## **ΟΝΟ Ο ΚΚΙ**

# **OS-2000** series Simple Operation Manual

■Operation flow

- Installation
- •Start of the OS-2000 series
- •Import data file
- •Time-axis waveform display
- •Cursor display
- •Overlay of time-axis waveform
- Data range selection
- •Time waveform playback
- Statistical processing
- Window docking
- •Store the project file

# Installation

**ΟΝΟ Ο ΚΚΙ** 

1. The OS-2000 Installer screen at right is appeared when you insert the installation CD to the PC.

#### •OS-2000 Software

Install the OS-2000. The 8 digits of serial number (pasward) is required at this time. The serial number is indicated in the back of the DVD case. Installation manual is attached to the DVD case.

#### Hardware key Driver

It is necessary for starting OS-2000.

| OS-2000 Installer              |                                  |
|--------------------------------|----------------------------------|
| Select Installer               | C Hardware Key Driver            |
|                                | C Adobe(R) Reader(TM)            |
| Comminist (C) 2004 2015 ONOCOM | Install Quit                     |
| Copyright(C)2004-2015,ONOSOK   | KI CO.,LTD. All Rights Reserved. |

2. The icon of the OS-2000 is displayed on the desktop screen when installation is completed.



3. Insert the hardware key to the PC and start the OS-2000.

#### Start of the OS-2000 series





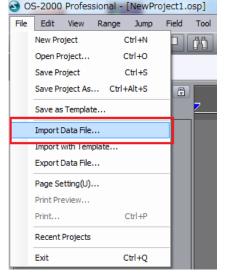
Double click the icon of the OS-2000 series on the desktop and start the software.

| -  |  |                      |                 |
|--|--|----------------------|-----------------|
| S OS-2000 Professional - [NewProject1.osp] | m <u>A</u> nalysis <u>D</u> ata Edit <u>C</u> ustom <u>O</u> ption <u>H</u> elp                                    |                      |                 |
|  | m <u>A</u> nalysis <u>D</u> ata Edit <u>C</u> ustom <u>O</u> ption <u>H</u> elp<br>SelectRange Time at left edge : | Time at right edge : | Ø 0:00:00.000 - |
|  |  | Time at light edge . |                 |
|  | [Navigation view]  |                      |                 |
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|  | [Main Field]   |                      |                 |
|  | •Display the time-axis   | waveform             |                 |
|  | <ul> <li>Select the analysis rar</li> </ul>  | nge                  |                 |
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|  |  |                      | <u> </u>        |

#### Import data file



1. Select the [Import Data File...] from the file menu on the menu bar.



#### [Type of files to be imported to the OS-2000]

AU-4100A File (\*.inf) DS-0328 File (\*.tdms) ASCII File (\*.csv, \*.txt, \*.\*) DS/CF File (\*.dat, \*.rcd) Excel File (\*.thd, \*.lhd, \*.fhd) MEIDENSHA MEIDACS File (\*.meid) KY-1000 File (\*.trn, \*.frz, \*.log, \*.ave, \*.txt) MCU File (\*.mat) MDF File (\*.mat) HIOKI MEMORY HICORDER File (\*.mem) MOVIE File (\*.avi, \*.wmv, \*.\*) ORF File (\*.orf) WS-5160 File (\*.s01, \*.s02) TEAC TAFFmat File (\*.hdr)

#### TEAC AQ-VU File (\*.aqv)

UFF File (\*uff, \*unv, \*bunv) VARTS-II File (\*dat) WAVE File (\*wav) YOKOGAWA WVF/WDF File (\*wvf, \*wdf) 2. Select the type of the file to be analyzed.\* If the file type and extension do not match, the file you want to select will not be displayed.

The ORF is selected as a file type in here, but please select WAVE or CSV file depending on the data type.

| 🕑 Open                    |   |  |   |                      |   | <b>×</b>  |
|---------------------------|---|--|---|----------------------|---|---|
| Look in:                  | ) ORF   | •  | G 👂 📂 🛄 -   |                      |   |   |
| Recent Places             | Name Onosokki4. ORF_Data_C ORF_Data_C Sample001.                  | 001.orf<br>002.orf   | Date modified<br>6/10/2004 01:19 PM<br>11/17/2015 10:00<br>11/17/2015 10:00<br>2/23/2012 11:12 AM | Ty<br>Of<br>Of<br>Of | Onosokki4.ORF     WRecord 1     WRecord 2     WRecord 3 | M.BOARD=DS-2000DSP.VER=010100<br>2004/04/08 15:07:16<br>1CH + Revolution1CH<br>102.4KHz<br>558003Samples<br>RECORD001 |
| Computer<br>()<br>Network | <ul> <li>✓</li> <li>File name:</li> <li>Files of type:</li> </ul> | onosokki4.ORF  |   | •                    | Rotation Data     Interpolation     attach records      | Calibrate the SPL unit to the Pa (sound pressure level) Open Cancel   |
|                           |   | AU-4100A File (*inf)<br>DS-0328 File (*idms)<br>ASCII File (*.csv. *bd. *.")<br>DS/CF File (*.dst. *rcd)<br>Excel File (*.dst. *rcd)<br>Excel File (*.dst. *rcd)<br>Excel File (*.dst. *fnd)<br>MEIDENSHA MEIDACS File (*.meid<br>KY-1000 File (*tmt, *frz. *log. *ave,<br>MCU File (*.mt)<br>MDF File (*.mt)<br>MDF File (*.mt)<br>HIOKI MEMORY HICORDER File (*<br>MOVIE File (*.off)<br>WS-5160 File (*.s01, *s02)<br>TEAC AQ-VU File (*.s01, *s02)<br>TEAC TAFFmat File (*.hdr)<br>TEAC AQ-VU File (*.aav)<br>UFF File (*.uff, *.unv, *.bunv)<br>VARTS-II File (*.dat)<br>WAVE File (*.wav)<br>YOKOGAWA WVF/WDF File (*.wvd) | ".txd)<br>".mem)  |                      |   | 4   |

### Import data file (CSV file)



Setting of item line, data line and sampling frequency are necessary for the CSV file.

1. Select the file type: ASCII file (\*.csv, \*.txt, \*.\*)

| 🔄 Open                          |   |  |   |                      |  | <b>—</b> ×-   |
|---------------------------------|---|--|---|----------------------|--|---|
| Look in:                        | 0RF   | •  | G 🌶 🖻 🛄 -   |                      |  |   |
| Recent Places                   | Name<br>onosokki4,<br>ORF_Data_(<br>ORF_Data_(<br>Sample001,      | ORF<br>001.orf<br>002.orf  | Date modified<br>6/10/2004 01:19 PM<br>11/17/2015 10:00<br>11/17/2015 10:00<br>2/23/2012 11:12 AM | Ty<br>Of<br>Of<br>Of | Vonsokki4.ORF VRecord 1 VRecord 2 VRecord 3      | M.BOARD=DS-2000DSP.VER=010100<br>2004/04/08 15:07:16<br>10H + Revolution1CH<br>102.4kHz<br>558003Samples<br>RECORD001 |
| Computer<br>Computer<br>Network | <ul> <li>✓</li> <li>File name:</li> <li>Files of type:</li> </ul> | m<br>onosokki4.ORF<br>ORF File (* orf)   |   | Þ                    | Rotation Data<br>Interpolation<br>attach records | Calibrate the SPL unit<br>to the Pa<br>(sound pressure level)<br>Open<br>Cancel                                       |
|                                 |   | AU-4100A File ("Inf)<br>DS-0328 File ("Idms)<br>ASCII File ("csv. "td., ",")<br>DS/CF File ("csv. "td., ",")<br>DS/CF File ("dst, "rd3)<br>FAMS File ("Ids, "Jds)<br>FAMS File ("Ids, "Jds)<br>FAMS File ("Ids, "Jds)<br>FAMS File ("Ids, "Jds," Ids, "Jds)<br>FAMS File ("Ids, "Jds)<br>MDF File ("md)<br>HIOKI MEMORY HICORDER File (<br>MOVIE File ("avi, "wmv. ",")<br>ORIGE File ("csv.", wmv. ",")<br>ORIGE File ("csv.", wmv. ",")<br>ORIGE File ("csv.", wmv. ",")<br>ORIGE File ("ds)<br>TEAC AO-VU File ("csv.")<br>UFF File ("Jdf, "umv." bunv)<br>VARTS-II File ("dst)<br>WAVE File ("wav)<br>YOKOGAWA WVF/WOF File ("wwv) | *.mem)  |                      |  | ii.   |

Select the item line, unit line, and data start line.
 Set the sampling frequency or sampling clock.

| Item  | Line 1           | 🕥 Un      | it Line 3   | 🗧 🦳 🔘 Dat     | a Start Line 4 | ÷         |  |  |
|---|------------------|-----------|-------------|---------------|----------------|-----------|--|--|
| Sampling Frequency 100 [Hz] Sampling dock 10 [ms] |                  |           |             |               |                |           |  |  |
|   | A                | В         | С           | D             | E              | F         |  |  |
| 1   | AI-01            | PI-01     | PI-02       | ONO-TRQ       | ONO-REV        | REF-1     |  |  |
| 2   | Engine Shaft Tor | . Dy Revo | Engine Revo | Trg Reference | RevoReference  | Dy Refere |  |  |
| 3   | Nm               | r/min     | r/min       | Nm            | r/min          |           |  |  |
| 4   | 12.77506         | 552.963   | 540.3146    | 0             | 0              | 0         |  |  |
| 5   | -3.832519        | 547.3345  | 564.1135    | 0             | 0              | 0         |  |  |
| 6   | 10.06036         | 549.3792  | 558.3293    | 0             | 0              | 0         |  |  |
| 7   | 3.193766         | 545.9979  | 530.8688    | 0             | 0              | 0         |  |  |
| 8   | -2.555013        | 554.782   | 541.4993    | 0             | 0              | 0         |  |  |
| 9   | 12.77506         | 549.587   | 559.9706    | 0             | 0              | 0         |  |  |
| 10  | -3.193766        | 539.440   | 560.4036    | 0             | 0              | 0         |  |  |
| 11  | 14.37195         | 549.835   | 525.7631    | 0             | 0              | 0         |  |  |
| 12  | -2.235636        | 549.0995  | 548.2222    | 0             | 0              | 0         |  |  |
| 13  | 10.22005         | 551.771   | 559.226     | 0             | 0              | 0         |  |  |
| 14  | 2.874389         | 541.514   | 555.3793    | 0             | 0              | 0         |  |  |
| 15  | -0.7984415       | 550.3907  | 521.2555    | 0             | 0              | 0         |  |  |
| 16  | 12.13631         | 547.0351  | 550.5692    | 0             | 0              | 0         |  |  |
| 17  | -3.513142        | 540.975   | 560.0999    | 0             | 0              | 0         |  |  |
| 18  | 13.5735          | 541.082   | 537.9866    | 0             | 0              | 0         |  |  |
| 19  | -3.353454        | 547.133   | 536.2498    | 0             | 0              | 0         |  |  |
| 20  | 8.623168         | 549.439   | 554.9762    | 0             | 0              | 0         |  |  |
| •   |                  |           |             |               |                | +         |  |  |
|   |                  | -         |             |               |                |           |  |  |

\* 1 to 100 lines of data can be displayed on this screen. 1000 lines or more data is not displayed but loading is performed.

#### Import data file (3)



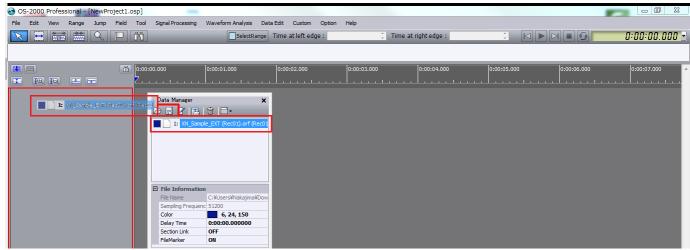
#### File is displayed on the data manager screen when the data file is imported. Item name is listed when select the file.

| S OS-2000 Professional - [NewProject1.osp]  |                                       |
|---|---------------------------------------|
| File Edit View Range Jump Field Tool Signal Processing Waveform Analysis Data Edit Custom Option Help |                                       |
| SelectRange Time at left edge :   | Time at right edge :                  |
|   |                                       |
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| 🛛 Data Manager 🗙  |                                       |
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| File name   | ۵]                                    |
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| indicated.  |                                       |
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| Delay Time 0:00:00.000000 the file.   |                                       |
| Section Link OFF<br>FileMarker ON   |                                       |
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| Search 💌  |                                       |
| File No. Name Unit Image  |                                       |
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| 1 3 Channel r/min   |                                       |
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|   |                                       |

#### Time-axis waveform display



Drag and drop the file on the data manager to the track display area of the main field.



When drag the file to the track display area, the color of the frame line is changed in red. Drop the file in this state.

| S OS-2000 Professional - [NewProje                       | ect1.osp]                        |   |   |   |   |  | 1           |  |
|--|----------------------------------|---|---|---|---|--|-------------|--|
| File Edit View Range Jump I                              | Field Tool Signal Processing     | Waveform Analysis Data  | a Edit Custom Option  | Help  |   |  |             |  |
|  |                                  | SelectRange   | Time at left edge :   | Ĵ Ti  | me at right edge :  | : 🛛 🕨                                    |             | 0:00:00.000 💌  |
| IChannel001  |                                  | ny de a ble beer processe and a transmission of a most black based on the state<br>and a specific process of the state of the stat | por para de sensible contras en la deserva de la segunda de se bar<br>1919 - De Manderson antidarem de la definitaria de sed de porte de porte para |   | an an an tha dao amin' an ann an an an ann an an an an an an a  | n an |             | na y paranya katana dinya di kyani kaka sa pana karanya kara yang ma<br>Mangata mitana dinya kamingini karang panta biranina na banda ding |
| 10 IQ 🖭 📰  | <b>()</b> 0:00:00.000            | 0:00:01.000   | 0:00:02.000   | 0:00:03.000   | 0:00:04.000   | 0:00:05.000                              | 0:00:06.000 | 0:00:07.000  |
| Track 001 []] L R[[] _ □ ×<br>⊖ Channel001 Pa +0.013 ■   | 0.3.<br>0-<br>-0.3               |   | ng a lengan basis fina anan bergis pisang lenga kini anan bang si<br>1999 bilan kasis na lina pana kini sila ana kana aning kama                    | e fan de kenne fan d | a da da arrena yang malaka da mang pengenanan karang sebah da bahang pengenanan da sebah da mang pengenanan da<br>Manang karang pengenang pengenang pengenang pengenang pengenang pengenang pengenang pengenang pengenang pengena |  |             | n la baile população do acesso do da propulsión do<br>Alterno do alterno da parte da propulsión pelana de la pre-                          |
| Truck 602 [31 R4] _ ☐ X<br>Channel002 m/s2 -5.029 ■      | /5_<br>12.5-<br>-50 <sup>-</sup> |   |   | a fan sin de sense an anna an anna an an an an an an an an  |   |  |             |  |
| Track 003 [⊅L R⊈] _ □ ×<br>O Channel003 r/min +520.848 ■ | 3000 - 1<br>1500 - 0             |   |   |   | ~ ~ ~   |  |             |  |

Time-axis waveform is displayed.

### Time-axis waveform display (change of the waveform color)



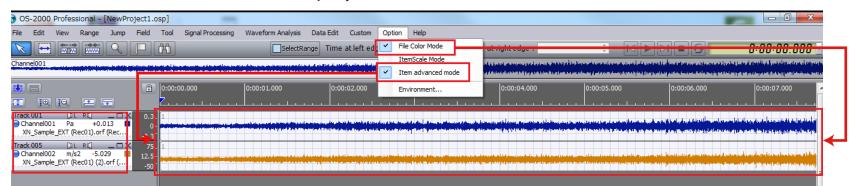
For displaying multiple files:

It becomes easy to identify the time-axis waveform by putting check marks on the [File Color Mode] and [Item Advanced Mode] on the option menu.

[Default] color of the waveform: 1ch...blue, 2ch...orange, 3ch...green

| S OS-2000 Professional - [NewProject1.osp]                      | -   |                                      |   |
|---|---|--------------------------------------|---|
| File Edit View Range Jump Field Tool Signal Pro                 | cessing Waveform Analysis Data Edit Custom  | Option Help                          |   |
|   | SelectRange Time at left edg  | File Color Mode                      | at right edge : 🔅 🛛 🕨 🕨 🖬 🚱 🛛 🖸 😯 🖓   |
| Channel001  | and from the state of the providence of the state of the st<br>The state of the stat | ItemScale Mode<br>Item advanced mode | e fan en werden in fan te ste fan it de stere en en en stere en werde fan te stere fan en |
| <b>10:00:00.000</b>   | 0:00:01.000 0:00:02.000   | Environment                          | 0:00:04.000 0:00:05.000 0:00:06.000 0:00:07.000   |
| III IQ IQ III III III III III IIII III                          |   |                                      | <u> </u>  |
| Track 001 DL RC _ Cannel001 Pa +0.013 ■ 0-<br>-0.3              |   |                                      |   |
| Track 002 DL RK _ T75. 1<br>Channel002 m/s2 -5.029 12.5-<br>-50 |   |                                      |   |
| Track 003 DL RIC  |   |                                      |   |

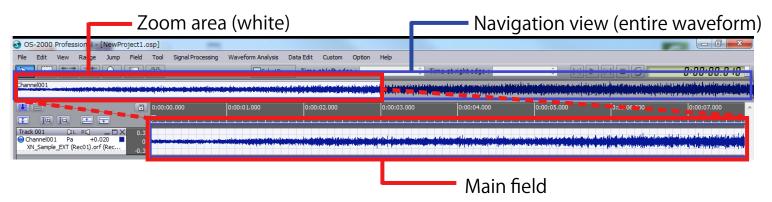
•File color mode: ON - The color of waveform is changed in each file •Item advanced mode: ON - Display the file name



### Time-axis waveform display (Navigation view)



Naigation view is displaying the standard time-axis waveform (entire waveform) The zoom area (white) is enlarged and displayed on the main filed.

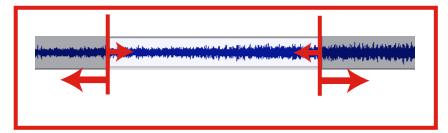


Zoom area can be moved by dragging the mouse.

| File Edit View Range Jump Field Tool Signal Processing Waveform   | Analysis Data Edit Custom Option         | Help   |  |   |
|---|--|--|--|---|
|   | SelectRange Time at left edge :          | Time at right edge :   |  | 0:00:05, 136 🛃  |
| Channel001  | n an | ind provide an a superior base to be a first to a superior of a disert only the superior superior disert on soft<br>The superior distribution of the gradient superior disert of the superior distribution of the gradient to be sup | in des gal ha die personale son des la company autorité de la grant de la die vertité de la company de la comp<br>Le die vertité des company de la company de la company de la company de la company autorité de la company de la  | na na kala na kata pana na kata na kat<br>Na kata na kata |
| C:05.000  | 0:00:07.000 0:0                          | 0:08.000 0:00:09.000   | 0:00:10.000 0:00:11.000  | 0:00:12.000   |
|   |  |  |  |   |
| Channel001 Pa +0.004  O-  |  |  |  |   |
| Track 001         DL         R.C         0.3.           Ohannel001         Pa         +0.004         0.         0.           XN_Sample_EXT (Rec01).orf (Rec |  |  | n yn fel a fel a fel an werd a gelege de geneg fer a fel ar gelege a fel a gelege a fel a gelege a fel a de a d<br>Yn de fel a fel a fel a fel a geneg fel a fel a geneg fel a fel a gelege a fel a gelege a fel a fel a fel a fel |   |

The display area of the waveform in zoom area can be increased or decreased by mouse operation.

| OS-2000 Professional - [NewProject1.osp]  |  |                                 |  |
|---|--|---------------------------------|--|
| File Edit View Range Jump Field Tool Signal Proce   | ssing Waveform Analysis Data Edit Custom Option Help |                                 |  |
|   | SelectRange Time at left edge :                      | 🗘 Time at right edge :          | 0:00:04. 107   |
| (Channel001   |  |                                 | n hann de stande het speciele ble de stander het som at het sen en het skin stande. Er stalle skilge skilse sko<br>Sen den stande het stande stande stande de stande de stande stande stande stande stande stande stande som som s |
|   | 0:00:05.000 0:00:05.000 0:00:07.000 0:00             | :08.000 0:00:09.000 0:00:10.000 | 0:00:11.000 0:00:12.000 0:00:13.000  |
| Track 001         DL R€         □ X         0.3.           Ochannel001         Pa         +0.029         0.         0.           XN_Sample_EXT (Rec01).orf (Rec |  |                                 | yn yn de general i general wegen ef yn de general y fer de yn ar yn general fer en yn dy'r general yn general y<br>Yn de general fer an fer a fer a general yn a general yn general yn general an ferna i byfer an bran yn er yn y |
| 0.0   |  | · · · ·                         |  |



### Time-axis waveform display (Waveform switching)



The reference time-axis waveform which is displayed on the navigation view can be changed. The color of the frame line of the area becomes red when drag the item of the main field to the navigation view. Drop it at this state.

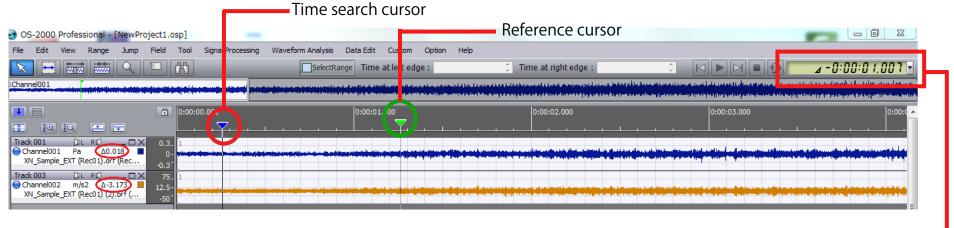
|  |   |                      | Navigation  | view (entire waveform)   |
|--|---|----------------------|---|--|
| S OS-2000 Professional - [NewProject1.osp]   |   |                      |   |  |
| File Edit View Range Jump Field Tool Signal Processing   | Waveform Analysis Data Edit Custom Option Hel   | p                    |   |  |
|  | SelectRange Time at left edge :   | Time at right edge : |   | 0:00:04.102 💌  |
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| S OS-2000 Professional - [NewProj                         | ect1.osp]  | -   |  |  |  |
|---|--|---|--|--|--|
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| Track 001 [DL R€] _ □ ×                                   | 0.3  |   | the sum of the state of the the table to be been and out of  | ener fer beselle soger af en skriver an er stjert fer stor here bester beselverte d  | hard the standard management of the  |
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| Track 003 DL RC _ CX                                      | 75.  |   |  |  |  |
| Channel002 m/s2 +1.894<br>XN_Sample_EXT (Rec01) (2).orf ( | 12.5-<br>-50   | ha bezar en al la paranteleze tara la energia de la da la característica da a la parte de la característica de<br>La gran ha da la mana platectoria há de la da | en begen verskenen beken produktion och den katter att som er som statt beken versken besätelse besätelse besä<br>In sternation besäter generalisen av statt sin statt som efter att beken verska beregen att besäter besäter ster | ed dae een die gedeelijk gegen die een beken die beken gen die gewen die gewen die gedeelike op die beken die s<br>Gewen die die beken die Gedeeling van die besteling die beken die gewen die die die gewen die state gedeeling d |  |

### Cursor display (search cursor, reference cursor)



The value at the position of time search cursor ( $\bigtriangledown$ ) is displayed on the track. Cursor is moved left and right.



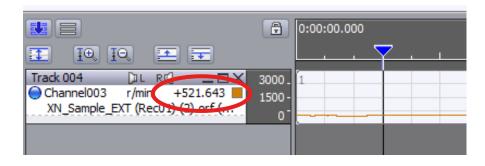
Time search cursor Indicates the current time

When right click the time search cursor ( $\bigtriangledown$ ) and select [Place the reference cursor], the reference cursor ( $\checkmark$ ) is appeared.

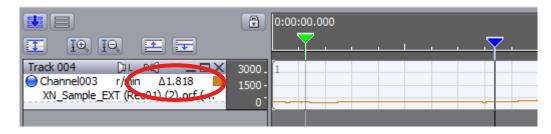
| Move                       | • |
|----------------------------|---|
| Add New Marker             |   |
| Place the reference cursor |   |
| Properties                 |   |

## Cursor display (Display the difference beween two points) **ONOSOKKI**

Display the position of time search cursor ( $\bigtriangledown$ ).



The difference ( $\angle$ Y) between two points is displayed when place the reference cursor ( $\checkmark$ ). You can check the  $\angle$ X with time display.



You can check the cursor ( $\bigtriangledown$ ) value by opening the database window of the display menu.

| Diselau tha it | an autoide the Cald  |   |
|----------------|----------------------|---|
|                | em outside the field |   |
| Channel        | 3                    | ^ |
| Item Name      | Channel003           |   |
| Unit           | r/min                |   |
| 0:00:00.839    | 515.151              |   |
| 0:00:00.839    | 515.1506             |   |
| 0:00:00.839    | 515.1502             |   |
| 0:00:00.839    | 515.1498             |   |
| 0:00:00.839    | 515.1494             |   |
| 0:00:00.839    | 515.149              |   |
| 0:00:00.839    | 515.1486             |   |
| 0:00:00.839    | 515.1483             |   |
| 0:00:00.839    | 515.1478             |   |
| 0:00:00.839    | 515.1475             |   |
| 0:00:00.839    | 515.147              |   |
| 0:00:00.839    | 515.1466             |   |
| 0:00:00.839    | 515,1462             |   |

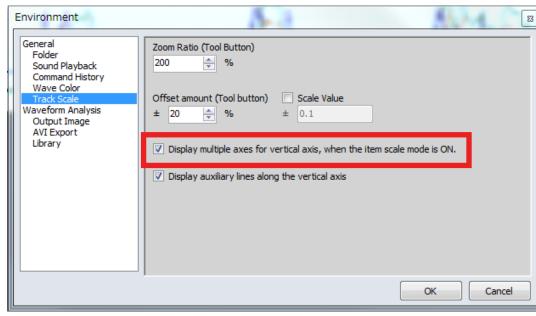
### Overlay of time-axis waveform



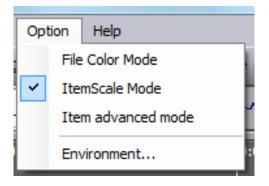
Y-axis can be displayed as multiple axes when tracks are overlaid.



Setting is necessary at the Environment setting screen in the option menu. Turn ON the "Display multiple axes for vertical axis, when the item scale mode is ON".



Item Scale Mode: ON



### Data range selection (1)

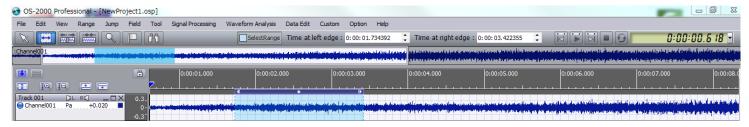


#### Select the waveform range that you want to be analyzed.



#### **Range selection**

Move the cursor to the start point to be selected and hold the left button of the mouse. After dragging the cursor to the end point of the range and release the left button of the mouse, the frame color of the area you selected is changed to light blue.

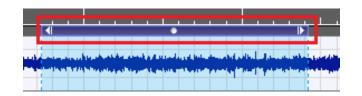


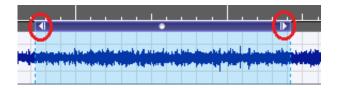
#### Move

Left click the red frame area and move it to left or right.

#### Change range (widened or shortened the frame)

The frame width can be changed when the cursor is changed to arrow (⇔) by moving the mouse close to the red circle.

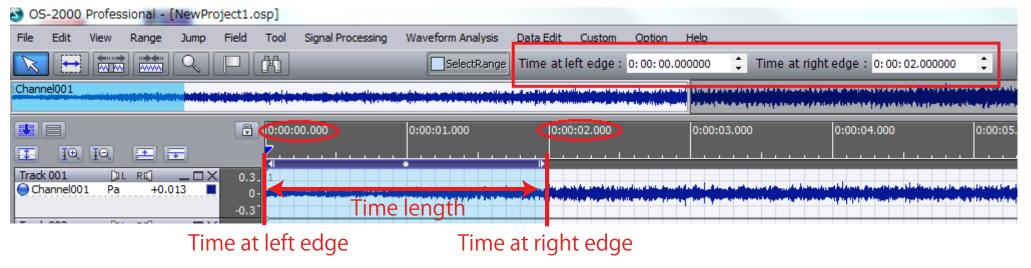




### Data range selection (2)

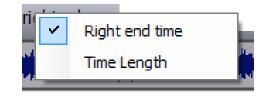
# 

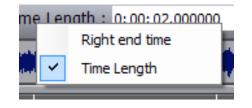
#### Display the selected range area in time.



Left end time Indicate the time at left or right edge of selected range. Right end time

Time Length When click the [Time at right edge], you can switch to [Time length].

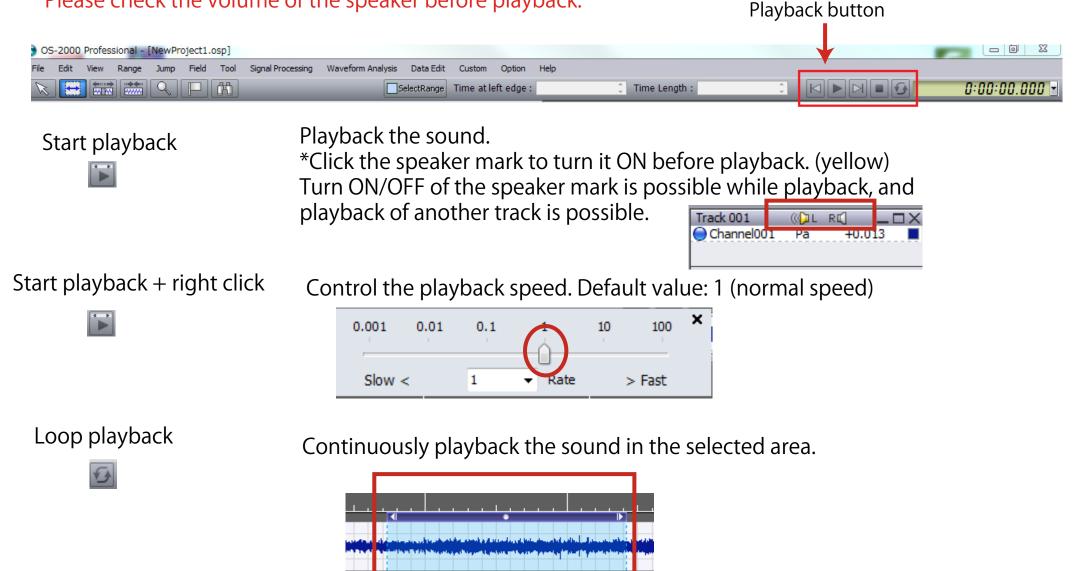




### Time waveform playback

Sound (vibration) can be playback. Please check the volume of the speaker before playback.





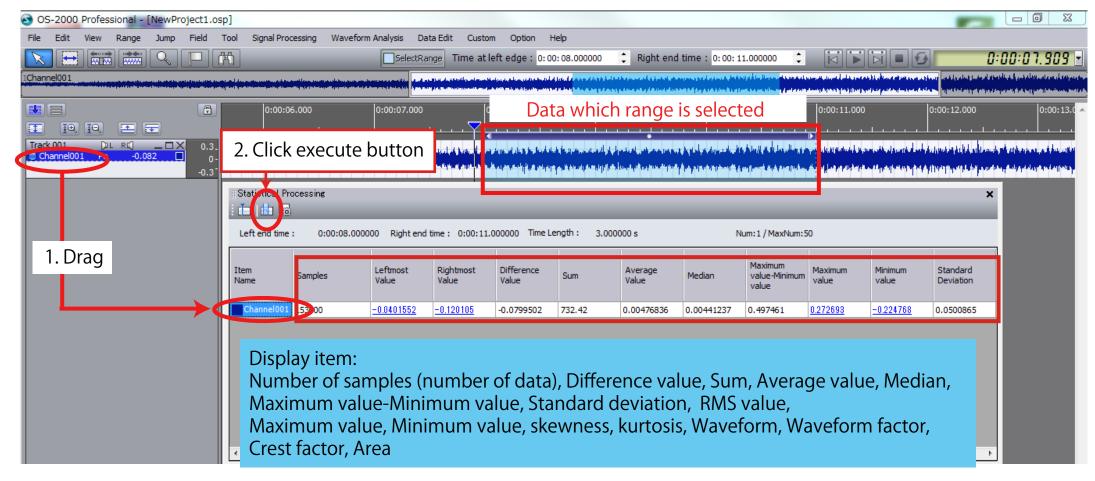
### Statistical Processing



Display the statistical indicator of the specific range of an item such as total value, average value or max. value. The statistical value can be obtained in the selected range.

1. Open the [Statistical Processing] in the [Custom] menu. Drag the item to the [Statistical Processing] screen.

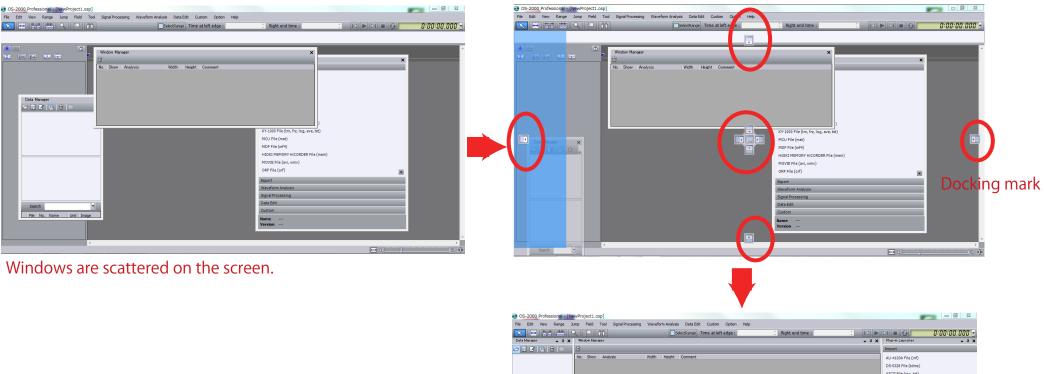
2. Click [Execute] button and display the statistical values of data which range is selected.

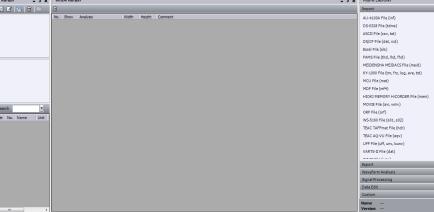


### Window docking



When there are multiple menu windows on the screen, you can dock them to make it easier to see. The docking mark is appeared when you move the menu window. The blue frame is appeared when you move the mouse close to the arrow. The window is fixed to this blue frame area.



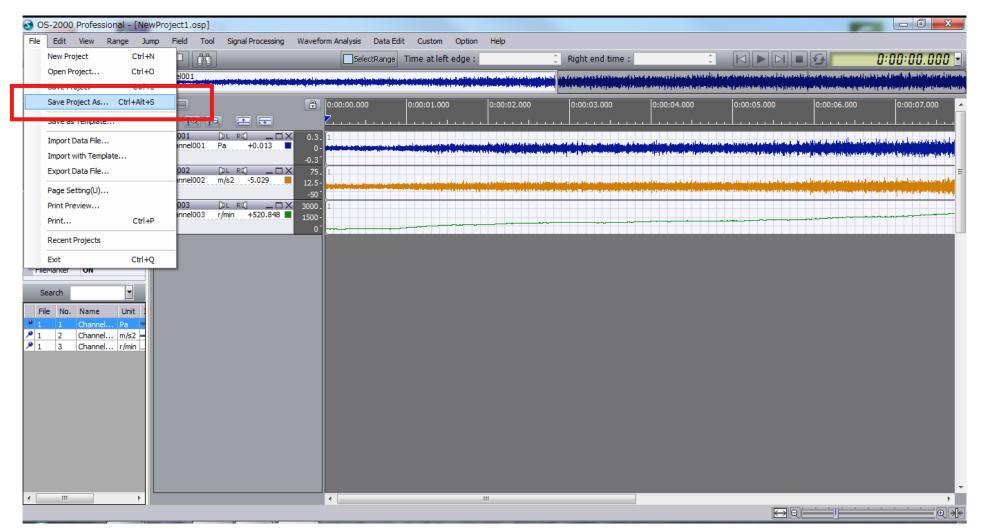


#### WIndows can be fixed.

### Store the project file



# Current OS-2000 state can be stored as a project file. (Extension: osp) Select [Save Project As...] in the File menu and store it.



If you want to continue working on the project next time, select the stored file name from the [Open Project] in the File menu.