



**107VF**  
Vibration Analyzer  
User's Manual

2018

## CONTENT

General.....	3
Safety Precautions .....	3
Overview .....	4
Kit Content.....	4
Specifications .....	4
Measurement functions.....	5
Operation .....	6
Keyboard.....	6
Settings.....	6
Date/Time.....	7
Sensors .....	7
Units .....	8
Auto OFF.....	8
Vibration .....	9
Vibration measurement settings .....	10
Taking measurements .....	11
To save measurements .....	12
Route based measurements.....	13
Tachometer (107VF-T, 107VF-T2 only) .....	14
Thermometer (107VF-T2 only) .....	15

# General

## Safety Precautions

To prevent possible electrical shock, fire, personal injury or the device damage:

- Carefully read user's manual.
- Do not place sensor on the objects which exposed to high voltages. These voltages could cause personal injury or death.
- The Analyzer could not be used in potentially explosive environments.
- Take measures to prevent cables and straps become entangled by rotating part of machines at measurement site.
- Do not expose 107VF parts to heavy impacts, high humidity and extreme temperature.
- Do not try to open the display unit – this can damage the system, and your after-sales service warranty will come void

## Overview

The 107VF Vibration Analyzer (Device, Analyzer) is a compact yet powerful, vibration analyzer designed to measure overall vibration parameters, FFT spectrum analysis of the rotating machinery, immediate evaluation against ISO 10816 standard, condition monitoring by route based measurements and data collection. Route files and data files exchange via email makes it ideal for data collection at remote sites. Simple in use, with free firmware upgrades, comes with data management and reporting software.

## Kit Content

The 107VF kit includes:

- 107VF display unit;
- AC102-1A accelerometer, incl. cable 1.8m, magnet for curved surface mount;
- USB wall charger;
- USB cable;
- CD with ConSpect software and User's Manual;
- Carry case.



## Specifications

**Inputs** – IEPE or charge type accelerometers with known sensitivity, switchable. Optical RPM transducer with IR pyrometer sensor (optional)

**AD conversion** – 24 bits

**Frequency range** – 1...10000 Hz

**Temperature measurement range** – -70°C to 380°C

**FFT spectrum resolution** – 400, 800, 1600 lines

**Data storage** – 4GB micro SD card

**PC interface** – USB

**Display** – color, sunlight readable 128x160 dots

**Battery** – Li-Po rechargeable, up to 8 hrs continuous operation

**Dimensions** – 132 x 70 x 33 mm

**Weight** – 150 g

## Measurement functions

**Vibration mode** – analyzer measures overall level of vibration acceleration, velocity and displacement and FFT spectrum, route or off-route measurements.

**Tachometer** – analyzer measures speed of rotation by means of contactless optical sensor. The measurement result is displayed in RPM and Hz.

**IR thermometer** – contactless measurement of object temperature. The measurement result is displayed in °C and °F.

# Operation

## Keyboard



– press and hold for 3 sec to turn device ON, short press to turn OFF



– Enter, confirm selection, start measurement



– navigation arrow keys



– Menu



– backspace, quit

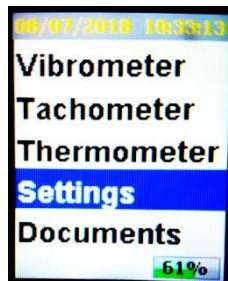


– option key

## Settings




This menu is used to:


- set **Date/Time**
- **Sensors** setup
- **Units** setup
- **Auto OFF** delay setup





## Date/Time


Use arrow keys     to set date.


Hold  then press  or  for month decrement/increment.

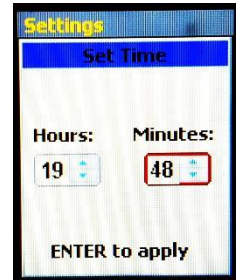
Confirm by  when correct date is set.





Use   keys to set minutes and hours.

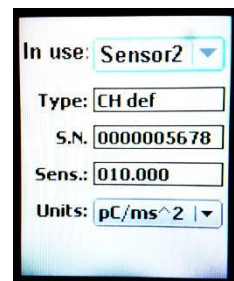
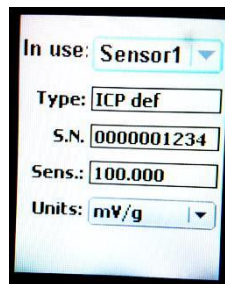
Use  key to switch focused field. Focused field is indicated by red frame.


Confirm by  when correct time is set.




## Sensors

Use   keys to choose sensor, which will be used for measurements. Drop down menu offers two types – IEPE or charge type sensors to choose from.



Confirm choice by  key.

**Type, S.N.** and **Sensitivity** fields are editable.



Use  key to choose field to edit.



Then use arrow keys     to edit the field value.

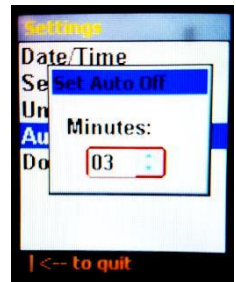
## Units

*This option is not implemented yet..*

## Auto OFF

Use   keys to set auto OFF delay (minutes).

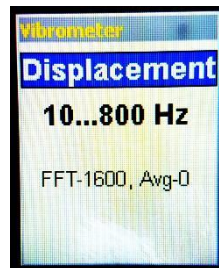
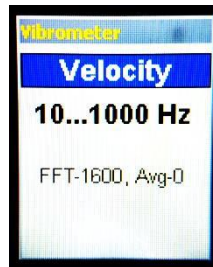
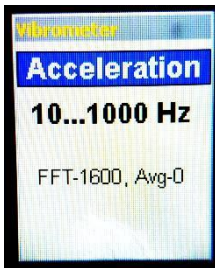
Press  or  key to confirm and quit menu.








## Vibration



Analyzer measures vibration **Acceleration**, **Velocity** and **Displacement**. In **ISO 10816** mode measurement result is compared to the built-in table of vibration severity grades according to ISO 10816-3.





Use   keys to choose measurement mode.

## Vibration measurement settings

Press  key to enter Settings menu.

Use   to choose parameter to setup.

Use   to change parameter value.



**Low Freq** – lower frequency limit. Can be set to 1, 2, 10 Hz.

**Hi Freq** – upper frequency limit. Can be set:

- from 200 to 10000 Hz for Acceleration;

- from 200 to 5000 Hz for Velocity;

- from 200 to 800 Hz for Displacement;


**FFT lines** – FFT spectrum resolution. Can be set to 400, 800, 1600 lines.

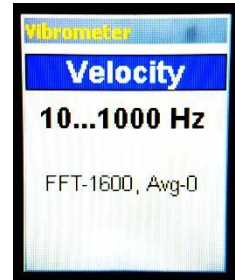
**Trigger** – *not implemented yet.*

**Averaging** – measurement averaging. Can be set in range of 0 to 64. Zero means that averaging is OFF.


**Window** – weighting function. Can be set to Hanning or Rectangular.


## Taking measurements

Choose vibration parameter e.g. **Velocity**, edit settings if needed, then press  key to start measurement.



When measurement is running:


Use  key to toggle FFT spectrum / waveform display.

Press  key to stop/resume measurement.







When measurement is stopped:

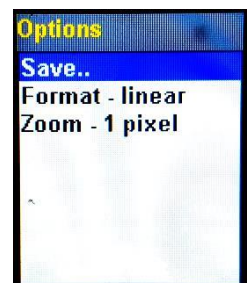
Press  key for **Options**:

**Save..** – to save measurement data. Press  key to proceed.


**Format** – Linear/Logarithmic amplitude display.


Use   to change parameter value.


**Zoom** – frequency axis display zoom change. Use   to change parameter value



## To save measurements


Press  key to stop measurement

Press  key for **Options**

Choose **Save..** and press  key




Device will enter **My documents** menu

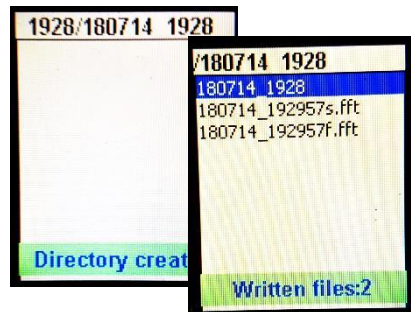
Browse to the destination folder, then press  key save measurement.

Device writes two files at a time – FFT spectrum file and waveform file.

Device remembers path to the last written files.

To create new folder – press  key. Date/time stamp is used as a default name for new folder.

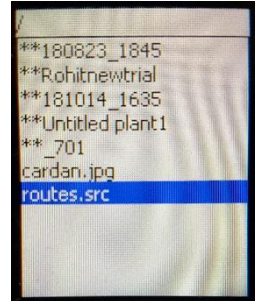
To create folders with meaningful names – connect device to the PC via USB as external flash drive, then create folders using PC keyboard.



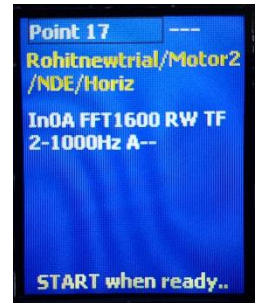
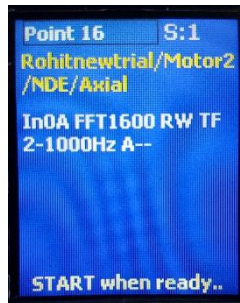
## Route based measurements


- Using ConSpect software create route file and download it to the device
- Go to **Documents** menu, move cursor to the route file and

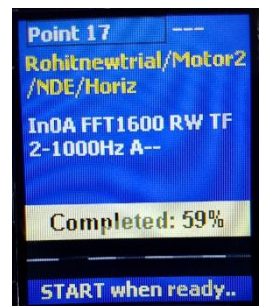
press  key



- Use   to browse route points



- Attach sensor at the measurement point and press  key. Device takes measurement with preset parameters and saves files to proper destination folder



## Tachometer (107VF-T, 107VF-T2 only)

Connect optical probe to the device

Enter **Tachometer** menu

Aim optical probe to the rotating machine part with attached reflective tape.



Press key to start/stop measurement.

Device displays measurement result in **RPM** and **Hz**




## Thermometer (107VF-T2 only)

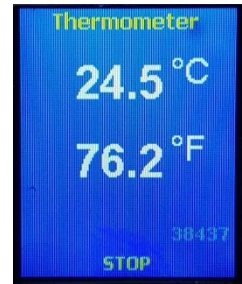
Connect optical probe to the device

Enter **Thermometer** menu

Aim optical probe to the machine.

Press  key to start/stop measurement.

Device displays measurement result in °C and °F





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