

User Manual

Phase Analysis

Ver.: 2.0

Phase Analysis

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Introduction:

This tool allows two measuring sensors to simultaneously analyze vibration phase without stopping the machine. This technique facilitates the development of more precise understandings of unbalance, misalignment, crooked axes, inadequate foundations, etc.

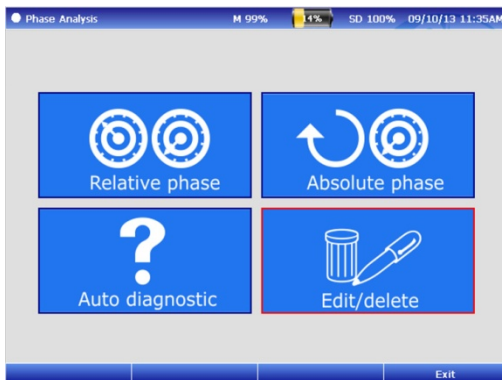
All these phenomena are characterized by the generation of a vibration with a particular vector orientation. This application allows for the placement of sensors in two points of the machine, suitably chosen to determine the phase of the vibration, in order to enable precise diagnosis.

To access the application, select the shortcut icon:

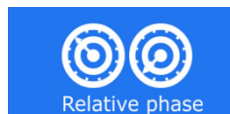


Do these by using the navigation buttons located on both sides of the display (up arrow or down arrow) and accept using the green ENTER key or pressing 3 on the main keyboard.

The application has a screen to select options for the use and analysis of machines.



Phase Relative:

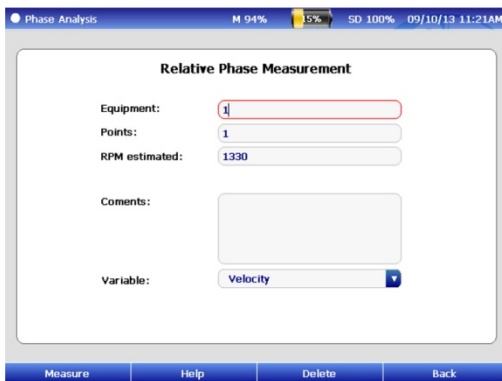


To measure the relative phase difference between two points, you should use both accelerometer sensors provided with the equipment, connected interchangeably, in each of the collector outlets.

The sensors should be supported by two different points simultaneously, taking care to place them in the right direction, according to the phase you want to determine.

Once arranged, the sensors will present the phase difference in the collector screen in real time.

This function measures the phase difference between two velocity signals. It is thought that these signals are approximately sinusoidal.

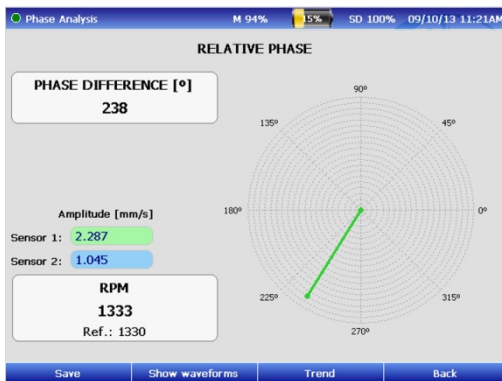


On the first screen, you can enter the data from the equipment you wish to analyze and the items for which the sensors are placed. The estimated RPM of the machine and a comment are useful for generating a report.

Activate the function "Measure" by pressing key F1.



The display shows the vibration amplitude and phase represented in a polar graphic.

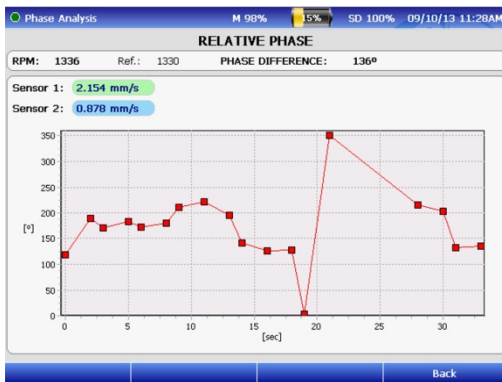


The relative phase difference is shown in a square compartment on the measurement screen; this field is for machine diagnostics.

The stability of the measurement will indicate that the phase measurement is representative.

Trend:

The value of the phase difference can be displayed on a trend graph in real time.



The activation is performed by means of the function key F3.

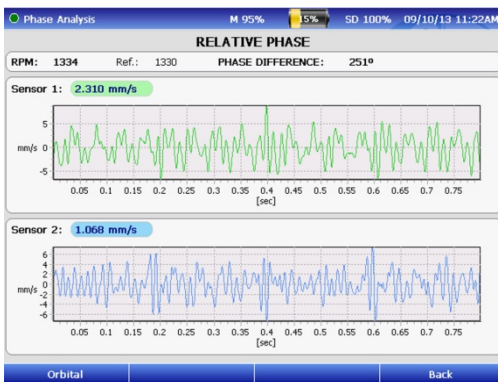


To record the measurements plotted on the trend, press function key F1.



Wave Form:

To view the two waveforms processed for the calculation of the phase between the sensors on-screen, press function key F2 from the measurement screen.



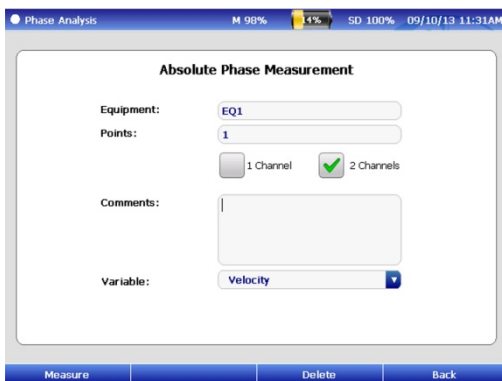
Absolute Phase:

The DSP Logger Expert can measure an RPM sensor, the absolute phase of two channels. You can access this application from the icon:



For operation of this application, you must connect an optical sensor to measure RPM and Channel A and / or Channel B, depending on the configuration to be measured.

This function measures the phase difference between two velocity signals and the absolute phase of each channel with respect to the trigger.

A screenshot of the "Absolute Phase Measurement" screen in the DSP Logger Expert software. The screen has a blue header bar with "Phase Analysis", "M 98%", "4%", "SD 100%", and "09/10/13 11:31AM". The main area is titled "Absolute Phase Measurement" and contains fields for "Equipment:" (EQ1), "Points:" (1), "Comments:" (empty text box), and "Variable:" (Velocity). There are two checkboxes: "1 Channel" (unchecked) and "2 Channels" (checked). At the bottom, there are three buttons: "Measure", "Delete", and "Back".

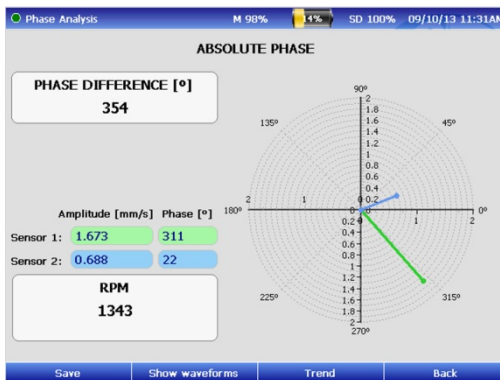
From the first screen, you enter the equipment data to analyze and the points where the sensors are placed.

The analysis may be in 1 or 2 channels.

Activate the "Measure" function by pressing function key F1.



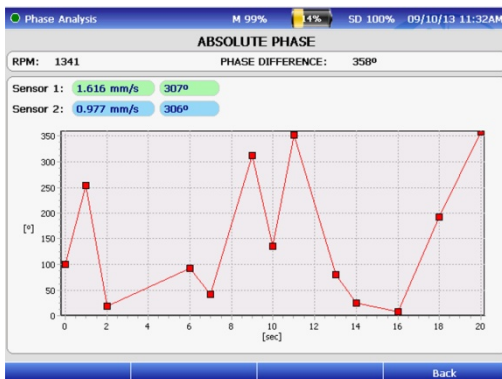
The display will show the vibration amplitude and absolute phase of each channel. The polar graphic also shows the degree of phase difference between the two channels.



The RPM that come with the optical sensor is shown in real time in a square compartment.

Trend:

The value of the phase difference can be shown on a trend graph in real time.



This function can be activated by pressing function key F3.

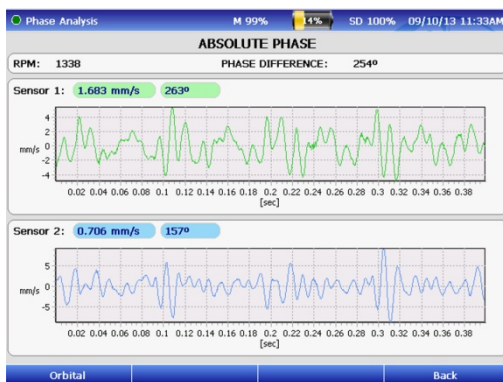


To record the measurements plotted on the trend, press function key F1.



Wave Forms:

To view the two waveforms being processed on-screen, press function key F2 from the measurement screen.



All of the analyses will be saved in report form for download to a PC using the DSP Machinery Control. They can then be printed or saved to a database.

SEMAPI provides technical information on the Internet for help with product use: visit www.dsplogger.com for technical manuals, a database with frequently asked questions, and application notes. You can also find instructional videos about firmware for the DSP Logger Expert at: <https://www.youtube.com/user/semapiCorp>