

In-mold measurement
Mold marshaling system

Injection molding monitoring system

MVS08

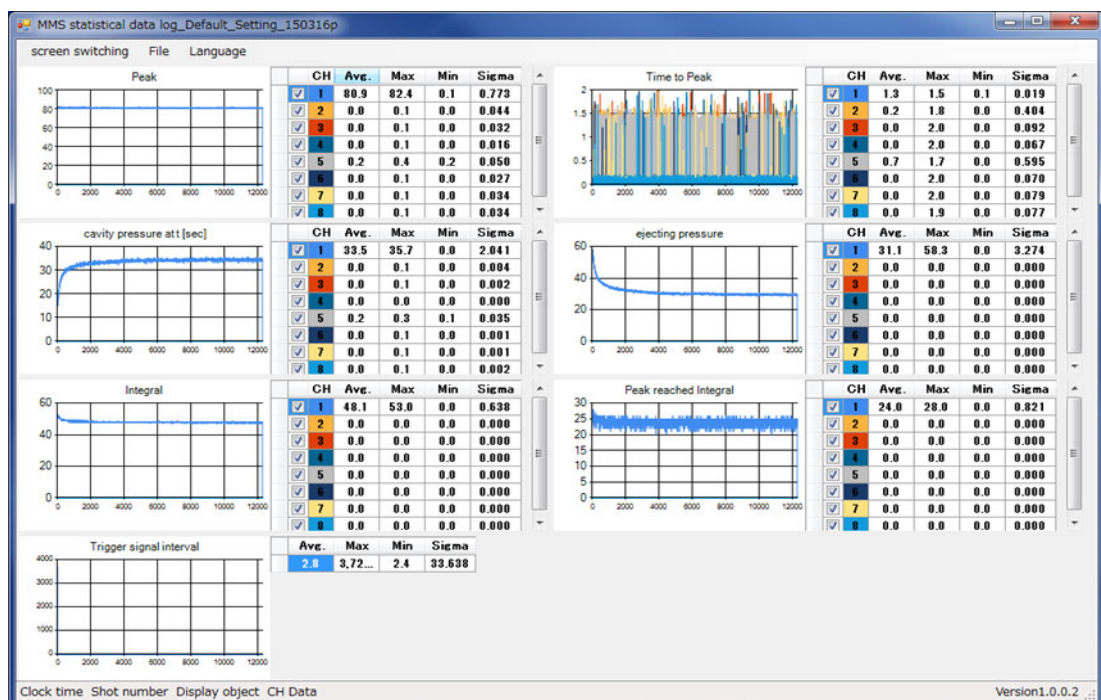
Trend Viewer

Instruction Manual

Thank you very much for purchasing the products of Futaba Corporation.

Please read this instruction manual thoroughly and use it for a long time.

Do not use the product in any way other than that described in the instruction manual.



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BEFORE USE

This Operator's Manual describes the Trend Viewer dedicated to the Injection Molding Monitoring System MVS08.

Trend Viewer is a statistical software for quality control with a function to display the data being measured as a trend in real time and a function to display the data acquired in the past as a trend.

There are three operating instructions.

Please read carefully before use. Keep this manual in a safe place for future reference.

- Injection Molding Monitoring System MVS08 Instruction Manual
This is the main edition of the instruction manual.
- Instrumentation Software PVS Installation Manual
Includes the procedure for installing the measurement software.
- [Injection Molding Monitoring System MVS08 Trend Viewer Instruction Manual](#)
Various functions added to the data acquired by the measurement software are presented.

Table of Contents

1. Trend Viewer Features	1
2. Trend Viewer Setup	1
3. Selecting the Mode File	3
3-1. Select the mode	3
3-2. Select the file	3
4. To display trends	5
4-1. Select the type of trend you want to view.	5
4-2. Arrange trend displays in two rows	5
4-3. Expanding the display range of trends	7
4-4. Selecting Channels to Display Trends	8
4-5. Displaying Trends in Measurement Mode	8
4-6. Print the trend display	8
5. Display waveform from trend display	9
5-1. Select the desired waveform from the trend.	9
5-2. Moving the Cross Cursor	10
5-3. Change the waveform you want to display	11
6. Displaying a waveform directly from a waveform file	11
7. Switch language	13

1. Trend Viewer Features

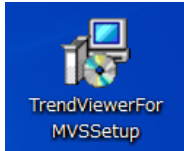
This application "Trend Viewer" displays and checks the transition of each measured value such as peak value and integral value recorded during molding as trend data with the horizontal axis as the number of shots and the vertical axis as the measured value.

See the next section for more information on how to set up and use the application.

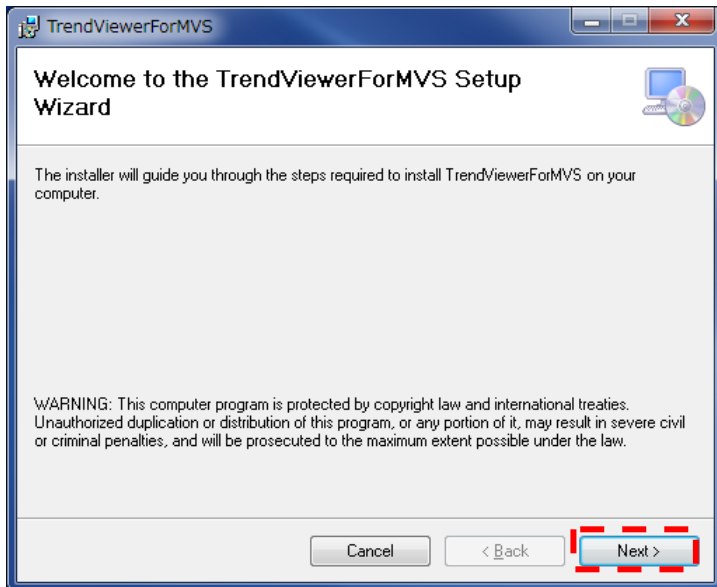
2. Trend Viewer Setup

This section explains how to introduce the Trend Viewer.

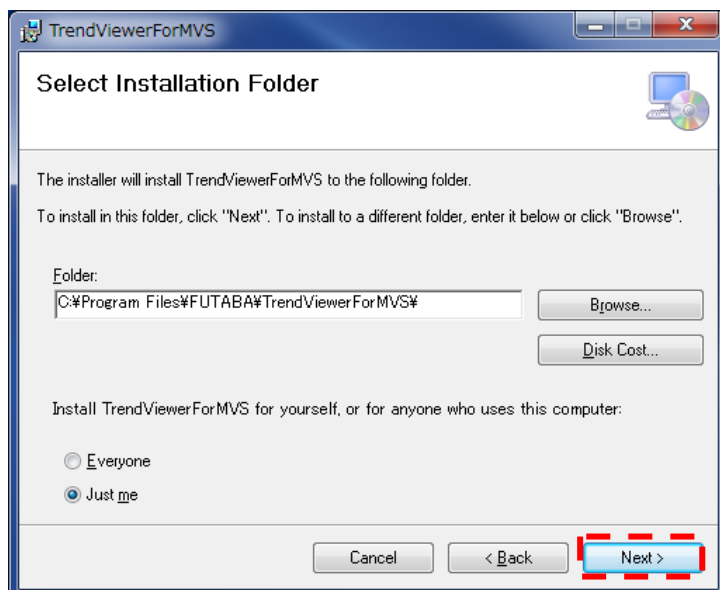
- (1) Double-click the installer to launch it.



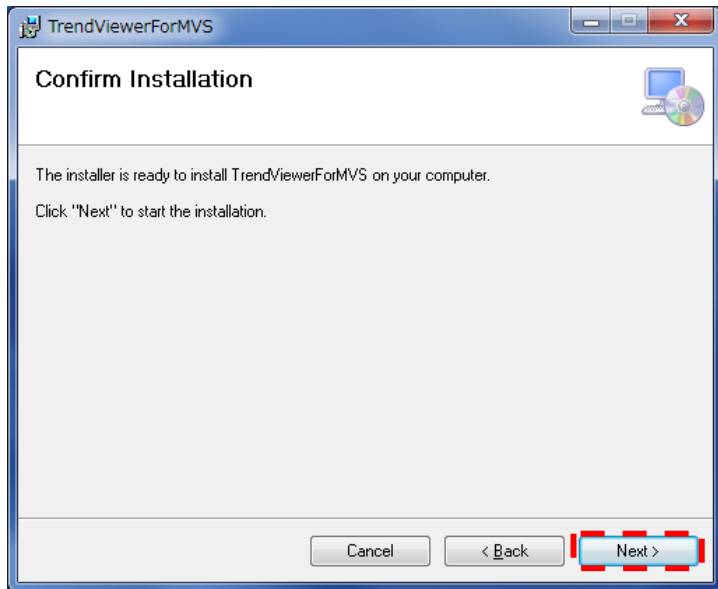
- (2) The Setup Wizard is displayed. Click "Next".



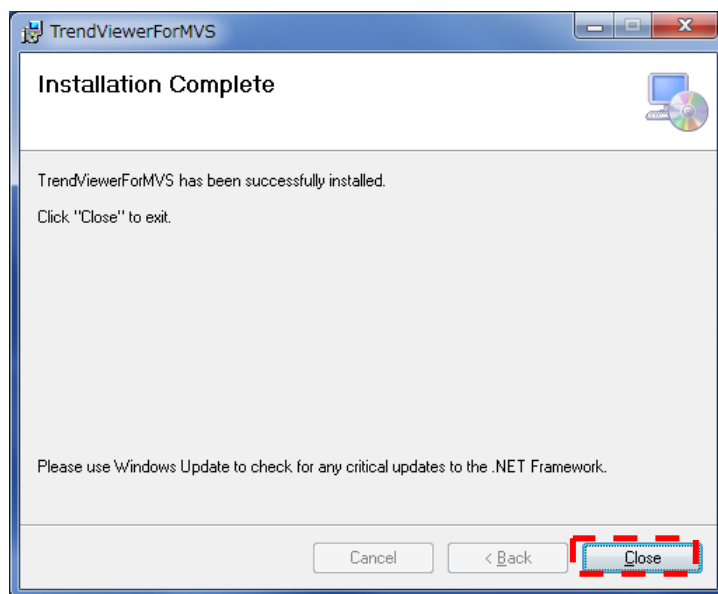
- (3) Select the folders you want to install, and then click "Next".



(4)[Confirm Installation] window appears. Click "Next".



(5) The installation is complete. Click "Close".



After installing the software, start [Trend Viewer For MVS] to use this application.

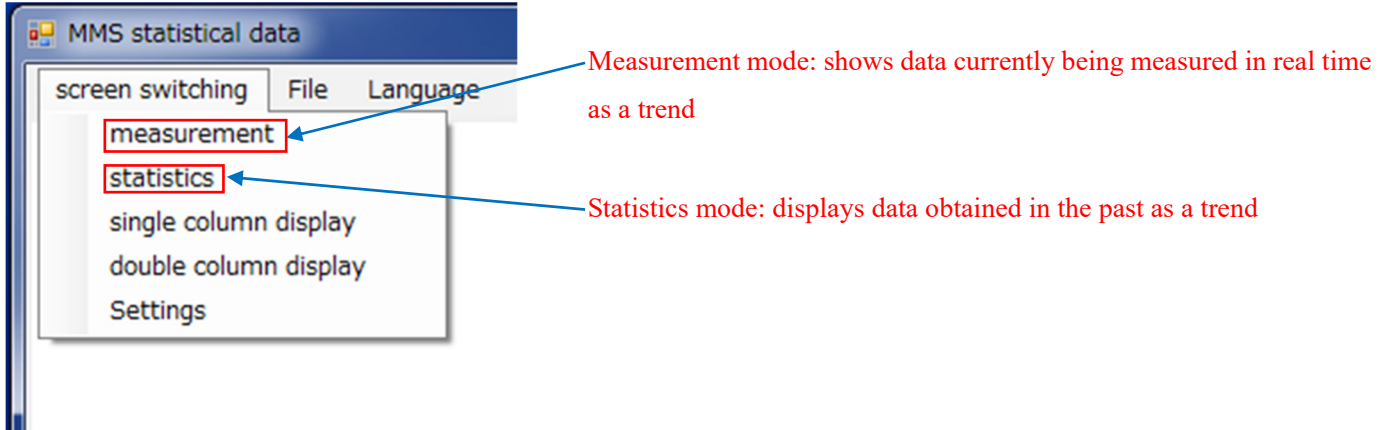


3. Selecting the Mode File

3-1. Select the mode

This application "Trend Viewer" has two types: measurement mode, which displays the data being measured as a trend in real time, and statistical mode, which displays the data acquired in the past as a trend.

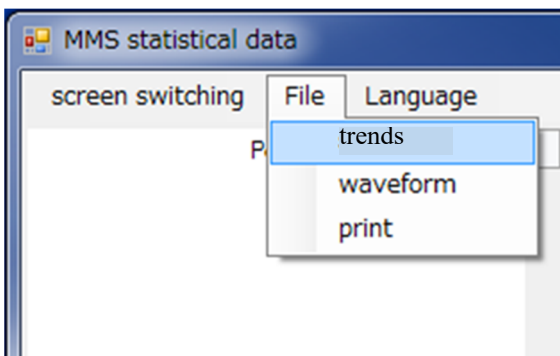
When a file is selected and opened, statistics mode is automatically entered. Switch to measurement mode after selecting a file.



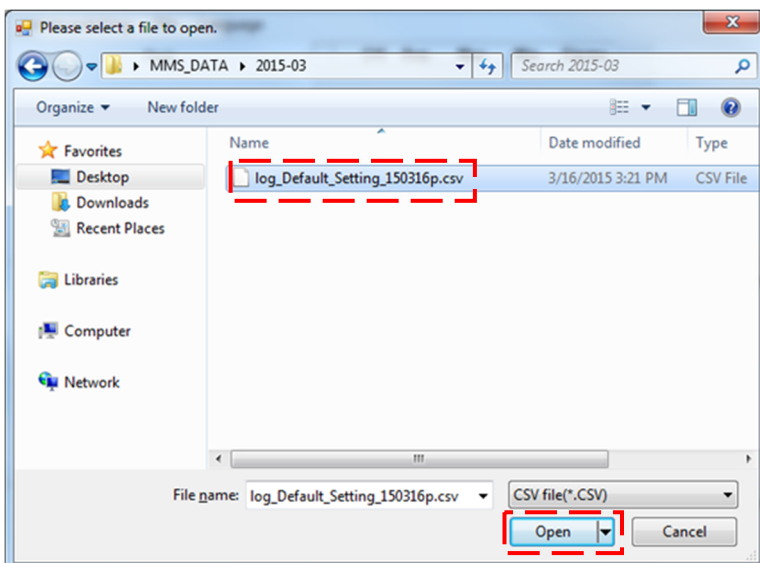
3-2. Select the file

Log data such as calculation values and shot data can be recalled.

- (1) Select [File], and then select [Trends].



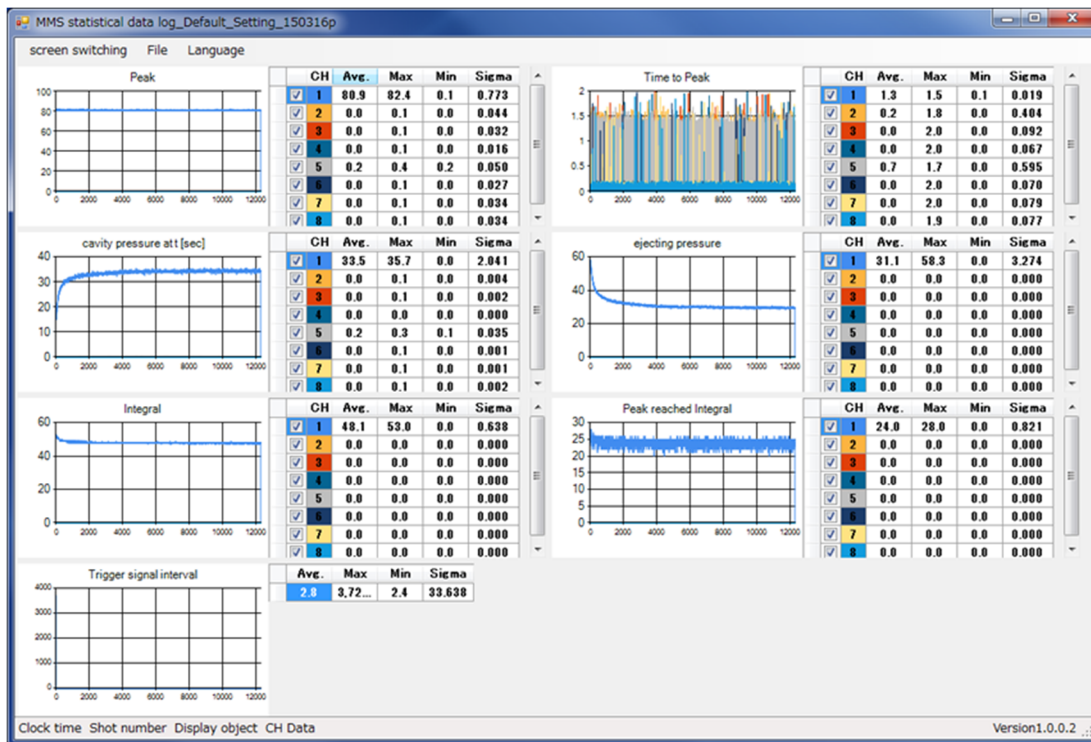
- (2) Select a file [previously acquired log file] and click [Open].



(3) The various trends are displayed.

These seven trends are displayed by default. The horizontal axis indicates the number of shots.

- ① Peak value: Displays the peak value within the measurement time.
- ② Peak arrival time: Time when peak pressure is reached
- ③ Pressure after t seconds: Value at the set elapsed time
- ④ Eject pressure: Value at the time of eject
- ⑤ Integral: Area surrounded by pressure waveform and time axis
- ⑥ Peak integral: Integral value to peak value within measurement time
- ⑦ Trigger interval: Interval of the time the trigger signal was triggered (time of one molding cycle)



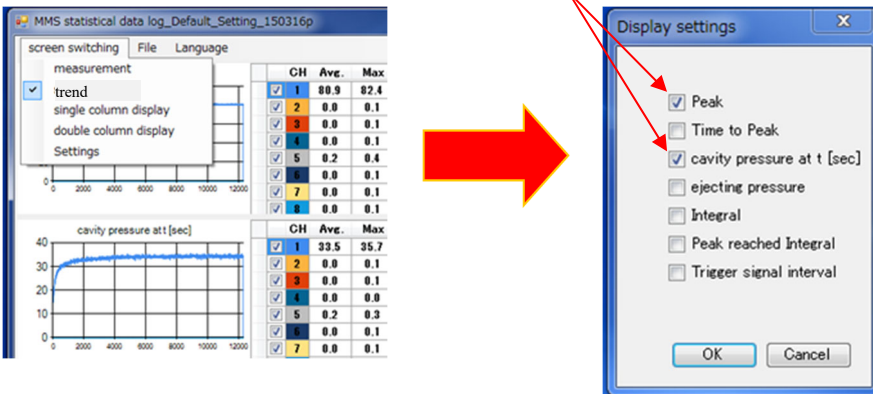
The values of channel number (CH), average value (Avg), maximum value (Max), minimum value (Min), and standard deviation (Sigma) are displayed on the right side of each graph respectively.

4. To display trends

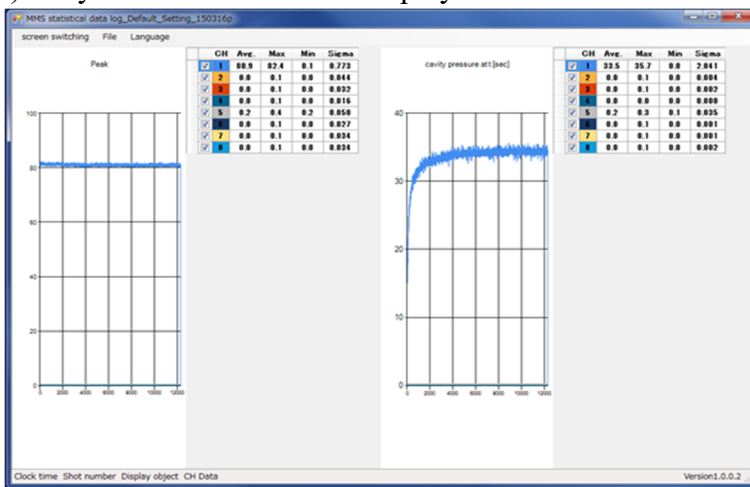
4-1. Select the type of trend you would like to view.

(1) Select "Change screen" and select "Settings".

(2) [Display Settings] window is displayed. Check the trend you would like to display.



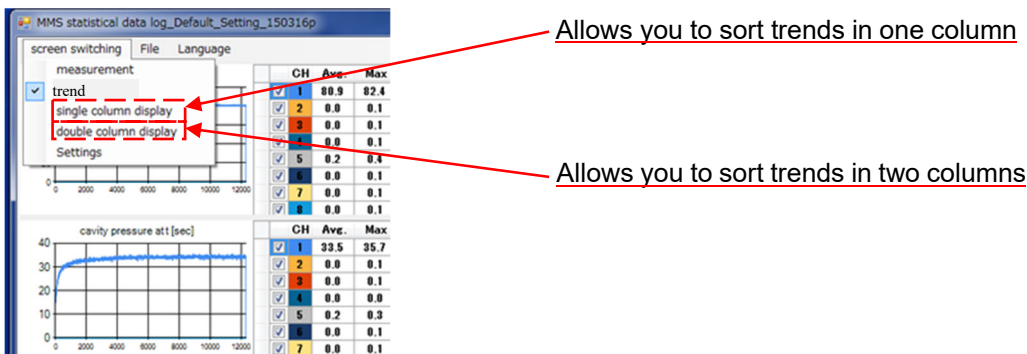
(3) Only the selected trend is displayed.



4-2. Arrange trend displays in two columns

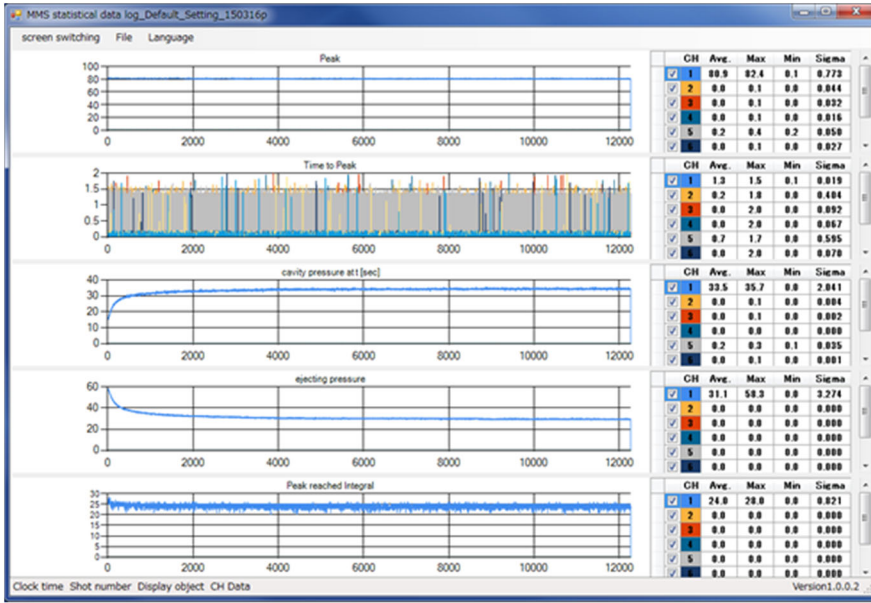
You can choose to display the graphs in two columns or in one column.

You can switch by selecting "Change screen" and clicking "Single column display" or "Double column display".

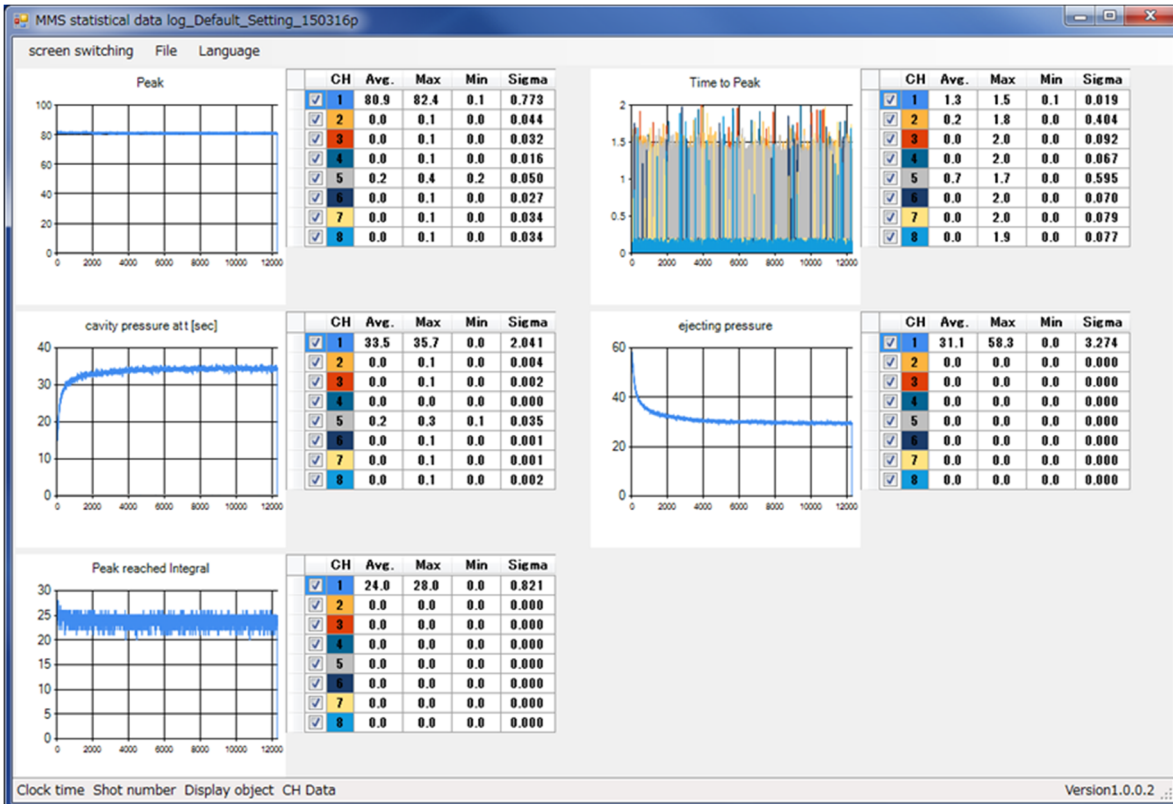


The following figures show respective screens when choosing single column display or double column display.

(1) When choosing single column display



(2) When choosing double column display




4-3. Enlarging a specific display range of trend

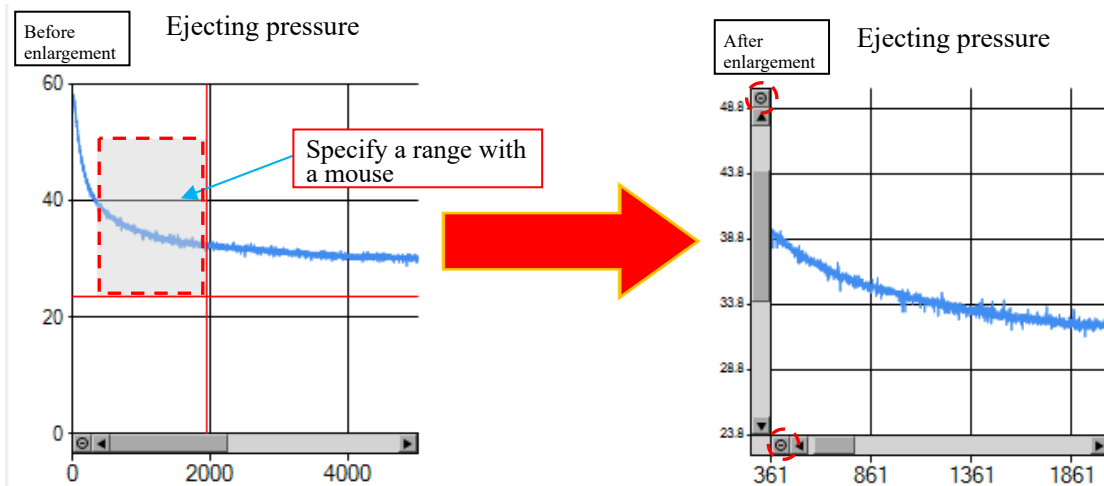
You can zoom in to see trends by specifying a range of your choice.

① Range specification using mouse

You can zoom in on the graph by clicking in the graph and specifying the range.

The enlargement of the graph also corresponds to the other displayed graphs, and the range of the horizontal axis is the same.

After enlargement, you can return to the graph before enlargement by clicking on the graph axis. 



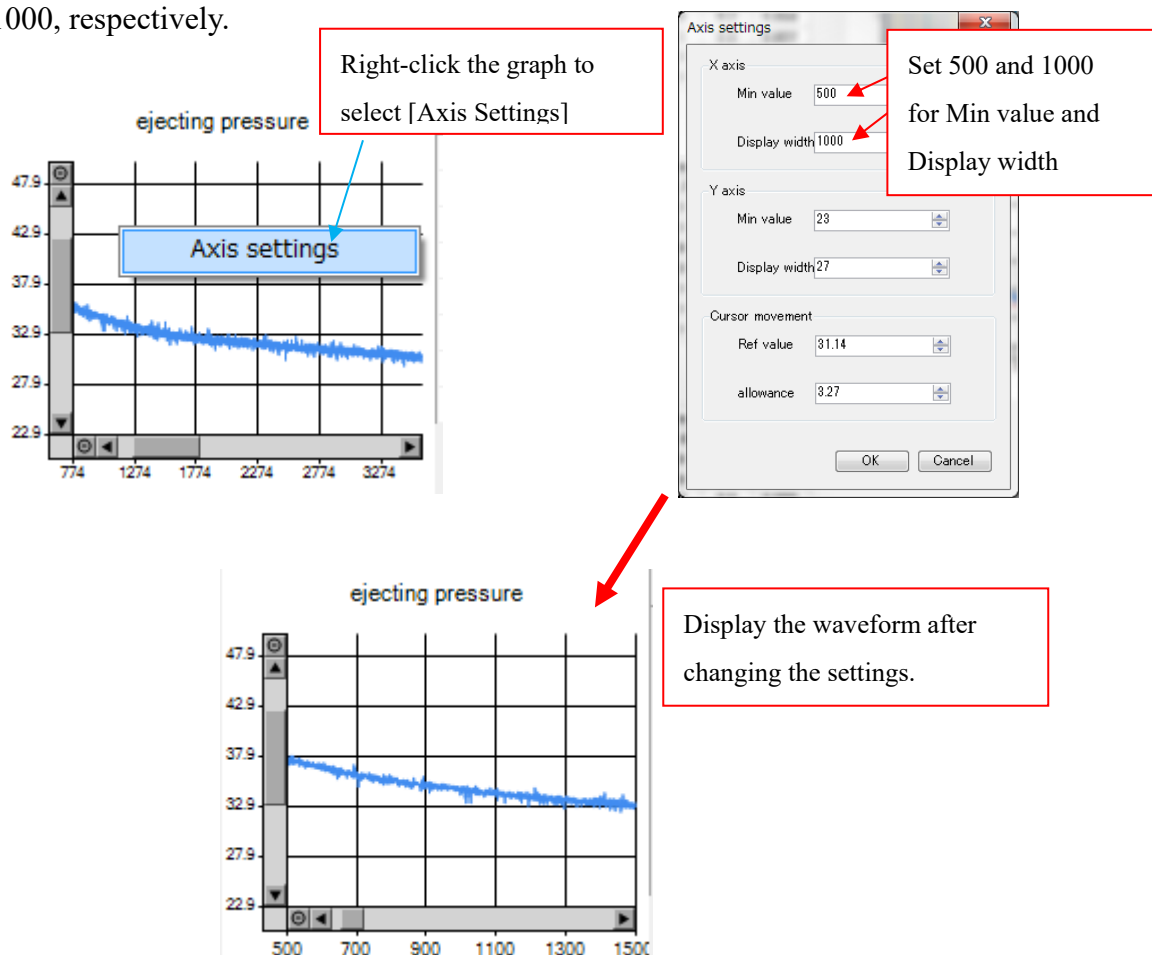
② Range specification using "coordinate axis specification"

Press the right click in the graph to select the menu for "Coordinate axis setting".

Click "Coordinate axis setting" and specify the minimum value and display width of each X axis and Y axis in the coordinate axis setting.

By doing so, you can only display the area you would like to see.

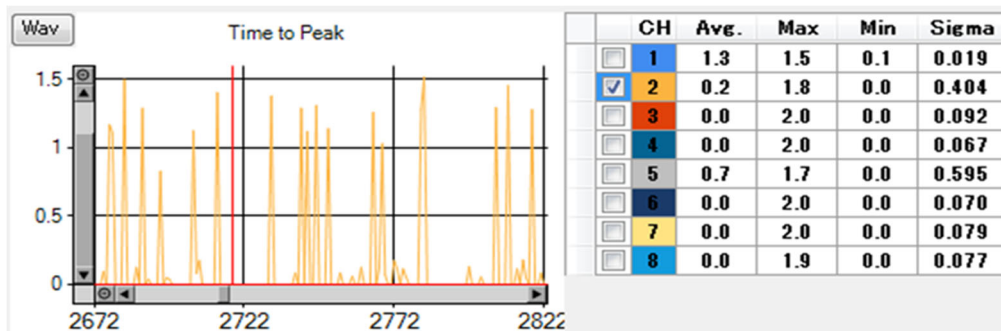
The figure below shows the waveform when the minimum value and display width are set to 500 and 1000, respectively.



4-4. Select Channels to Display Trends

You can display the trend of any channel by checking or unchecking the check box next to the channel data.

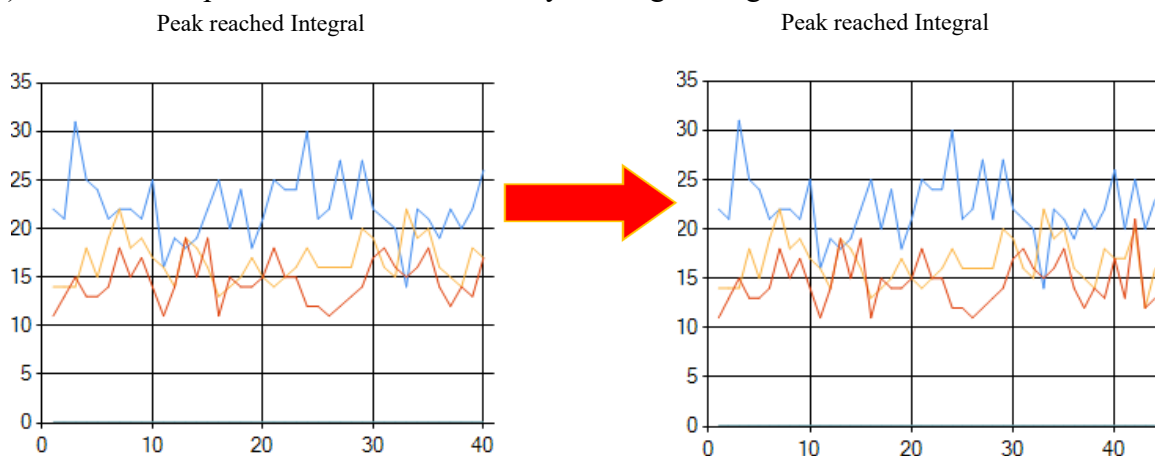
The figure below shows the trend when only CH2 is displayed.



4-5. Display Trends in Measurement Mode

When the measurement mode is used, the trend is updated every time the log file is overwritten.

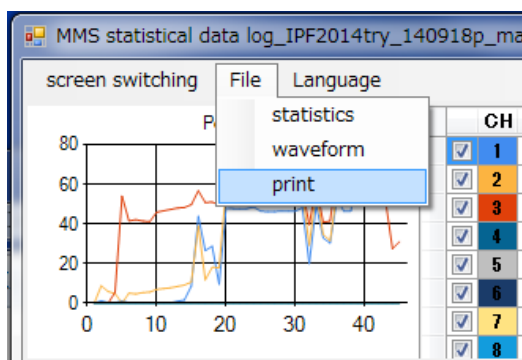
- (1) As with opening the statistics file, select "File" → "Trend" and select the log file being measured.
- (2) Select "Switch screen" and select "Measurement mode" to switch the mode.
- (3) The trend is updated from time to time by reading the log file.



4-6. Print the trend display

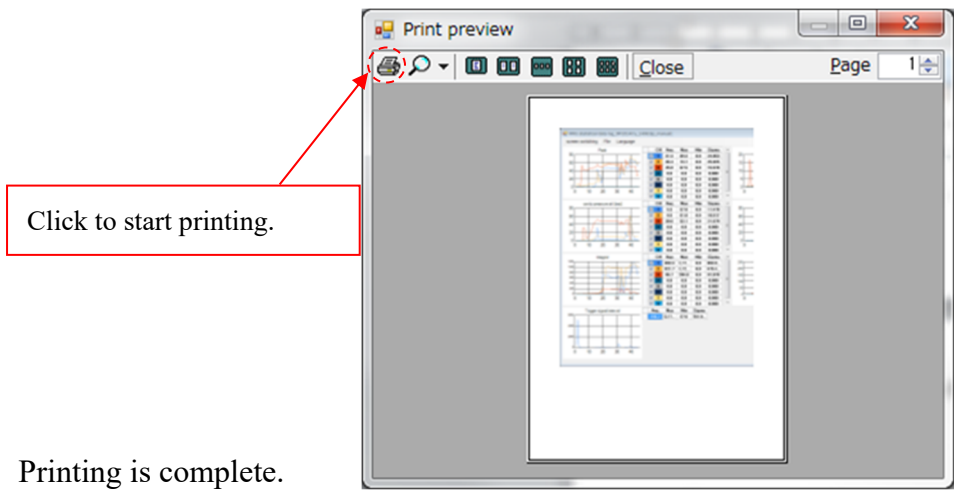
The obtained trend can be printed.

- (1) Select "File" and select "Print".



(2) The Print Preview window is displayed.

Click the Print button in the upper left corner to start printing.



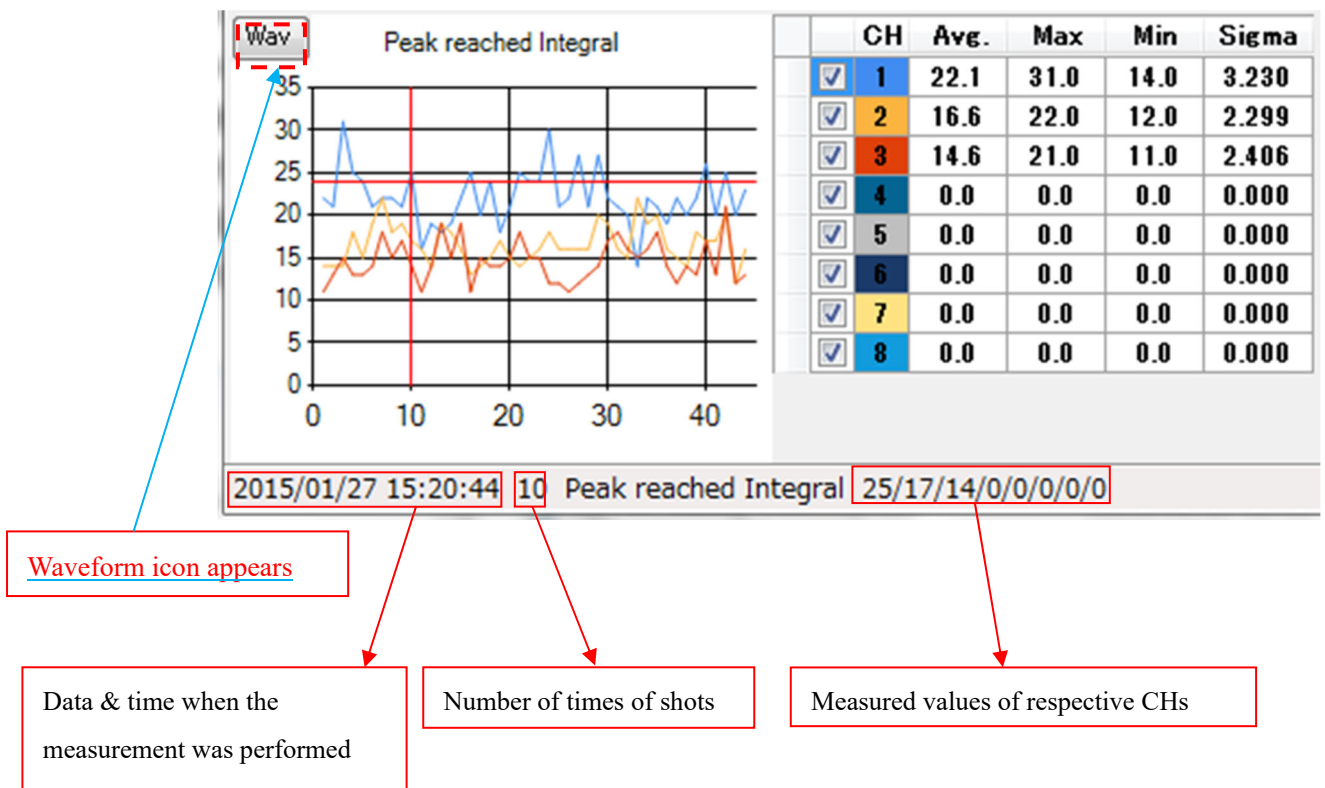
Printing is complete.

5. Display waveform from trend display

5-1. Select the desired waveform from the trend.

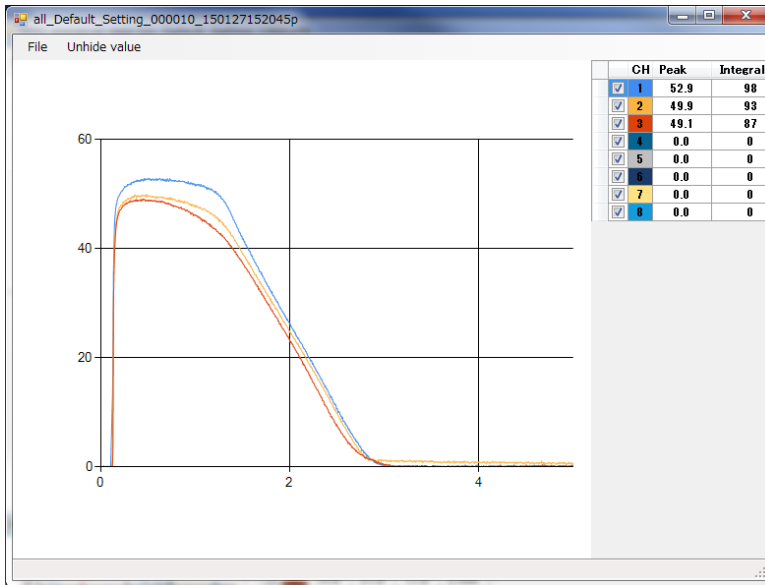
You can display a waveform from a trend that consists of multiple shots.

(1) Click anywhere in the graph to display the cross cursor. At that time, the date, number of shots, and measured value of each CH measured at the time of measurement are displayed at the lower left of the window, and the icon of "waveform" at the upper left of the graph appears. In the figure below, the cursor is aligned with the 10th shot.



(2) Click the waveform icon to display the waveform of the shot to which the cursor is positioned. As with the trend display, the waveform can be enlarged and displayed in the specified range using the mouse, or the display range can be changed in the coordinate axis setting.

The figure below shows the pressure waveform of the 10th shot.



Waveforms can be printed by selecting "Files" and selecting "Print".

5-2. Move the Cross Cursor

- ① Move to previous/next shot data

After the cross cursor appears, you can move to the previous/next shot data by pressing ←, → button on the keyboard.

- ② Move to data of shots exceeding the allowable value in the trend

You can narrow down the shot data you would like to display by a numerical value.

- (1) Click the space to the left of the CH number. Set the channel to be displayed.

	CH	Avg.	Max	Min	Sigma
<input checked="" type="checkbox"/>	1	22.1	31.0	14.0	3.230
<input type="checkbox"/>	2	16.6	22.0	12.0	2.299
<input type="checkbox"/>	3	14.6	21.0	11.0	2.406
<input type="checkbox"/>	4	0.0	0.0	0.0	0.000
<input type="checkbox"/>	5	0.0	0.0	0.0	0.000
<input type="checkbox"/>	6	0.0	0.0	0.0	0.000
<input type="checkbox"/>	7	0.0	0.0	0.0	0.000
<input type="checkbox"/>	8	0.0	0.0	0.0	0.000

Click here to select CH

- (2) Open "Coordinate axis setting" and change the values of "Standard value" and "Tolerance". The average and standard deviation values are entered by default.

Axis settings

X axis
 Min value: 0
 Display width: 45

Y axis
 Min value: 0.0
 Display width: 35.0

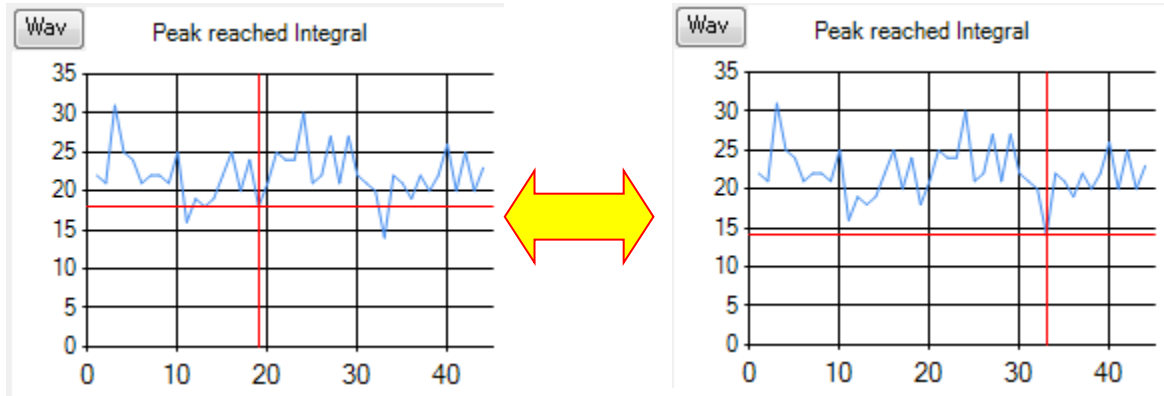
Cursor movement
 Ref value: 25.00
 allowance: 5

OK Cancel

Change to any values

(3) After completing the setting, press \uparrow , \downarrow button.

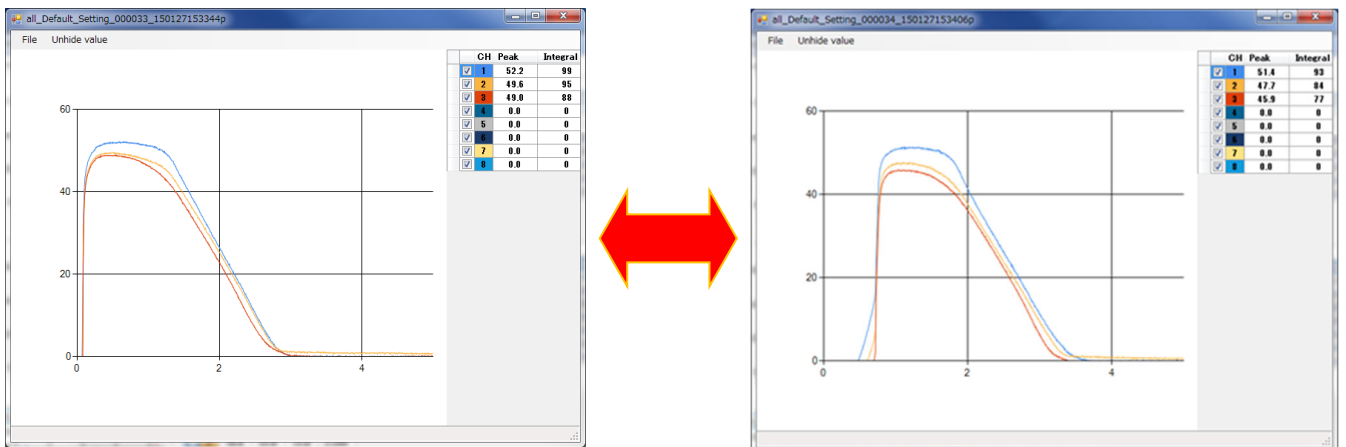
The cross cursor moves between shot data with a value out of tolerance from the set reference value.



5-3. Change the waveform you would like to display

You can change the waveform display to that of the previous or next shot data.

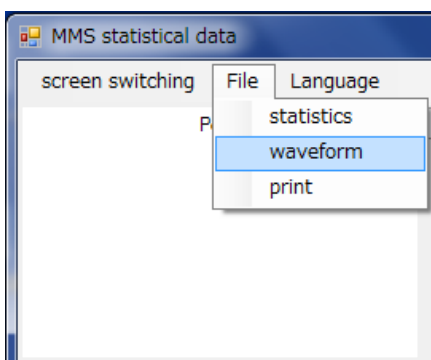
- (1) Follow the procedure in 5-1 to display the waveform.
- (2) With the wave window displayed, press \leftarrow , \rightarrow on the keyboard. The waveform changes to that of the previous or next shot. In addition, in the same way as in step 5-2, by narrowing down the shot data that you would like to display in the "Coordinate axis setting" from the "Trend display window," you can change the displayed waveform with \uparrow , \downarrow keys.



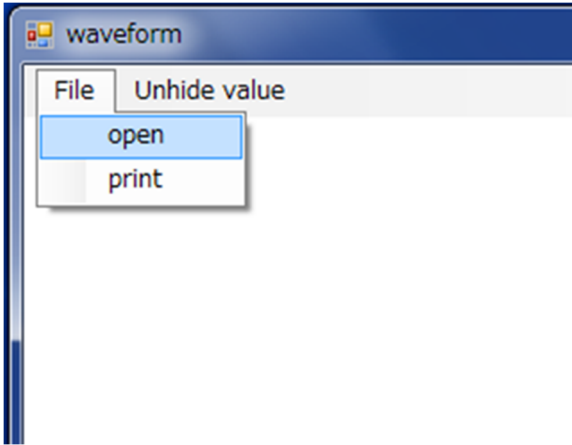
6. Display a waveform directly from a waveform file

In the previous section, the waveform was displayed from the accumulated trend data. The next section describes how to display the waveform directly from the waveform file.

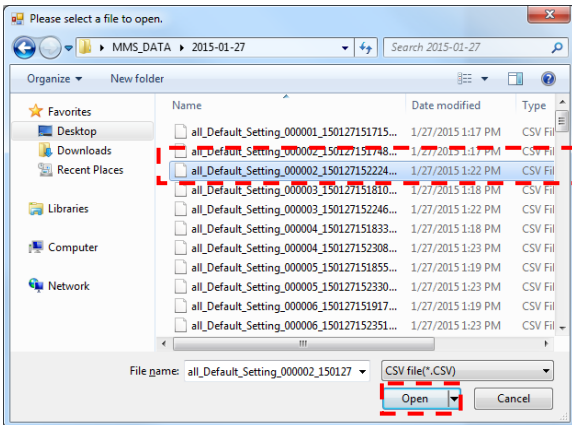
- (1) Select "File" and click "Waveform".



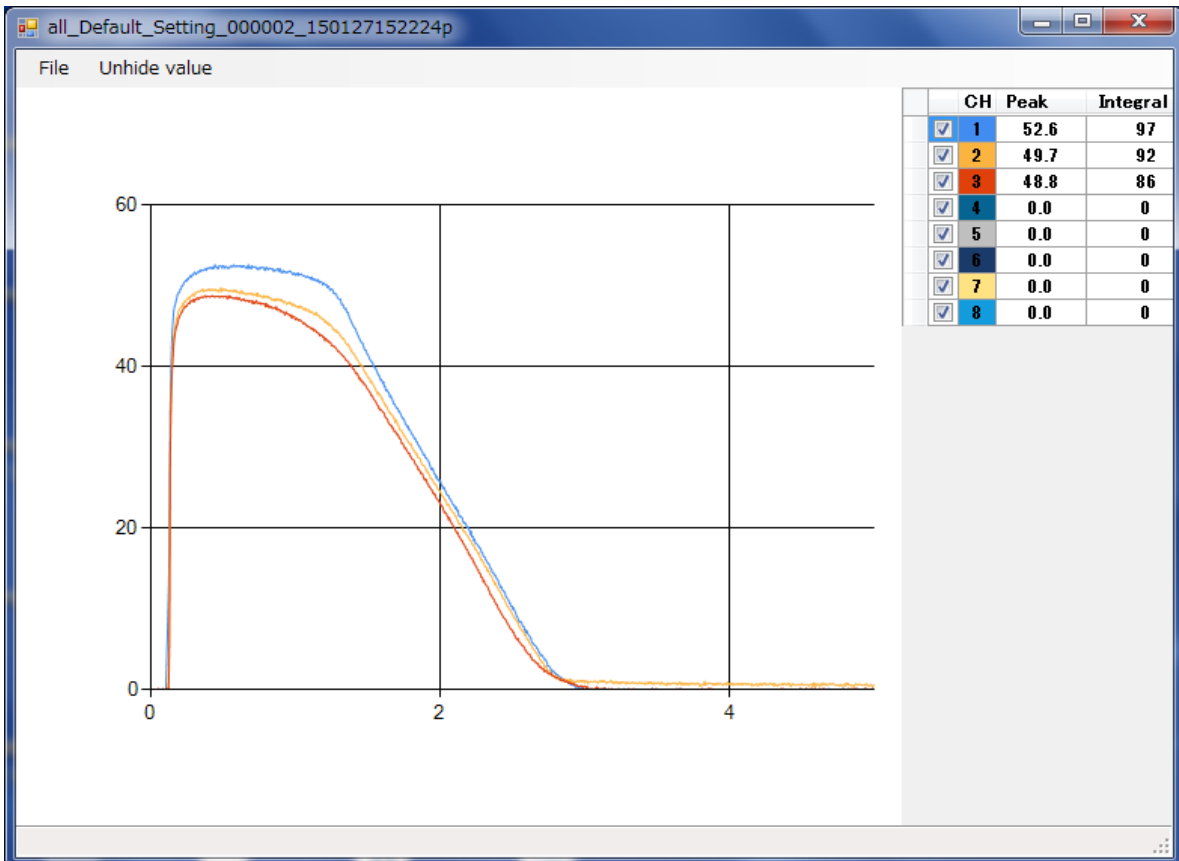
(2) A window entitled Waveform appears. Select “File” and click “Open”.



(3) Select a waveform file and click “Open”.



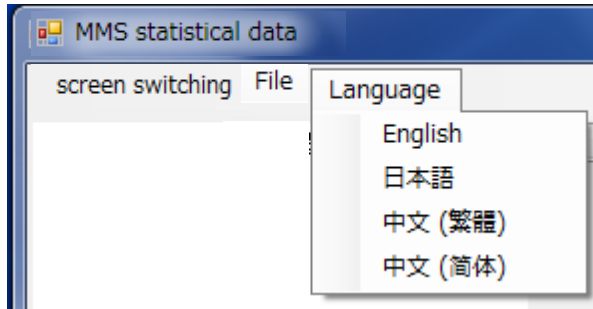
(4) The waveform file is displayed as a graph.



As with the waveform displayed in 5-1, the waveform file can be enlarged by the mouse and the display range can be changed by the coordinate axis setting.

7. Switching between languages

You can switch between languages from [Language] on the menu.
The language setting will take effect the next time you start the software.



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The specifications are subject to change without prior notice for product improvement.

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