USER MANUAL

Adash A4801v2
Sensor Simulator

Version December 8, 2025

Content:

Adash 4801v2 – Sensor simulator

Application

- Generates sine test signal for systems checks
- Checks the function of the measuring system
- Checks the correct calibration of the measuring system
- Checks the correct function of cables (on-line systems)
- Checks the correct polarity of cables
- Checks ICP® (IEPE) powering

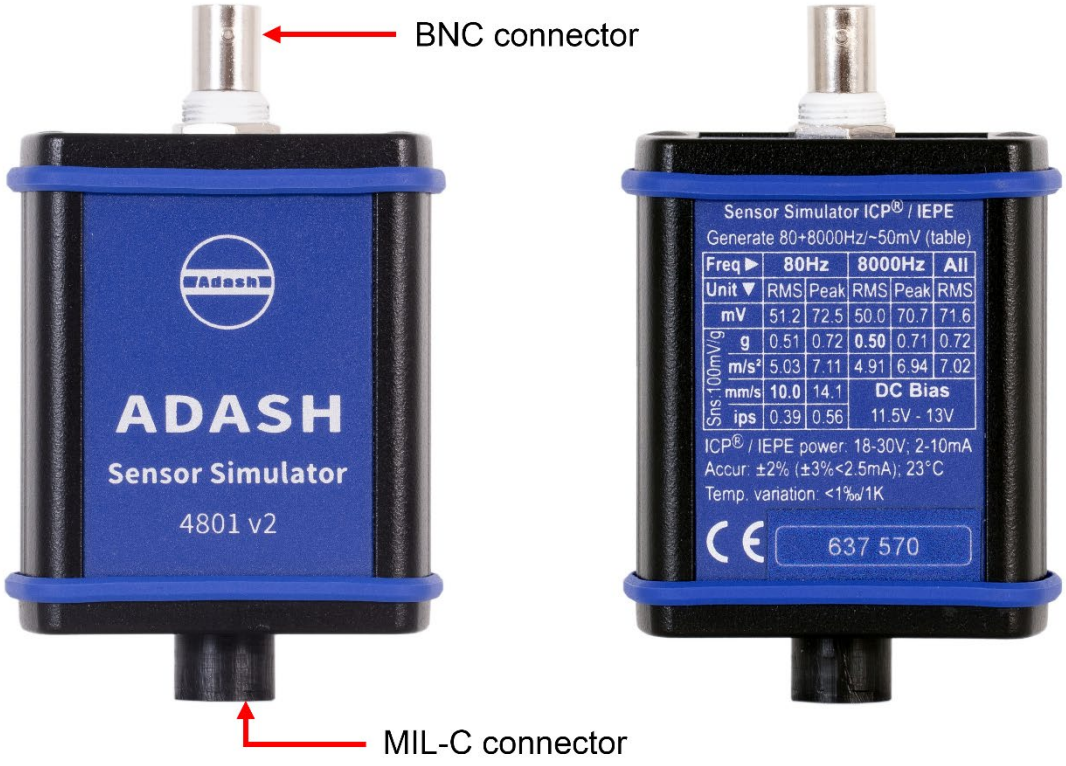
Characteristics

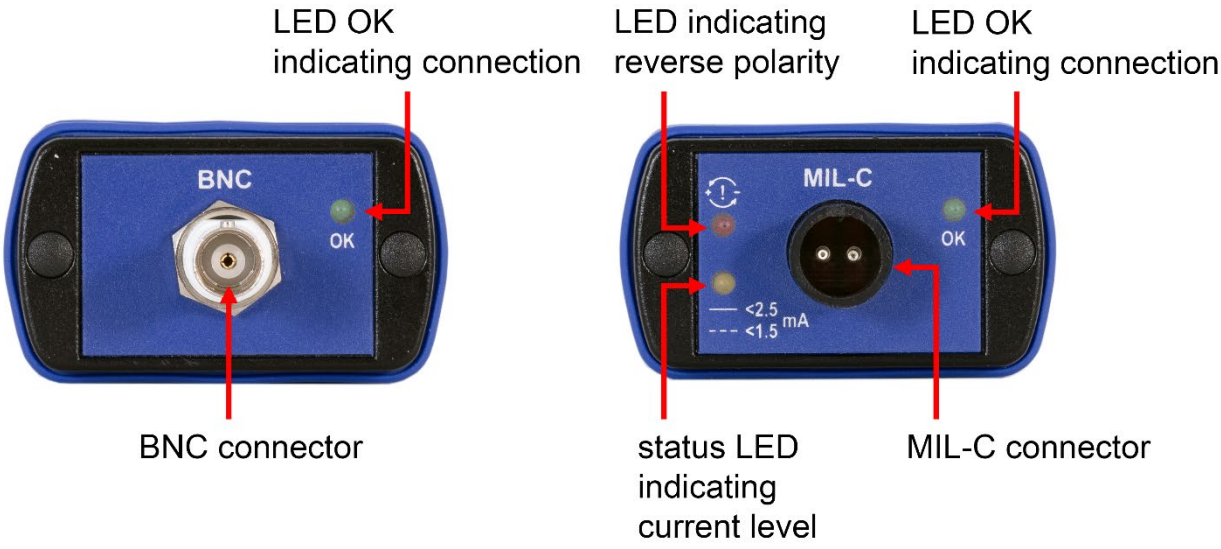
- Output sine signal for vibration analyzers testing (80Hz and 8kHz)
- BNC and MIL C5015 output connectors
- ICP® power LED indication

Description

The A4801v2 device simulates a standard ICP® (IEPE) acceleration sensor with 100mV/g sensitivity. The output signal is a sum of 80Hz 51,2mV RMS (10mm/s RMS) and 8kHz 50mV RMS (0.5g RMS) sine wave signals. The A4801v2 enables to test online vibration monitoring systems, portable vibration meters, analyzers and cables in very simple way. The output signal is simultaneously connected to both output connectors. The device has several colored LEDs for status indication.

Unit description:





LED description

The LED indicators are used to check the status and function of the simulator. The main (OK) indicators are located on both sides. The other LED indicators are on the MIL-C connector side, but they also provide indication when the BNC connector is used.

LED OK (green) – is located on both sides of the simulator.
It indicates that the generator is switched on and the ICP® (IEPE) power supply is connected. This allows for verification of correct operation; if only the OK LED is illuminated, the simulator is generating a signal according to the table. The correct function of the cables and connectors can be verified by moving or wiggling them. If the LED flickers or the measured value is unstable during this movement, it indicates a problem with the cable or connectors.

Status LED (yellow) – Located on the MIL-C connector side.
If the **Status** LED illuminates (steady yellow light), it indicates that the ICP® (IEPE) supply current has dropped below 2.5 mA and the generated signal has an increased tolerance (3%). Although this supply current level is permissible, it is considered marginal (on the borderline of usability).
If the LED **starts flashing**, the current is below the usable limit, and you can measure on the device signal approximately with value 13 Hz. This indicates an incorrect or non-functional sensor power supply from the device under test!

Polarity LED (red) – Located on the MIL-C connector side.
If this LED illuminates, the cable is connected in reverse (reverse polarity); specifically, the polarity of pins A and B on the MIL-C connector is reversed.

Technical specification

RMS Output:	51.2 mV / 80 Hz + 50 mV / 8 kHz 5.02 m/s^2 / 80 Hz + 4.9 m/s^2 / 8 kHz 0.51 g / 80 Hz + 0.50 g / 8 kHz 10 mm/s / 80 Hz 0.39 in/s / 80 Hz
Connectors:	BNC, MIL-C 5015
Indication:	ICP® (IEPE) OK, POLARITY, low PWR
Supply:	18-30V DC/ 2-10mA (ICP® / IEPE)
Dimensions:	90 x 35 x 60 mm
Weigh:	135 g
Protection:	IP 20

Example of A4801v2 usage

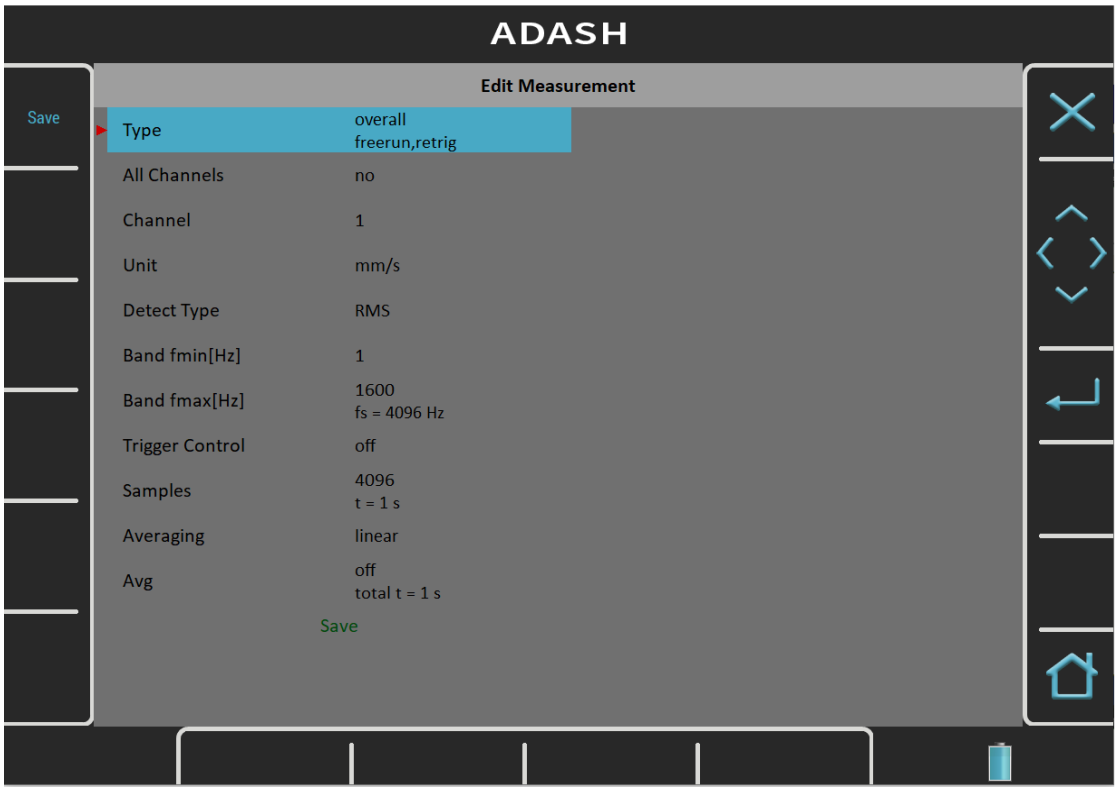
Adash VA5Pro Analyzer test

Follow these steps in order to test your VA5Pro analyzer. You can test any other vibration analyzer but make sure to set up the same settings as below.

1. Set up the sensor sensitivity
- Choose Sensors → All AC Sensors
- Set followings: ICP: ON, Sensitivity [mV/g]: 100, Unit: g
- Save

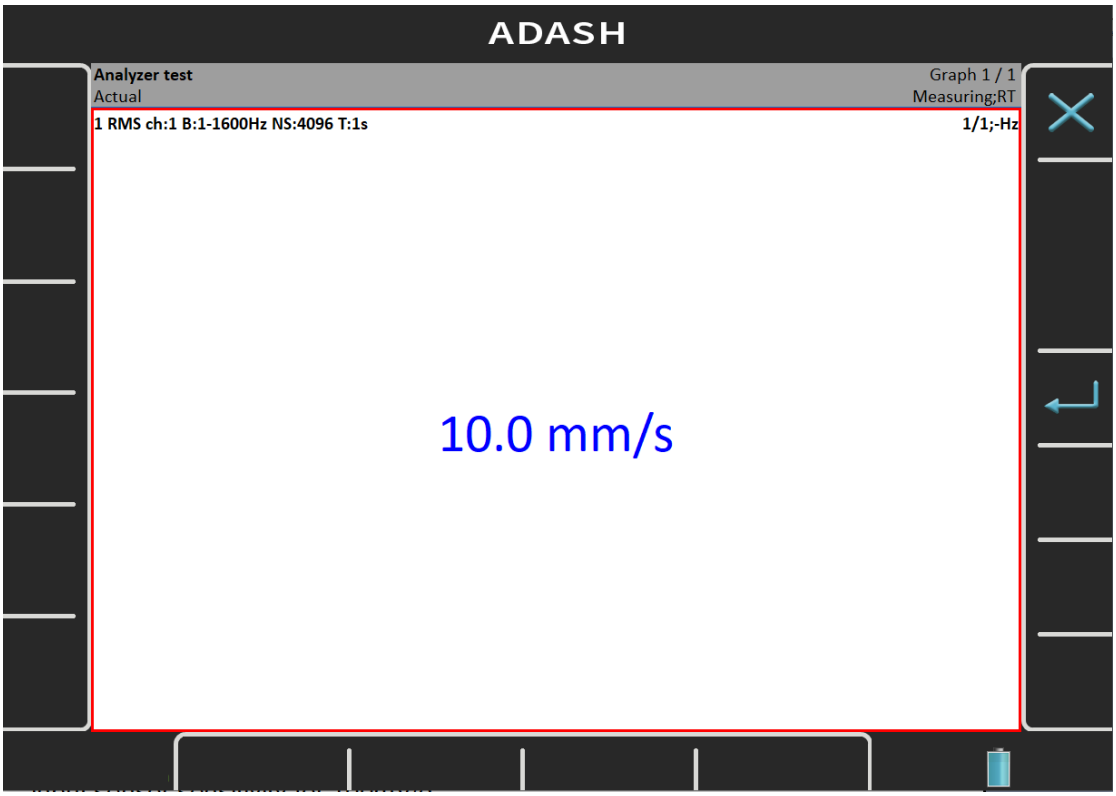
2. Create new project
- Go to Analyzer mode → Project → New Set
- Enter the Set name. For example: Analyzer test
- Go to the Analyzer test project

3. Set new measurement
- Choose Meas → New Advanced →overall type
- Change frequency range as follows:
- Band fmin[Hz]: 1
- Band fmax[Hz]: 1600
- You can check the rest of parameters, but it should be as on the following picture.
- Save measurement



4. Start the measurement

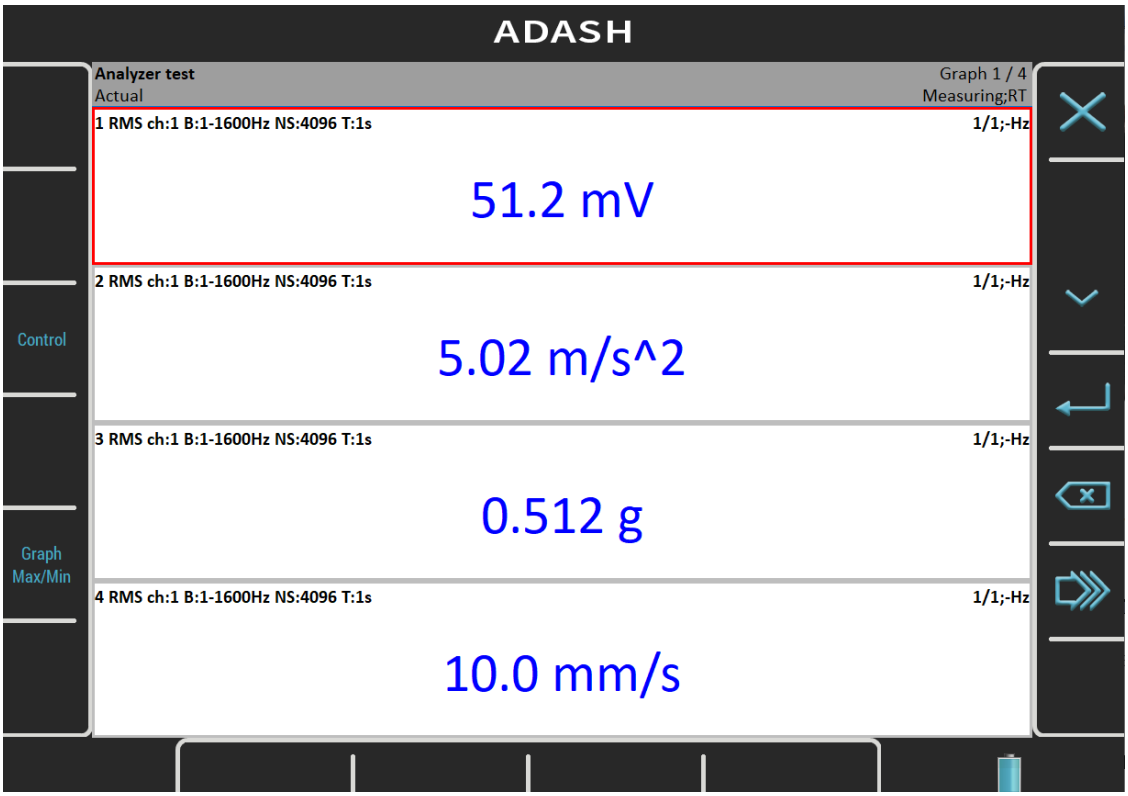
- Connect your Sensor Simulator and turn it ON.
- Start the measurement on the VA5Pro device.
- Now you should see measured value of 10 mm/s on the screen.



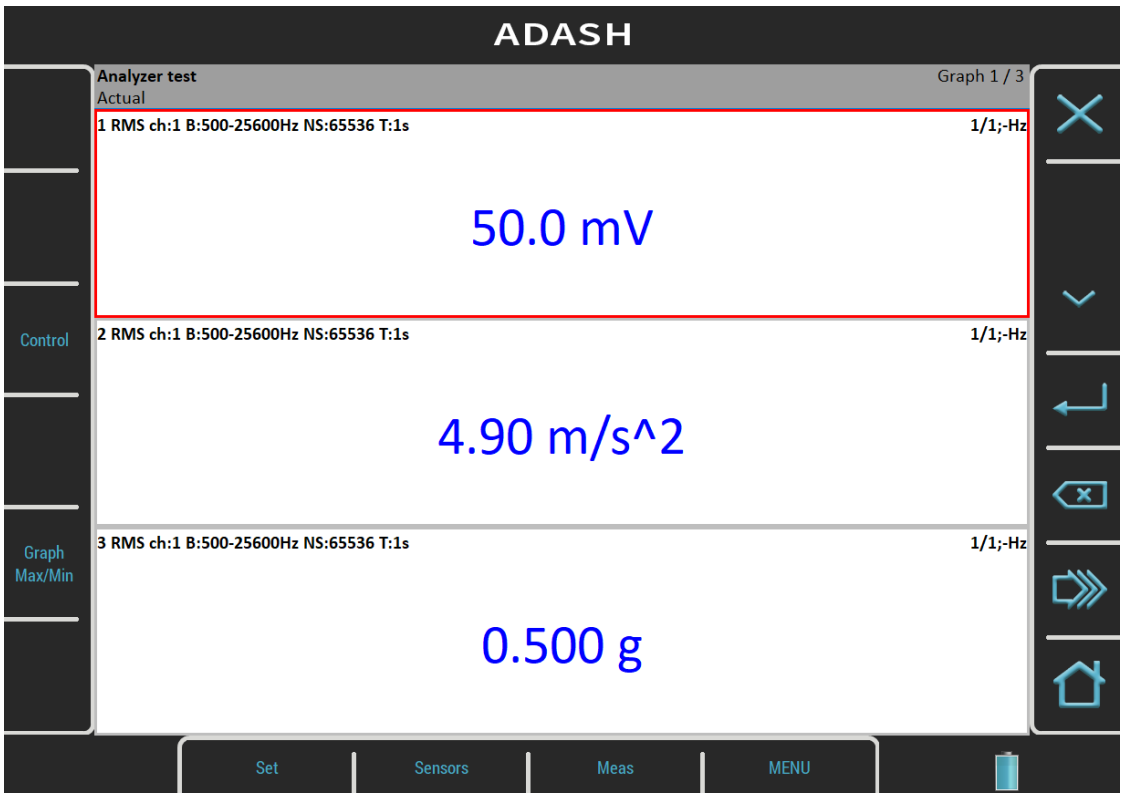
You can also measure in different units or show signal in time domain. Let's take a look.

5. Measurements in various units.

- Stop the previous measurement
- Select Meas → copy
- Choose different unit and save measurement.
- Now you added new measurement. You can also add new measurement with different unit as in previous example in step 3.
- You can add all units that are displayed on the back of the Sensor Simulator.
- Start the measurement and now you measure in all units at the same time.
- In this 1Hz to 1600Hz frequency range you measure values for 80Hz signal.



- For 8kHz signal measurement you have to change the frequency range from 500Hz to 25600Hz and select 65536 number of samples.

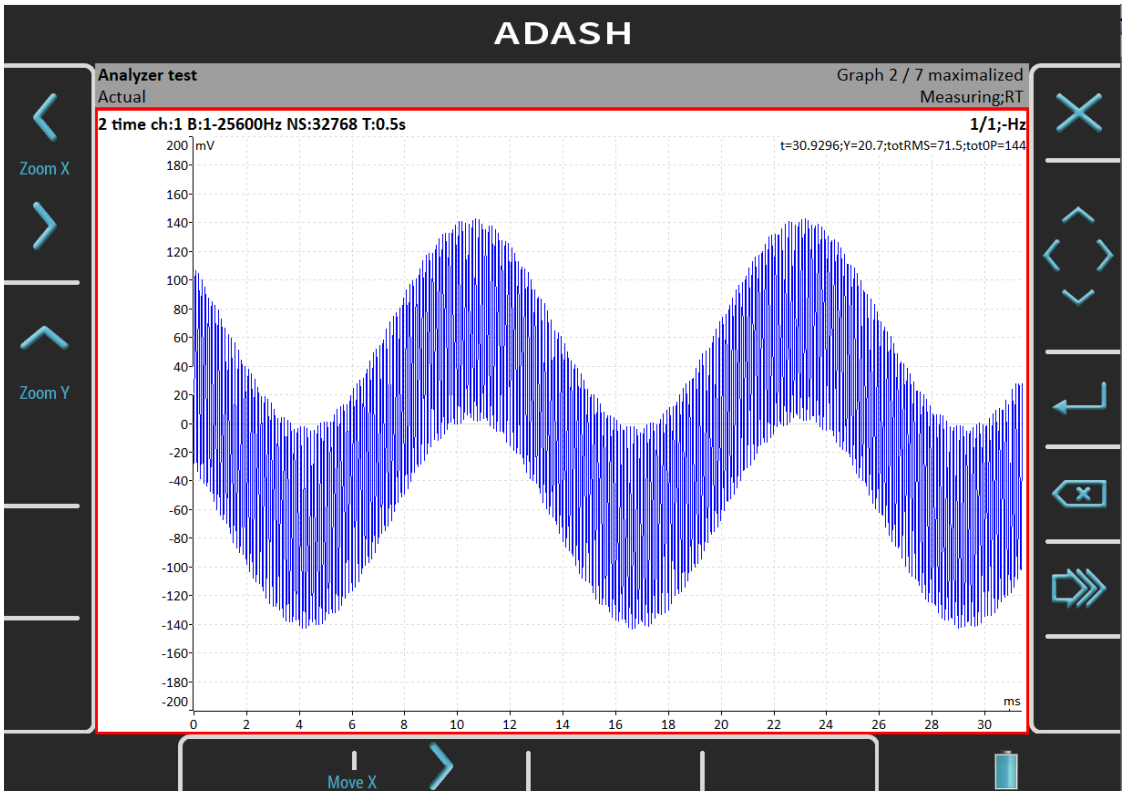


Time domain of the signal

We can display signal in time domain by following steps.

- Select Meas → New Advanced
- Type: time
- Band fmin[Hz]: 1
- Band fmax[Hz]: 25600
- Save measurement
- Start Measuring

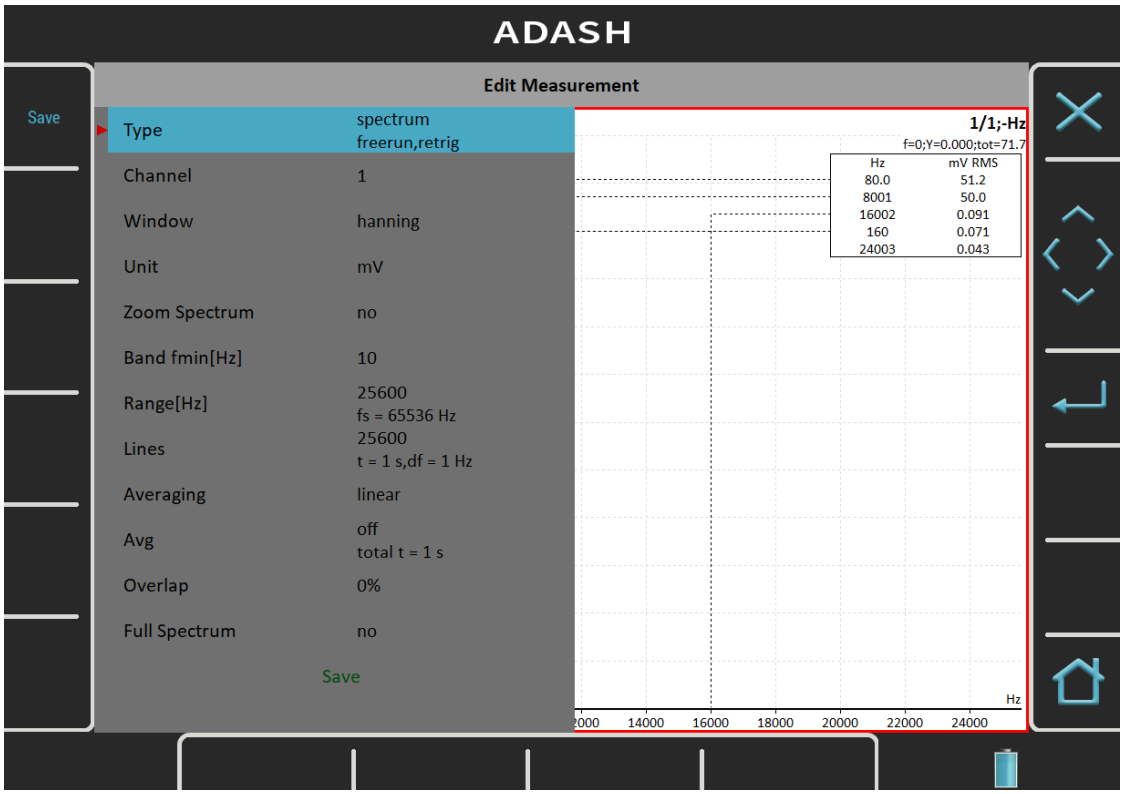
You can zoom your Y axe with Zoom option and see the signal running. This measurement is ideal for cable testing. Move with your cable and check the signal on the screen. If there signal is stable once you are moving with the cable, then the cable is in good condition.



Spectrum of the signal (advanced measurement)

Measurement of spectrum.

- Select Meas → New Advanced
- Type: spectrum
- Unit: mV
- Band fmin[Hz]: 10
- Range[Hz]: 25600
- Lines: 25600



Select graph you have created and select Graph Properties. Set properties as follows.

- Scale: auto
- Axe X: Log
- Axe Y: lin
- Graph lines: discrete
- Save Measurement

Start the measurement. As you can see there are significant peaks at 80Hz and 8000Hz. They are also included in peak list at the right side. It correspond with sinus waves generated by Sensor Simulator.