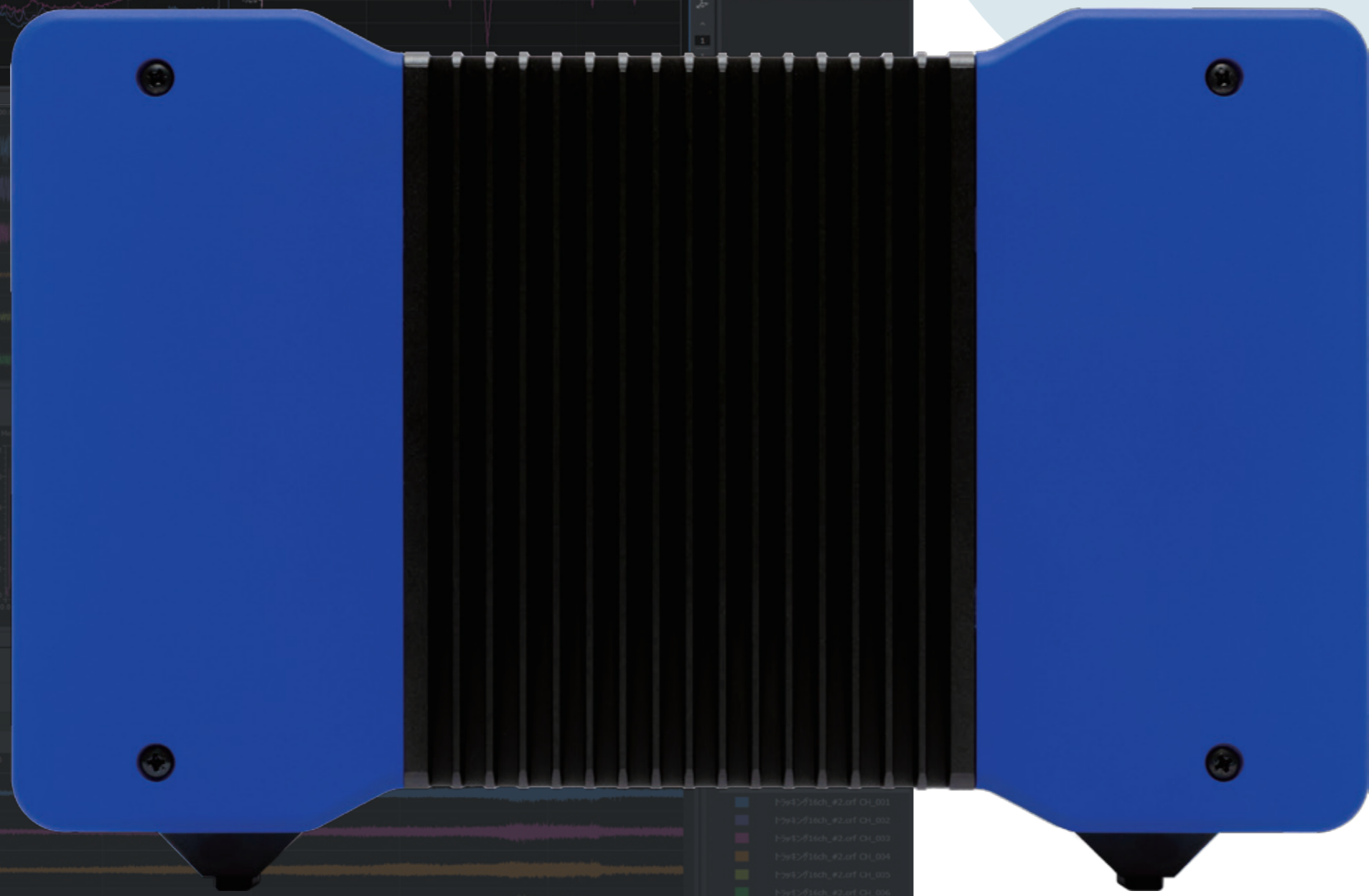Sound and Vibration Analysis System

O-Solution DS-5000

ONO SOKKI

The partner of your measurement
The partner of your discovery

ONO SOKKI   DS-5100 Data Station

1
42 Vpk

2
42 Vpk

3
42 Vpk

4
42 Vpk

5
42 Vpk

6
42 Vpk

USB   SD CARD

Sound and vibration measurement

It has a long process to get to know its physical phenomena.

Determine the measurement environment, selecting the sensor,

setting for measurement and analysis,

and comparison...

Ono Sokki's Sound and Vibration Analysis System is

sure to break down the feeling that

makes you hesitate.

Quickly, easily, at anywhere with high accuracy measurement

This is the development ideas of our new designed system.

The partner of your measurement
The partner of your discovery

O-Solution   DS-5000

Sound and Vibration Analysis System

The O-Solution and the DS-5000 measure the sound and vibration phenomena at various site with high accuracy, and perform detailed analysis at once.
Quickly and smoothly, this new system helps to uncover the various problems on sound and vibration.

Sound and vibration from automobiles, home appliance, machines, equipment... They are always around us.
The O-Solution and the DS-5000 have rich functions and high performance to respond various physical phenomena.

Sound and Vibration Analysis System

O-Solution

DS-5000

Wide selection of sensors

Various phenomena of sound, vibration, rotation, torque can be measured.

| Acoustic	Vibration	Rotation
Sound Level Meter **LA series**	Accelerometer with built-in preamplifier **NP-3000 series**	Magneto-electric rotation detector **MP-981** + Digital Tachometer **TM-3100 series**
Measurement microphone **MI series**	Impulse hammer **GK series**	Handheld Digital Tachometer **HT-5500**
Ultraminiature Microphone **MB-2200M10**		

Measurement of natural frequency and damping ratio

You can measure the frequency response functions using an impulse hammer or a shaker to figure out the natural vibration characteristics of structures, such as machinery and automotive parts. The damping ratio can also be calculated by using the half power method or the logarithmic decrement from Hilbert transform.

Impulse hammer

Accelerometer

Target
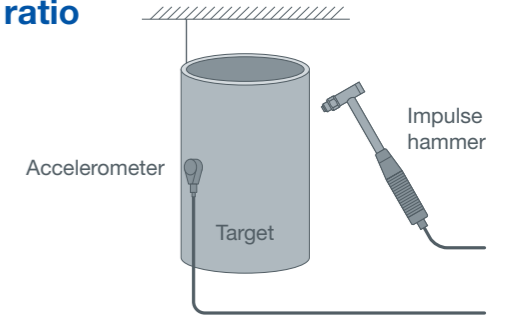
Identifying the frequency band of motor noise

For taking countermeasure abnormal sound, it is required to identify the frequency band that is the cause for it.
By applying IIR or FIR filter to the recorded data and listening to it, you can quickly find the target frequency band.
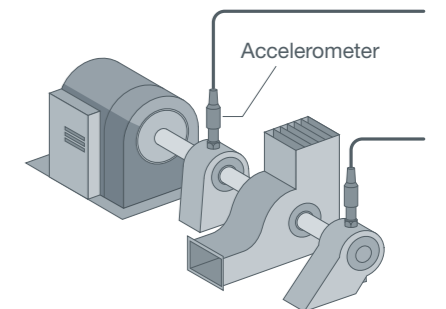
Soundproof box

Microphone
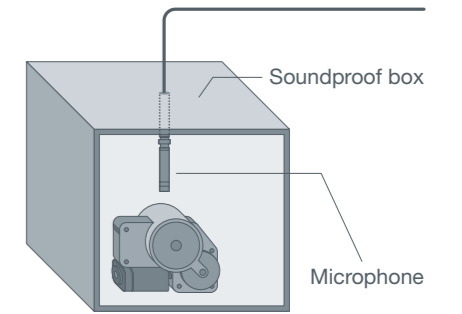
Tracking analysis of rotating object

The O-Solution can perform simultaneous tracking analysis of constant-width and constant-ratio. In addition, it enables to perform the carrier noise tracking analysis (offset tracking) using the switching signals of an inverter that controls a motor.
With regard to the sound and vibration from rotating objects, such as motors, generators, and transmissions, you can find at which rotation speed the order component will increase.

Rotation detector

Accelerometer
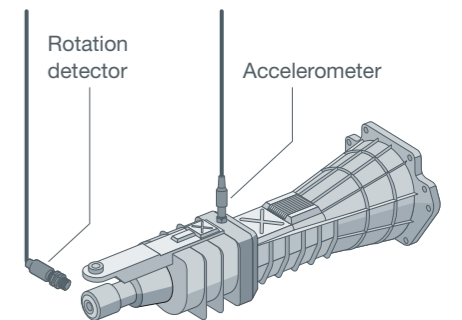
Error signal detection in bearing parts

It is necessary to specify its fluctuation components to detect abnormal vibrations in bearing parts.
The time-axis preprocessing and the FFT analysis in multi-frequency range are the advanced functions the O-Solution has. The variable components caused by the damage can be identified in real time.
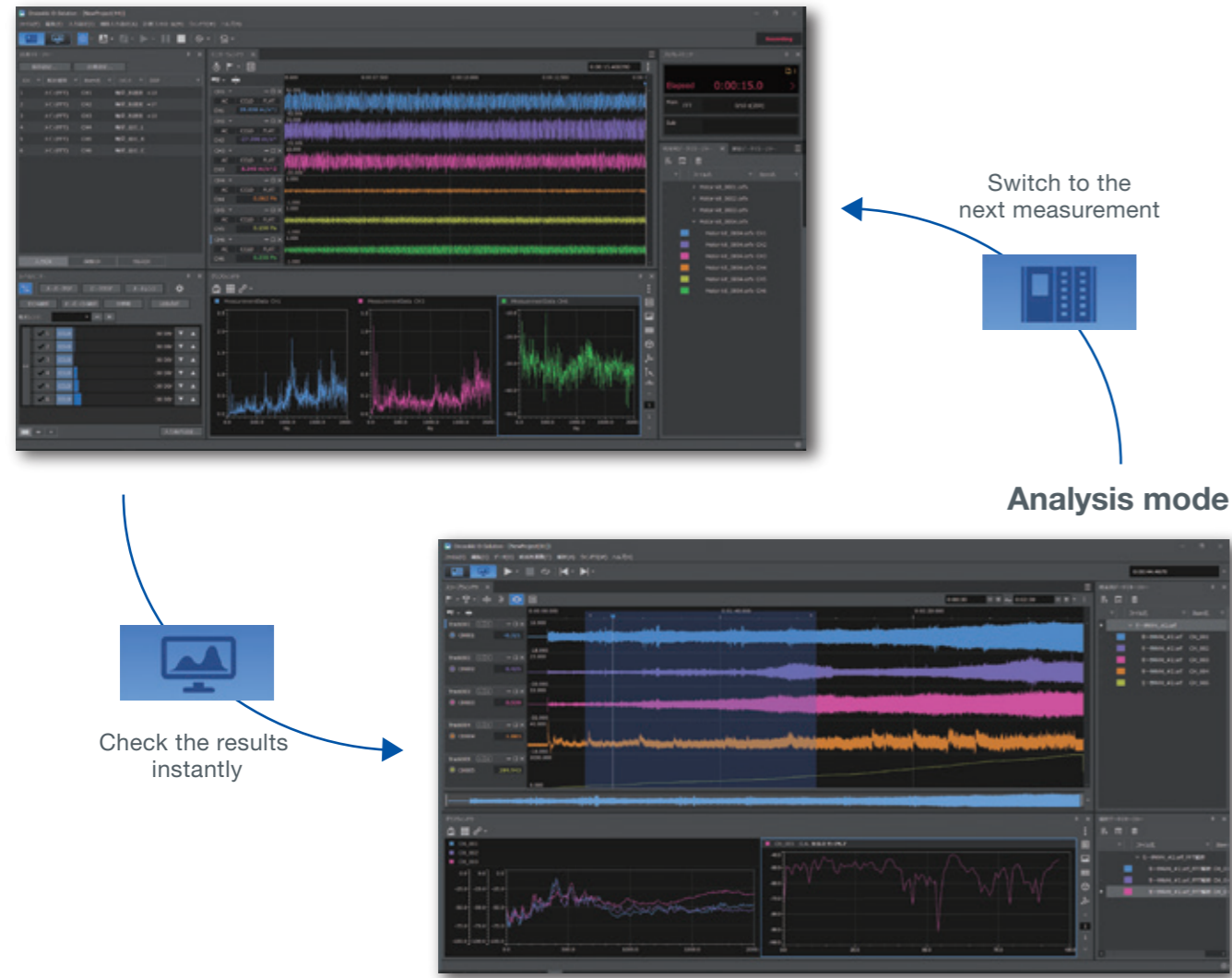
Accelerometer

O-Solution

Various abilities with one application
Smooth operation for selecting "measurement in real time" and "analysis in details",
covering wide range of phenomena from stationary to transient

Measurement mode

Switch to the
next measurement

Analysis mode

Check the results
instantly

Smooth operation between measurement and analysis

You can perform all the process of setting, measurement, and analysis smoothly in one application.
The result is quickly checked in the flow of process, and it can eliminate loss of time due to the rework.

Automatic measurement for more efficiency

External control function enables automatic measurement and system linkage.
O-Step API* will expand your measurement.
Data communication with other software is available via TCP/IP.

* Library for external control functions of O-Solution

Setting

Display waveform immediately after system startup

The time waveform will be displayed immediately after system startup with pressing a play button. You can make setting and measure while monitoring the time waveform with a newly added window to monitor the time waveform for 10 seconds.
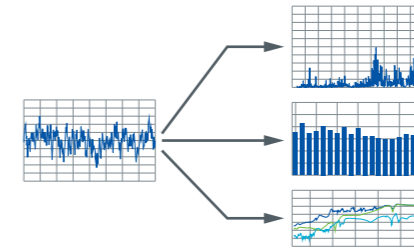
Measurement

Not miss the range over

You can change the layout of level monitor screen according to the number of channels and units to be displayed.
You will not overlook measurement errors of each channel.

Analysis

Analyze efficiently and smoothly

Huge amount of recorded data can be processed with high-speed.
Since analysis can be performed during processing, such high-load processing is made efficiently.

Analysis

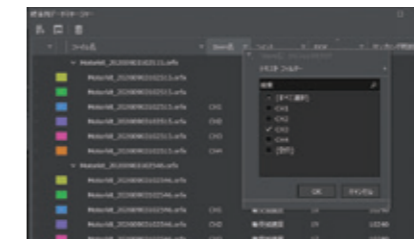### Support the formats recorded by other company's logger

*.mem   *.gbd   *.hdr

The different sampling frequency data (10 µHz to 100 GHz) such as sound, vibration, torque, torsion and revolution can be displayed together and overlaid on the screen. The data recorded by other company's data logger can be read.

Comparing

Fulfilled functions such as data sorting and searching

It is easy to choose the target data from huge amount of data. It helps to make comparison of the data before and after countermeasures for noise and vibration, and to the data with different conditions.

DS-5000

From research and development in the laboratory to the measurement in the field.
This new hardware will totally support you.

Easy to notice measurement errors

Easy to find the over ranged channels with arc-shaped LED indicators on both sides of the terminal.
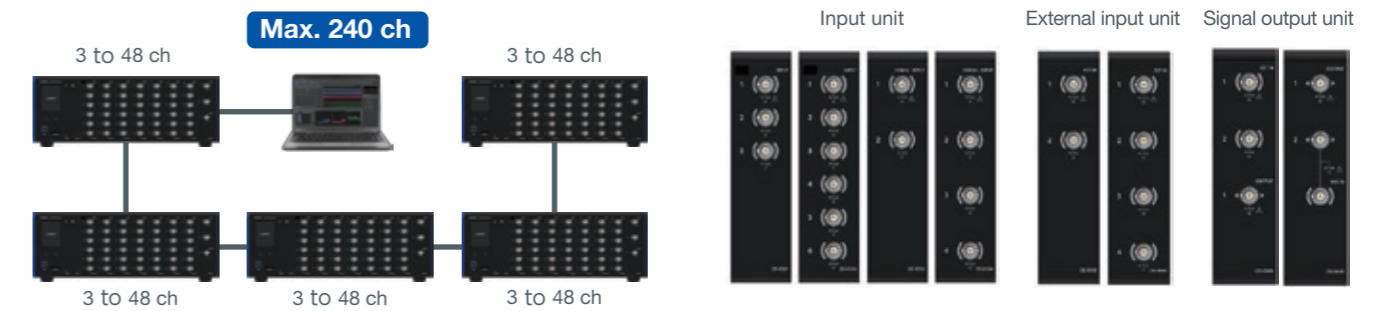
Protect from shock

Designed for the use in a variety of measurement environment. The blue protectors will guard the connector part from shock.

Easy to carry

The design of U-shaped bottom makes it easy to carry anywhere.
It can be used in various places; carried on a cart, placed on a table, in a narrow space, etc.

Easy cable connection

The pitch is designed for easy cable connection. Downsizing and easy operation are both achieved.

High-speed communication and dynamic range

Recording performance   : 10 kHz range (when 240 ch)
Dynamic range   : 130 dB or more
Channel to channel phase accuracy : ±0.1° (less than 20 kHz)

Extensive lineup, expandable functions

A stack structure enables to build a system according to the measurement scale (3 ch to 48 ch per unit).
Multi-channel measurement (up to 5 units connection) is available.
There are two types of input units with frequency ranges of 40 kHz and 100 kHz.
For more extensive system, an external input unit and signal output unit are available.

Max. 240 ch

3 to 48 ch

Input unit   External input unit   Signal output unit

Battery-powered to use anywhere

The DS-5000 has a battery-driven system. Readily to use outdoors, in factories and other places even where a power source is not easy to secure.

Less affected by external noise

Each channel is isolated. You can measure safely even in the field or object where is likely to have ground loop, electrical noise and potential differences.

■ Purchasing plans

We offer various purchase plans; hardware & subscription, and hardware & application etc.
Please contact our sales office nearby for details.

3ch Subscription plan

DS-5100 Main unit
DS-0523 3ch 40 kHz input unit

Subscription Standard plan

6ch FFT set

DS-5100 Main unit
DS-0526 6ch 40 kHz input unit

OS-5100 Platform
OS-0522 FFT analysis function
OS-0512 Hardware connecting function

6ch SV set

DS-5100 Main unit
DS-0526 6ch 40 kHz input unit
DS-0543 2ch external input &
　　　　1ch signal output unit

OS-5100 Platform
OS-0522 FFT analysis function
OS-0523 Tracking analysis function
OS-0524 Octave analysis function
OS-0512 Hardware connecting function

* AC adapter, adapter cable, communication LAN cable are included in the DS-5100 main unit.
* Subscription plan only applies to software.

■ Subscription plan

This plan includes a limited-time license and services.
You can use the latest version of the software for the required period. Please refer to our website for details.

Plan	Basic	Standard	Professional
Period	12-month	6-month	3-month
License	•Platform •FFT analysis function •External control function	•Platform •Digital filtering function •FFT analysis function •Octave analysis function •Tracking function •External control function	•Platform •Digital filtering function •FFT analysis function •Octave analysis function •Tracking analysis function •Time-frequency analysis function •Sound quality evaluation function •Fluctuation sound analysis function •External control function

Types of licenses

Three types of license are available. You can choose from stand-alone, network license, USB license key (paid) according to your purpose.

Free Viewer (O-Solution Lite)

You can download the free viewer from our website without any license. By using the free viewer, you can share the data with the person in charge far from the site, and you can complete the measurement while checking the process.

Free trial version

We offer a free trial version. The trial version has the basic functions required for acoustic vibration measurement and you can use it for one month without any restrictions. If you are considering purchase or interested in, please apply for the trial version from our website.

Product image video is now showing.

https://www.onosokki.co.jp/English/english.htm

■ Major Specifications

Main unit

System configuration	40 kHz system	100 kHz system
Max. number of input channels	48 ch (240 ch: when Hardware to Hardware connection used)	4 ch
Max. number of output channels	6 ch (Output available only hardware connected to a PC.)	2 ch
Max. number of external input channels (revolution/trigger)	4 ch (10 ch: when Hardware to Hardware connection used)	4 ch
Max. number of I/O units (excluding the main unit and battery unit)	8 units	3 units
Hardware to hardware connection function	Available	-
Max. hardware to hardware connection	Max. 5 units	-

Input unit

Input terminal shape	BNC
Input impedance	1 MΩ ±0.5 % 100 pF or less
Input format	Single end, each channel isolated (always)
Isolation	42.4 Vpk •Between BNC ground and frame ground, and between each BNC ground
Max. input voltage	30 Vrms (42.4 Vpk)
Absolute maximum input voltage	50 Vpk (DC to 100 kHz)
A/D converter	24 bit ΔΣ type
Dynamic range	130 dB: 40 kHz input unit (40 kHz range, 0 dBVr range, analysis for 4096 points, 1 kHz or more) 120 dB:100kHz input unit (100 kHz range, 0 dBVr range, analysis for 4096 points, 1 kHz or more)
Channel-to-channel gain accuracy	±0.1dB (less than 20 kHz)
Channel-to-channel phase accuracy	±0.1° (less than 20 kHz)
Sensor power current (CCLD)	+24 V (4 mA)

External input unit

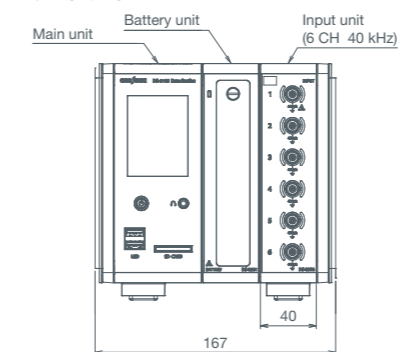|	
Max. system configuration	1 unit; 4 ch, Hardware to Hardware connection used; 10 ch
Max. input voltage	30 Vrms (42.4 Vpk)
Input frequency	Max. 300 kHz (out of band filter 300 kHz, -3 dB)

Signal output unit

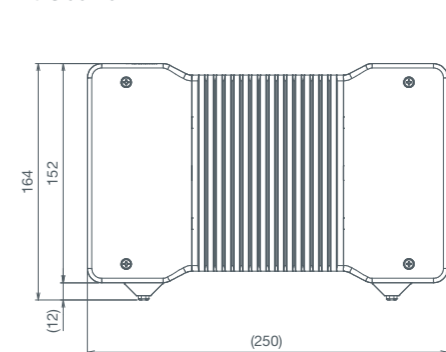|	
Max. number of channels	6 ch
Output voltage amplitude	±1 mV to ±10 V
Offset voltage	±10 V
Signal type	Sine wave, swept sine, random (no inter-channel correlation) , pseudo random, impulse, octave band noise, pink noise, record data

General specification

AC power supply	AC adapter 100 to 240 VAC
DC power supply	10 to 28 VDC (battery unit required)
Operating temperature range	-10 ℃ to 50 ℃ (humidity: 20 to 80 %RH, with no condensation)
Storage temperature range	-20 ℃ to 60 ℃ (humidity: 20 to 80 %RH, with no condensation)
Conforming standard	CE marking Low Voltage Directive 2014/35/EU Standard EN61010-1 EMC Directive 2014/30/EU Standard EN61326-1 Class A Group 1 RoHS Directive 2011/65/EU Standard EN50581

● Front view　Main unit　Battery unit　Input unit (6 CH 40 kHz)　　● Side view

167　40　164　152　(12)　(250)

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