КОНТЕСТ

107VF

Vibration Analyzer
User's Manual

2021

CONTENT

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 1.5m, magnet for curved surface mount;
- Optical probe, magnetic stand (-T, -T2 only);
- 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

Dynamic range – 106 dB

Frequency range – 1…10000 Hz

Vibration measurement range:

Acceleration – 200 m/s^2

Velocity – 200 mm/s

Displacement – 2000 uM

Accuracy – ±5%

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

Accuracy – ±0.5% (0…+60°C), ±1% (-40…+120°C), ±2% (-70…+180°C), ±4% (-70…+380°C)

Tachometer measurement range – 10…200,000 rpm

Accuracy – ±0.1% and ±1rpm

FFT spectrum resolution – 400, 800, 1600 lines

Data storage – 4GB micro SD card, built-in

PC interface – USB

Display – color, sunlight readable 128x160 dots

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

Operating Temperature – 0°C to 50°C

Storage Temperature – -20°C to 60°C

Operating Humidity -

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 setup:

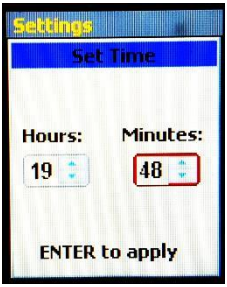
- **Date/Time**
- **Sensors** parameters
- **Units** Metric/Imperial units
- **Auto OFF** delay
- **English** interface language
- **Brightness** Low/Mid/High display brightness
- **MUX** input multiplexer to use triaxial sensors (optional)

Date/Time

Use arrow keys  to set date.

Hold  then press  or  for month decrement/increment.

Confirm by  when correct date is set.



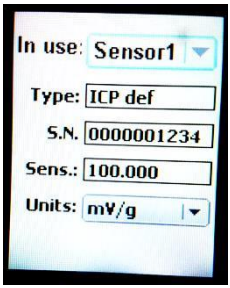
Use  keys to set minutes and hours.

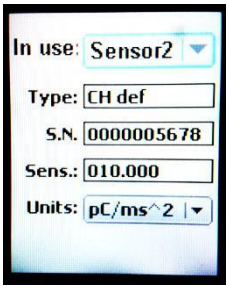
Use  key to switch focused field. Focused field is indicated by red frame.

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.

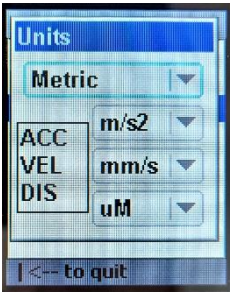
Type, S.N. and **Sensitivity** fields are editable.

Use key to choose field to edit.

Then use arrow keys to edit the field value.

Units

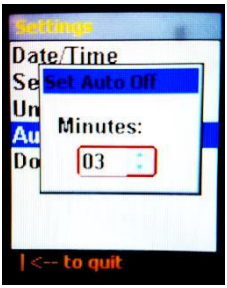
Metric/Imperial units setup



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.

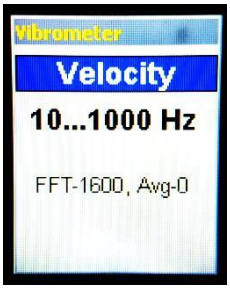
Trigger – *not implemented yet..*

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.

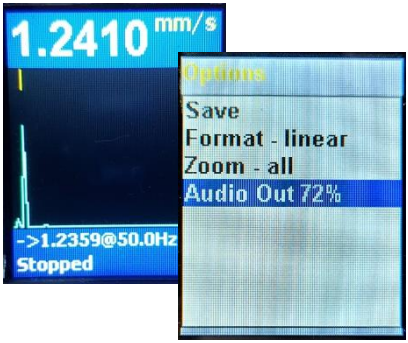
Zoom – frequency axis display zoom change. Use  to change parameter value

To save measurements

Press  key to stop measurement

Press  key for **Options**

Choose **Save..** and press  key

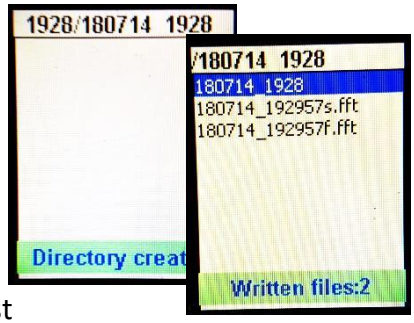


Device will enter **My documents** menu

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.

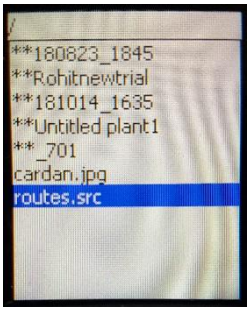


To create new folder – press  key. Date/time stamp is used as a default name for new folder.

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

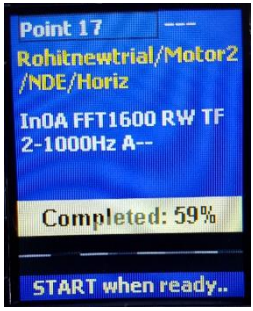
Route based measurements

- 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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