

INSTRUCTION MANUAL

VM-83 Management Software

VM-83PB1



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Organization of This Manual

This manual describes the features and operation of the VM-83 Management Software VM-83PB1.

The manual contains the following sections.

Outline

Gives basic information on the VM-83PB1 software.

Equipment Connections

Describes how to connect the Vibration Meter VM-83 to the computer.

Preparations

Describes installation and uninstallation procedures for the VM-83PB1 software.

Main Menu Screen

Describes the functions available from the main menu screen.

Communication Errors

Explains the meaning of communication errors.

Vibration Measurement

Describes how to perform a measurement using the VM-83PB1 software.

User Filter

Describes the user filter function.

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Precautions

- This software is designed only for use with the Vibration Meter VM-83. It cannot be used with other equipment.
- Read this manual carefully before use.
- Store and use the CD-ROM in an environment that is not subject to drastic temperature fluctuations, humidity, magnetic fields, etc.
- Items described in this manual may be changed without prior notice.

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Any disputes or litigation arising from this agreement will be under the jurisdiction of the Tokyo District Court.

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Outline

The Software VM-83PB1 allows controlling settings and measurement operation of the Vibration Meter VM-83 from a computer. The VM-83PB1 also allows storing measurement data suitable for further processing for example with a spreadsheet application. In conjunction with the optional adapter SC-31M or SC-31S, the software can control up to 16 VM-83 units connected to a single computer.

The Software VM-83PB1 is designed to run under Microsoft Windows 95, or Microsoft Windows 98, Microsoft Windows 98SE, Microsoft Windows NT (Ver.4.0), Microsoft Windows Me, Microsoft Windows 2000, Microsoft Windows XP.

This manual assumes familiarity with the operation of the VM-83, as well as with computers and Windows in general.

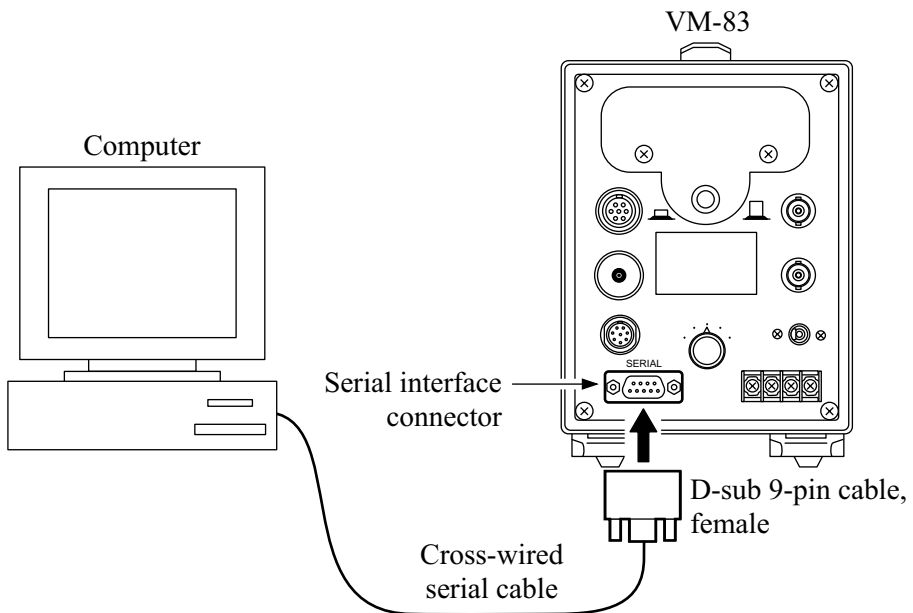
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Equipment Connections

Connect the Vibration Meter VM-83 to a computer, using a suitable cable as shown below.

Before making any connections, make sure that power to the VM-83 and to the computer is turned off.

One computer, one VM-83



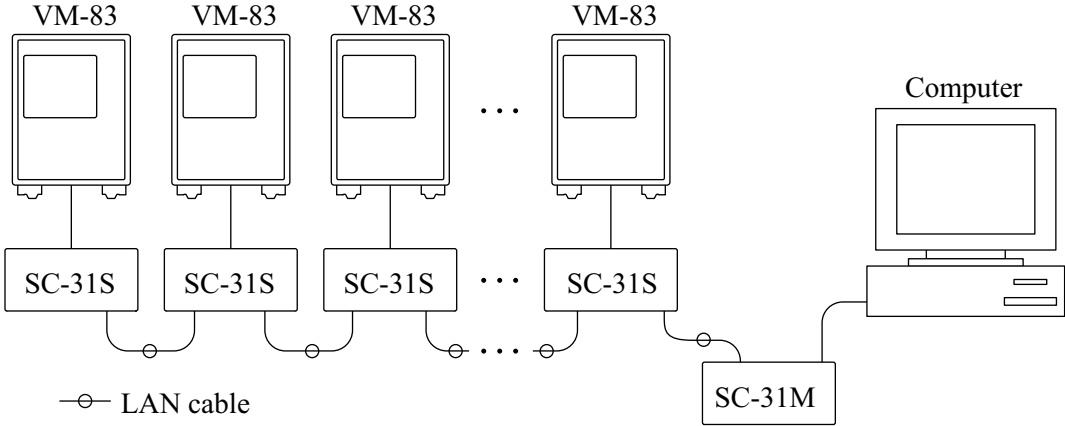
Cable type:

Cross-wired serial cable

Type of connector at VM-83: 9-pin D-sub, male

One computer, multiple VM-83 units (max. 16)

It is possible to connect multiple VM-83 units (max. 16) to a single computer. In this case, the optional SC-31M / SC-31S adapters and LAN cables (generic 10Base-T cable, option) are required.



Maximum communication distance: 400 m

Preparations

Installing the VM-83PB1 Software

The VM-83PB1 software is contained on one CD-ROM. Install the software as described below.

Note
When upgrading , be sure to delete (uninstall) VM-83PB1 former version first. Then install the new version VM-83PB1.

Install the VM-83PB1 on the computer as follows.

1. Start up Windows.
2. Insert the VM-83PB1 CD-ROM into the CD-ROM drive of the computer.
3. Perform setup using "Add / Remove Programs" in the Control Panel.
Execute the setup program on the CD-ROM.

Uninstalling the VM-83PB1 Software

To delete the installed VM-83PB1 software, use "Add / Remove Programs".

Main Menu Screen

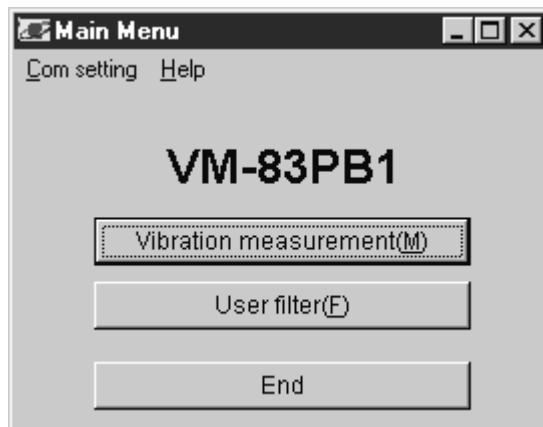
First, make sure that the internal clock of the computer (year, month, day, hour, minute, second) is correct.

Before using the VM-83PB1, disable any screen saver software and shut down other applications.

Starting the VM-83PB1 software

Use the Windows Start menu to select the VM-83 program. This brings up the VM-83PB1 main screen, as shown below.

First use the "Com setting" option to set the communication port and communication speed.



Actual screen size and font appearance may differ.

Main menu screen

Com setting

Calls up the Com setting screen shown on the next page, for selecting the communication port and communication speed.

Help


Calls up help information as shown on page 7, or version information.

[Vibration measurement (M)]

Brings up a window for setting measurement parameters from the computer and controlling the measurement.

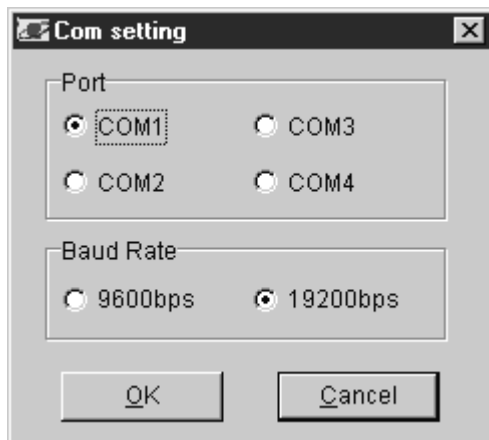
[User filter (F)]

This option lets you set up a desired high-pass filter and low-pass filter from the computer.

[End], 

Shut down the software application.

Com setting screen



Com setting screen

Serves for setting the communication port and communication speed.


Port

The communication port can be set to COM1 to COM4. Select the port to which the serial cable is connected.

Baud Rate

Selects the communication speed for the link between the computer and the VM-83. Select the same setting here as selected at the VM-83.

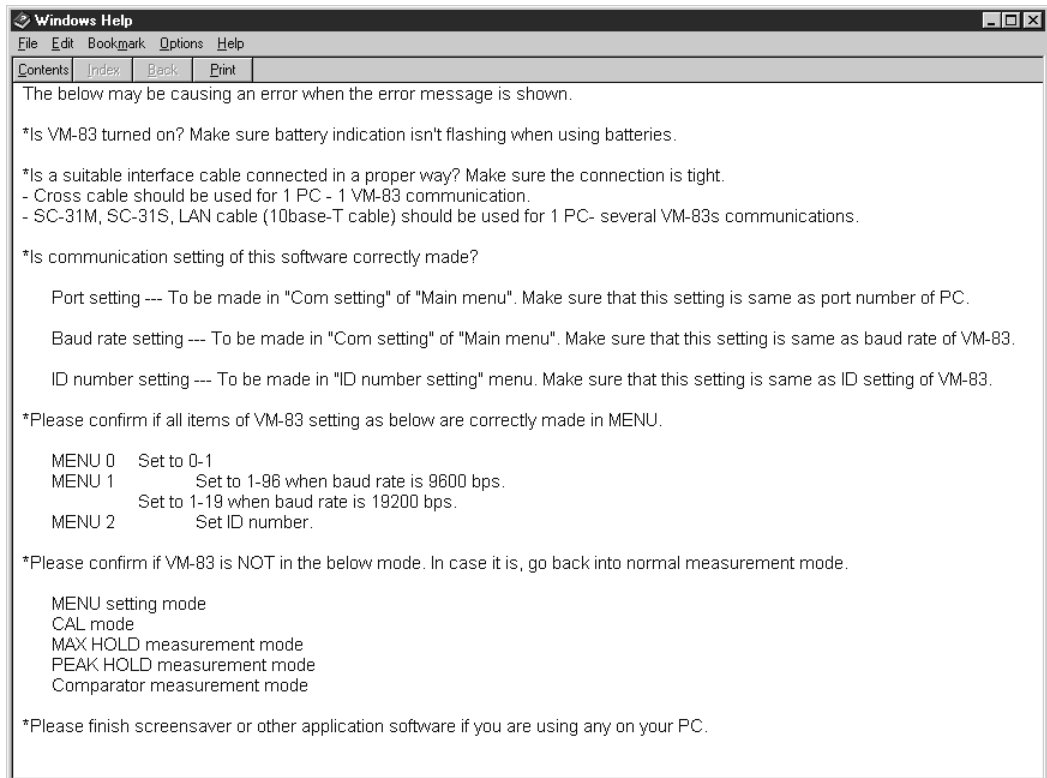
When you click on [OK], the selected settings become active, and the display returns to the main menu screen.

When you click on [Cancel] or , any changes are discarded, and the display returns to the main menu screen.

Note

If the Port and Baud Rate settings are not correct, a communication error will occur and normal operation is not possible.

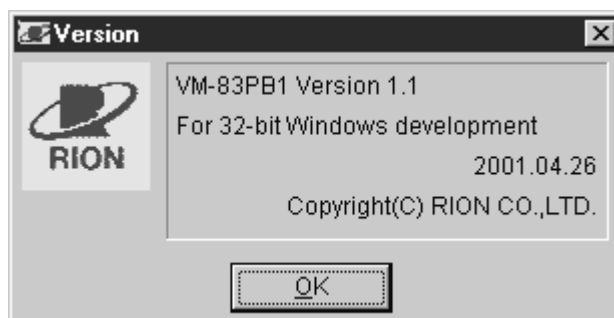
Help screen



Help screen

The help screen shows information about communication errors that have occurred. Use the information for solving any problems.

Version information screen



Version information screen

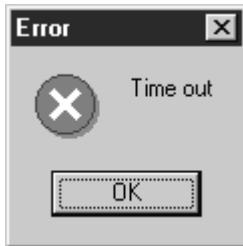
The version number and date of the software are shown here.

Communication Errors

When a communication error has occurred while using the software, one of the following error messages is shown.



Shown when the wrong port was selected on the Com setting screen.



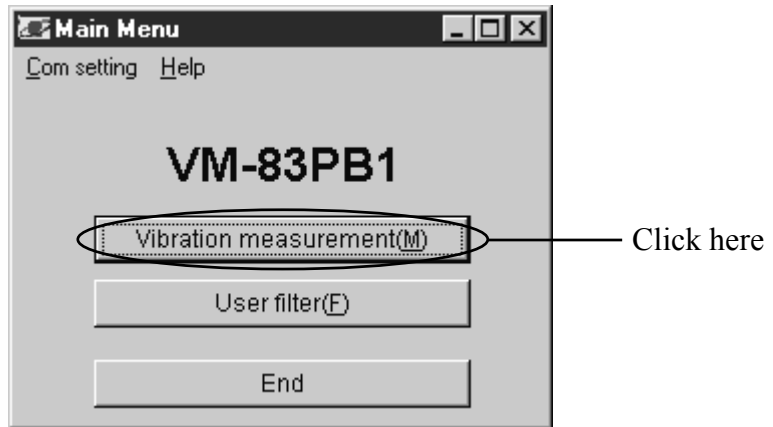
Shown when there is no response from the VM-83. Check the menus and other settings at the VM-83.



This message may indicate a possible fault in the cable connection or a mismatch in the Port and Baud Rate settings. Check the settings at the VM-83.

Vibration Measurement

Using the VM-83PB1 software, you can set the various measurement parameters from the computer and control the vibration measurement.



Main menu screen

Clicking on [Vibration measurement (M)] on the main menu screen brings up the ID No. setting screen.



ID No. setting screen

On this screen, select the ID number of the connected VM-83 that you want to control.

The ID number at the VM-83 is set using the menus.

Note**About ID numbers**

The ID number serves to identify the VM-83 unit when multiple units are connected to one computer. In such a setup, a unique ID number must be set at each VM-83.

Even if only one VM-83 unit is connected to the computer, the ID number still must be set.

When multiple VM-83 units are connected to the computer via the SC-31M / SC-31S adapters, the ID No. setting screen lets you select the unit with which to communicate.

To change settings at all connected VM-83 units in one operation, set the ID number to "FF".



ID No. setting screen

When "FF" is selected as ID No., the pickup field must be set to "Piezo" or "Servo". Choose the appropriate setting for the pickup in use.

When a setting other than "FF" is selected as ID No., the pickup type is detected automatically. Therefore no setting in the pickup field is required.

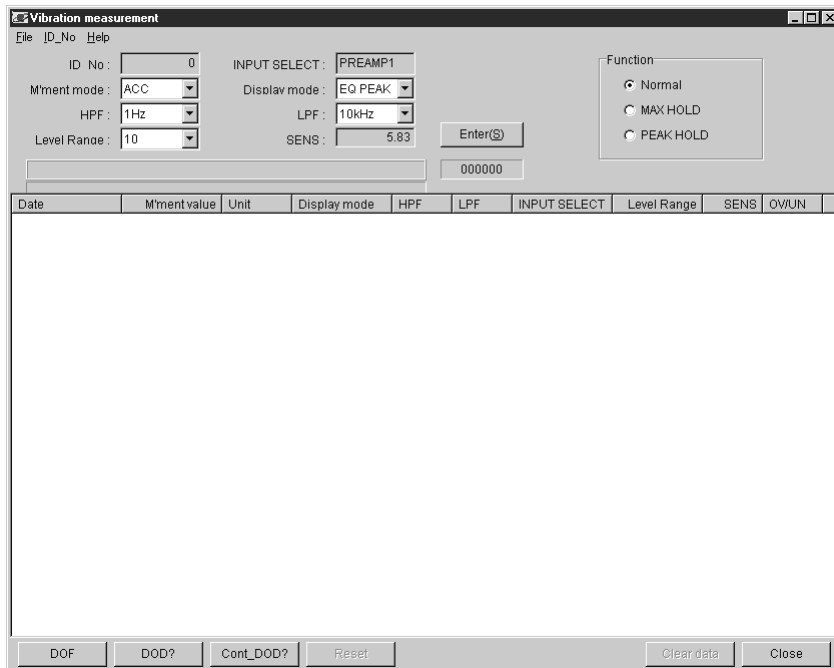
Note

- When "FF" is selected, it is only possible to change VM-83 settings.
- When several VM-83 units are connected using a mixture of piezoelectric and servo pickups, do not use the "FF" setting for the ID number. Otherwise correct operation is not assured.
- When "FF" is selected, it is not possible to change the level range setting or to switch to the MAX HOLD or PEAK HOLD function.

When you click on [OK] after setting the ID number, the vibration measurement screen appears. If you click on [Cancel] instead, the display returns to the main menu screen.

Vibration measurement screen

Screen explanation



Vibration measurement screen

File

Creates a CSV file or TXT file of measurement data. (See page 24.)

ID No. (top left)

Sets the ID number. You can select a different ID number for example when several VM-83 units are connected and you want to address a different unit. (See page 9.)

Help

Shows version information. (See page 7.)

ID No.

Shows the currently selected ID number. This indicates the VM-83 with which communication is carried out.

INPUT SELECT

Shows the INPUT SELECT setting of the VM-83.

M'ment mode, Display mode, HPF, LPF, Level Range

You can change the setting by clicking on the ▼ symbol in the frame.

When a setting was changed, click on [Enter] to confirm the change.

SENS

Shows the sensitivity setting of the VM-83.

Normal

Sets the VM-83 to the normal vibration measurement condition.

MAX HOLD

Sets the VM-83 to the maximum hold condition.

PEAK HOLD

Sets the VM-83 to the peak hold condition.

[Enter]

Sends any changes in measurement mode, display characteristics, HPF, LPF, and level range to the VM-83. (See page 14.)

[DOF]

The instantaneous measurement value is read from the VM-83 every 100 ms and shown on the display after completion of the measurement. (See page 15.)

[Stop]

While reading instantaneous DOF data, the "DOF" indication changes to "Stop". When you click on this button, instantaneous data reading stops and the data read up to this point are displayed.

[DOD?]

Reads measurement data from the VM-83 and displays them on the screen. (See page 17.)

[Cont._DOD?]

By setting a sampling interval and number of samples, the VM-83 performs measurement according to the parameter settings and displays the results on the screen. (See page 18.)

[Reset]

When the MAX HOLD or PEAK HOLD function is selected, this button resets the retained value of the VM-83.

[Clear data]

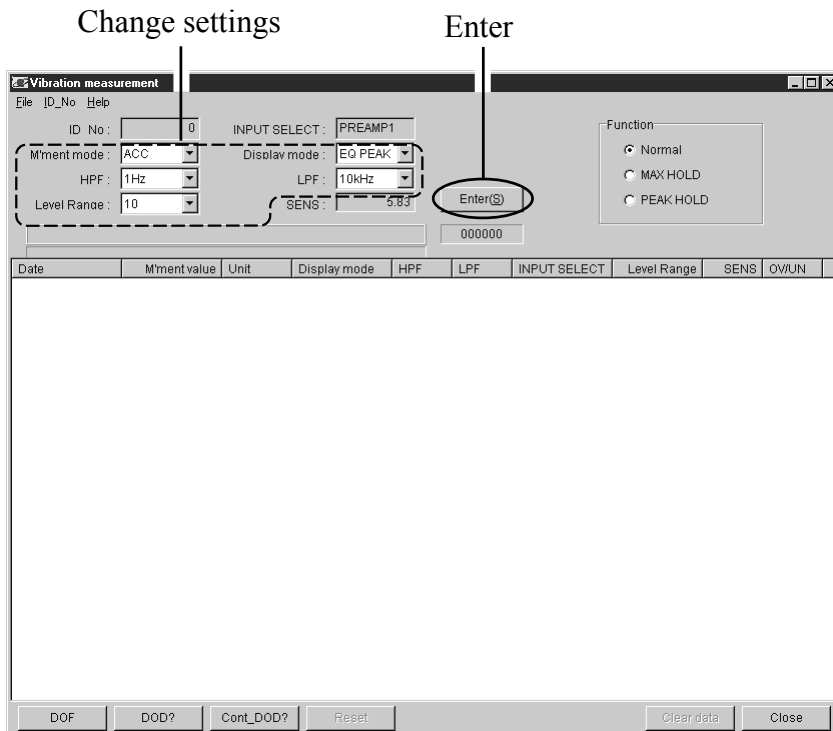
Clears the displayed data.

[Close]

Terminates the vibration measurement and returns to the main menu screen.

Send Settings

In the top left section of the vibration measurement screen, the current VM-83 settings (M'ment mode, Display mode, HPF, LPF, Level Range) are shown and can be set. When any of these settings is changed, click on the [Enter] button to effect the change at the VM-83.



Vibration measurement screen

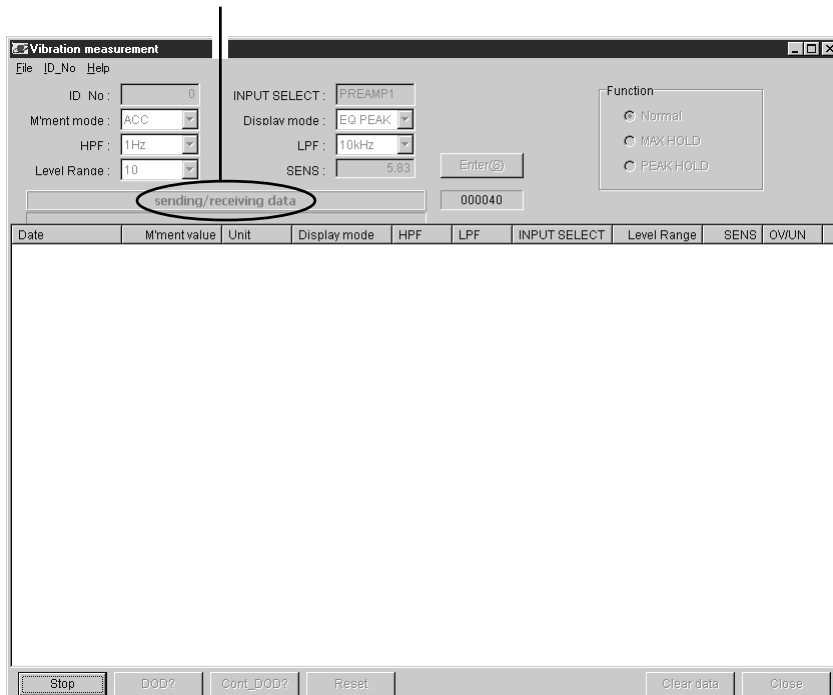
Note

- If a setting was changed and you have not clicked on [Enter], [DOF], [DOD?], [Cont_DOD?], [MAX HOLD], and [PEAK HOLD] cannot be selected.
- When the MAX HOLD or PEAK HOLD function is selected, Send Settings is not possible.
- When the ID No. field is set to "FF", the level range setting is not available.

Instantaneous Value DOF Measurement

Click on [DOF] to start the measurement. The instantaneous value is read from the VM-83 every 100 ms, until [Stop] is clicked or until the maximum of 216000 data (6 hours of continuous measurement) is reached. When the maximum is reached, measurement stops automatically.

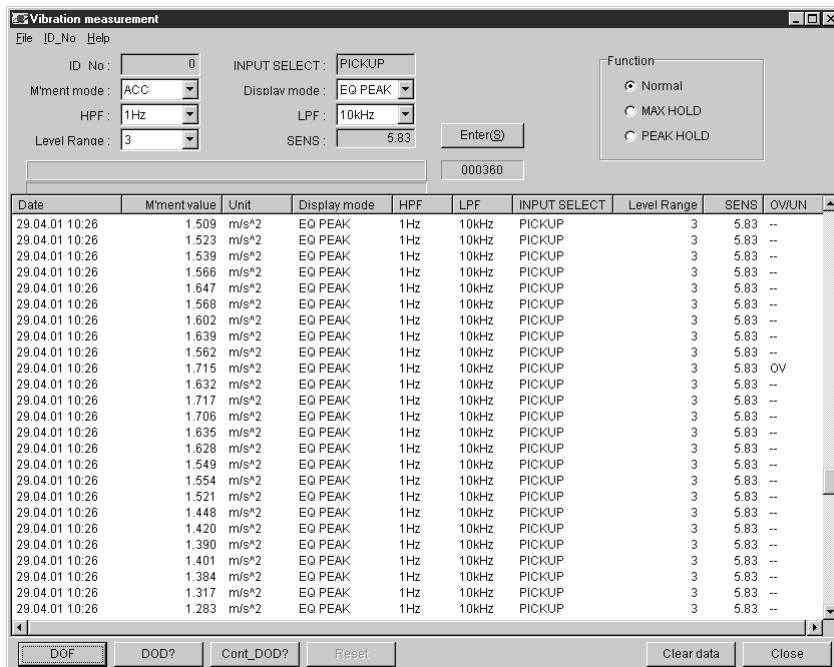
Shown while sending or receiving data



Instantaneous value DOF read-in screen

While instantaneous value data are being read in, the indication "sending / receiving data" flashes.

When you click on [Stop], the instantaneous data read-in process is terminated, and the data are displayed.



Instantaneous value DOF display screen

Note

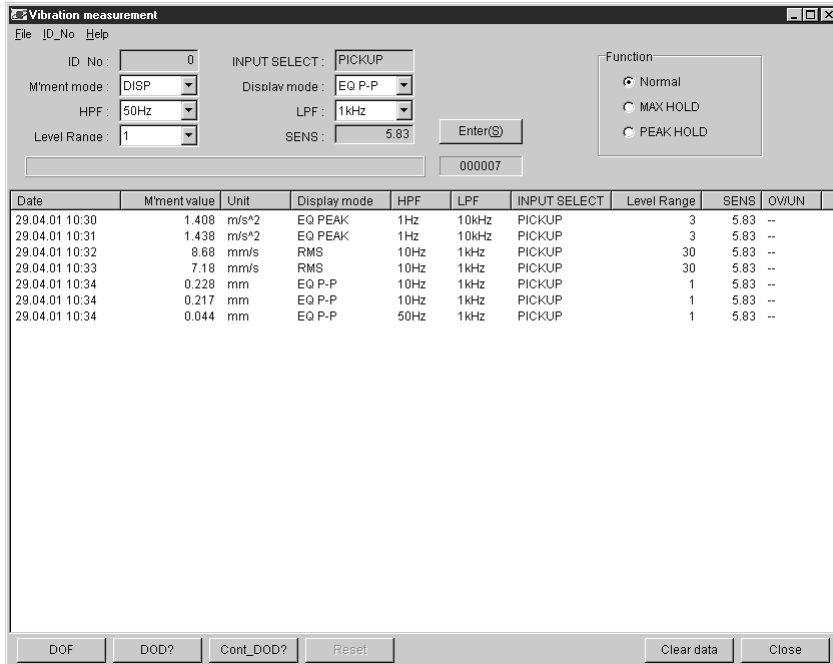
- The measurement date and time are derived from the clock of the computer.
- When the ID No. field is set to "FF", instantaneous value DOF measurement is not available.
- When the MAX HOLD or PEAK HOLD function is selected, instantaneous value DOF measurement cannot be done.
- When there is a large amount of data, several seconds may elapse between the point where measurement is stopped until data are displayed.
- For the measurement maximum of 216000 data, 100 MB of free space are required on the hard disk of the computer.

When reading in data other than instantaneous value DOF or when the function or ID number was changed, the data must be cleared first before proceeding. (See page 23.)

When wishing to store measurement data, please refer to "Creating a File" on page 24.

Measurement Value DOD? Measurement

Click on [DOD?] to start the measurement. With each click of the button, measurement data are read from the VM-83 and measurement data are displayed on the screen. Up to 216000 data can be read in.



Instantaneous value DOD? data display screen

Note

- The measurement date and time are derived from the clock of the computer.
- When the ID No. field is set to "FF", measurement value DOD? measurement is not available.

When reading in data other than measurement value DOD? or when the function or ID number was changed, the data must be cleared first before proceeding. (See page 23.)

When wishing to store measurement data, please refer to "Creating a File" on page 24.

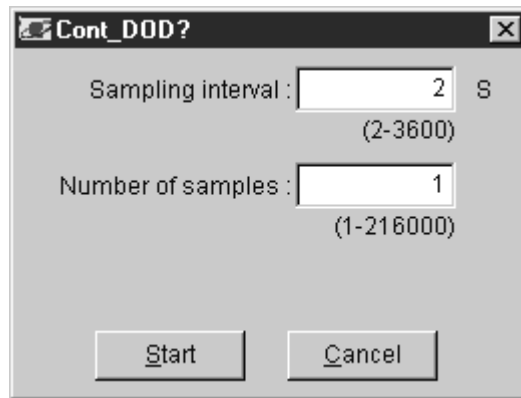
Measurement Value DOD? (Continuous) Measurement

Click on [Cont_DOD?], set the sampling interval and number of samples, and click on [Start] to start the measurement. At the preset intervals, the selected number of samples will be taken.

Setting range

Sampling interval: 2 to 3600 seconds, in 1-second steps

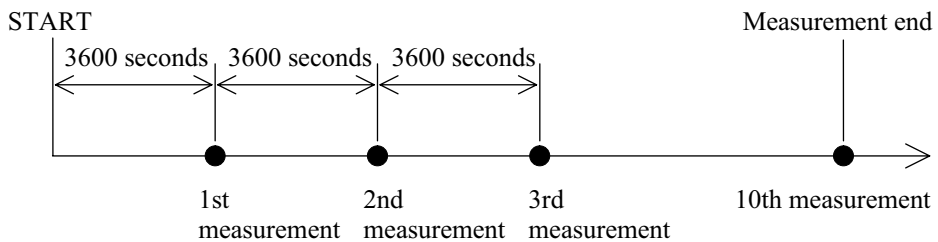
Number of samples: 1 to 216000



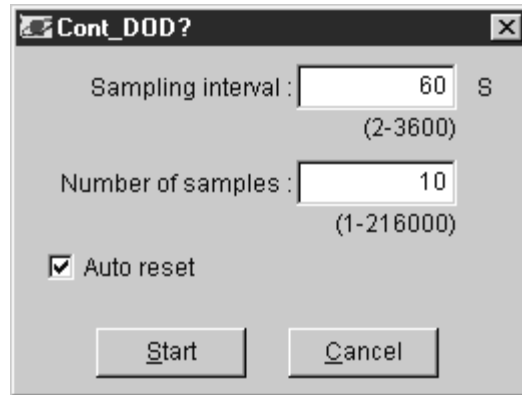
Example

Sampling interval: 3600 seconds

Number of samples: 10



When the MAX HOLD or PEAK HOLD function is selected, the auto reset option is available. To activate the option, click in the box to place a check mark in it.



When auto reset is active, a reset signal is sent out immediately after the MAX HOLD or PEAK HOLD measurement value (hold data) was read in, to reset the hold data at the VM-83. This allows you to obtain the MAX HOLD or PEAK HOLD value for each sampling interval.

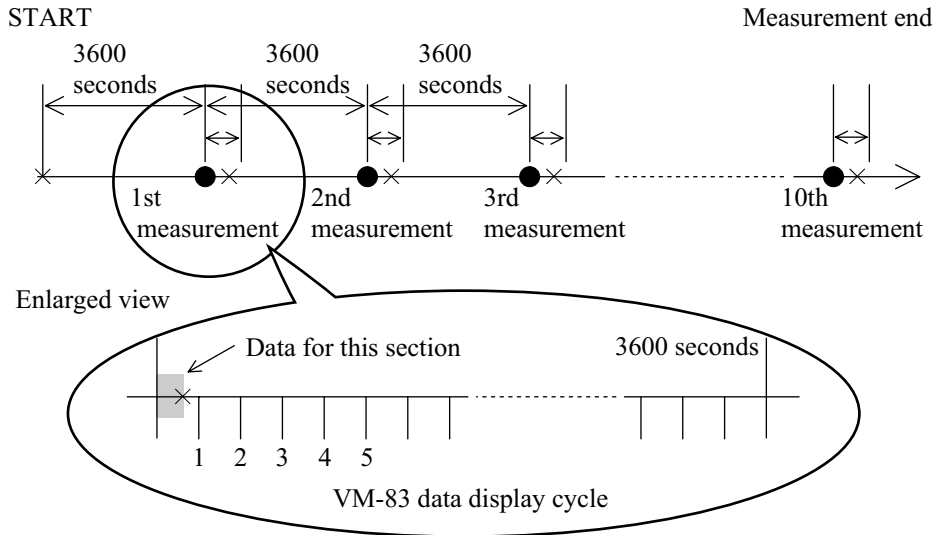
The hold data measurement value is updated at the display cycle of 2 seconds. Therefore, depending on the display cycle and reset timing, there is a period of max. 2 seconds where the measurement value cannot be held. (See page 20.)

Example

Sampling interval: 3600 seconds

Number of samples: 10

Auto reset: ON



Date	M'tment value	Unit	Display mode	HPF	LPF	INPUT SELECT	Level Range	SENS	OV/UN
29.04.01 10:42	3.63	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:43	3.80	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:44	4.55	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	OV
29.04.01 10:45	3.63	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:46	3.84	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:47	4.70	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:48	3.96	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:49	4.73	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:50	4.05	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--
29.04.01 10:51	4.23	m/s ²	EQ PEAK	3Hz	1kHz	PICKUP	10	5.83	--

Measurement value (continuous) data display screen
(sample interval: 60 seconds, number of samples: 10)

Note

The measurement date and time are derived from the clock of the computer.

When reading in data other than measurement value (continuous) or when the function or ID number was changed, the data must be cleared first before proceeding. (See page 23.)

When wishing to store measurement data as a CSV file or TXT file, please refer to "Creating a File" on page 24.

MAX HOLD, PEAK HOLD

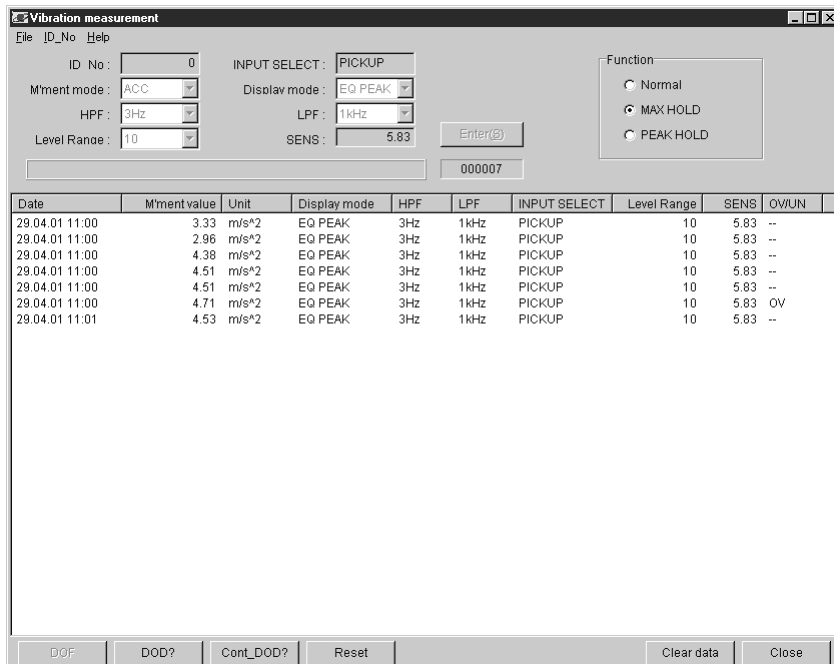
You can set the VM-83 to MAX HOLD or PEAK HOLD and read in the retained measurement values.

The function is selected in the top right of the screen.

Note	
-	VM-83 settings cannot be changed, and instantaneous value DOF measurement is not possible.
-	When using PEAK HOLD, only the measurement mode ACC (acceleration) can be set.

Clicking on the [Reset] button causes the data held up to this point to be reset.

For information on measurement value DOD? operation, please refer to page 17, and for measurement value DOD? (continuous) to page 18.



Measurement value (MAX HOLD) screen

Clear Data

Erases the displayed data.



Click on [OK] to clear the data.

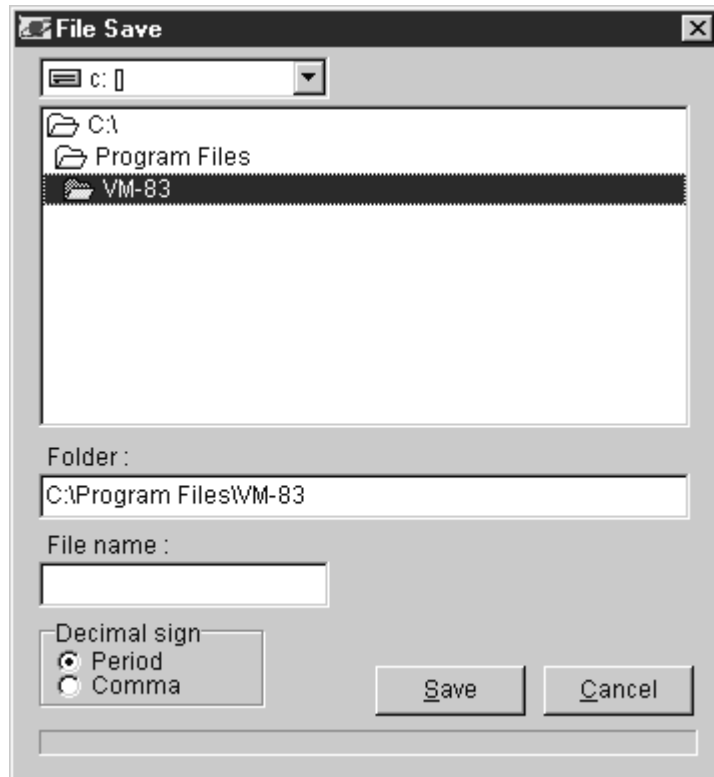
Clicking on [Cancel] aborts the process and returns to the previous screen.

If the maximum of 216000 data is displayed, the clearing process will take about 15 minutes (on a 400 MHz computer).

Note
This option clears all data. Before using it, be sure to save any data that you want to keep to a file, as described on page 24.

Creating a File

The measurement data read in at the measurement screen can be stored in a file by clicking on [File]. This brings up the File Save screen shown below. The stored file can be read by common spreadsheet applications.



File Save screen

After specifying the folder and file name, click on [Save] to create the file.

Period

The CSV format file uses a period (.) for the decimal point. The data delimiter is a comma (,).

Comma

The TXT format file uses a comma (,) for the decimal point. The data delimiter is a semicolon (;).

Clicking on [Cancel] aborts the process and returns to the previous screen.

The file name can use any alphanumeric character. A file number (00 to 11) will be automatically appended.

Note

- When there are more than 18000 data to be saved, multiple files will be created.
- A file number (00, 01, 02 ... 11) is automatically appended to the file name. This number serves to identify the files when the data are divided into multiple files.
- The process will take several minutes when saving the maximum of 216000 data.

	A	B	C	D	E	F	G	H	I	J
1	DOF	ID_No=00								
2	Date	Moment value	Unit	Display mode	HFF	LFF	INPUT SELECT	Level Range	SENS	OV/LN
3	29.04.01 11.06	4.43	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
4	29.04.01 11.06	4.55	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
5	29.04.01 11.06	4.46	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
6	29.04.01 11.06	4.60	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
7	29.04.01 11.06	4.56	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
8	29.04.01 11.06	4.57	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
9	29.04.01 11.06	4.50	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
10	29.04.01 11.06	4.55	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
11	29.04.01 11.06	4.57	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
12	29.04.01 11.06	4.72	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
13	29.04.01 11.06	4.68	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
14	29.04.01 11.06	4.63	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
15	29.04.01 11.06	4.55	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
16	29.04.01 11.06	4.60	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
17	29.04.01 11.06	4.65	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
18	29.04.01 11.06	4.74	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
19	29.04.01 11.06	4.62	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
20	29.04.01 11.06	4.48	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
21	29.04.01 11.06	4.31	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
22	29.04.01 11.06	4.59	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	OV
23	29.04.01 11.06	4.37	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
24	29.04.01 11.06	4.19	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
25	29.04.01 11.06	4.02	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
26	29.04.01 11.06	3.85	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
27	29.04.01 11.06	3.72	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
28	29.04.01 11.06	3.67	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
29	29.04.01 11.06	3.66	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
30	29.04.01 11.06	3.77	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
31	29.04.01 11.06	3.93	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--
32	29.04.01 11.06	4.26	m/s ²	EQ PEAK	3Hz	OFF	PICKUP	10	5.83	--

Example for opening in Excel

User Filter

About User Filters

The user filter function lets you send a digital filter coefficient to the VM-83, to select any high-pass filter or low-pass filter characteristic within the available setting range. Once a filter has been set, its characteristics will be stored in the VM-83 by the Resume function, so that the filter information is maintained also when the unit is turned off.

The allowable number of filters is one high-pass filter and one low-pass filter at a time. When a user filter has been set, the indication "OP" is shown in the filter section of the LCD panel on the VM-83.

High-pass filter

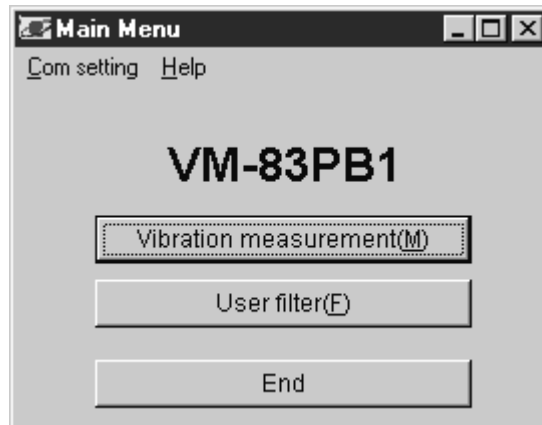
Order:	3rd-order filter		
Setting range (-10% point):	Piezo	1 Hz to 100 Hz	(1 Hz steps)
		100 Hz to 1 kHz	(10 Hz steps)
	Servo	0.3 Hz to 10 Hz	(0.1 Hz steps)

Low-pass filter

Order:	3rd-order filter		
Setting range (-10% point):	Piezo	50 Hz to 100 Hz	(1 Hz steps)
		100 Hz to 1 kHz	(10 Hz steps)
		1 kHz to 10 kHz	(100Hz steps)
	Servo	5 Hz to 100 Hz	(1 Hz steps)

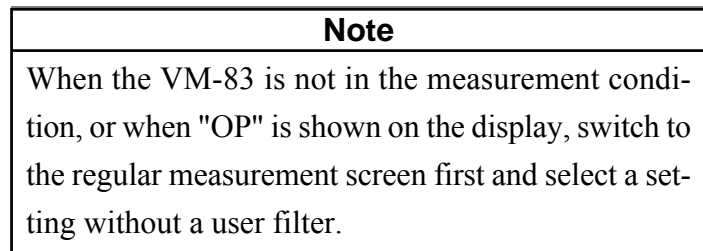
For information on filter characteristics, please refer to page 30.

Setting the User Filter



Main menu screen

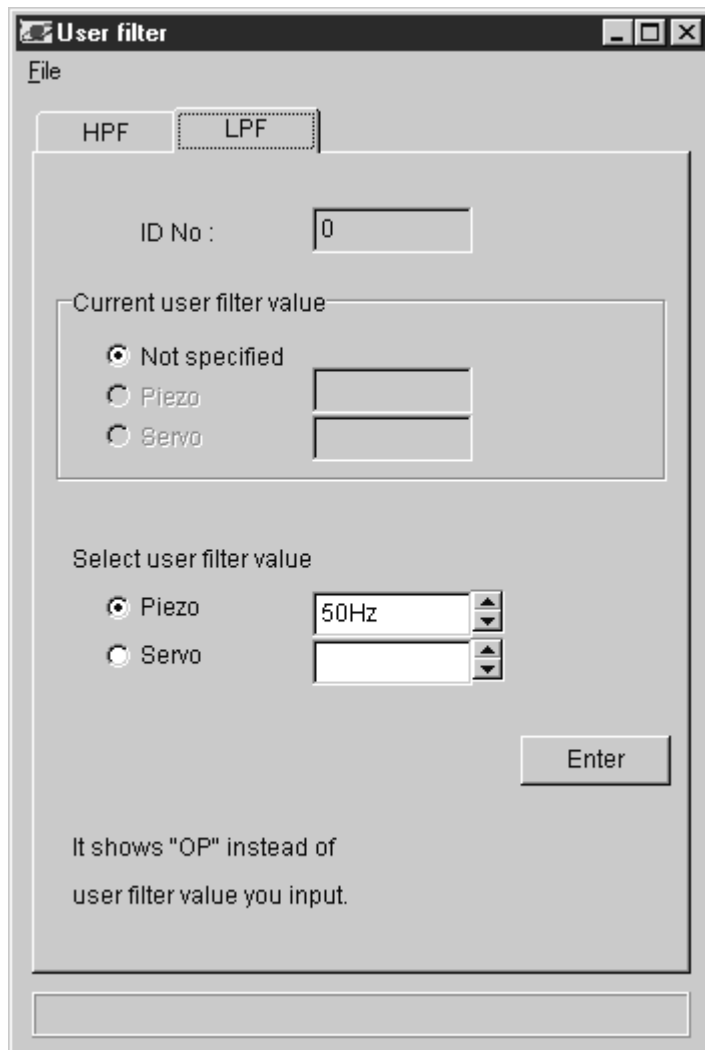
From the main menu screen, click on [User filter] to bring up the ID number setting screen.



ID number setting screen

On the ID number setting screen, select the ID number of the connected VM-83 to which you want to send user filter information.

The ID number at the VM-83 is set using the menus.



User filter setting screen (LPF)

On the filter setting screen, select the HPF (high-pass filter) or LPF (low-pass filter) tag. Select the filter value from the user filter input list box (▲ ▼).

Click on [Enter]. The indication "sending / receiving data" flashes. When the transfer is complete, the selected filter characteristics are shown as the current user filter, and user filter input is terminated.

Screen description

File

Saves the currently set user filter values as a CSV format file.

HPF tag

Opens the user filter setting screen for the high-pass filter.

Set the desired high-pass filter characteristics from this screen.

LPF tag

Opens the user filter setting screen for the low-pass filter.

Set the desired low-pass filter characteristics from this screen.

ID No.

Shows the currently set ID number.

The data will be sent to the VM-83 with this ID number.

Current user filter value

Shows the currently set user filter.

Select user filter value

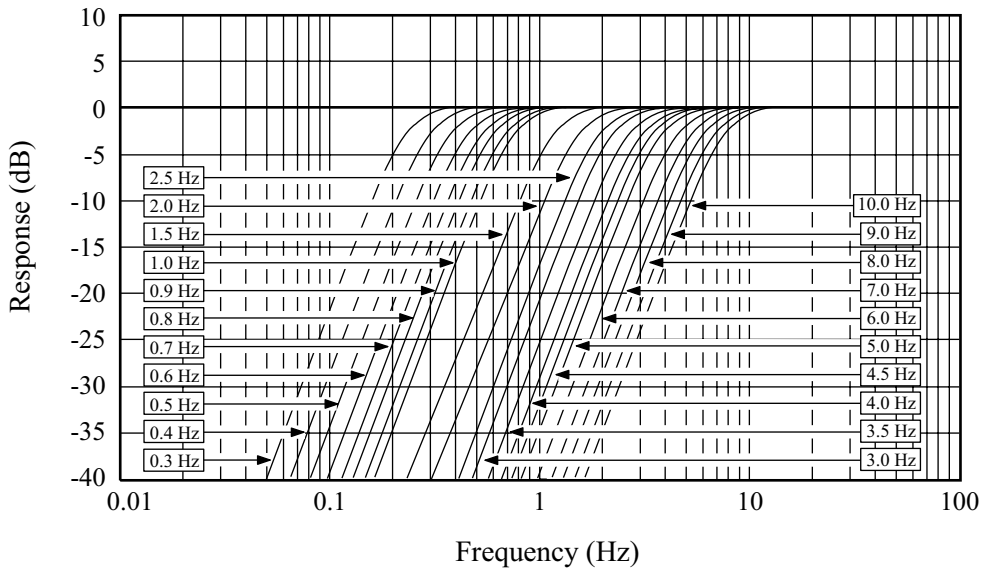
Select the values for the user filter by clicking on ▲ or ▼.

Enter

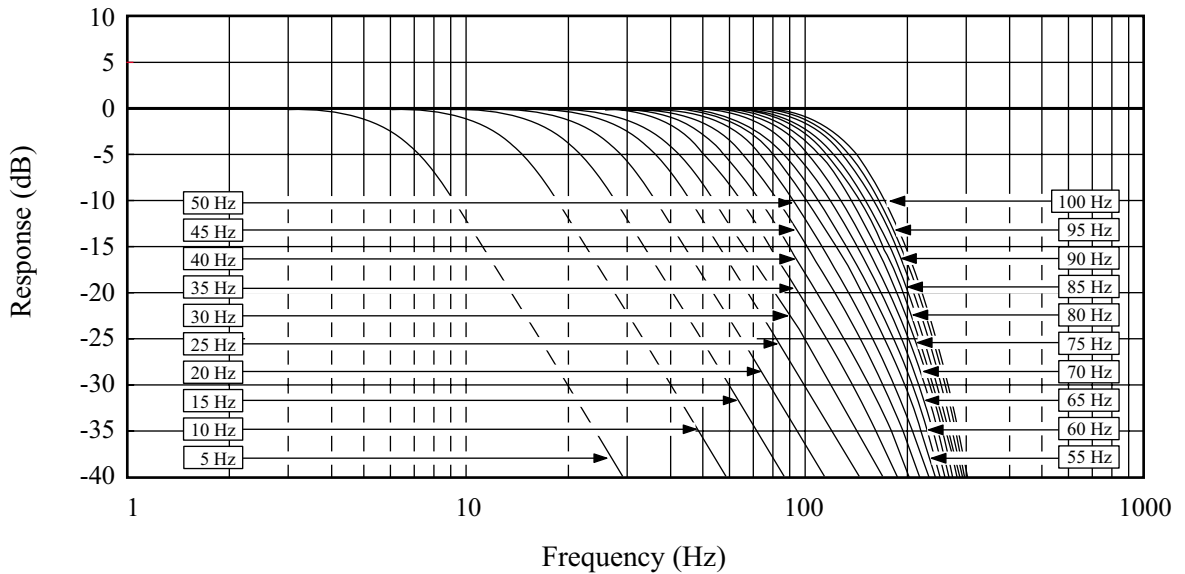
Send the values input in the user filter input box to the VM-83. When successful, the current user filter indication on the VM-83 shows the selected settings.

Technical Information

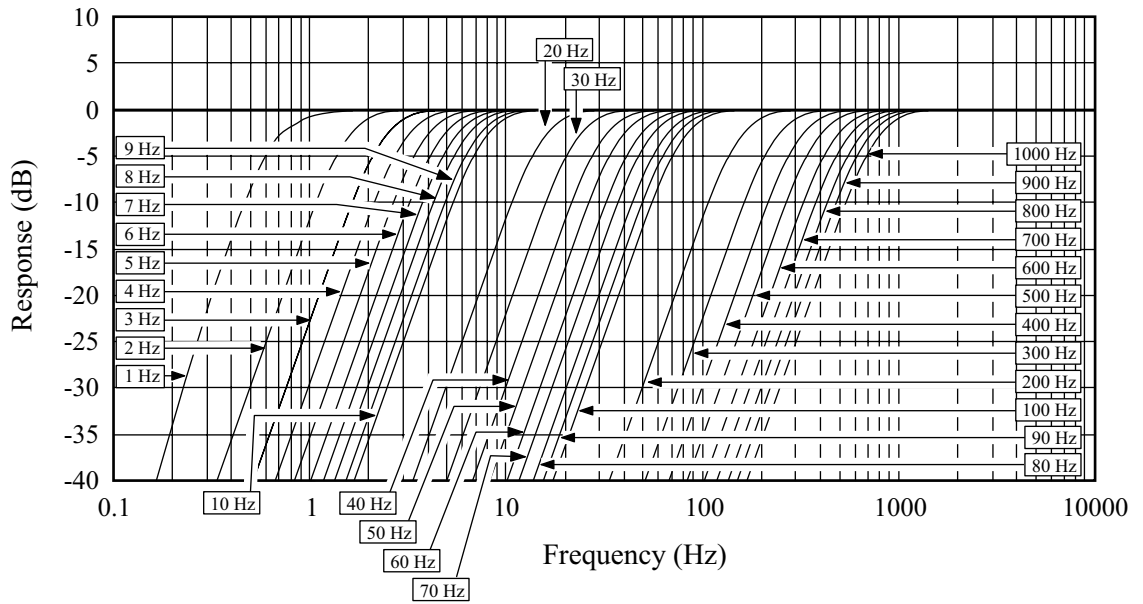
User filter Servo HPF Representative characteristics



User filter Servo LPF Representative characteristics



User filter Piezo HPF Representative characteristics



User filter Piezo LPF Representative characteristics

