Time-Series Data Analysis Software
OS-2000 Series

The OS-2000 Series enables you to display data in different formats on the screen.
It allows you to place and overlay data as desired.
In addition, you can quickly process large amounts of time-series data.

OS-2000

Time-series data analysis software

OS-2000

ONO SOKKI

OS-2000
Version 2.7

ONO SOKKI
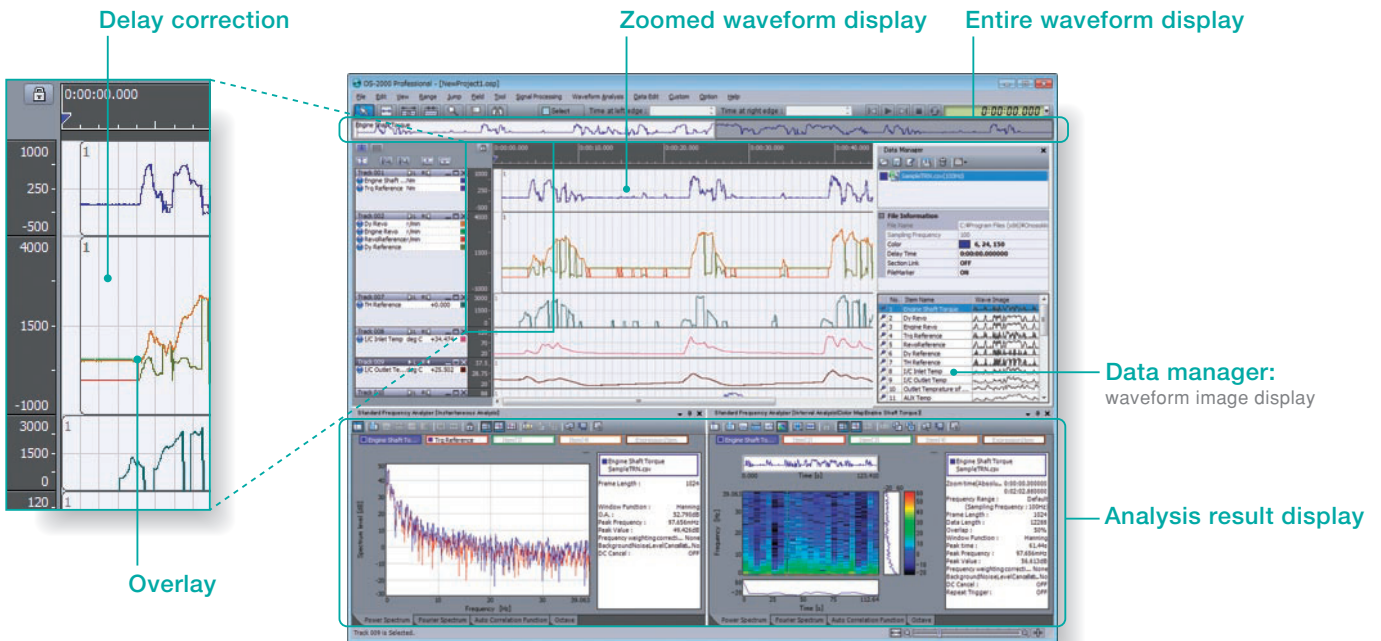
Time-Series Data Analysis Software

OS-2000 Series Ver. 2.7

The OS-2000 series software allows you to freely edit
and analyze long time-series data that cannot be handled by Excel®.
Data from recorders of different manufacturers as well as standard format data
such as CSV and WAV files can be easily handled.

Version 2.7 provides enhanced frequency analysis with the easy operation.
The DS-3000 series Data Station users also can perform analysis easily and smoothly.

Features

- Data can be simultaneously displayed in different formats. Can be displayed in order or overlaid as desired.
- Large amounts of time-series data (recorder data) can be easily imported for analysis on your PC.
- Rapid processing does not distract the operator's attention.
- Entire waveforms and enlarged waveforms can be simultaneously displayed. Diverse editing functions include search, time correction, cutting out, and more.

Delay correction   Zoomed waveform display   Entire waveform display

Data manager:
waveform image display

Analysis result display

Overlay

Capable of direct reading in original data format of various measurement devices

Binary data of each device made by TEAC, HIOKI or YOKOGAWA can be read directly without data conversion to text format.
The OS-2000 series are expected to further practical use on various measurement scenes in combination with such measurement devices.

TEAC
WX/LX/es8, etc.
*.hdr

HIOKI
MEMORY HiCORDER
*.mem

YOKOGAWA
DL/SL/WE series
*.wvf, *.wdf

Sound Level Meter
*.wav

Engine testing device
FAMS *.thd, *.lhd, *.fhd
MEIDACS *.meid

GPS Speedometer
*.csv

Data Recorder
*.orf

Data Station
*.orf

We ask that you check for applicable models on our website, etc. before purchase. Please refer to the each manufacturer's website for more details.
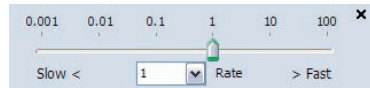
Playback function

Loop playback of the specified area

Data in a specified area can be replayed repeatedly with the loop ON/OFF button.

Change playback speed

Even if multiple events are occurring at short intervals, they may appear to be a single sound at normal speed. Slowing down the playback speed allows them to be identified as separate events.

Switching playback channels

Playback channels can be changed without stopping the sound, allowing easy identification of subtle sounds and switching of sounds that were recorded in multiple points at specific timings.
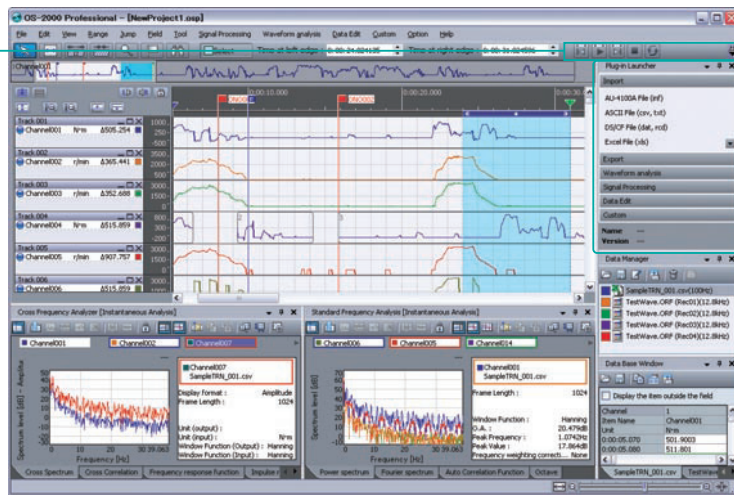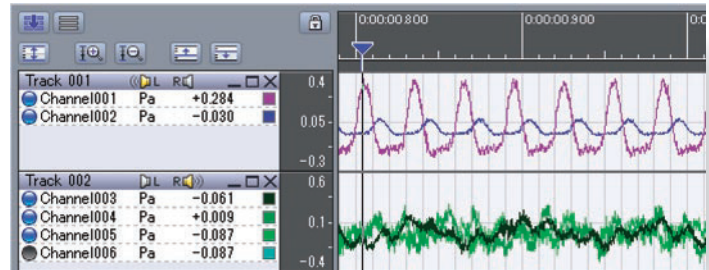
Mixing playback

This function enables mixing of several data on which a different phenomenon was recorded. For example, sound files of frequency-resolved sound can be compounded and played back as one file.
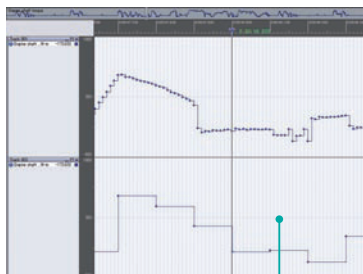

Plug-in launcher

Data analysis, file manipulation, and analysis tools can be operated from this launcher.
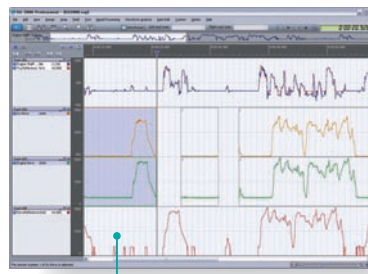
Display function

### Waveforms of different sampling frequencies can be displayed.

Waveform of different sampling frequencies can be displayed simultaneously.
*The lower waveform in the figure has a sampling frequency which is ten times higher than that of the upper waveform.

Waveforms can be separated or moved freely.

You can separate a waveform at any point and then move it to a location of your choosing.
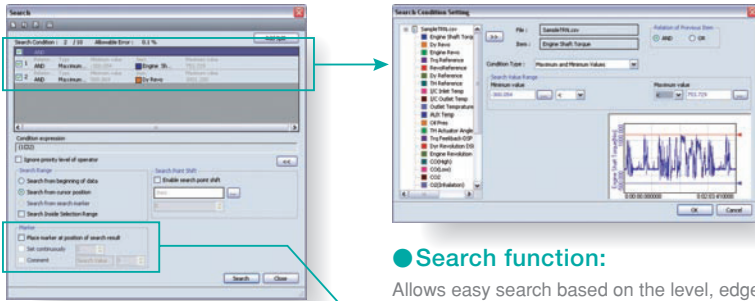
Waveforms can be enlarged or contracted freely.
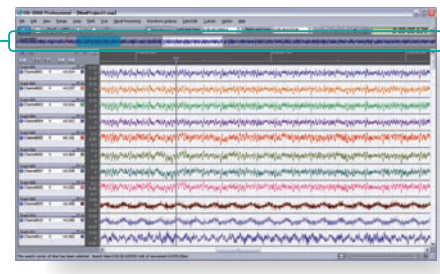
The Navigation view allows you to check entire waveforms and enlarged areas at a glance. Enlarged areas can be easily scrolled with a mouse.
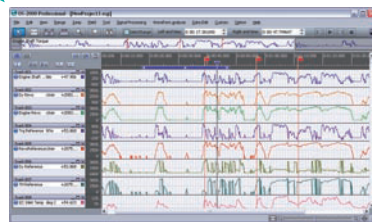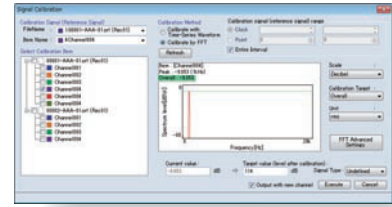
Basic (OS-2500)

Search function

AND/OR searches can be performed with up to 10 conditions.

● **Search function:**
Allows easy search based on the level, edge, and variation.

● **Marker function**
You can edit waveform with smooth operation by using of this function. Marker and label can be placed automatically at the position of search result.

Signal calibration

Allows calibration based on reference signals. Example: Sound pressure calibration of data using a sound calibrator.

Simple calculation
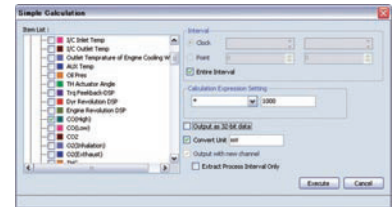
Arithmetic operations with constants and 6 functions such as ABS and LOG can be performed on data from any channel. Use this feature to change units or eliminate unnecessary offset values.

Statistical processing (interval)

Statistical analysis can be performed on a specified channel and range. The resulting statistics are displayed as shown left. Multiple channels can be analyzed at the same time.

Statistics processing item: Difference value, Sum, Average value, Median, Maximum - minimum, Max, Min, Standard deviation, Effective value, Local maximum value - local minimum value, Local maximum value, Local minimum value, Skewness, Kurtosis, Form factor, Peak factor, Average absolute value, Area, Area+, Area-

Event counter
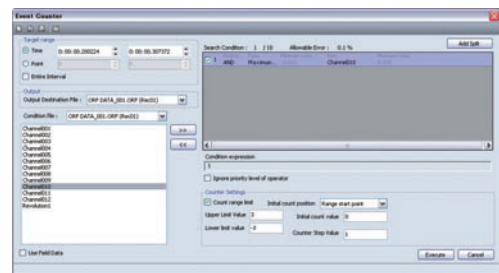
This function enables count waveform generation such as level, edge or variation waveform and is ideal for the use of changing rotational pulse signal into angle or distance waveform.

Meter

Rotation speed, vehicle speed and other data can be displayed on analog meters.
* A red zone (warning area) and peak hold function are provided. Video can be output in combination with analysis results and various images.

Other function

・Changing of channel settings
・Signal type settings
・Moving average
・Effective value calculation
・Synchronizer (function for aligning the positions of time waveforms using trigger signals)
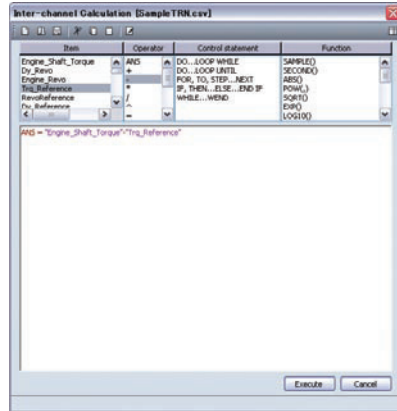・AVI exporter

Standard (OS-2600)

Level adjustment
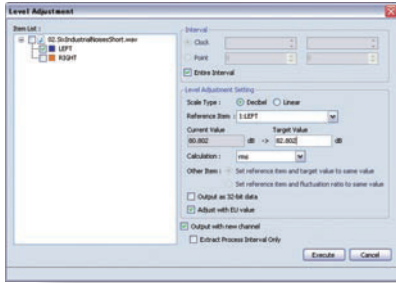
Imported data can be adjusted to any values.

Inter-channel calculation

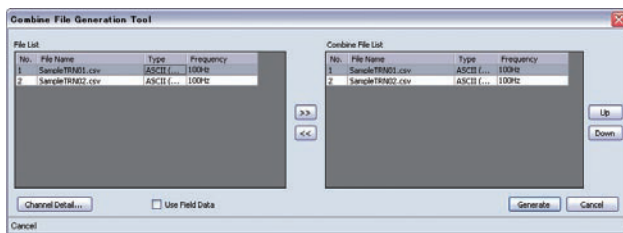Allows calculation between multiple channels using operators.
・9 operators: Four arithmetic operations, etc.
・5 control statements: DO...LOOP, etc.
・19 Functions: ABS, EXP, etc.

Other function

・Search value extraction
・Time axis calculus
・F/V converter
・Resampling

Professional (OS-2700)

Combine file generation

Any two files can be connected to create a new file.

Recording function (OSRECO)

Recording screen

Records data from the DS-2000/3000 series or audio devices. The recorded data is imported as a new file. The DS-0299/DS-0399 is required when recording on the DS-2000/3100.

File merge
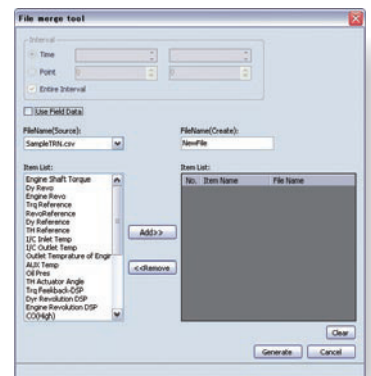
Necessary data that exists in multiple files can be consolidated into a single new file.

Other function

・Waveform generator tool
・Hilbert transform
・Taper processing
・Absolute sound pressure playback

New & enhanced function ver.2.7

New function

● MDF Exporter

This new function allows output in the ASAM MDF 4.0 file format, which is now widely used in the auto industry.
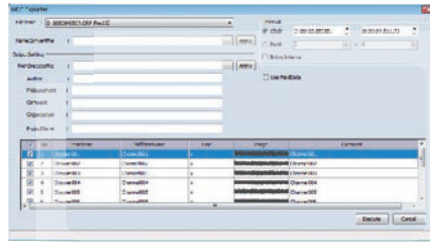

Enhanced function

● Data import from the DS-3000 series Data Station

Recorded data is transferred to the OS-2000 series with a single button.
Data recorded on the DS-3000 series Data Station can be immediately transferred to the OS-2000 series, which facilitates detailed analysis and data comparison.
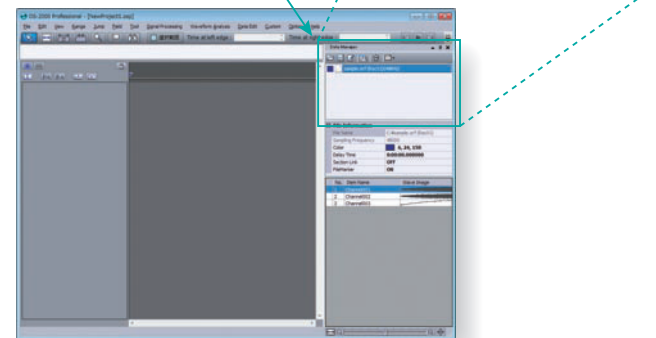
*Required the DS-3000 series basic software ver.2.2.6.171 or later and the DS-0350 Recording Function software.

DS-3000 series
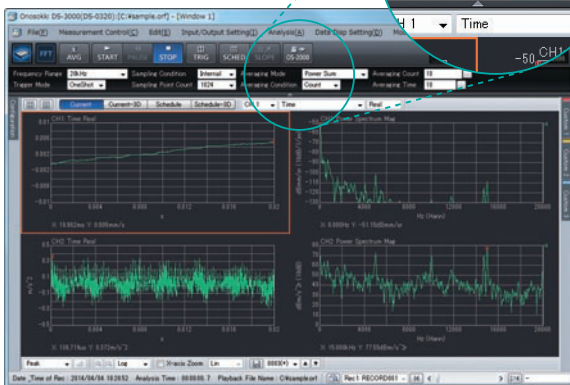
You can automatically export the recorded files to OS-2000 series when you click the button!

OS-2000 series

DS-3000 series	**OS-2000 series**
Saves multiple data after recording and analyzing.	*You can immediately compare the recorded data and analyze in detail!*

● Effective (RMS) value calculation

Weighting correction with G weighting
G weighting have been added for frequency weighting corrections for effective (RMS) value calculation.

● Other enhanced function

OSRECO (recording function) supports for Windows 7 64-bit version (OS-2700)
OSRECO can now be used on the 64-bit version of Windows 7. The DS-0299/DS-0399 is required when recording on the DS-2000/3100.

Wave exporter
Allows output at quantizing bit rates after setting the maximum and minimum values so that 16-bit and 32-bit data can be output to WAVE files at the same sound level as that on the OS-2000 series.

Option

● OS-0252 FFT Analysis

Capable of standard frequency analysis and cross frequency analysis up to 32 channels. The time trend, color map function and video file (AVI) output for FFT allow progress over time to be easily checked. Various calculation functions enable power addition of 3-axis data for use in vector calculation of magnetic field evaluation measurements.

Standard frequency analysis : Power spectrum, Fourier spectrum, Phase spectrum,
Auto correlation, Bound octave analysis
Cross frequency analysis : Frequency response, Inter-channel phase spectrum,
Cross spectrum, Coherence, Cross correlation, Impulse response

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· Window function : Rectangular, Hanning, Hamming, Flat-top, Blackman-Harris, Exponential, Force
· The number of lines : 50 to 25,600
· Frequency weighting correction : A, B, C, Custom
· Calculus : 1 differential/integral, 2 differential/integral
· Average : Arithmetic mean, Peak hold
· Density : OFF/PSD/ESD
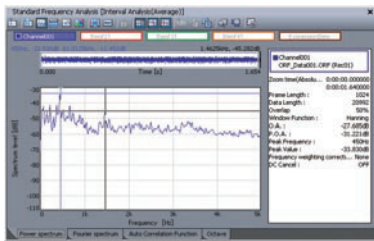
Power spectrum
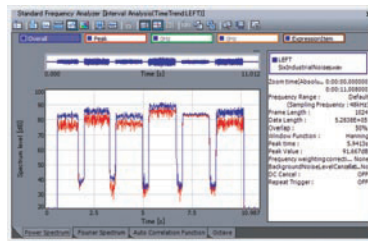
Time trend (overall, peak)
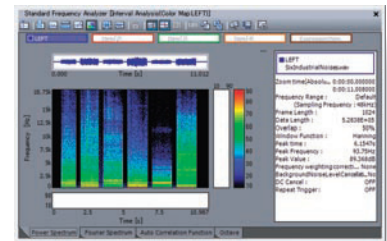
Power spectrum (color map)

Enhanced function ver.2.7

Frequency range changing function

Frequency ranges can be changed when performing analysis; resampling in advance is no longer necessary.

Maximum FFT frame extended (32,768 → 65,536)

The maximum analysis frame length of 32,768 points has been extended to 65,536 points, allowing analysis with a greater frequency resolution.

Repeat trigger function

A repeat trigger function has been added. By setting a level trigger, the points where the trigger is hit in the analysis section can be analyzed to obtain the results. This function allows analysis to be performed at each point where hammering test data is entered and the average results to be determined.

Customization of frequency weighting correction

It is now possible to use reverse A weighting and user-defined filters as a frequency weighting correction.
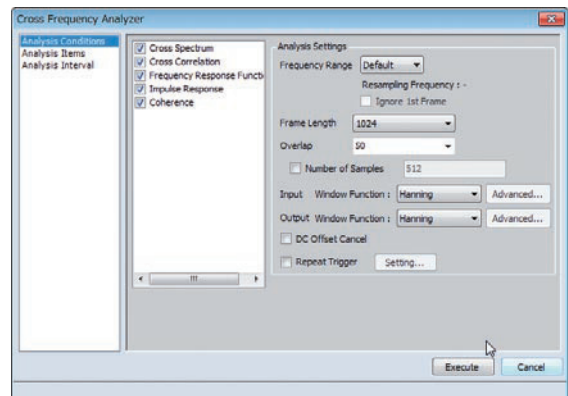
Analysis condition setting
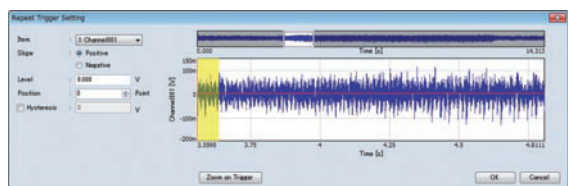
Repest trigger setting

Specifications

Type	Model name	Overview
Basic	OS-2500	This is the basic version, equipped with the Event counter, Search function, Effective value calculation, and other essential capabilities.
Standard	OS-2600	This is the standard version which is equipped with enhanced features of Inter-channel calculation, Search value extraction, and F/V functions added to the Basic version.
Professional	OS-2700	This is the professional version, equipped with numerous advanced functions in addition to those in the Standard version, including File merge, Waveform generation tool, Hilbert transform, and Recording functions.
FFT Analysis Option	OS-0252	An option plug-in of OS-2000 series, which enables FFT analysis.

Item	Specifications	OS-2500 Basic	OS-2600 Standard	OS-2700 Professional
Basic function	Waveform editing functions		●	
	Numerical data display and editing functions		●	
	Search cursor function		● (Delta display supported)	
	Marker function		● (Automatic marker placement function)	
	Sound playback function *1		● (Repeat available)	
	Search function		● (Logic settings supported and high and low values/level trigger/range trigger/difference values for each condition)	
	Merging/combining sections		●	
	Printing function		●	
Display	Number of tracks		Up to 1024 tracks	
	Number of display items		Up to 10 items for each track	
Sampling frequency			0.01 Hz to 20 MHz	
Data import	Number of files		Up to 10 files	
	Number of channels		Up to 1024 channels	
	Number of data points		Up to 500 million data points (number of files x number of records x number of channels)	
	File format		ASCII(*.txt, *.csv) *2 / WAVE(*.wav) *3 / Excel(*.xls, *.xlsx) *4 / DS/CF(*.dat, *.rcd) *5 / ORF(*.orf) / AU-4100A(*.inf) / VARTS-II(*.dat) / FAMS(*.thd, *.lhd, *.fhd) / KY-1000 (*.trn, *.frz, *.ave, *.log, *.txt) / MCU(*.mat) / WS-5160(*.s01, *.s02) / TEAC Corporation TAFFmat(*.hdr) *6 / HIOKI E.E. Corporation MEMORY HiCODER(*.mem) *7 / Meidensha MEIDACS(*.meid) *8 / Yokogawa Electric Corporation WVF/WDF(*.wvf, *.wdf) *9	
Data export	File format		CSV(*.csv) / WAVE(*.wav) / UFF(*.uff) *10 / ORF(*.orf) / AVI(*.avi) / MDF(*.mf4)	
Data editing	Channel setting/Signal type setting		●	
	Combine file generation tool/File merge tool/Waveform generator tool	-	-	●
Signal processing function	Simple calculation/Moving average/Event counter/Effective value calculation		●	
	Search value extraction/Time axis calculus/Level adjustment/F/V converter	-	●	●
	Inter-channel calculation/Resampling	-	●	●
	Hilbert transform/Taper processing	-	-	●
Custom	Statistical processing (interval)/Synchronizer/DR-7100 recording condition setting/Meter/Signal calibration		●	
	Playback (absolute sound pressure) *11/Recording *11	-	-	●
Waveform analysis (OS-0252 FFT Analysis Option)	Standard frequency analysis	○	○	○
	Standard frequency analysis EX	○	○	○
	Cross frequency analysis	○	○	○
	Cross frequency analysis EX	○	○	○

●: Provided as standard / ○: Optionally provided / -: Not provided

*1: The cycle accuracy differs depending on any of the following: operating environment, processing conditions, and sampling frequency.
*2: Comma-delimited and tab-delimited values can be read.
*3: Limited to Microsoft Windows-standard RIFF-format PCM sound data (uncompressed).
*4: In order to handle Microsoft® Excel workbooks, Microsoft® Excel 2003 or later (sold separately) must be installed on the same PC. Furthermore, in order to handle Microsoft® Excel workbooks with the xlsx extension, Microsoft® Excel 2007 or later (sold separately) must be installed on the same PC.
*5: Limited to internal sampling data.
*6: [DR-C, DR-F/M, DS] Series, GX-1, LX-10/20, LX-110/120, WX7000 Series. For supported models, refer to the website, etc. before purchasing.

*7: MR8880, MR8875, MR8847-01/-02/-03, 8870, 8861-50/8860-50, 8861/8860, 8855, 8847, 8842/8841, 8835-01, 8826,8808/8807. For supported models, refer to the website, etc. before purchasing.
*8: Supports high-speed measurement and continuous measurement data files measured with Meidensha MEIDACS-DY (6100P, 6200P, 6300P, 6400P, 6500P, 6600P) series ver. 3.0 or later. (Note: Average measurement data files cannot be read.)
*9: DL750/850/850E/9000/7400/1700/1700E/1600 Series, WE7000, SL1400, SL1000, DLM2000, DLM4000. For supported models, refer to the website, etc. before purchasing. (Note: Target data for the SL1000 is to be trigger measurement data only.)
*10: Supports only Universal File Format dataset 58 time-series data.
*11: Supported with the Recording function OSRECO (OSRECO.exe).

Operating environments

Item	Specifications	Remarks
OS	Microsoft Windows® XP SP2 (except 64-bit version) Microsoft Windows® Vista (except 64-bit version) Microsoft Windows® 7 (running as a 32-bit application in 64-bit version)	.Net Framework 3.5 Service Pack 1 must be installed.
CPU	Intel® Pentium® 4, 2 GHz or greater	Intel® Core™ processor or higher recommended
Memory	2 GB or greater	
Hard disk	1 GB or more	
Display	Capable of display at resolution of 1024 × 768 or above	1280 × 1024 or above recommended

*CPU, memory, and hard disk requirements differ depending on factors such as the operating environment, size of data to be processed, and video files to be played.
* Installation of this product in a shared folder is prohibited.

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