

# **DS-0322 Tracking Analysis Software**

**Operation manual**

**Basic Operation procedure for Constant-width Tracking Analysis**

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There are two types of tracking analysis, i.e., one is "constant ratio tracking analysis," where external rotation pulses are used to sample the data, and the other is "constant width tracking analysis," where an internal clock signal is used to sample the data for the following spectrum analysis and tracking. This document describes the basic operation procedures for the constant-width tracking.

Constant-width tracking also requires rotation information. Thus, the system configuration and operation are the same as those in the [Basic operation procedure for Constant-width tracking analysis](#). This manual explains only the items whose settings are different from those in the Constant-ratio Tracking Analysis Procedure.

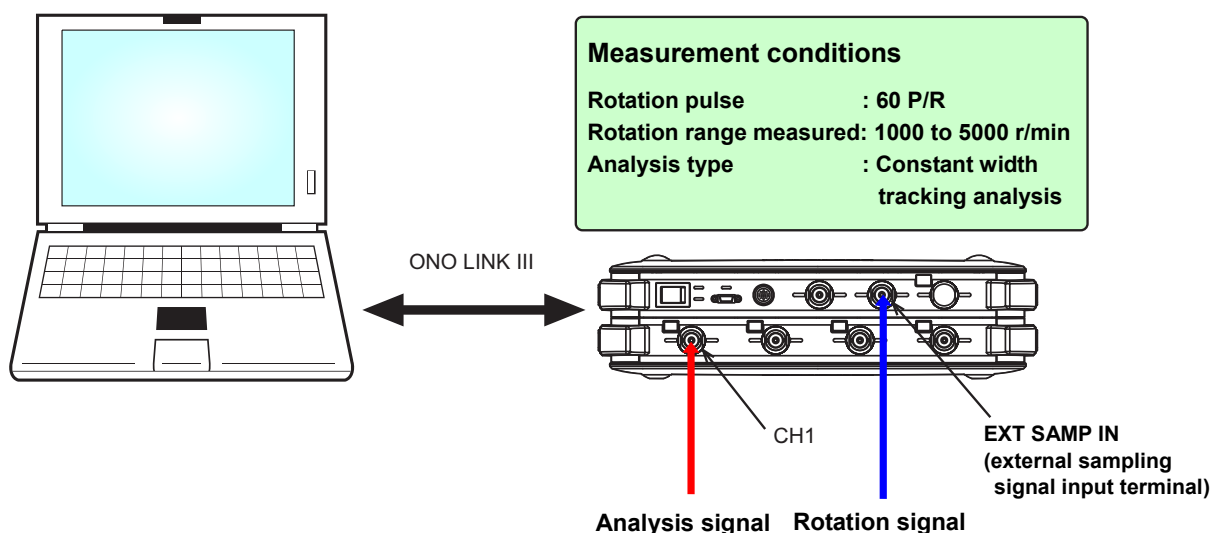
Basic operation procedures required for vibration or noise analysis are not covered in this document. For such procedures, refer to the respective operation manuals ([Operation manual for Vibration Analysis and Operation manual for Noise Analysis](#)).

This manual explains the functions of the tracking analysis software emphasizing what type of behavior will result from a single operation, thus it is recommended to try various operations with the software.

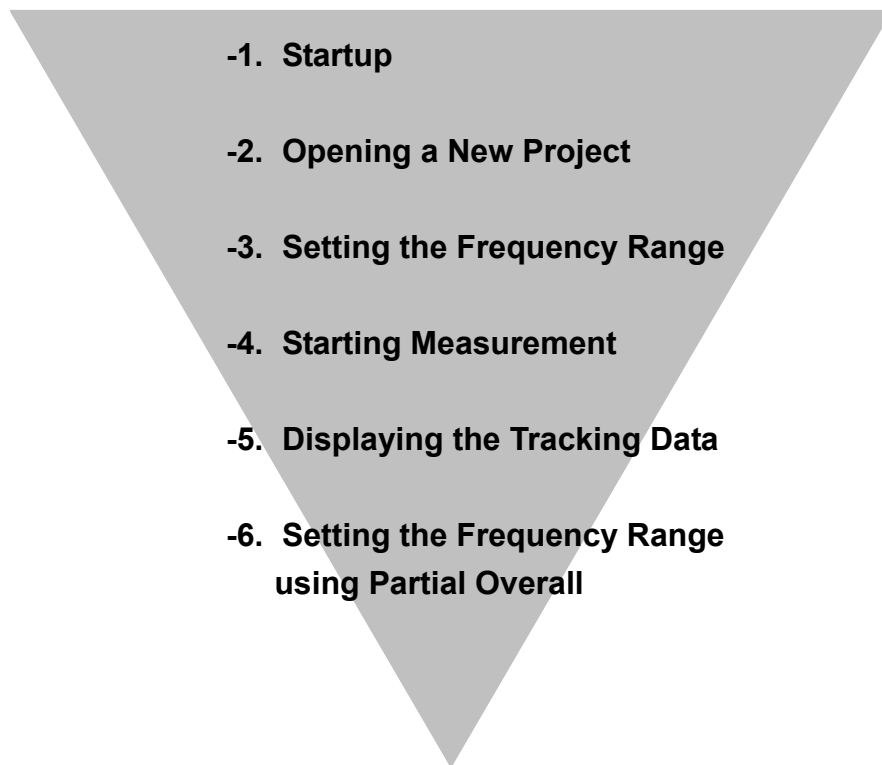
Basic operations of DS-3000 software are mostly executed in the Configuration window. As the operations in the Configuration window are correspondent with those of the Main menu, the Main menu operations are not included in this manual. For details on the Configuration window operations, refer to the respective procedure manuals ([Basic operation procedure for configuration setting](#)).

In this instruction manual, a series of clicking operations is described, for example, as follows: Click "File" → "Project File" → "New Project" → "".

## ■ System Configuration



## ■ Operation Flow



## ■ Operational Procedure

### -1. Startup

As shown in the figure in the "System configuration", input the rational signal into EXT SAMP IN (external sampling signal input terminal) and analysis signal into CH1. Then, start DS-0321 FFT analysis software by turning the power on.

### -2. Opening a New Project

① From the main menu, click "View" > "Configuration" to open the "Configuration" window.

② In the "Configuration" window, click "File" > "Project File" > "New Project" > "".

This operation erases the current settings and opens a new project (initial setting).

③ Follow the same operation procedure as the Constant-ratio tracking to perform trial measurement.

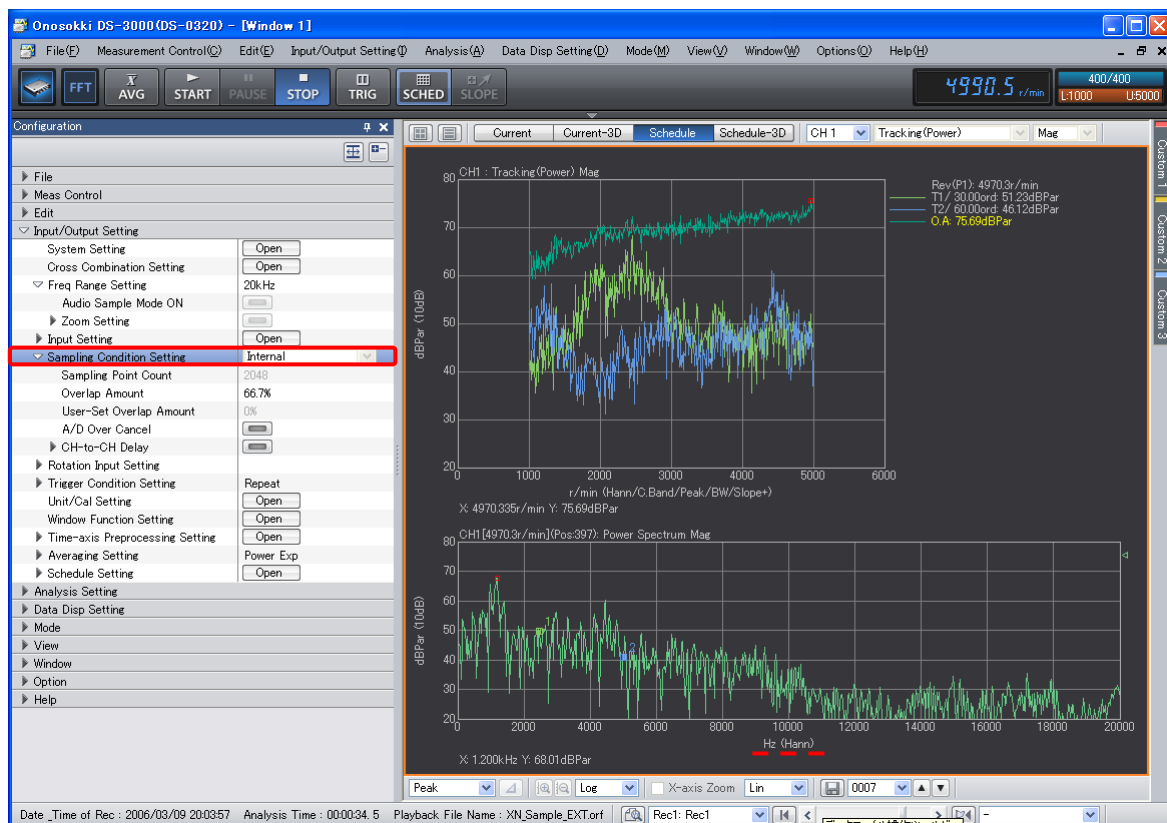
### -3. Setting the Frequency Range

Setting the frequency range carefully for constant-width tracking. The frequency range is set to 20 kHz here. If a low frequency range is set with a large focused order and high measurement rotation, the frequency range will be exceeded and measurement may be disabled. A frequency computation example is shown below. Set a frequency range higher than the frequencies obtained from this computation.

Example: Determination of 200th order frequency H at 6000 r/min

$$H = \frac{6000}{60} \times 200 = 20000 \rightarrow 20 \text{ kHz}$$

- ① In the "Configuration" window, click "Input/Output Setting" > "Sampling Condition Setting" and select "Internal" from the pull-down menu on the right side. At this time, the X axis of the power spectrum is indicated in frequency Hz.



### -4. Starting Measurement

Perform measurement in the specified rotation speed range, 1000 to 5000 r/min in this example.

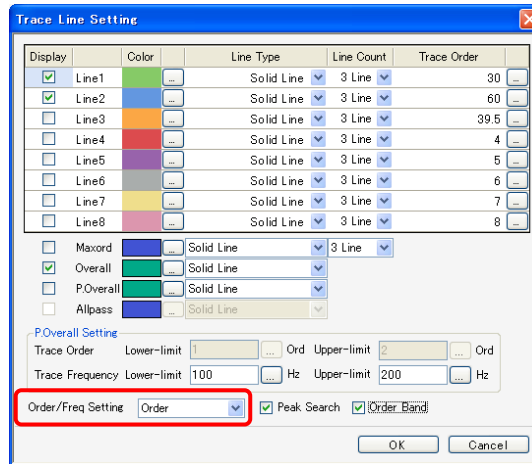
- ① Rotate the specimen at a rotation speed below the specified minimum speed before starting the measurement.

- ② Press the STOP button.
- ③ Confirm the indication of the SLOPE+ (rise) button and press the SCHED button.
- ④ Press the START button.
- ⑤ Gradually increase the rotation speed up to the upper limit rpm of the measurement. The current measurement status will be displayed according to the progress of measurement.
- ⑥ .When the rotation speed reaches the upper limit, the measurement will "STOP" automatically. The measurement data at this time will temporarily be recorded.
- ⑦ To repeat the measurement, start from Step [1] again.

## -5. Displaying the Tracking Data

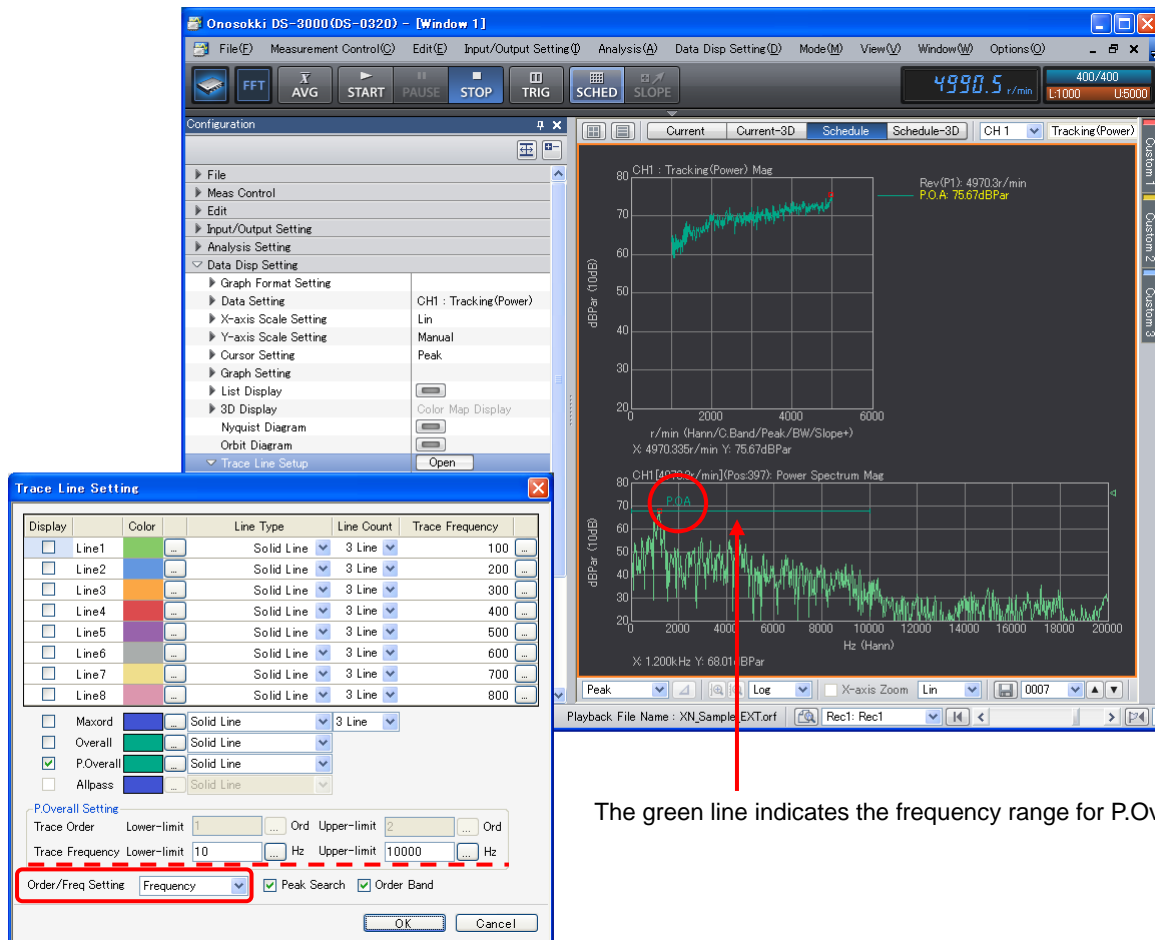
- ① Click the "Schedule" button at the top of the graph window.
- ② Right click on the graph window to show a pop-up menu and then select "Trace Line Setting". The "Trace Line Setting" dialog box will open. Alternatively, from the "Configuration" window, clicking "Data Disp Setting" > "Trace Line Setting" > "" will give the same result.
- ③ Set the parameters in the "Trace Line Setting" dialog box. If "Frequency" has been selected in "Order/Freq. Setting", select "Order". You can change the parameters after a measurement has been done. As such, you can try different parameters to display the results differently.

Order/Freq Setting	Set "Order".
Line 1 to Line 8	Set the orders to be focused on. Only the checked lines will be displayed on the graph.
Number of lines	Specify the bandwidth centered around the specified order. The setting may be changed after "Peak Search" and "Order Band" are checked.
Maxord	The maximum value among the analyzed orders is displayed. This value is effective when the maximum order varies depending on the rotation, and it can be read using the cursor.
Overall	When this is checked, overall values are displayed.
"P. Overall"	Displays the partial overall value for the range specified in the "P.Overall" field.
"Peak Search"	With this item checked, the focused order in the band width specified in "Number of Lines" centering around the orders specified in Line 1 to Line 8 is used to perform tracking.
"Order Band"	When this item checked, the partial overall value for the band specified by "Line Count", centered around each order specified from "Line 1 to Line 8", will be displayed on the graph. If "Peak Search" is also checked, the line that gives the peak value will be searched first. Then, the partial overall is calculated around the peak line for the width specified by "Line Count" to display the result on the graph.



## -6. Setting the Frequency Range Using Partial Overall

To specify the frequency range using Partial Overall (P.Overall), display the "Trace Line Setting" dialog box, set "Frequency" in "Order/Freq Setting" and specify maximum and minimum frequencies in "Trace Frequency". The figure below shows how the graph is drawn with 10 to 10 kHz set in the Trace Frequency. It shows how partial overall values change in 10 to 10 kHz according to changes in the rotation speed. Focused frequencies can also be set in Line 1 to Line 8.



- "Frequency" cannot be set in "Order/Freq Setting" by reproducing a TRC format file of constant-ratio tracking data.
- To perform both constant-ratio and constant-width tracking analyses using the same data, refer to the "[Basic Operation for Offline Tracking Analysis](#)" for saving raw data.
- Operations for Schedule-3D, data saving and replay are the same as that for constant-ratio tracking analysis. For detailed information, refer to "[Basic Operation procedure for Constant-ratio Tracking Analysis](#)".