Vibration Measurement, Record and Analysis Systems

MRA-06X / MRA-03X

High sensitivity, high resolution vibration measurement with wide variety of recording, analysis and output display function

Main Feature

- Real time vibration recording and FFT analysis are possible by connecting measurement system and PC.
- Outdoor measurement is also possible in addition to indoor measurement thanks to its portability.

High Performance

- Wide frequency range of 0.1Hz～400Hz
- Wide measurement range from 0.1mGal micro-vibration level to 1700gal seismic domain
- Possible to measure two points for XYZ directions at the same time (MRA-06X)

Wide variety of output display function

- Time domain, Spectrum and Tripartite chart
- Transmissibility, Phase and Coherence
- Multi-channel simultaneous display

TOKKYOKIKI

Vibration Measurement and Analysis System MRA-06X / MRA-03X

MRA-06X/MRA-03X vibration measurement and analysis system acquire analog signal via high sensitivity sensor and amplitude circuit, and then convert to digital data for recording, monitoring and analyzing, and output to wide variety of display function. The system consists of OSP-06/OSP-03 low noise multichannel vibration measurement meter and RS-1 FFT analyzer S/W with high performance servo type accelerometers for 6 (MRA-06X) and 3 channels (MRA-03X).

System Configuration

・MRA-06X Configuration

FFT Data Logger
　　Recording/Analysis Software RS1

PC Interface
　　USB Cable
　　BNC Box
　　BNC Cable

Vibration Measurement Meter
　　OSP-06

Servo Type Accelerometer
　　MG-102S x 6

Cable
　　Sensor Cable

Note PC is prepared by customer.

・MRA-03X Configuration

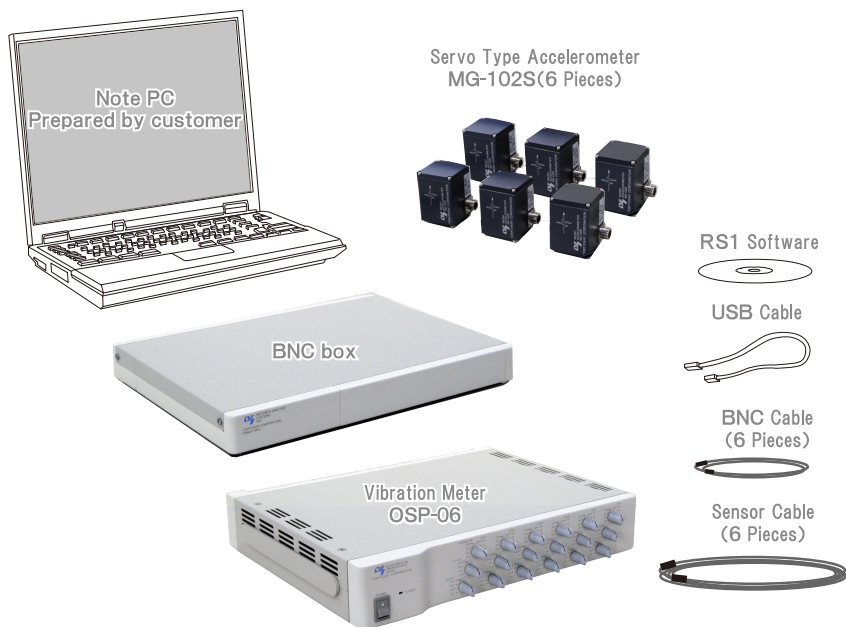FFT Data Logger
　　Recording/Analysis Software RS1

Vibration Measurement Meter
　　OSP-03

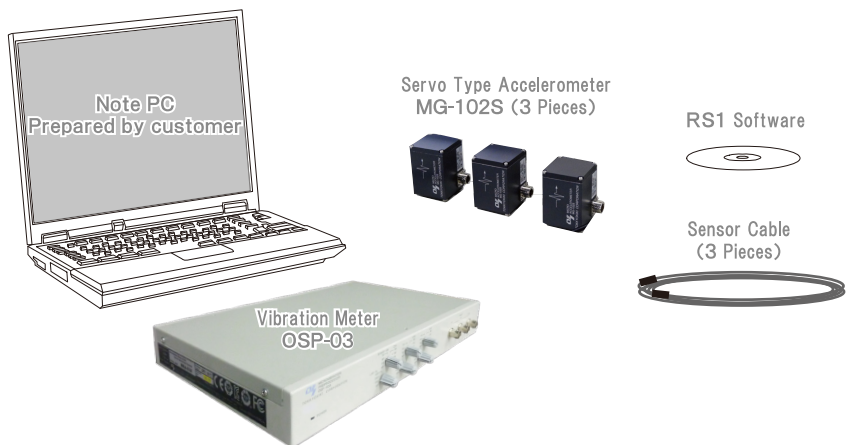Servo Type Accelerometer
　　MG-102S x 3

Cable
　　Sensor Cable

Note PC is prepared by customer.

■ MRA-06X system Configuration

■ MRA-03X system Configuration

※ BNC box is embedded inside Vibration Meter OSP-03.

■ Specification of Vibration Meter (OSP-06/OSP-03)

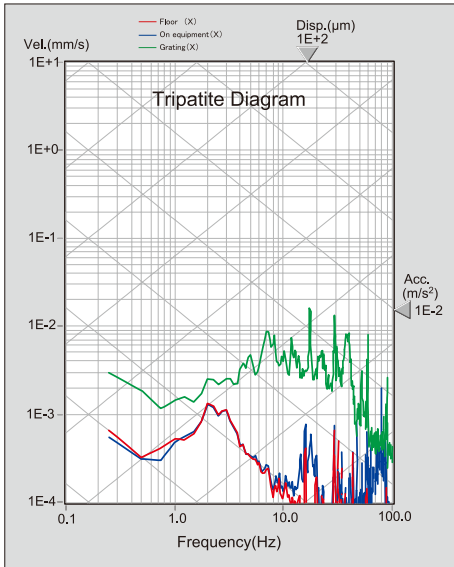| Vibrartion Meter	Accelerometer	Velocity	Displacement	Lowpass Filter	Channel Number	Outline Dimension (W x D x H)	Power	Weight
OSP-06	Range 0.1～400Hz Unit 60dB=1cm/s² (1Gal)/ V	Range 0.4～100Hz Unit 60dB= 1mm/s / V	Range 0.5～100Hz Unit 60dB= 0.1mm / V	select 50、100、 200、400Hz (-12dB/oct)	10channel （※Option 16CH）	335×275×60mm	AC 100V to 240V DC 4.5 to 12V	4.5kg
OSP-03					3channel	325×240×44mm	AC 100V to 240V	3.1kg

■ BNC Box (MRA-06X Accessary)

Analog Input	BNC x 10 Channel (Option + 6 Channel)
Outline Dimension (W x D x H)	307×264×50mm

■ Servo type accelerometer (MG-102S)

Measurement Range	±17m/s² (Sensitivity axis is horizontal.)
Resolution	$1×10^{-6}(m/s^2)/ \sqrt{Hz}$
Outline Dimension (W x D x H)	40×40×55.5mm
Weight	190g

Feature of Vibration Meter (OSP)

- ・Switchable output of acceleration, velocity and displacement (OSP-06)
- ・Selectable 4 stages of lowpass filter
- ・Power supply from AC & DC (OSP-06)

Vel.(mm/s)

Disp.(µm) 1E+2

Acc. (m/s²) 1E-2

Tripartite Diagram
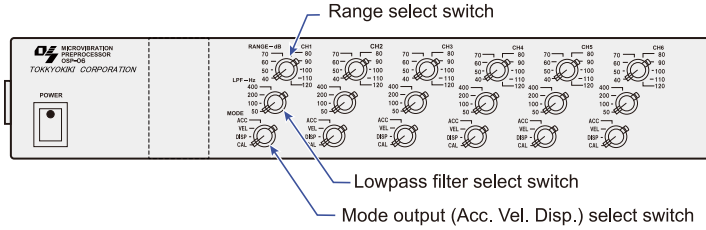
Floor (X)
On equipment(X)
Grating(X)

Frequency(Hz)

Acc. Vel . Disp. simultaneous output by Tripartite Chart

■ Handy type compact body

OSP-06

Suitable to measure two points vibration (e.g. loading equipment and floor vibration) simultaneously by multi-channel capability.

Range select switch

Lowpass filter select switch

Mode output (Acc. Vel. Disp.) select switch

- ・MRA-06X is 6 channel type and maximum measurement channel is 10CH.

OSP-03

Suitable to measure one point vibration (e.g. loading equipment or floor vibration) .

Range select switch

Lowpass filter select switch
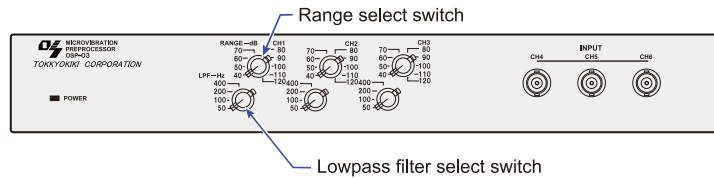
- ・MRA-03X is 3 channel type, and measurement is acceleration mode only.
- ・Any type of sensor voltage signal is possible to input from the front panel BNC connectors (CH4/5/6).

RS1 Monitor

■ Digital signals converted from accelerometer analog signals are recorded for analysis and monitoring.
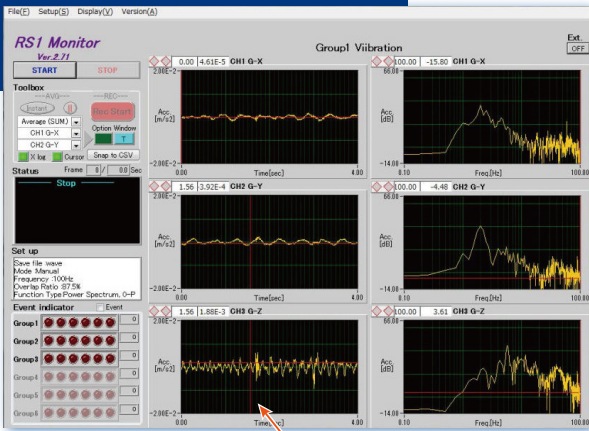
Time and/or frequency domain display is possible for each channel
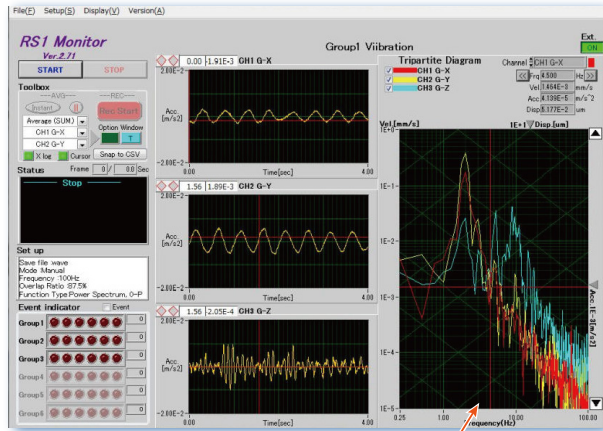
Selectable individual or overlay (Tripartite) graphic display

RS1 Manager

- ・Group Data Analysis
- ・FFT Analysis for every acquired group
- ・Simultaneously Recorded Data Analysis
- ・FFT Analysis for any acquired 2 channels of data

■ Analyzing all kinds of waveform data acquired inside RS1 monitor and displaying for various kind of graphs.

Analysis mode select from instant, summation average and peak hold

Data type select from PSD, 1/3 Oct Band and Power Spectrum
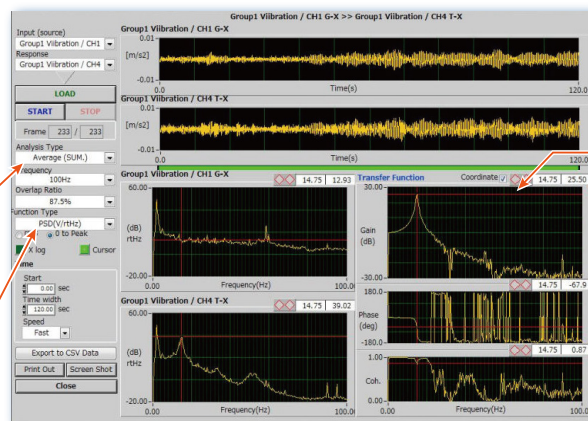
Tranfer function, phase and coherence display

Software Specification of MRA-06X / MRA-03X

The application of MRA-06X / MRA-03X consists RS1 Monitor and RS1 Manager.
RS1 Monitor includes libraries for real-time monitoring, data acquisition and I/O.
RS1 Manager is a set of acquired data visualization and data analysis.

■ Operational environment

OS	Windows®10

■ RS1 Monitor

Data Acquisition Set up	Build a folder to keep acquiring data and give a name to files
	Measurement frequency range (20/50/100/200/500/1000/2000Hz) (Automatic overlap rate change to match frequency range)
	Name the groups and specify the channels
	Decide recording mode (manual, timer or specific needs)
FFT Set up	FFT summation average
	Select waveform indication (rms value or 0 to peak)
Option	① FFT summation average ② Transmissibility / Overlay ③ Logarithmic frequency indication ④ Cursor function ⑤ Reset graphs ⑥ Download specified data & save acquired data ⑦ Screen data printing ⑧ Save data in CSV file or PNG file

■ RS1 Manager

Group Analysis	FFT analysis for every data group.	
	Display acquired data in waveform and spectrum of the group.	
	Presentation tripartite chart on single or overlay graph.	
Simultaneous Data Acquisition & Analysis	Run FFT analysis by specifying 2 acquired data channels in any group.	
Analysis Conditions	Analysis mode	Instant, Summation average or Peak hold
	Frequency range	Configure frequency range
	Overlap rate	87.5%,75%, 50% or 0%
	Data form	PSD (V√Hz) or 1 /3 Oct.
	Select of rms or 0 to peak	rms value or 0 to peak
	Analysis period	Fix start time and performance period
	Generation speed	High, Medium, Low
Option	Linear or logarithmic scale of X axis	
	Conceal or display cursor by click the wanted point on the screen	
	Print analyzed data graph and generate PNG file	
	Save data in CSV file	

Caution for safety   ● Please read the Instruction Manual carefully before use.

This catalogue is for the product as of OCT, 2021. The specification may be modified without notice.