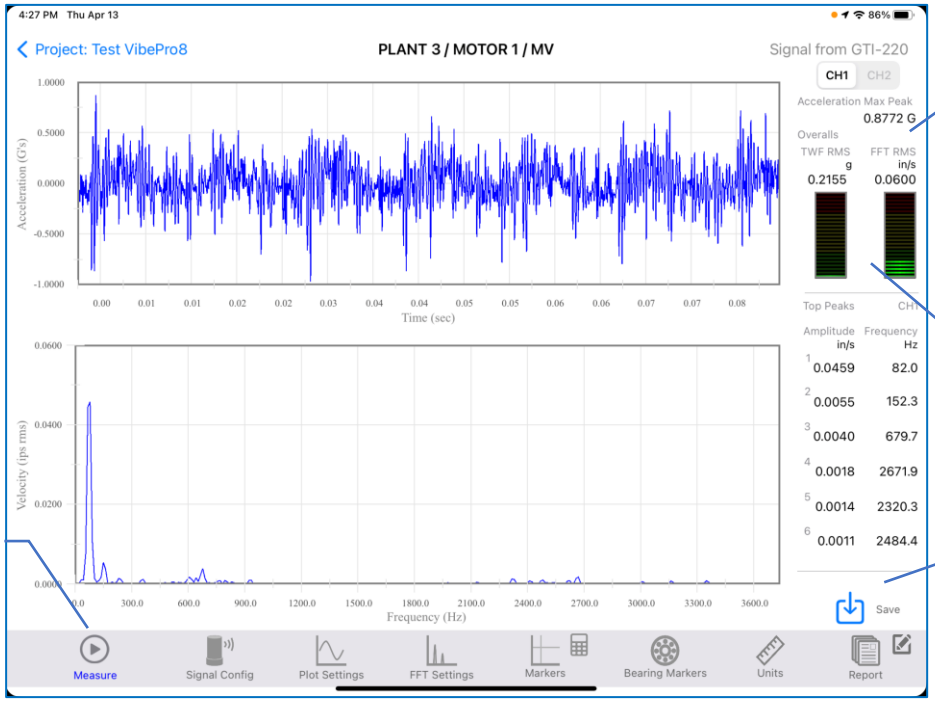


Once the settings for a point are saved, vibration measurement can be performed by selecting the Collect Vibration Data option and by tapping on the desired point in the table.

Hierarchy Measurement

Collecting Data (Pro Mode)

When in Pro Mode, the spectrum view will pop-up with the settings selected for this point, and a reading will be taken from the accelerometer. The name of the plant/machine/point will be shown in the top navigation bar.



To take a new reading tap on the “Measure” button

Important data, such as Overall vibration and the high peak amplitudes and frequencies are shown on the right panel

The level meters show the Overall RMS against the thresholds selected for each point

To save a measurement, tap on the “Save” button, a new measurement will be added to the Point.

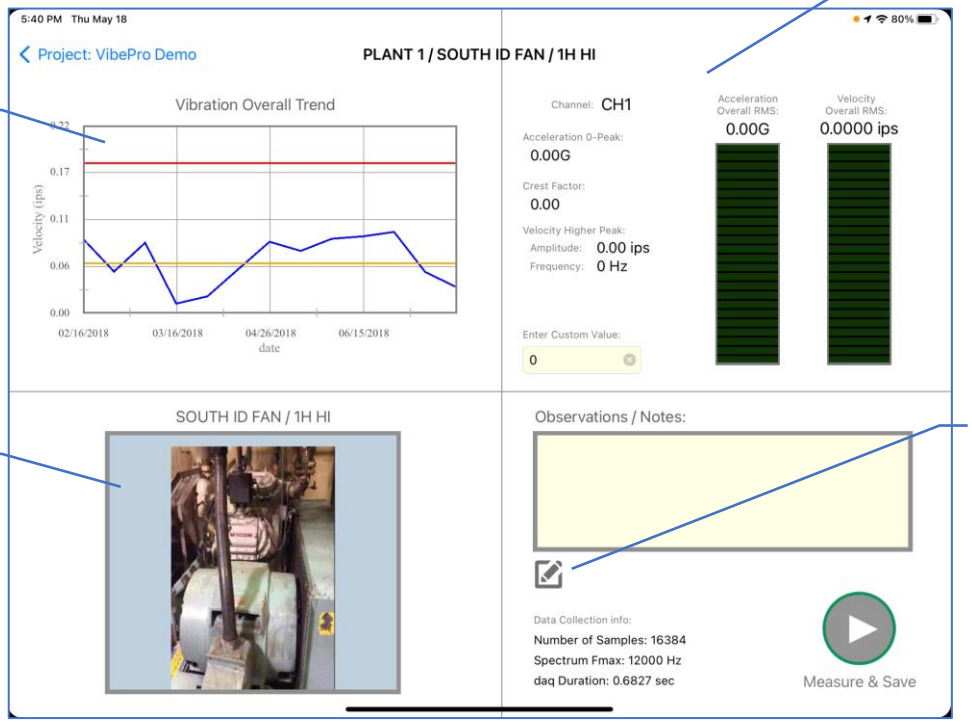
Hierarchy Measurement

Collecting Data (Easy Mode)

Basic Data Collection Mode view allows to take a reading with a single tap on the “Measure & Save” Button, the view is divided into four sections.

Historic vibration Trend plot shows up to 12 points of collected vibration overall values along with alarm (yellow) and danger (red) thresholds.

Machine picture helps the technician to locate the measuring point. The label above shows the machine and point name



Vibration data. After taking a measurement, the following values are shown: Acceleration Overall RMS, Velocity Overall RMS, Acceleration 0-Peak, Crest Factor and Velocity Higher Peak. Two level meters display the Overalls with colored bars

A user can enter observation notes before taking a reading. The observations button produces a view where the user can select from different predefined observation notes or type their own.

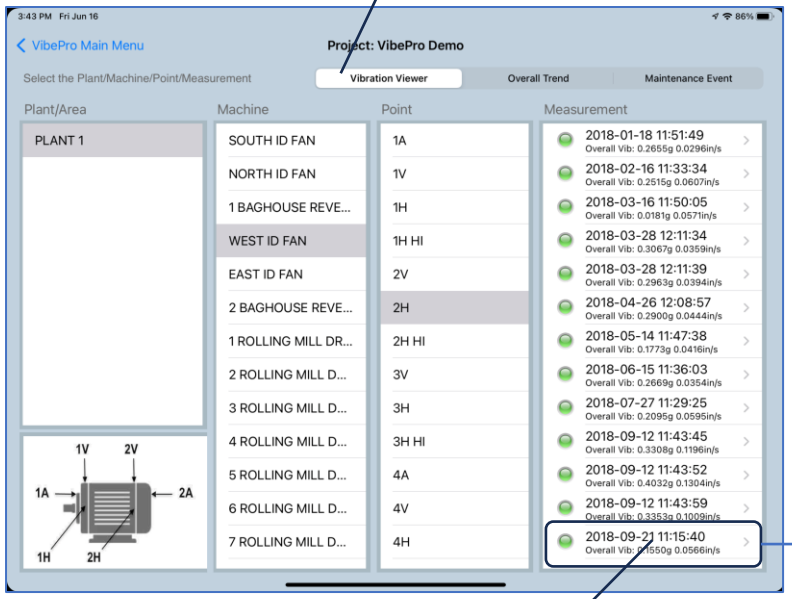
Route Viewer & Trends

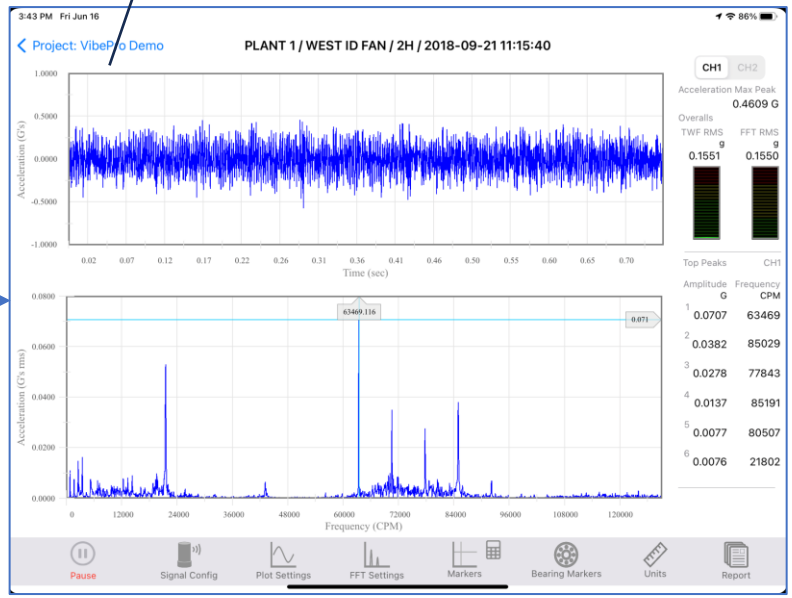
Viewing Measurements

Tap on the Viewer & Trends button in the Main Menu to open the viewer.

To view saved data sets, select the Vibration Viewer option

The time waveform and spectrum are interactive and can be rescaled, zoomed and various markers can be added (refer to the Single Measurement section for more information).





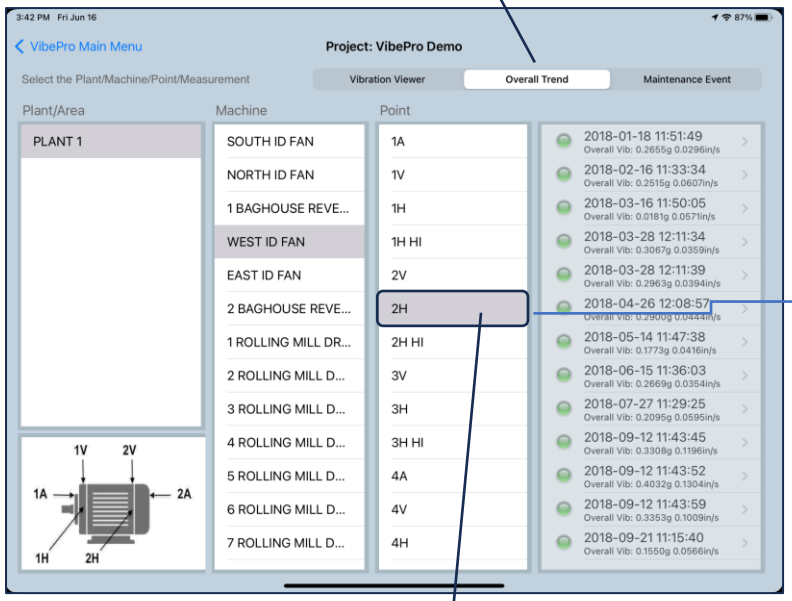
Select a measurement to open a plot view with the saved data

Route Viewer & Trends

Viewing Trends

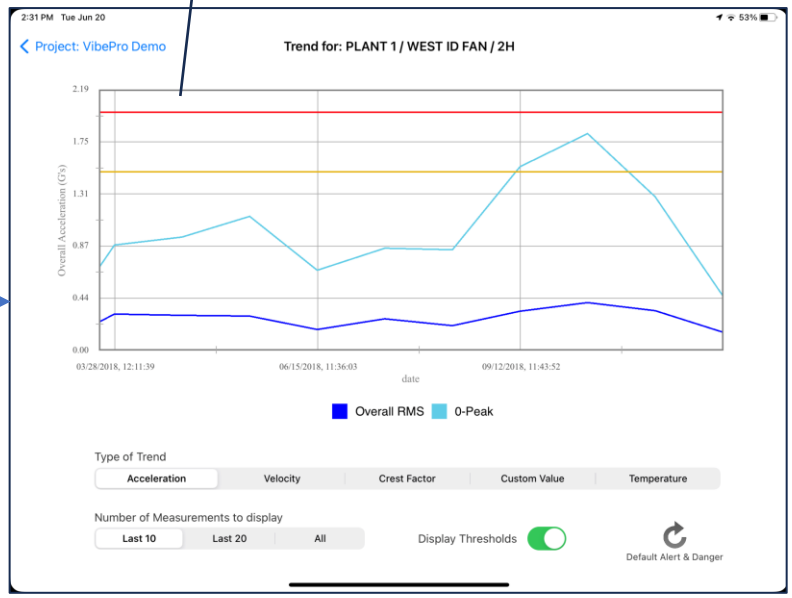
Tap on the Viewer & Trends button in the Main Menu to open the viewer.

To view data trends per point, select the Overall Trend option



Select a Point to open a trend view with the saved data

Trends can be displayed in terms of Acceleration (RMS and Peak), Velocity RMS, or Crest Factor values. The threshold lines can be displayed for Alert (yellow) and Danger (red) levels.

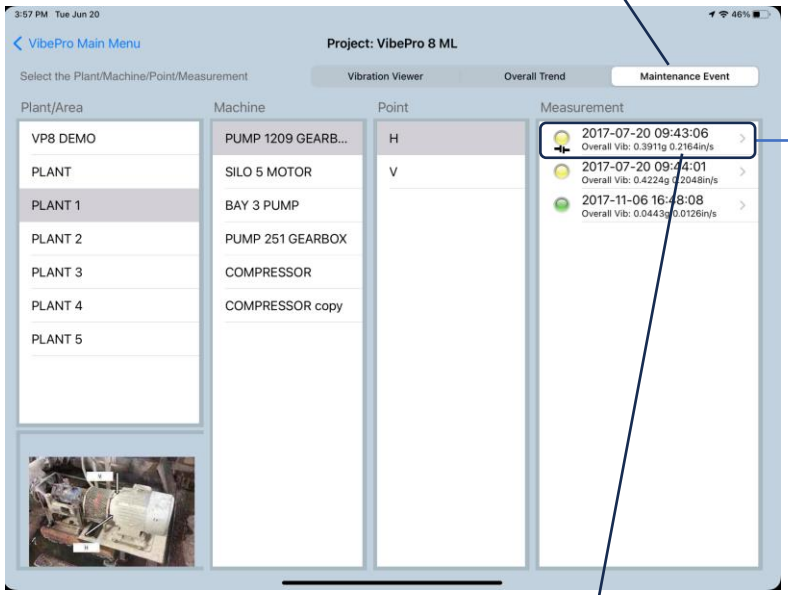


Route Viewer & Trends

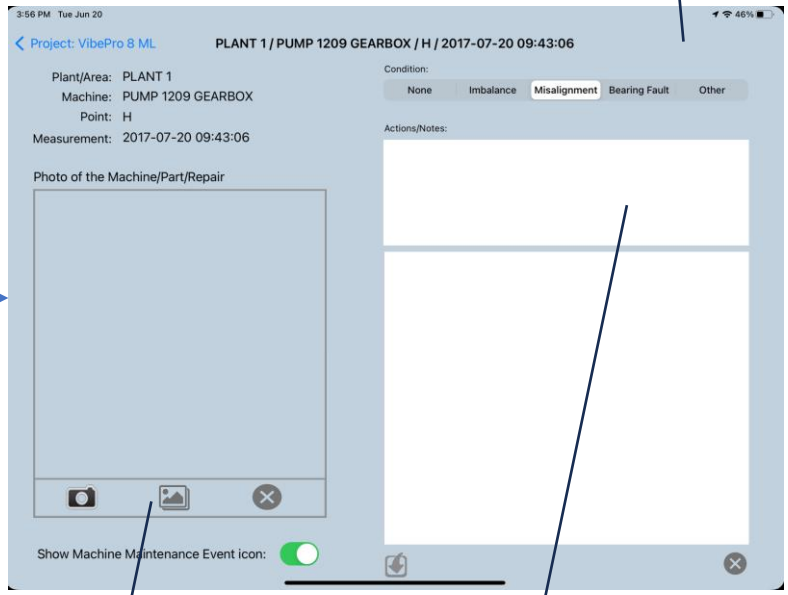
Maintenance Event

Tap on the Viewer & Trends button in the Main Menu to open the viewer.

To create or view a repair/maintenance event, select the Maintenance Event option



The Maintenance Event view shows information about the fault and/or the maintenance action taken to date.



Select a Measurement to open a Maintenance Event view

Add a picture from the camera or library

Add notes or import a report from another app

Route Viewer & Trends

Web App

Using the VibePro Web App, a user can manage and view the data using any browser with a PC or Mac computer. Refer to Export data section to learn more about how to Import/Export data from VibePro.

Advanced Viewer

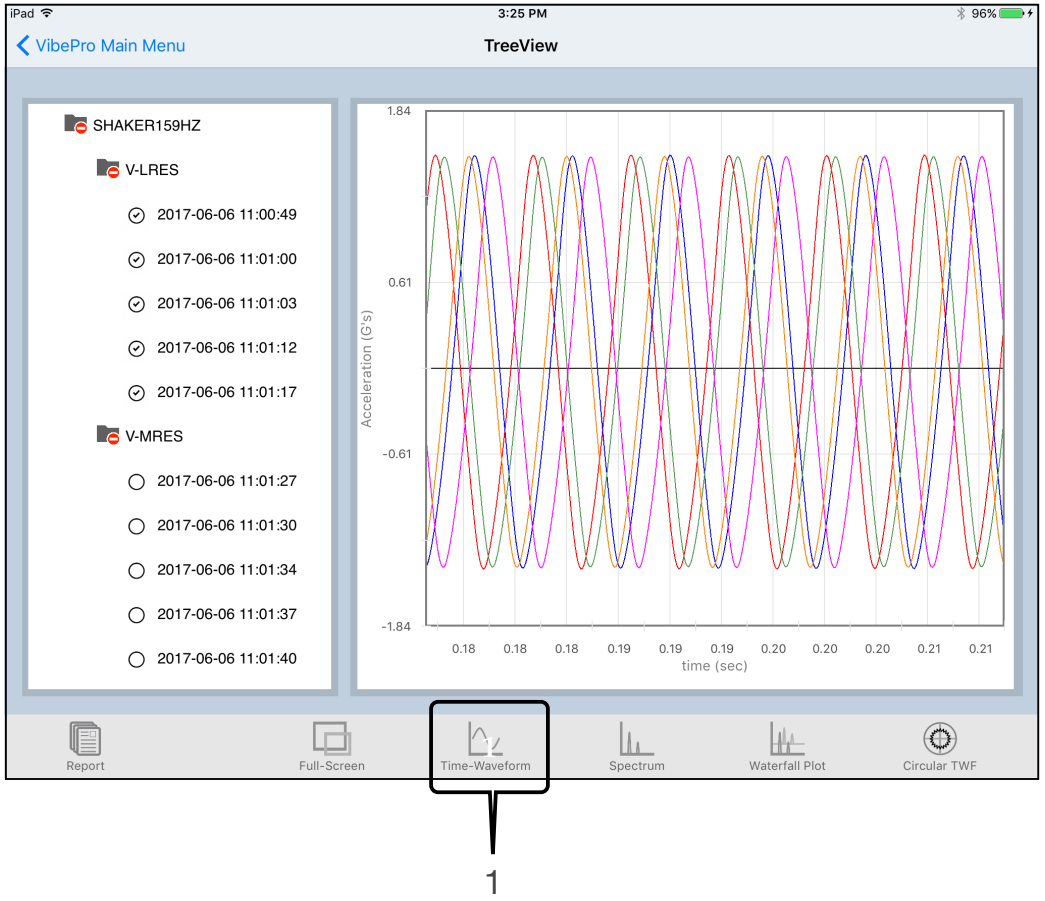
Multiple TWF

The advanced viewer allows to plot multiple measurements at the same time. Measurements must be of the same Sampling-Rate and Number-Of-Lines. The measurements can be from the same or from different Plants/Machines/Points.

Select the measurements to compare from the tree view on the left, and tap on the “Time-Waveform” button **(1)**.

To display the plot in full-screen tap on the “Full-Screen” button.

To access the report view, tap on the “Report button, this will import the actual plot to the report pdf.



Advanced Viewer

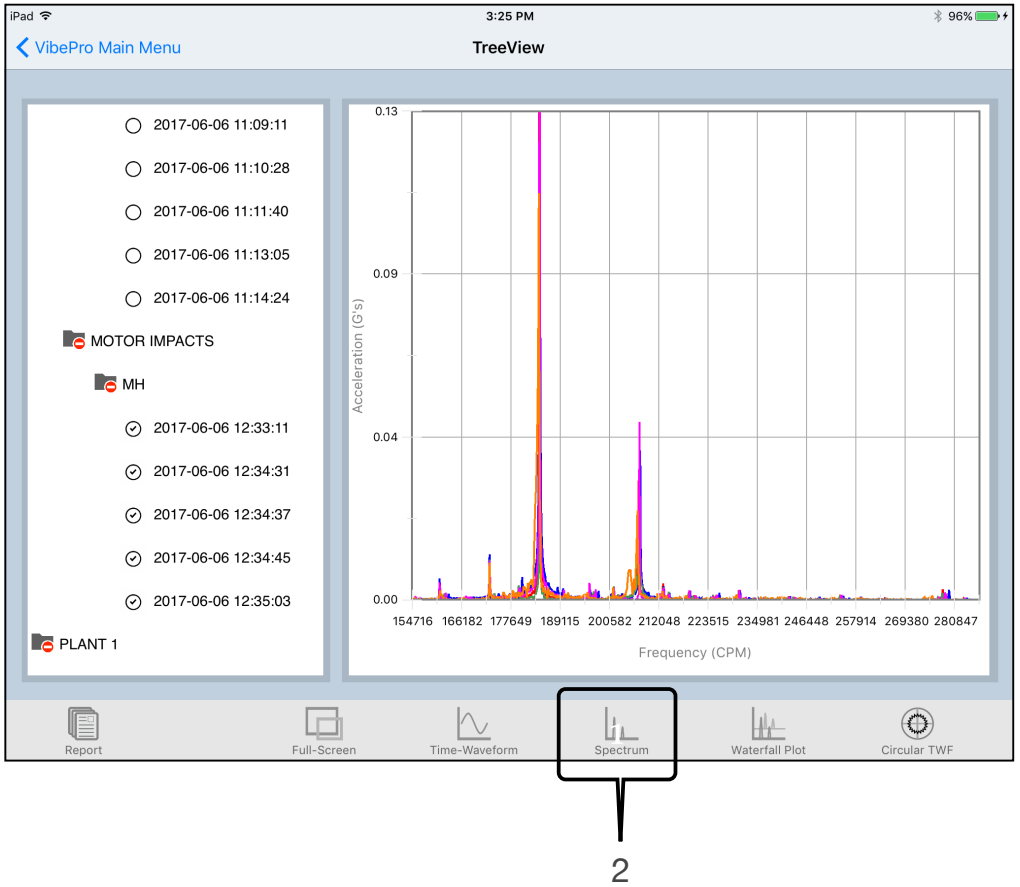
Multiple-Spectra

Select the measurements to compare from the tree view on the left, and tap on the “Spectrum” button **(2)**.

Selected measurements must be of the same Sampling-Rate and Number-Of-Lines. The measurements can be from the same or from different Plants/Machines/Points

To display the plot in full-screen tap on the “Full-Screen” button.

To access the report view, tap on the “Report button, this will import the actual plot to the report pdf.



Advanced Viewer

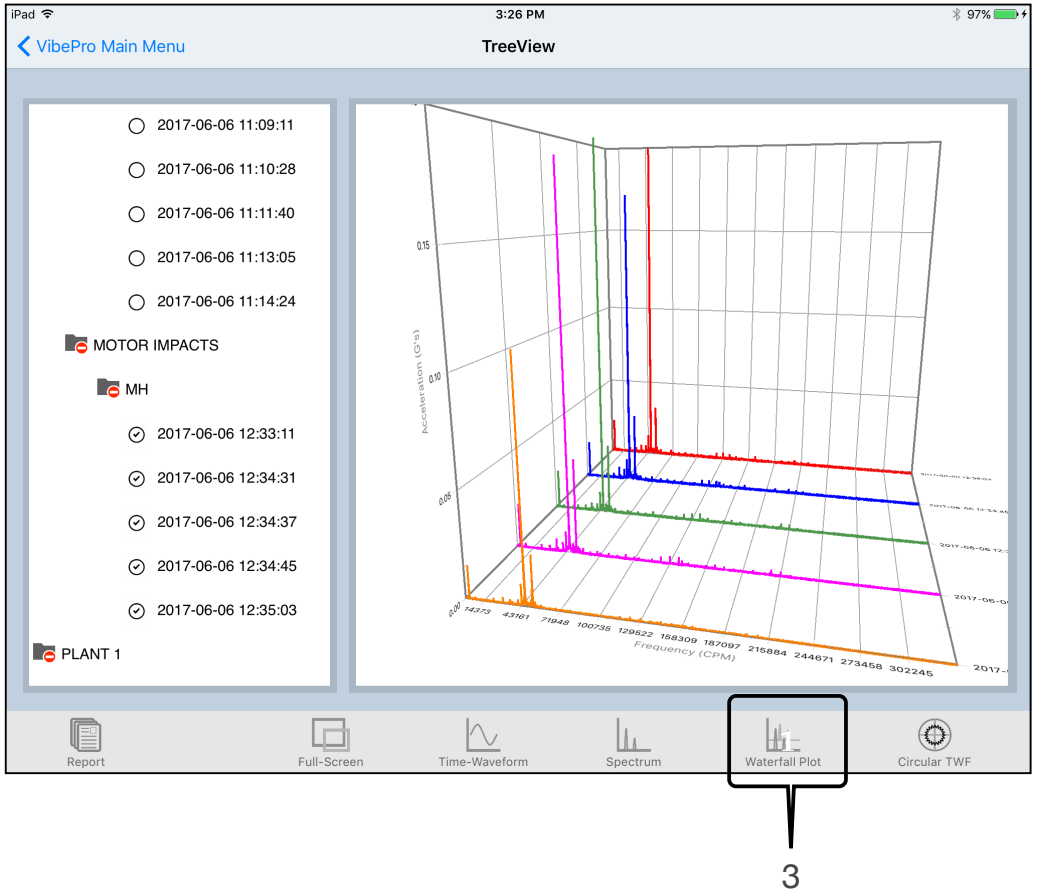
Waterfall-Plot

Select the measurements to plot from the tree view on the left, and tap on the “Waterfall Plot” button **(3)**.

Selected measurements must be of the same Sampling-Rate and Number-Of-Lines. The measurements can be from the same or from different Plants/Machines/Points

To display the plot in full-screen tap on the “Full-Screen” button.

To access the report view, tap on the “Report button, this will import the actual plot to the report pdf.



Advanced Viewer

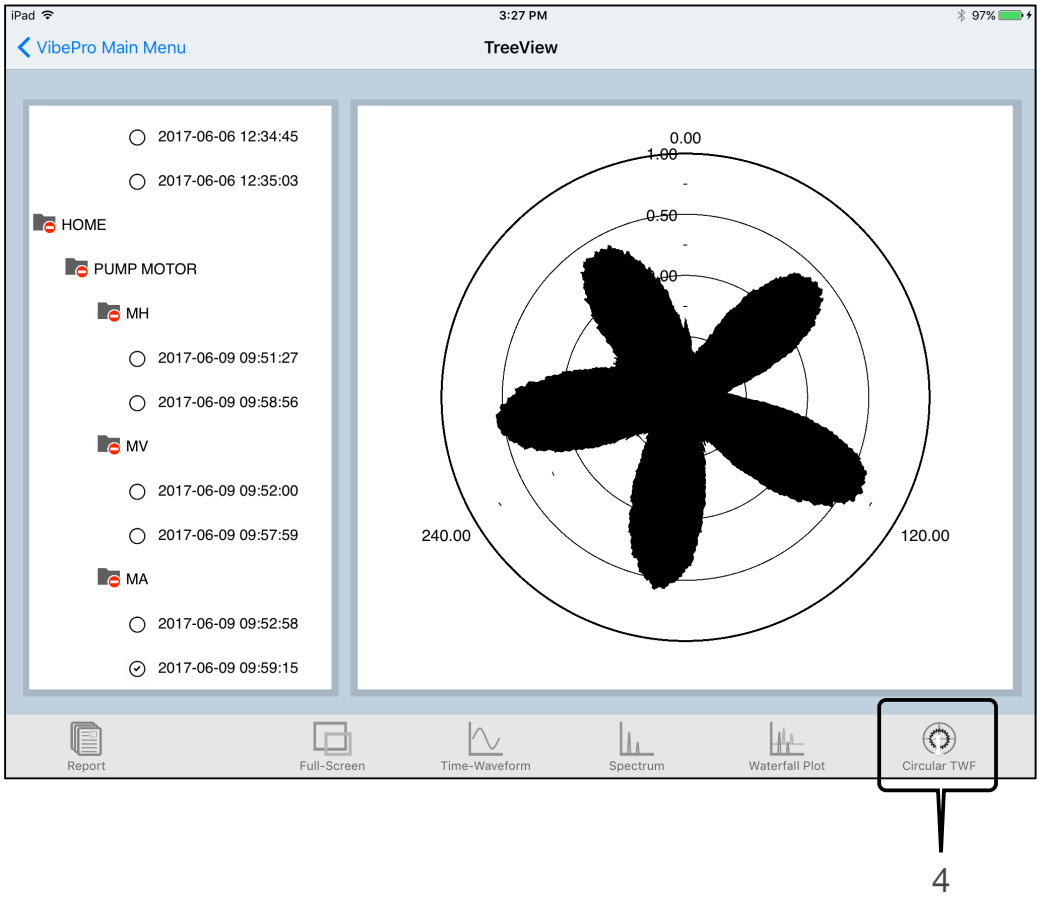
Circular TWF

Select **one** measurement to plot from the tree view on the left, and tap on the “Circular TWF” button **(4)**.

The plot will display one revolution of the measurement waveform data. This plot will display correctly only if the RPM value vas entered in the ”Edit Settings” section of the point.

To display the plot in full-screen tap on the “Full-Screen” button.

To access the report view, tap on the “Report button, this will import the actual plot to the report pdf.



Route Viewer & Trends

Web App

Using the VibePro Web App, a user can manage and view the data using any browser with a PC or Mac computer. Refer to Export data section to learn more about how to Import/Export data from VibePro.