

Discontinued
(Reference only)

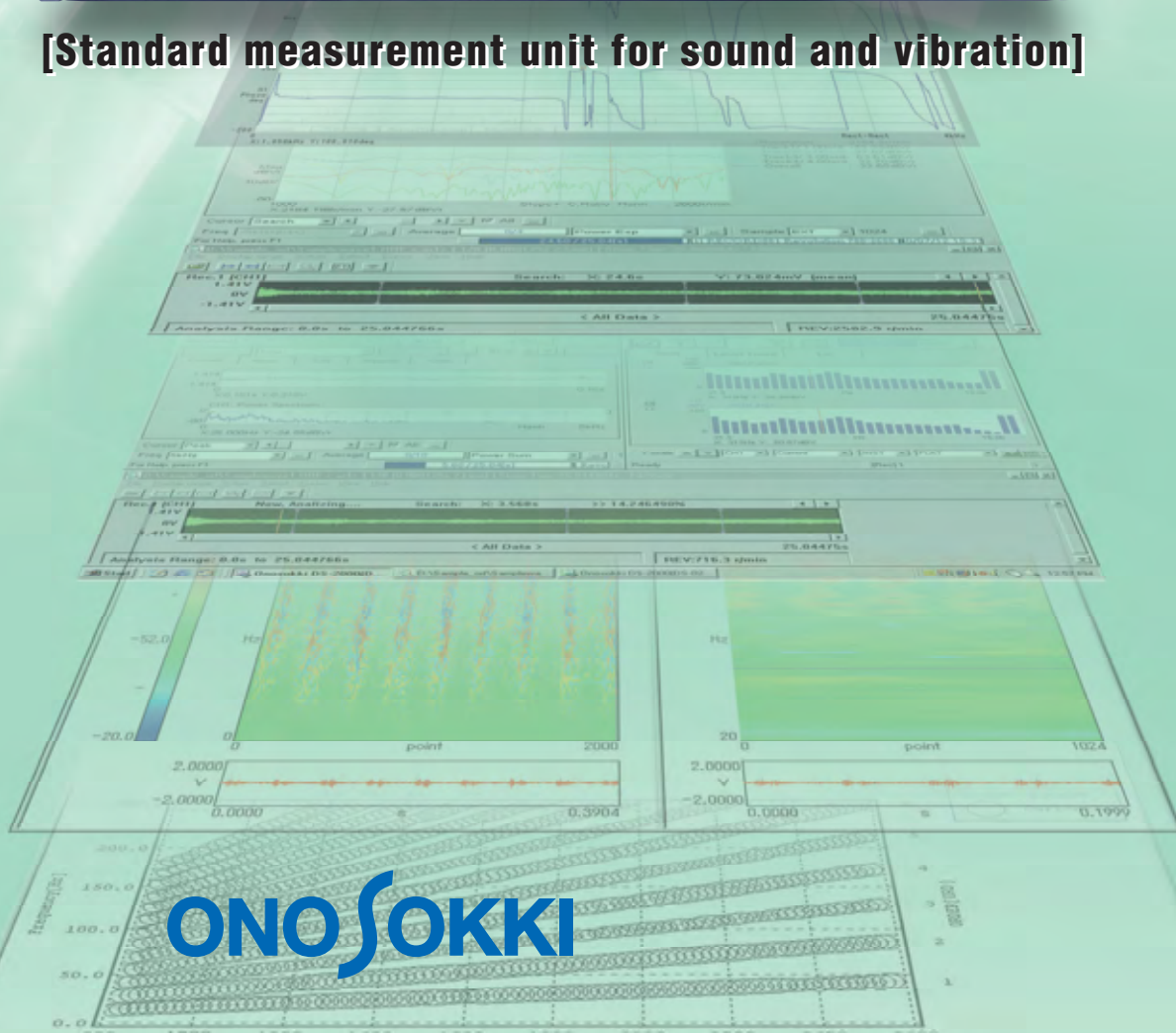
Multichannel Data Station

DS-2000

series



[Standard measurement unit for sound and vibration]





Stylish and speedy - a and analysis. The DS-

The DS-2000 is being created to realize maximum performance in terms of mobility and precision, in order to provide the most accurate possible analysis. The combination of the 18 cm x 25 cm (7" x 10") basic unit with a portable PC enables quick and accurate analysis of sound and vibration data in any work field. The unit has a dynamic range of over 100dB and provides the highest accuracy in its class through 24-bit A/D conversion. The Throughput Disk function of the unit allows sampled waveforms to be recorded directly onto the hard disk drive of your portable PC, enabling them to be analyzed off-line on the PC later. Moreover, a wide variety of applications are available for use with the unit, including those for FFT analysis, tracking analysis, real-time octave analysis, and more. Thus, this analyzer can satisfy all customers' needs in a wide range of specialized fields.

We are surrounded by a diverse array of noise and vibration. The DS-2000 Series is being created to provide a comfortable environment by reducing the levels of such pollutants.

The basic unit (DS-2100) comes in a compact body measuring **18 cm x 25 cm** and weighing **2.3 kg**.



A dynamic range of **over 100dB** has been achieved through **24-bit A/D conversion**.

Designed to be noise-free, without a **cooling fan**





DS-2000 Series

new form of measurement 2000 Series is progressing.

Equipped standard with a **remote-control** function



Provides the **Throughput Disk** function to enable **off-line analysis** using a PC alone

The **File Export** function allows files to be converted to WAV and other formats.

Accepts **direct input** from a variety of sensors (Accepts an IEEE (TEDS)-based sensor)



Automatic Sensor Data Input with TEDS

Each channel is equipped with a CCLD (power supply for sensors) which can directly drive an accelerometer, a microphone, and other sensors requiring a power supply. TEDS reads data retained in a TEDS sensor and then automatically supplies the power to the sensor and performs unit calibration.

*TEDS

TEDS, an abbreviation for Transducer Electronic Data Sheet, is an information description format for sensor-specific information, prescribed by the IEEE1451 Series. When TEDS data is implemented in a sensor, the sensor has a function called "plug-and-play sensor" which allows sensor data (sensitivity, weight, etc.) to be transmitted and recognized by a measuring instrument connected. As a result, troublesome of unit calibration, which can easily lead to errors, can be performed automatically.

*CCLD

CCLD, an abbreviation for Constant Current Line Drive, is a method for driving a constant-current type preamplifier incorporated in a sensor. Either an accelerometer or microphone with a built-in preamplifier can be driven by connecting it to a signal input terminal.

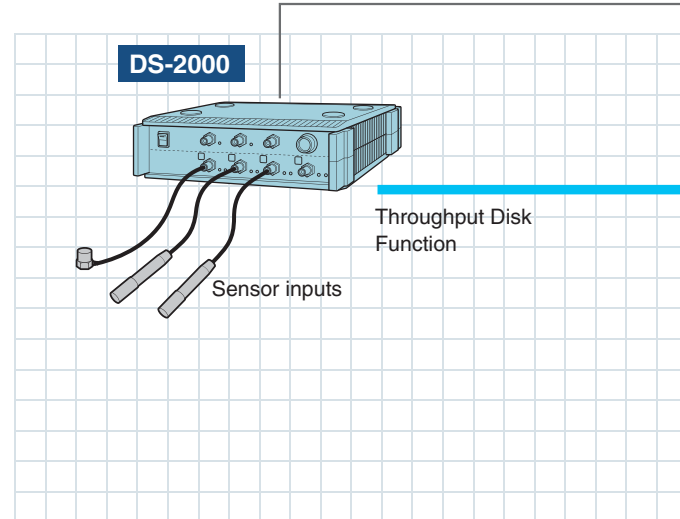
Directly records measurement data on the hard disk drive of a portable PC

...Throughput Disk Function

Application area in the field

FIELD

The 2-channel and 4-channel basic units of the DS-2000 Series are compact in size at 18 cm × 25 cm (7" × 10"). Due to its dedicated carrying case that also accommodates a notebook-type PC and sensors, each unit can readily be mobilized anywhere. In addition, its ability to accept direct signal input from various types of sensors allows the unit to be used flexibly and effectively in a wide range of measurement fields. Furthermore, the Throughput Disk function enables the user to record sound and vibration data continuously onto the hard disk drive of a notebook-type PC, thereby eliminating the need to repeat data recording for each application. After measurements are taken, it is only necessary for the user to bring the PC back to the office, where the data can be analyzed thoroughly at your leisure.



04



Throughput Disk Function

Direct input waveforms can be recorded onto the hard disk drive of a portable PC. This eliminates the need to repeat data storage or acquisition on a data recorder, and enables digital data to be stored free from deterioration for an extended period.

Max. Recording Time		※When recorded only data with 16-bit A/D conversion			
f range	ch	2	4	8	16
40kHz		175min.	87min.	44min.	—
20kHz		350min.	175min.	87min.	44min.

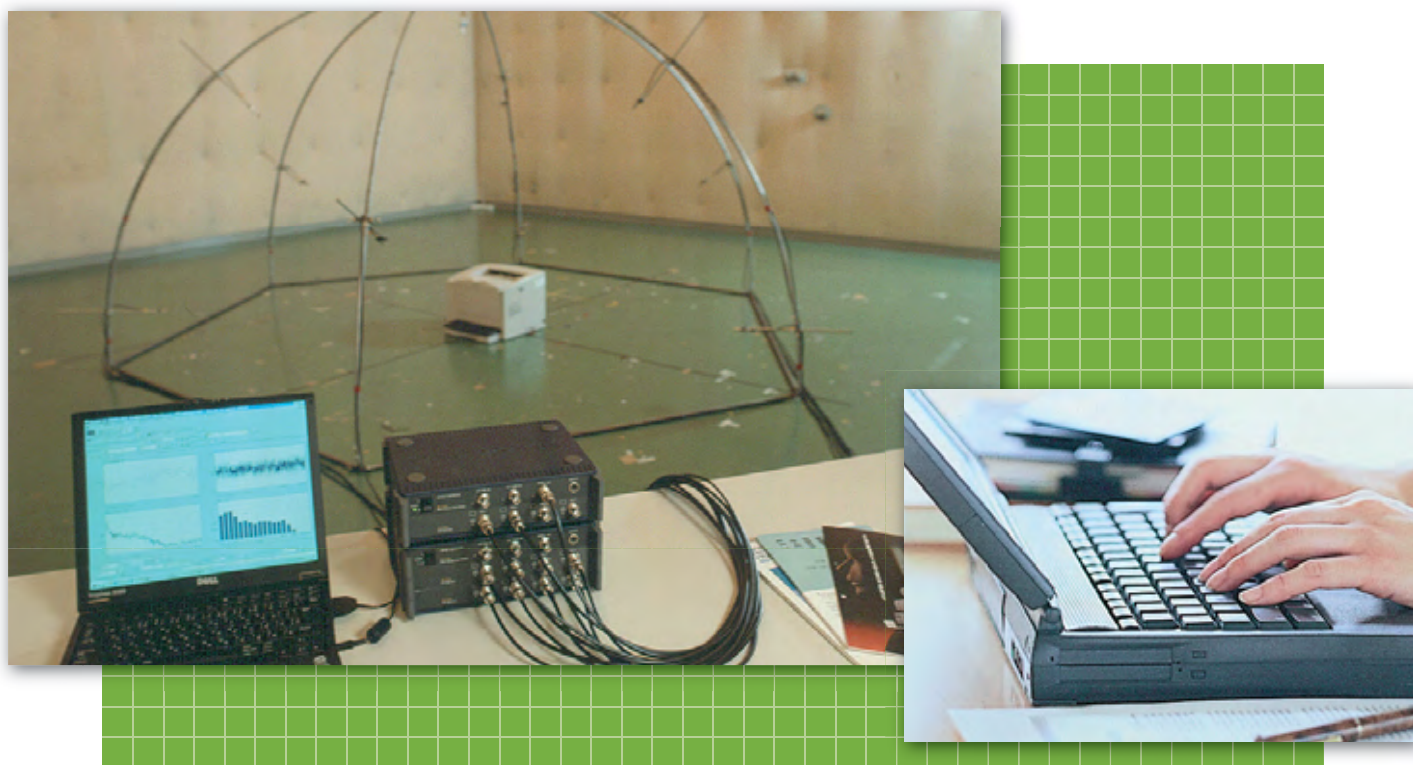
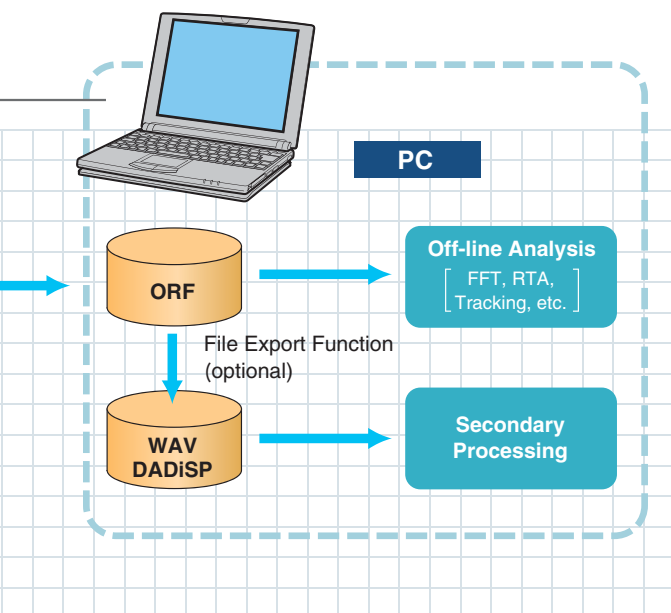
Data analysis using only a PC, as well as other secondary processing, can also be performed.

...Off-line Analyses

Application area in the lab

LAB

The number of channels of the DS-2000 Series can be increased as necessary from a minimum of 2 to a maximum of 32. This feature can be put to optimum use when the unit is used to conduct measurements at laboratories and research institutes at which many data inputs are required, such as sound power level measurement in an anechoic chamber, vibration analysis of large structures, and the like. In addition, the DS-2000 Series is designed to be noise-free, as it requires no cooling fan. Therefore, when it is necessary for a very low level sound to be measured in an anechoic chamber, the unit provides high-precision analysis over a dynamic range of more than 100dB, as it produces no noise. Furthermore, for measurement results, the user can choose the data file format best suited to the secondary-processing software to be employed.



※DS-2000 cannot be synchronized on operation.

Off-line Analysis

Data recorded using the Throughput Disk function can be analyzed on a PC alone, independently of the measurement unit. In addition, you can process other applications, even while performing an analysis.

File Export Function

Data recorded using the Throughput Disk function in the ORF file format can be converted to other file formats, including WAV and DADiSP, for secondary processing using other application software.

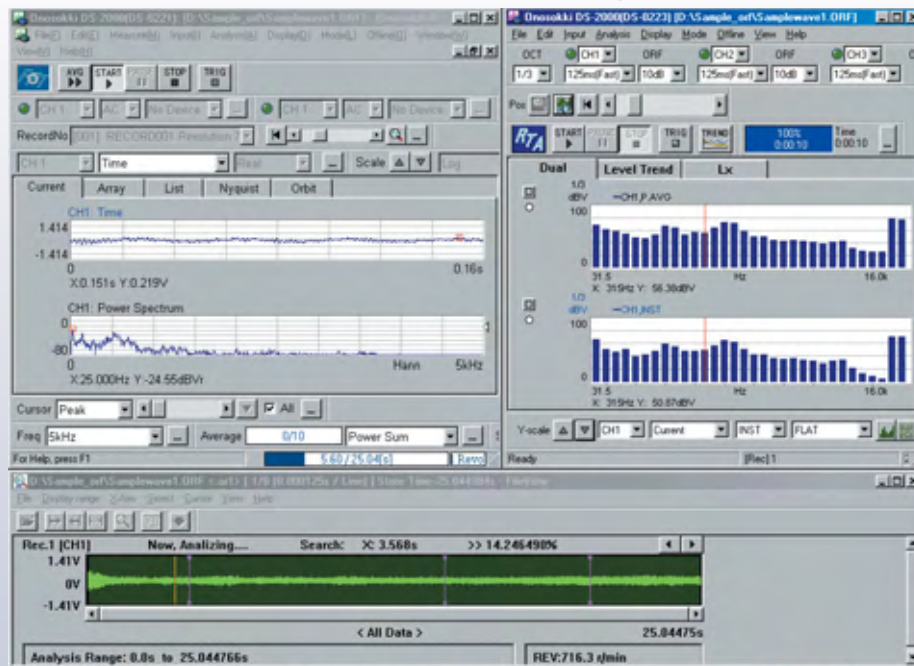
High-Order Measurements and Analyses Implemented through the

FFT Analysis / Real-Time Octave Analysis

For the FFT analysis, the unit is capable of simultaneously processing signals from a minimum of 2 to a maximum of 32 channels, to perform frequency analysis over a range of a maximum of 40kHz and with 6400-line resolution. As with the Real-Time Octave analysis, the unit can

simultaneously analyze data from 2 to 32 channels. Moreover, when an ORF file created using the Throughput Disk function is analyzed off-line, FFT analysis and Real-Time Octave analysis can be performed simultaneously on the same file.

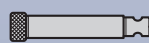
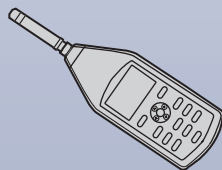
- Example of Simultaneous FFT / Real-Time Octave Analysis Performed Off-line



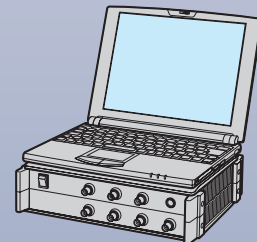
LA Series sound level meter

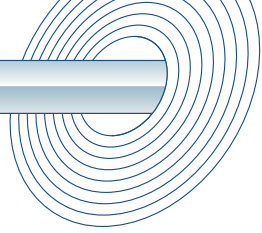
MI-1233 / 1234 / 1431 / 1432 + MI-3110 / 3111
Microphone and microphone
preamplifier for constant current

NP-3000 Series
Accelerometer with built-in preamplifier



DS-2000 + PC



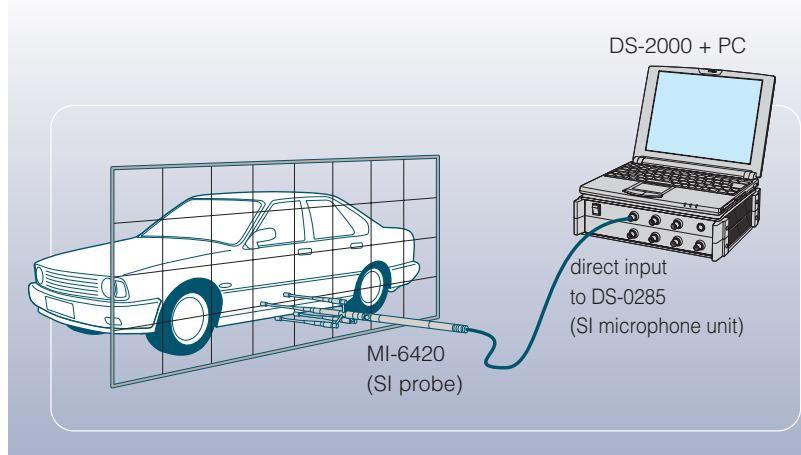


Use of Diverse Applications

Sound Intensity

The DS-2000 Series accepts direct input from a microphone probe for sound intensity measurements (single-axis or three-dimensional type).

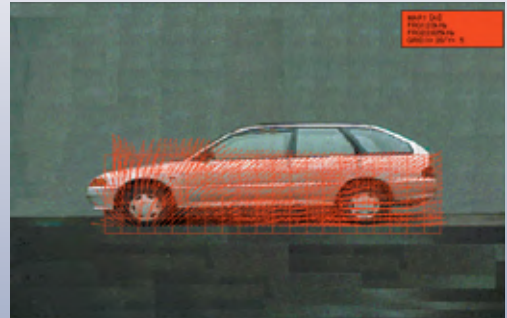
When sound intensity is measured using a three-dimensional probe, map analysis such as real-time sound-source explorations, 3D color mappings, contour mappings, three-dimensional vector mappings, and the like can be conducted.



- Contour Mapping

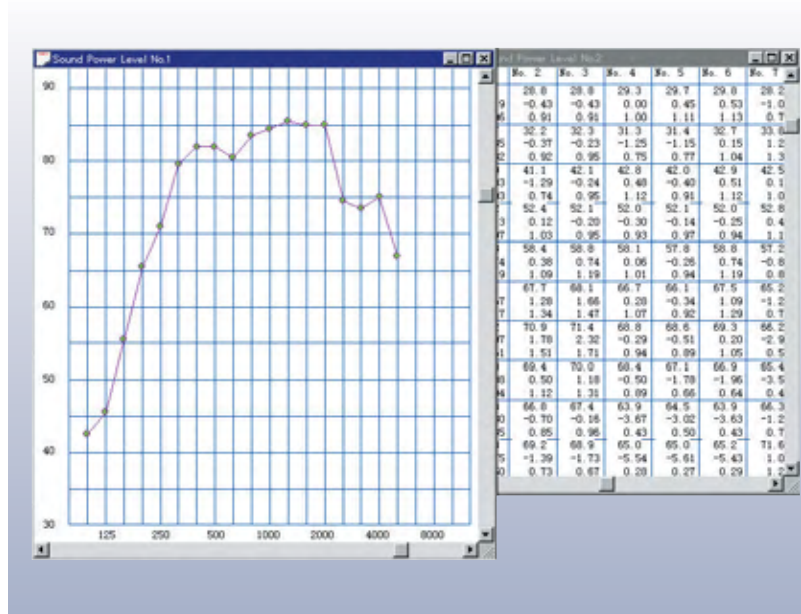


- Vector Mapping

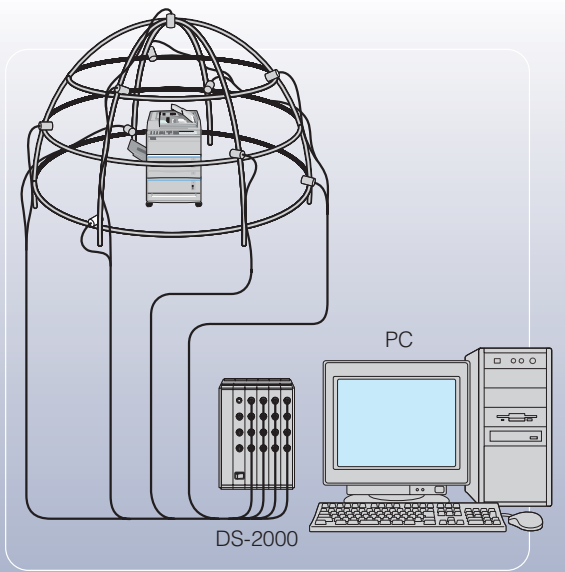


Sound Power Level

The unit enables Sound-Pressure-Method Sound Power Level measurements conforming to ISO 3741-3748, 7779*, and JIS Z 8732-8734.



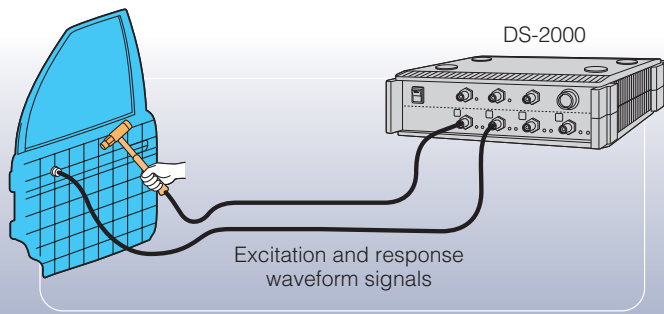
- Sound-Pressure Method (using DS-0231)



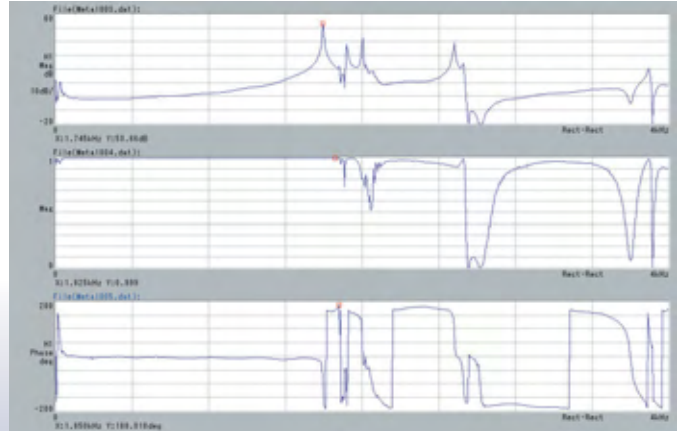
*Only for DS-0255

Frequency Response Function

The unit can be used to perform high-precision analysis of frequency-response functions over a dynamic range of more than 100 dB with 24-bit A/D conversion. The unit can be expanded from a minimum of 2 to a maximum of 32 channels. This feature is particularly useful for measurements that require many data inputs, such as for vibration-mode analysis of large structures and the like. Moreover, measurement of frequency-response functions can be conducted through simultaneous multi-point excitation using two signal outputs.

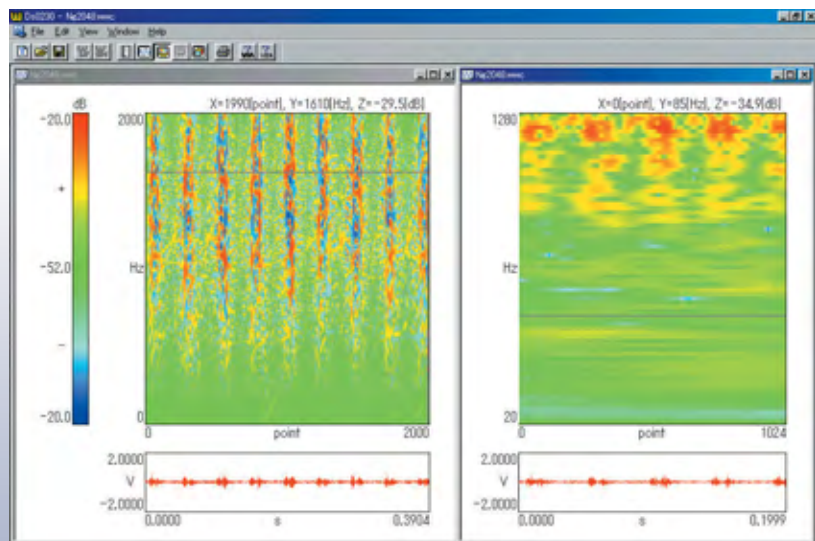


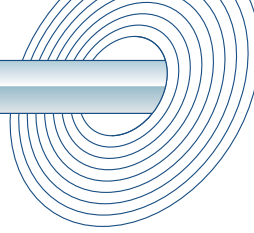
- Frequency Response Functions



Time-Frequency Analysis

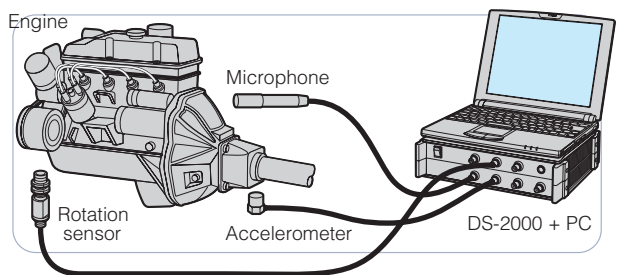
The software performs various types of operational processing, such as short-time FFT, wavelet conversion, and Wigner distribution analysis, on a time-based waveform data file recorded through the DS-2000. These analyses provide an effective means of analyzing non-continuous signals on the time and frequency axes.



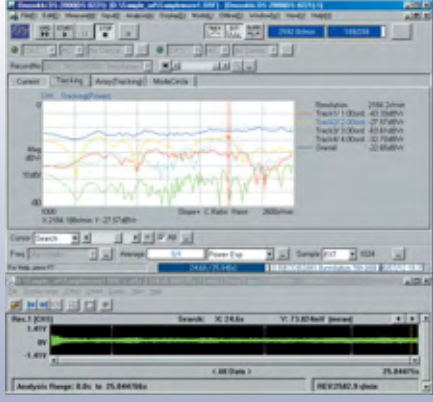


Tracking Analysis

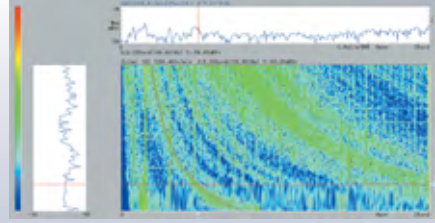
The unit provides the various functions required to perform tracking analysis, including constant-ratio, constant-bandwidth, time tracking, phase tracking, the tracking-file averaging function, and others. Data recorded using the Throughput Disk function can also be subjected to an off-line tracking analysis or real-time octave band tracking analysis.



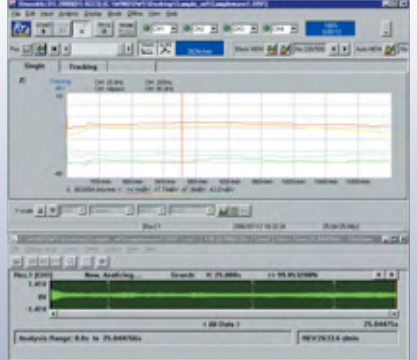
• Tracking Chart in Off-line Analysis



• Sample Output of the Color Spectrograph



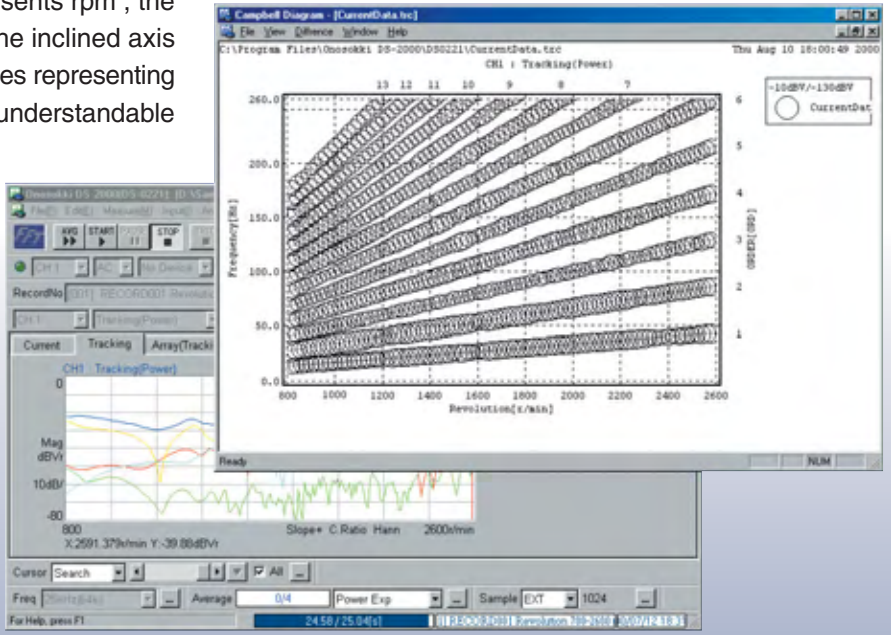
• Real-Time Octave Band Tracking Analysis



(Optional function of real-time octave analysis)

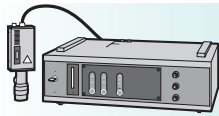
Campbell Plot

Tracking analysis data can be displayed as Campbell plot. In this plot, the horizontal axis represents rpm, the vertical axis represents frequency, and the inclined axis represents rpm order, with the size of circles representing amplitudes. This plot provides a visually understandable presentation of overall change.



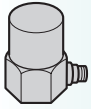
Freely configure your own system from our wide range of products that

Vibration



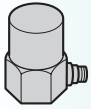
Laser Doppler Vibrometer **LV series**

LV-1700 series is a new generation of Laser Doppler Vibrometer designed for new platform. There is a choice of two models, the model in wide-range for all-round, and the model with high resolution in nano-range.



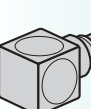
Accelerometer with built-in preamplifier **NP-3000 series**

NP-3000 series enables direct input to the analyzers of ONO SOKKI.



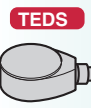
Charge output accelerometer **NP-2000 series**

NP-2000 series can be used for measurement at location of high-temperature using with charge amplifier, as compared to the accelerometer with the built-in preamplifier.



Tri-axial accelerometer **NP-3500 series**

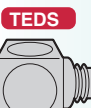
NP-3500 series is a tri-axial accelerometer with built-in preamplifier. For simultaneous measurement of acceleration in the X, Y, and Z directions.



TEDS

Uni-axial accelerometer **NP-3211**

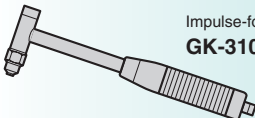
NP-3211 can be used as TEDS sensor in combination with the TEDS adapter (NP-0081N10).



TEDS

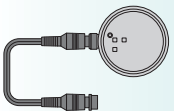
Tri-axial accelerometer **NP-3576N10 / 3578N10**

TEDS sensor with built-in preamplifier



Impulse-force hammer **GK-3100**

GK-3100 is an impulse-force hammer with built-in preamplifier in order to measure the frequency response functions of a mechanical structure or modal analysis. It can be connected directly to the FFT analyzers of ONO SOKKI or other analyzers.



Low-frequency and high-sensitivity type accelerometer **NP-7310**

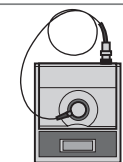
NP-7310 can measure tri-axial directions of vibration simultaneously, excels in measurement of low-frequency vibration such as ground vibration and floor vibration in machine operation. It can be connected directly to the FFT analyzers of ONO SOKKI or other analyzers.

※ Selection of the signal cable in details should be referred to the catalogue of NP series.

Others

Other pressure sensor and F/V converter output

BNC cable

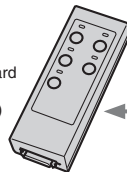


Calibrator for accelerometer **VX-1100**

Simple sensitivity calibrator for piezoelectric accelerometer

Remote controller **DS-0295**

※ (supplied as standard accessory for DS-2102A / 2104A)



Shaker, or speaker etc.

2-channel unit or 4-channel unit can be combined to expand up to 32 channels.

Input unit

(General purpose input unit)

DS-2102A, DS-2104A, DS-0262A, DS-0264A



4ch main unit



2ch main unit



DS-2104A, DS-0264A
DS-0262A



SI microphone unit **DS-0285**



Microphone unit **DS-0286, DS-0287**

Main unit

EXT SAMP, EXT TRIG

Line out for monitor output

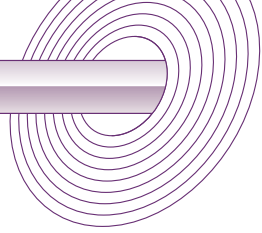


Remote controller

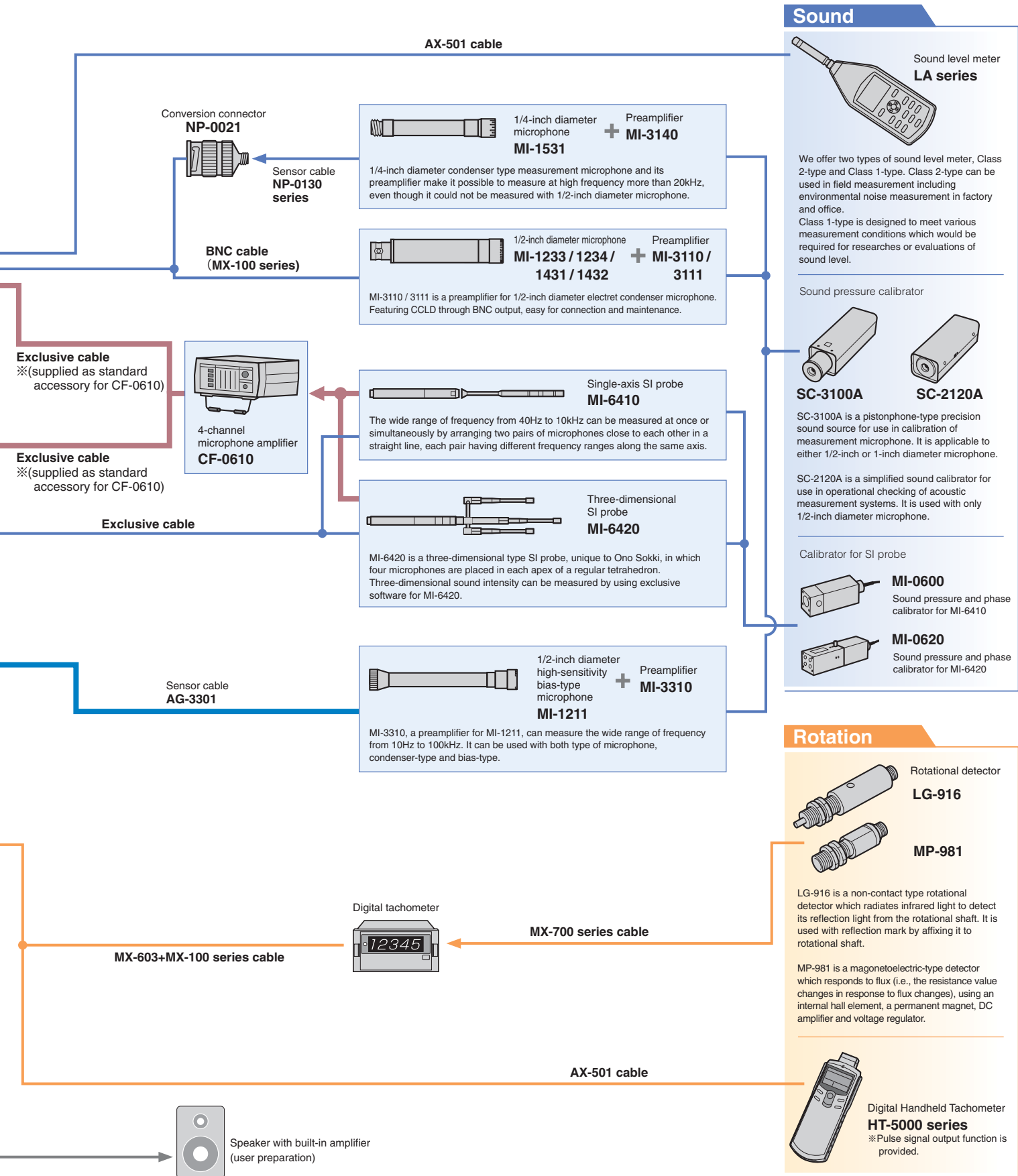
Signal output



DS-0271A, DS-0272A



provide complete support for measurement and analysis.



Sound

Sound level meter LA series

We offer two types of sound level meter, Class 2-type and Class 1-type. Class 2-type can be used in field measurement including environmental noise measurement in factory and office. Class 1-type is designed to meet various measurement conditions which would be required for researches or evaluations of sound level.

Sound pressure calibrator

SC-3100A **SC-2120A**

SC-3100A is a pistonphone-type precision sound source for use in calibration of measurement microphone. It is applicable to either 1/2-inch or 1-inch diameter microphone.

SC-2120A is a simplified sound calibrator for use in operational checking of acoustic measurement systems. It is used with only 1/2-inch diameter microphone.

Calibrator for SI probe

MI-0600
Sound pressure and phase calibrator for MI-6410

MI-0620
Sound pressure and phase calibrator for MI-6420

Rotation

Rotational detector LG-916

MP-981

LG-916 is a non-contact type rotational detector which radiates infrared light to detect its reflection light from the rotational shaft. It is used with reflection mark by affixing it to rotational shaft.

MP-981 is a magnetoelectric-type detector which responds to flux (i.e., the resistance value changes in response to flux changes), using an internal hall element, a permanent magnet, DC amplifier and voltage regulator.

Digital Handheld Tachometer HT-5000 series

※Pulse signal output function is provided.

Specifications for Hardware

The each unit of the DS-2000 series has B5 size and 3cm height. The power supply unit, the units can be stacked up to 8 units according

*Units configuration cannot be assembled by customer.

Main unit DS-2100 (40kHz 2ch / 4ch unit)

This unit, the central unit of the DS-2000 series, supplies the power and clock to each unit. With a high-speed DSP, it performs unit management, I/F operation with the personal computer, and FFT operation etc. It can be directly connected to a 12VDC power supply. When using AC power, the power is supplied with an external AC adapter. If four or more units are assembled, an optional AC power supply unit (DS-0290) is required.

Performance and Functions

	DS-2102A / 2104A (DS-2100+DS-0262A / 0264A+DS-0295)
Computing functions	FFT operation / real-time octave rms operation / analog control / PC interface / clock control (tracking etc.)
Frequency ranges	2 to 16ch : 4mHz to 40kHz (57 ranges) 18 to 32ch : 4mHz to 20kHz (56 ranges)
FFT Real-time rate	40kHz / 4ch, 20kHz / 8ch, 10kHz / 16ch, 5kHz / 32ch (2048 or less points, internally sampled)
Record memory	Fixed at 128MB (The capacity per channel varies in inverse proportion to the number of channels in use)
Recording time	Approx. 5min. 27sec (for 8ch in 5kHz range)
Number of input channels	2 to 32ch (in 2ch steps)
Max. number of units	10 units including DS-2100
External sample input record memory	1ch, AC/DC selectable, ± 0.5 to $\pm 10V$, input frequency range: 0Hz to 85kHz $\pm 10\%$ ($-3dB$ with bandpass filter), number of input pulses / rotational speeds: 0.5 to 1024 (clock division function provided)
External trigger input	1ch, AC/DC selectable, ± 0.5 to $\pm 10V$
Monitor output	Outputs the signal after being standardized input signal with input voltage range *When a sound filter is used, the signal after filtering is output.
Monitor output connector	$\phi 2.5mm$ micro stereo jack
Monitor output voltage	1Vrms at F.S. $\pm 1.0\%$ with respect to the input voltage range (under 1M Ω loaded)
Output terminal impedance	Approx. 33 Ω
PC interface	Interfaced with a PC-AT-compatible computer through ONO-LINKII/PCI (DS-0296A) or ONO-LINKII CARD / PCMCIA (DS-0297A)
Remote controller	Supplied as standard (DS-0295)
Accessories	Operation manual x1, AC adapter x1, Power cable for AC adapter x1, Power cable for DC input x1, Remote controller x1 (DS-0295), Connection cable for remote controller x1 (2m)

*Each unit is assembled at the time of shipment. Never remove or disassemble each unit any time from the DS-2100 measurement unit.



DS-2100 + DS-0262A [40kHz]



DS-2100 + DS-0264A [40kHz]

AC Adapter Specifications(PB-707N)

Input voltage	Rated 100 to 240VAC
Input current	1.0 to 0.5A
Input frequency	50 / 60Hz
Output voltage	16VDC
Output current	2.8A
Safety standards	Electrical Appliance and Material Control Law / CE / UL / TÜV

General Specifications

Input voltage	Rated 12VDC (9V to 16.5V)
Power consumption	15VA (with 2ch) to 80VA (with 32ch)
Operating temperature range	0°C to + 40°C (with no condensation)
Storage temperature range	-10°C to + 60°C (with no condensation)
Outer dimensions	257mm (W) x 74 to 344mm (H) x 182mm (D)mm (not including protruded sections)
Weight	Approx. 2.3kg (with 2ch) to 11kg (with 32ch)
Cooling fan	None
Power connector	DC jack (EIAJ Type5)

CE marking applicable specifications

Safety	EN61010-1 : 2001 (2nd Edition)
EMC	EN61326 : 1997, A1 : 1998, A2 : 2001, A3 : 2003

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General-purpose signal input unit DS-0262A / 0264A

As a general-purpose signal input unit for frequency analysis, multichannel measurement can be offered in combination with the DS-2100 main unit. The DS-0262A/0264A incorporates a digital filter, enabling execution of various filter operations. According to the number of the channels, the unit can be selectable of the DS-0262A (2ch) or the DS-0264A (4ch).



DS-0262A [40kHz]



DS-0264A [40kHz]

	DS-0262A / 0264A
Number of input channels	2ch / 4ch
Input connector	BNC
Input format	Single-ended
Input impedance	1M Ω $\pm 0.5\%$, 100pF or less
Input coupling	DC or AC ($-3dB$ at 0.55Hz or less)
Isolation	None
Power current for sensor(CCLD)	2mA or 4mA
IEEE1451.4(TEDS)	Compatible to TEDS sensor
Sound filter	A, B, and C weighting (offered as standard) Conforms to IEC 60651-1979 TYPE1 / ANSI S1.4-1983 TYPE1 / JIS 1505-1988 TYPE1
Input voltage range	-40 to +20dBVrms (in 10dB steps, 7 ranges) 10mVrms to 10Vrms (7ranges)
Maximum absolute input voltage	70VrmsAC for 1 minute (50Hz)
Input level monitor	Lights up in red LED at excessive input. (Goes ON when the range F.S. is 99% or more.)
Frequency range	0Hz (DC) to 40kHz
Sampling rate	32kHz / 44.1kHz / 48kHz / 51.2kHz / 64kHz / 96kHz / 102.4kHz
A/D converter	24bit, $\Delta\Sigma$ type
Dynamic range	100dB or more
Channel to channel cross-talk	-100dB or less (at 1kHz)
Channel-to-channel gain accuracy	$\pm 0.3dB$ or less (DC to 20kHz)
Channel-to-channel phase accuracy	± 0.5 degrees or less (DC to 20kHz) ± 1.0 degrees or less (20 to 40kHz)
Digital filter	FFT anti-aliasing filter, Real-time octave band filter
Outer dimensions	257mm (W) x 30mm (H) x 182mm (D) (not including protruded sections)
Weight	Approx. 900g
Number of expansion channels	32ch (up to 8 units)

*DS-0262 / 0264 (previous models of DS-0262A / 0264A) and DS-0262A / 0264A cannot be used at the same system configuration.

*The number of channels to be used will be limited to half per one unit when using 1/12 or 1/24 real-time octave analysis function.

Signal output unit DS-0271A / 0272A

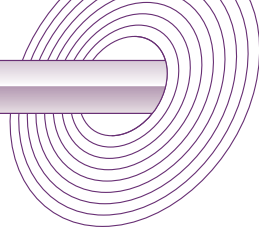
The DS-0271A/0272A signal output unit offers various types of signal waveform such as sine wave, swept sine, pseudo random, random. The DS-0271A (1ch signal output module) is built in the DS-2100 main unit. The DS-0272A is a 2ch signal output module which is separate unit, implements independent signal outputs for 2ch. It can implement signal outputs for up to 4ch.



DS-0272A [40kHz]

	DS-0271A / 0272A
Number of output channels	1ch / 2ch (2 units can provide up to 4ch)
Output connector	BNC
Output impedance	50 Ω $\pm 10\%$
D/A converter	20bit, $\Delta\Sigma$ type
Offset voltage	$\pm 10V$ (However, the sum of voltage amplitude and offset voltage is $\pm 10V$ or less)
Output coupling	DC
Output isolation	None
Maximum output current	10mA
Conversion rate	32kHz / 44.1kHz / 48kHz / 51.2kHz / 102.4kHz etc.
Frequency range	0 to 40kHz
Output-voltage amplitude	$\pm 10mV$ to $\pm 10V$
Signal waveform types	Sine wave, swept sine, random (channel-to-channel decorrelation), pseudo random, impulse, octave band noise, pink noise, analog output of time record data
Applicable FFT analysis length	64 / 128 / 256 / 512 / 1024 / 2048 / 4096
Output mode	Continuous, single burst, continuous burst
Voltage amplitude accuracy	$\pm 0.5dB$ or less
Octave band noise	15 bands of 1/1oct (1Hz to 16kHz) 47 bands of 1/3oct (0.5Hz to 20kHz)
Pink filter	Analog $-3dB/oct \pm 1.0dB$ (prescribed at 20Hz to 20kHz)
Taper function	Provided (1ms to 32s). However, disabled when the burst function is ON.
Shape	Module (built in DS-2100 main unit) / unit
Outer dimensions	257mm (W) x 30mm (H) x 182mm (D) (not including protruded sections)
Weight	Approx. 1.0kg (DS-0272A)
CE marking	Applicable (only for DS-0271A)

*The DS-0271A and the DS-0272A cannot be used at the same system configuration.



units can be stacked vertically. Besides the main unit and to the application and purpose.

Microphone unit DS-0286 / 0287 (made to order)

The DS-0286 / 0287, 2ch / 4ch general-purpose microphone unit is used for diverse sound analysis in combination with the DS-2100 main unit. The DS-0286 / 0287 incorporates a sound filter (A / B / C) in its each channel. It can be applied to bias- type microphones.



	DS-0286 / 0287
Number of input channels	2ch / 4ch
Input connector	R04-R6F
Applicable preamplifier	MI-3310
Input impedance	1MΩ ±0.5%, 100pF or less
Input format	Single-ended
Input coupling	AC (-3dB at 0.55Hz or less)
Sound filter	A, B, and C weighting (offered as standard) Conforms to IEC 60651-1979 TYPE1 / ANSI S1.4-1983 TYPE1 / JIS 1505-1988 TYPE1
Input voltage range	-40 to +20dBVrms (in 10dB steps, 7 ranges)
Input level monitor	Lights up in red LED at excessive input. (Goes ON when the range F.S. is 99% or more.)
Frequency range	1Hz to 40kHz
Sampling rate	32kHz / 44.1kHz / 48kHz / 51.2kHz / 64kHz / 96kHz / 102.4kHz
A/D converter	24 bits, ΔΣ type
Dynamic range	100dB or more
Channel-to-channel cross-talk	-100dB or less (at 1kHz)
Channel-to-channel gain accuracy	±0.3dB or less (1 to 20kHz)
Channel-to-channel phase accuracy	±0.5 degrees or less (1 to 20kHz) ±1.0 degrees or less (20kHz to 40kHz)
Digital filter	FFT anti-aliasing filter *At baseband: 10th order ellipse / 6th order ellipse (at zooming) Realtime octave band filter *6th order Butterworth: IEC1260-1995 TYPE1
Monitor output connector	φ2.5mm micro stereo jack
Monitor output terminal output voltage	1Vrms F.S. ±1.0% with respect to the input voltage range (at 1kHz, under 1MΩ loaded)
Monitor output terminal impedance	Approx. 33Ω
Outer dimensions	257mm (W) × 30mm (H) × 182mm (D) (not including protruded sections)
Weight	Approx. 900g

SI Microphone unit DS-0285 (made to order)

The DS-0285 SI microphone unit is provided with the microphone amplifier function for sound intensity. It is used for diverse sound intensity analysis in combination with the DS-2100 main unit. The DS-0285 SI microphone unit is equipped also with a calibrator I/O terminal for calibration.



DS-0285

	DS-0285
Number of input channels	4ch
SI microphone connector	HR10A10R-12S
Applicable microphone	MI-6410, MI-6420
Calibration signal I/O connector	HR10A-7R-4S
Applicable calibrator	MI-0600, MI-0620
Input impedance	1MΩ ±0.5%, 100pF or less
Input format	Signal-ended
Input coupling	AC (-3dB at 0.55Hz or less)
Sound filter	A, B, and C weighting (offered as standard) Conforms to IEC 60651-1979 TYPE1 / ANSI S1.4-1983 TYPE1 / JIS 1505-1988 TYPE1
Input voltage range	-40 to +20dBVrms (in 10dB steps, 7 ranges)
Input level monitor	Lights up in red LED at excessive input. (Goes ON when the range F.S. is 95% or more.)
Frequency range	1Hz to 40kHz
Sampling rate	32kHz / 44.1kHz / 48kHz / 51.2kHz / 64kHz / 96kHz / 102.4kHz
Frequency accuracy	±50ppm
A/D converter	24bit, ΔΣ type
Dynamic range	100dB or more
Channel to channel cross-talk	-100dB or less (at 1kHz)
Channel to channel gain accuracy	±0.3dB or less (1Hz to 40kHz)
Channel to channel phase accuracy	±0.5degrees or less (1Hz to 40kHz)
Digital filter	FFT anti-aliasing filter * At baseband: 10th order ellipse / 6th ellipse (at zooming) Realtime octave band filter *6th order Butterworth: IEC1260-1995 TYPE1
Monitor output terminal	φ2.5 micro stereo jack
Monitor output voltage	1Vrms at F.S. ±1.0% with respect to the input voltage range (at 1kHz, under 1MΩ loaded)
Monitor output terminal impedance	Approx. 33Ω
Outer dimensions	257mm (W) × 30mm (H) × 182mm (D) (not including protruded sections)
Weight	Approx. 900g

AC power supply unit DS-0290

The DS-0290 AC power supply unit is an optional power supply unit used as a solution for power shortage caused by the increase in the number of units when four or more units are assembled. It converts 100 to 240VAC input voltage into 12 VDC internally and then supplies the power to each unit. When the AC power supply unit is used together, the DC input connector of the DS-2100 main unit cannot be used.



DS-0290

	DS-0290
Outer dimensions	257mm (W) × 30mm (H) × 182mm (D) (not including protruded sections)
AC power voltage	Rated 100 to 240VAC (85 to 264VAC)
DC power voltage	Rated 12VDC (9 to 16.5VDC)
Weight	Approx. 1.2kg
Accessories	AC power cable (2m) × 1, 3P to 2P adapter × 1, DC power cable (5m) × 1

ONO-LINK II DS-0296A / 0297A

This communication module is used to connect the DS-2100 main unit and personal computer. The DS-0296A is a PCI Bus module used for desktop-type personal computer. The DS-0297A is a Card Bus module and loaded into a PCMCIA slot of notebook-type computer.



DS-0296A / AX-9021

DS-0297A / AX-9023

	DS-0296A	DS-0297A
ONO-LINK specifications	ONO-LINK II (PCI)	ONO-LINK II (CARD)
Maximum transmission rate	Read/write: Approx. 5MB/s (including the driver) *The values may differ according to the PC used. The above values are standard values for only reference.	
Applicable OS	Windows® VISTA / Windows® XP / Windows® 2000	
Driver	Dedicated ONO-LINK II driver (conforming to Plug & Play)	
PC interface	PCI Bus (applicable also to low-profile size)	PC Card Standard (Card Bus) Conforms to TYPEII

Outer dimensions	119.9 mm (W) × 64.4 mm (H) × 12 mm (D) (not including protruded sections)	85.6mm (W) × 5mm (H) × 54mm (D) (not including protruded sections)
Power voltage	5VDC (supplied from PCI Bus)	3.3VDC (supplied from Card Bus slot)
Power consumption	1W or less	
Weight	Approx. 50g	Approx. 30g
Operating temperature range	0 to + 40°C (with no condensation)	
Storage temperature range	-10 to + 60°C (with no condensation)	

Connection cable (sold separately)	For DS-0296A ONO-LINK II (PCI)	For DS-0297A ONO-LINK II (CARD)
Model and length	AX-9021 (2m) AX-9022 (10m)	AX-9023 (2m) AX-9024 (10m)
UL No.	UL-2844 (30V / 80°C)	
Cable outer diameter	Approx. 3.4mm	

Remote controller DS-0295

By connecting the DS-0295 remote controller to the remote controller connector of the DS-2100 main unit, you can operate each software of the multi-channel data station from the DS-0295 remote controller. The DS-0295 enables to control start, stop and other operations for measurement remotely.



DS-0295

	DS-0295
Outer dimensions	45mm (W) × 25mm (H) × 17mm (D) (not including protruded sections)
Operating Switches	5 (START / STOP / F1 / F2 / F3) • F1 to F3 is user-definable.
LED	Green LED indicator × 5 (for status indication)
Connection cable	2m (supplied as standard for DS-2102A / 2104A)

We support for various measurement and analysis with the combination

A Basic Unit



■ When four or more units are assembled, an optional AC power supply unit (DS-0290) is required.

	Signal output: no need	Signal output: 1ch	Signal output: 2ch	Signal output: 4ch
2ch	DS-2102A	DS-2102A +DS-0271A	DS-2102A +DS-0272A	DS-2102A +DS-0272A x 2 +DS-0290
4ch	DS-2104A	DS-2104A +DS-0271A	DS-2104A +DS-0272A	DS-2104A +DS-0272A x 2 +DS-0290
6ch	DS-2104A +DS-0262A	DS-2104A +DS-0271A +DS-0262A	DS-2104A +DS-0262A +DS-0272A +DS-0290	DS-2104A +DS-0262A +DS-0272A x 2 +DS-0290
8ch	DS-2104A +DS-0264A	DS-2104A +DS-0271A +DS-0264A	DS-2104A +DS-0264A +DS-0272A +DS-0290	DS-2104A +DS-0264A +DS-0272A x 2 +DS-0290
10 to 32ch*1	DS-2104A +DS-0264A x 1 +DS-0262A x 1 +DS-0290	DS-2104A +DS-0271A +DS-0264A x 1 +DS-0262A x 1 +DS-0290	DS-2104A +DS-0264A x 1 +DS-0262A x 1 +DS-0272A +DS-0290	DS-2104A +DS-0264A x 1 +DS-0262A x 1 +DS-0272A x 2 +DS-0290

*Remote controller DS-0295 is supplied as standard for DS-2102A/2104A.

*1 Number of DS-0262A / 0264A is depending on the number of signal input channels in total.

B Basic software

Model	Name
DS-0221V	2ch General-purpose FFT Analysis
DS-0222V	2ch Tracking Analysis (required for DS-0221V)
DS-0223V	2ch Real-time 1/1 and 1/3 Octave Analysis
DS-0250V	2ch Throughput Disk Function
DS-0221W	4 to 8ch General-purpose FFT Analysis
DS-0222W	4 to 8ch Tracking Analysis (required for DS-0221W)
DS-0223W	4 to 8ch Real-time 1/1 and 1/3 Octave Analysis
DS-0250W	4 to 8ch Throughput Disk Function
DS-0221X	10 to 32ch General-purpose FFT Analysis
DS-0222X	10 to 32ch Tracking Analysis (required for DS-0221X)
DS-0223X	10 to 32ch Real-time 1/1 and 1/3 Octave Analysis
DS-0250X	10 to 32ch Throughput Disk Function
DS-0251	File Export Function

*We can offer the license software (DS-0221 / 0222 / 0223 series) for off-line analysis. Please contact your nearest distributors or e-mail us overseas@onosokki.co.jp for details.

V: Software for 2ch

W: Software for 4 or 8ch

X: Software for 10ch or more

*When using DS-0251, any one of DS-0250 / 0221 / 0223 series is required.

C Software for various purposes

Model	Name
DS-0224	Real-time 1/N Octave Analysis (required for DS-0223 series)
DS-0225	Three-dimensional Sound-intensity Analysis*
DS-0226	Sound-intensity Analysis*
DS-0227*1	Field Balancing
DS-0230	Time-frequency Analysis
DS-0231	Sound Power Measurement (Sound-pressure Method)
DS-0243	Octave Tracking Analysis (required for DS-0223 series)
DS-0244	Campbell Plot Function (required for DS-0222 series)
DS-0255	IT Noise Emitted Analysis (required for DS-0231)
WS-5150	Sound Quality Simulation
WS-5245*2	Rpm 2-Input Order Tracking Analysis

*:Required for DS-0271A or DS-0272A

*1 When using DS-0227, four or more channels are required.

*2 Modification of DS-2100 unit is required for inputting 2ch of rpm signal.

D Interface for PC and cable – ONO-LINK II

Model	Name
DS-0296A	ONO-LINK II (PCI Bus module for desktop-type PC)
AX-9021	Signal cable for DS-0296A (2m)
AX-9022	Signal cable for DS-0296A (10m)
DS-0297A	ONO-LINK II (Card Bus module for notebook-type PC with PCMCIA Card Bus)
AX-9023	Signal cable for DS-0297A (2m)
AX-9024	Signal cable for DS-0297A (10m)



ONO-LINK II (DS-0296A)
(PCI Bus module for desktop-type PC)
Signal cable for DS-0296A (AX-9021: 2m)

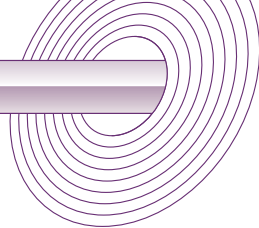
*Applicable to low-profile size PCI.
Windows®VISTA, Windows®XP, Windows®2000



ONO-LINK II (DS-0297A)
(Card Bus module and loaded into a
PCMCIA slot of notebook-type PC)
Signal cable for DS-0297A (AX-9023: 2m)

*Card Bus Type II
Windows®VISTA, Windows®XP, Windows®2000





for diverse purposes.

E Peripherals

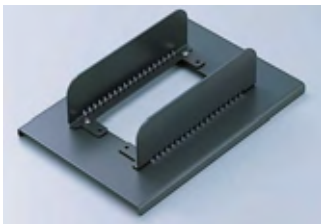
Model	Product name
CC-0025	Soft carrying case (2 to 3 units + notebook-type PC and accessories can be stored)
CC-0026	Hard carrying case (2 to 3 units + notebook-type PC and accessories can be stored) Inside dimension of PC storage part: 273 mm (D) × 335 mm (W) × 55 mm (H)
DS-0001	Vertical installation stand for 2 to 3 units
DS-0295	Remote-control unit / cable (supplied as standard for DS-2102A / 2104A)



Soft carrying case CC-0025



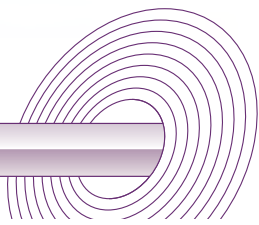
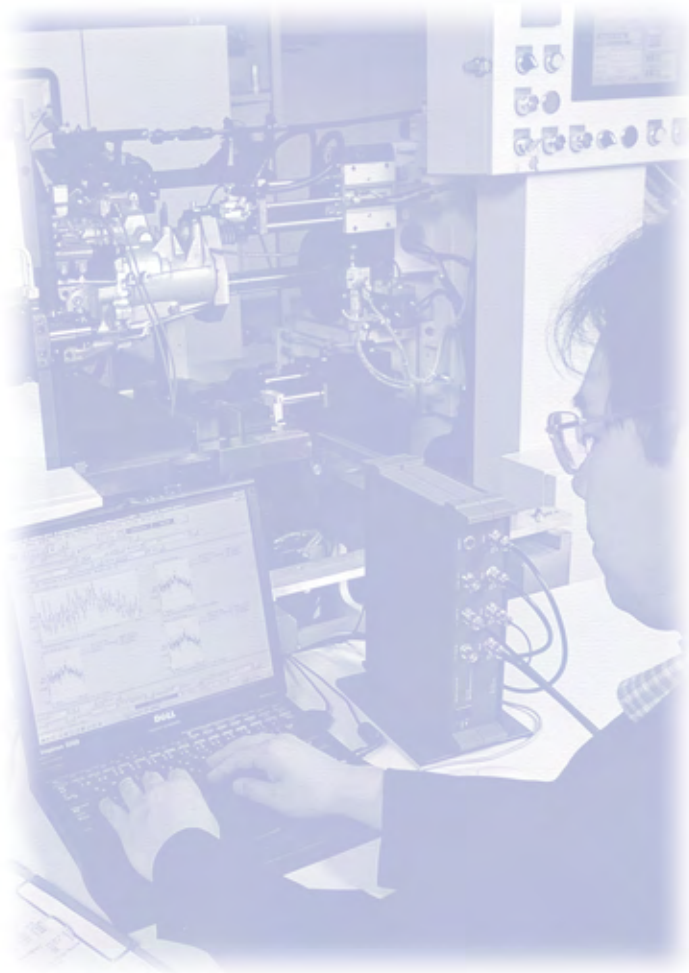
Hard carrying case CC-0026



Vertical installation stand DS-0001



Remote-control unit / cable DS-0295



Operating Environment of personal computer

		Requirement
OS		Windows® VISTA, Windows® XP, Windows® 2000
Connection to DS-2000	Desktop-type PC	PCI (applicable also to low-profile size)
	Notebook-type PC	PC Card PCMCIA (Card Bus)
PC	Desktop-type PC	Pentium® III 1GHz or more (or compatible CPU)
	Notebook-type PC	Pentium® III 1GHz or more (or compatible CPU)
	Display	1024 x 768 (XGA) or more
	Memory	256MB or more (However, 512MB or more is required for Windows® XP, 1GB or more is required for Windows® VISTA)
	Hard Disk	500MB or more (not including data)
	Protection Key	USB (1.1/2.0) connector or parallel port is required.

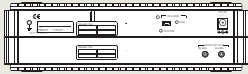
*The PC environment may be subject to certain constrains, depending on the type of application software used.

Outer Dimension

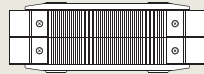
(Unit : mm)

Main unit

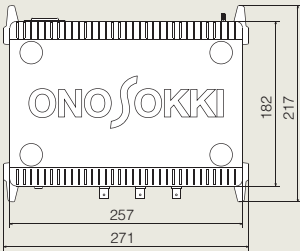
●Rear View



●Side View

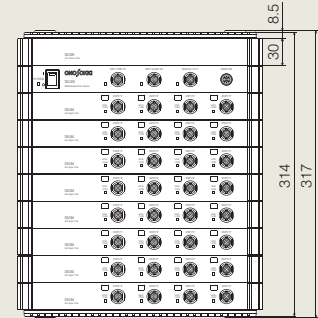
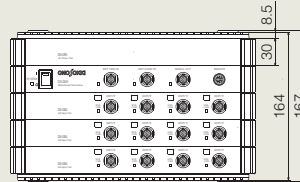
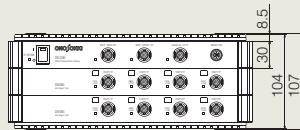
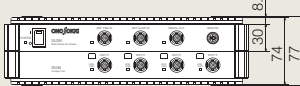


●Top View



●Front View

*Examples for configurations



Basic unit (4ch)

DS-2100 x 1
DS-0264A x 1
DS-0271A x 1

3 units (8ch)

DS-2100 x 1
DS-0264A x 2
DS-0271A x 1

5 units (12ch)

DS-2100 x 1
DS-0264A x 3
DS-0271A x 1
DS-0290x 1

10 units (32ch)

DS-2100 x 1
DS-0264A x 8
DS-0271A x 1
DS-0290x 1

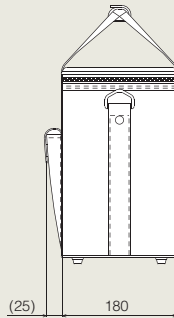
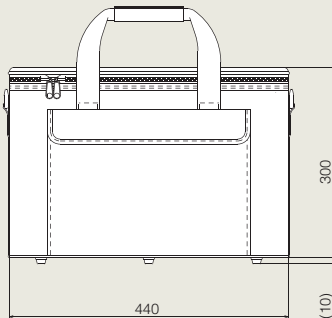
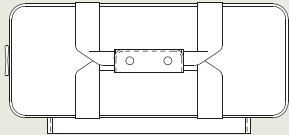
(Maximum number of input units)

(Number of input units : 8)

*Optional power supply unit (DS-0290) is required when four or more units are assembled with.

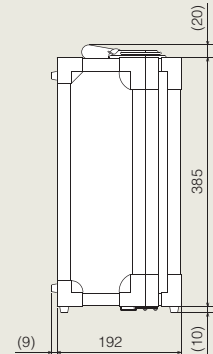
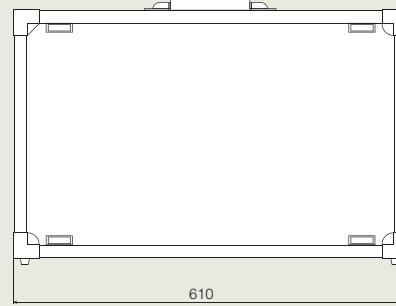
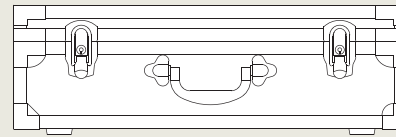
*Weight: Approx. 2.3 kg (2ch in use) to 11kg (32ch in use)

Soft carrying case CC-0025



Hard carrying case CC-0026

(Unit : mm)



*Inside dimension of PC storage part: 273mm (D) x 335mm (W) x 55mm (H)

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* Outer appearance and specifications are subject to change without prior notice.

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