

The terminal software for the Windows

AJATERM

OPERATION MANUAL

(Ver 1.6.3.0)

Attention

This manual is a Englishversion manual created by general Japanese to English translation software.

I think there are parts that are difficult to read, but please understand.

**本書は日本語版説明書を、一般の 日本語→英語 翻訳ソフトで作成したものです。
読みづらい部分も多分にあると思いますが、ご了承ください。**

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1. Overview

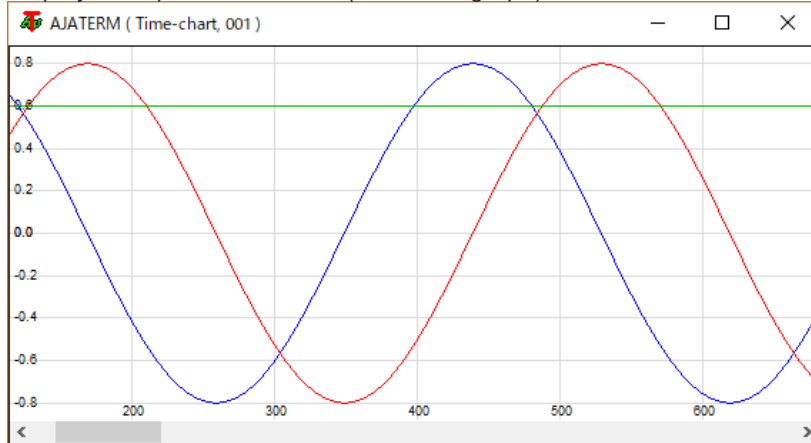
This software is Terminal Software, mainly for data viewer. (Hereinafter referred to as "AJATERM")

It is mainly aimed at evaluation / debugging of embedded software (firmware).

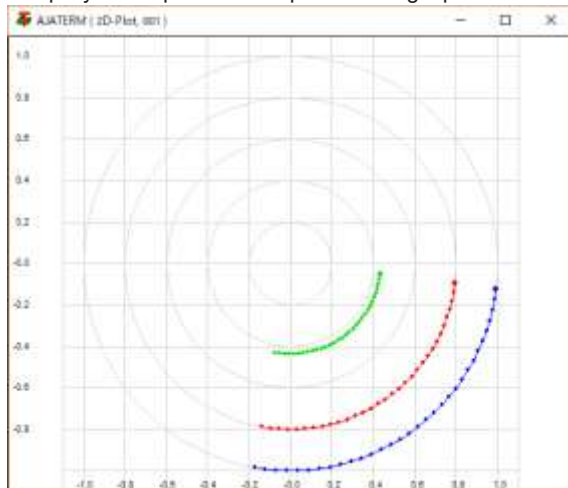
Communication by Serial line (COM port) and MailSlot , Socket(TCP/IP Client) is possible.

You can retrieve the numerical value from the received data, display the time chart (waveform graph), or plot the data on the 2D / 3D graphic.

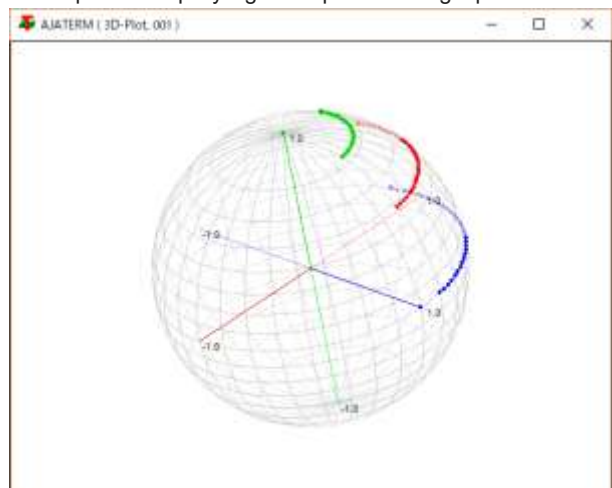
Display example of time chart (waveform graph)



Display example of data plot of 2D graphic



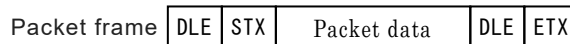
Example of displaying data plot of 3D graphic



In addition to text data, received data can handle transparent packet frames.

Text data is recognized line by line. The end of the text data line is CR (0x0D), LF (0x0A) or CR · LF 2 bytes.

A transparent packet frame (hereinafter referred to as a packet) is a byte stream starting with DLE · STX and ending with DLE · ETX.

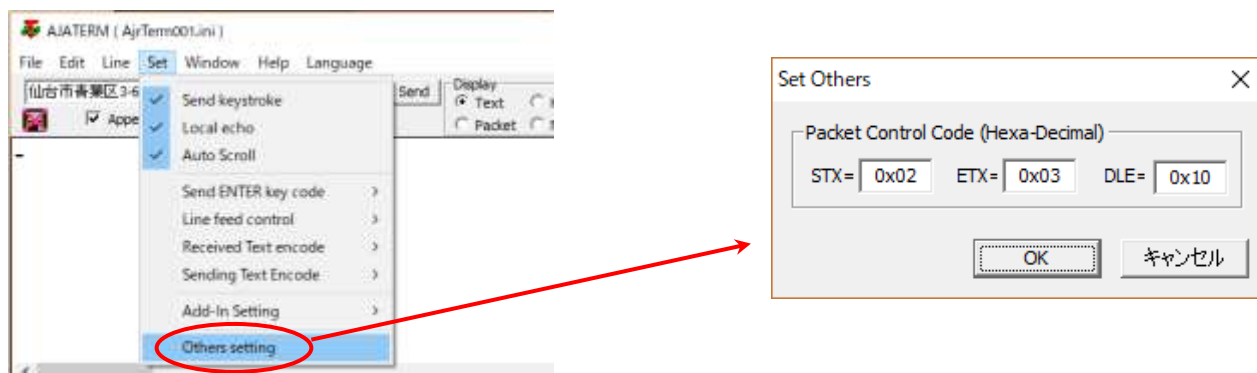


The actual code values of STX, ETX and DLE can be freely set. (By default, STX = 0x02, ETX = 0x03, DLE = 0x10)

When data is received, two consecutive DLEs in the packet data are converted to one DLE.

(In other words, if you want to include bytes with the same value as DLE in the packet data, insert one DLE, convert it to 2 bytes of DLE · DLE, and send it)

To change the actual code value of STX, ETX or DLE, select "Other settings" from "Set" menu.

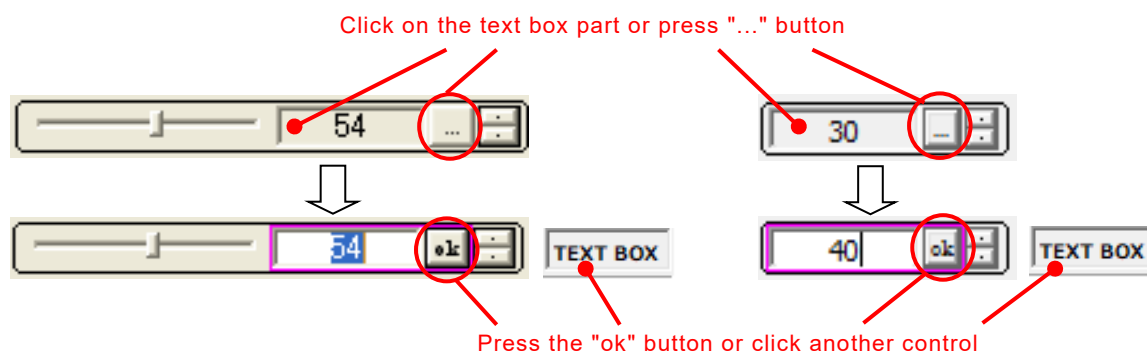


In addition to the data viewer, AJATERM has the following functions.

#	Function	Contents
1	VT100 emulation	In text reception, it supports some escape sequences.
2	Display function of received data.	In addition to displaying the received text, the received data is displayed in hexadecimal dump or displayed in hexadecimal dump in units of packet data.
3	Saves received data	Records the displayed contents in a file.
4	Text sending	Send key input contents and contents entered in the text box.
5	File sending	Send text files and binary files
6	File transfer by XMODEM	It transmits and receives a single file by XMODEM protocol.
7	File transfer by YMODEM	It is possible to send and receive a single file, YMODEM protocol, and send and receive files under a folder in batch.

About data input.

When entering data with the appearance control as below, besides the slider and spin button, you can directly enter a numerical value by clicking (or "... " button) the text part.



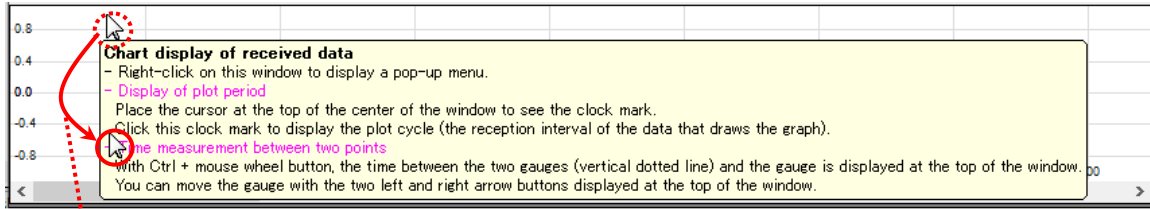
Enter a value and press the "ok" button, or click another control (button, text box, etc.) to set the entered value.
When entering a hexadecimal number, add "0x" at the beginning.

Tooltip

When you place the cursor on various buttons or text boxes, the tool chip is displayed and disappears after a certain period of time. However, this application not only displays the tool chip but also has the following functions.

• Continue to display tool chips

Move the mouse cursor over the tool chip to continue displaying the tool chip.



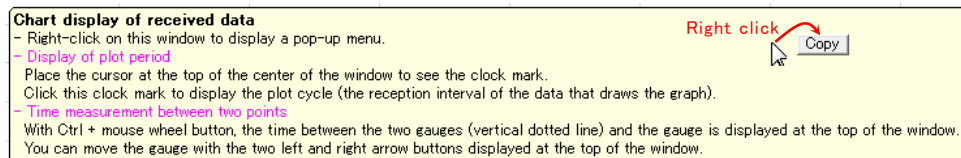
If you move the mouse cursor quickly over the tool chip, the tool chip will continue to be displayed.

• Copy tool tip

Right-click on the tool chip to display the "Copy" button.

Press the Copy button to copy the tooltip text to the clipboard.

If you hold down the SHIFT key and press the "Copy" button, the tooltip image will be copied.



• Hide tool chips

Click on the tool chip to make it disappear.

If the "Copy" button is displayed, the "Copy" button disappears.

• Disable/Enable tool chips

In the "Set" menu, select "Tooltips" -> "Disable" to hide all tooltips.

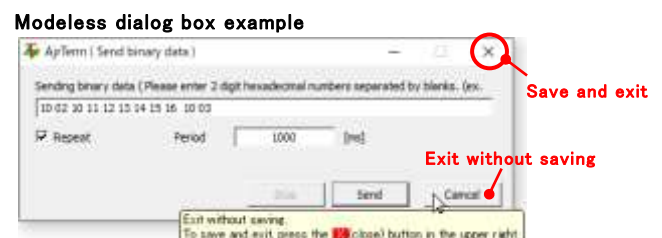
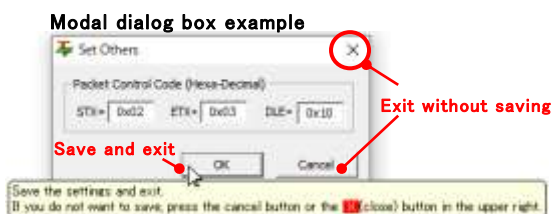
In the "Set" menu, select "Tooltips" -> "Enable" to display all tooltips again.

Modal dialog box and modeless dialog box

A modal dialog box is a type of dialog in which you cannot perform other operations without closing the dialog box. In this type of dialog, the "OK" button is displayed, and the setting contents are saved by pressing the "OK" button, and the setting contents are not saved by pressing the "Cancel" button or the "X (Close)".

A modeless dialog box is a dialog that allows you to perform other operations at the same time as the dialog.

The "OK" button is not displayed in the modeless dialog. If you press the "X" button on the upper right of the window, the settings will be saved, and if you press the "Cancel" button, the settings will not be saved.



Please note that the behavior of the modal dialog box and the modeless dialog box is different when the window is closed with the "X" button on the upper right of the window.

2. Main window

When you start the program, the following main window will be displayed.



Connection Status

Send / receive text encoding type

Reception error counter

Communication parameters (connection destination mail slot name in the case of mail slot)

Device name (own mail slot name at mail slot)

The main window displays the received data.

If "Text" is selected in "Display Received Data", the received text data is displayed in real time.

When "Hex-dump" is selected, all received data is displayed in real time in hexadecimal dump format.

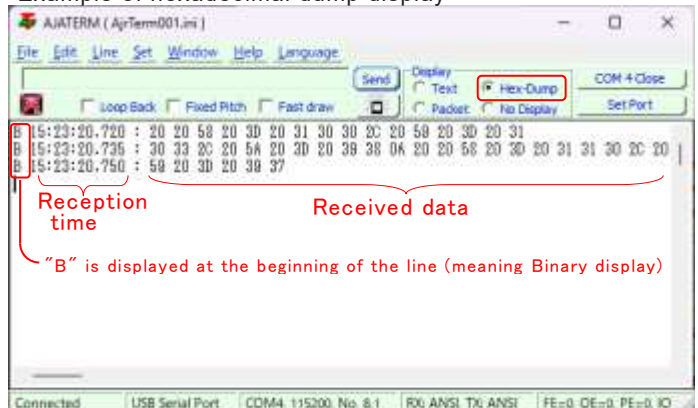
When "Packet" is selected, following the timestamp, the received packet data is displayed in hexadecimal dump format.

If "NoDisplay" is selected, nothing is displayed.

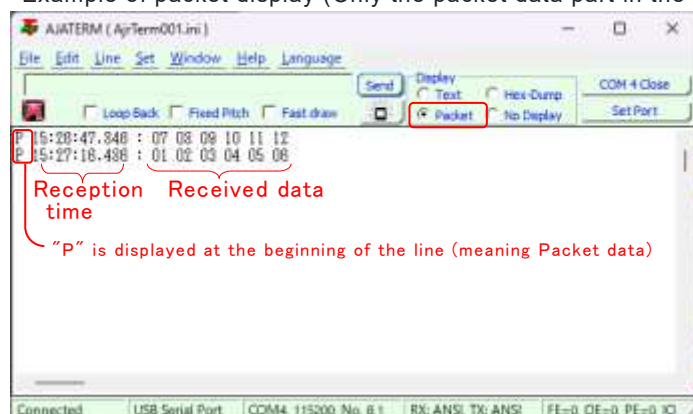
Text display example



Example of hexadecimal dump display



Example of packet display (Only the packet data part in the packet is displayed in hexadecimal dump)



Check box (☐ Loop Back ☐ Fixed Pitch ☐ Fast draw)

If you check "LoopBack," received data is sent back exactly as is.

If you check "Fixed pitch", it will be forcibly displayed at a fixed pitch.

Depending on the characters such as Far East Asia, even if you set a fixed pitch font, it may not be a fixed pitch.

If you check "Fixed pitch", all characters will be displayed at a fixed pitch. (However, this does not apply to variable pitch fonts.)

No Fixed pitch

◆おはようございます・こんにちは・こんばんは
안녕하세요
안녕하세요
◆さようなら (自分が見送るとき)
안녕히 가세요
안녕히 가세요
◆さようなら (自分が去るとき)
안녕히 계세요
안녕히 계세요

Fixed pitch

◆おはようございます・こんにちは・こんばんは
안녕하세요
안녕하세요
◆さようなら (自分が見送るとき)
안녕히 가세요
안녕히 가세요
◆さようなら (自分が去るとき)
안녕히 계세요
안녕히 계세요

If you check "Fast draw", text will be drawn to the log window at high speed.

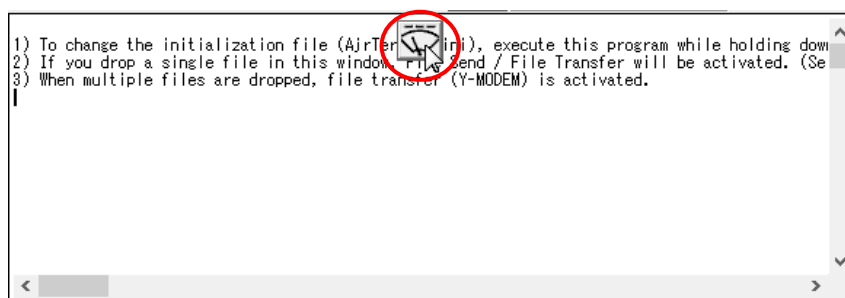
This is effective when receiving at high speed and displaying the log.

In this case, the text color is fixed to a single color (the last set text color), and the background color is fixed to white.

Clear Screen button

When you place the cursor at the top of the center of the log window, the screen clear button  is displayed.

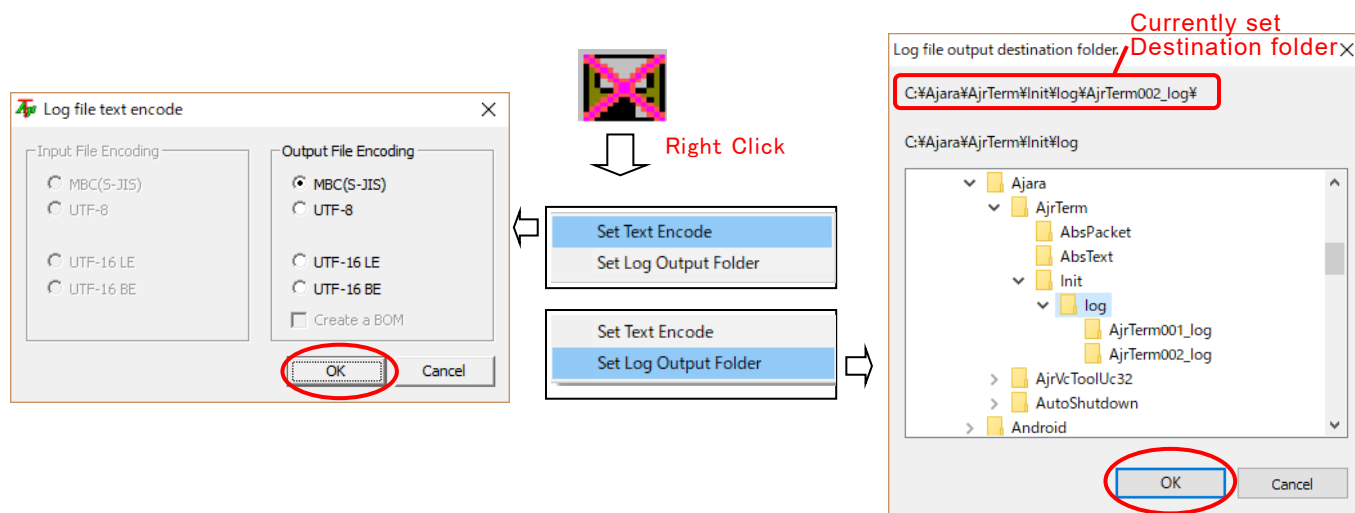
Click this button to clear the screen.



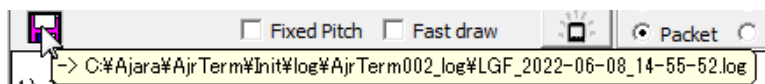
2.1. File output

 indicates that file output is stopped. Clicking on this icon will change the display to  and the display contents will be output to the file as well. (The file name is "LGF_yyyy - mm - dd - hh - mm - ss. log")

By right clicking on , you can set the encoding of the output text file and the folder where the file is written by popup menu.

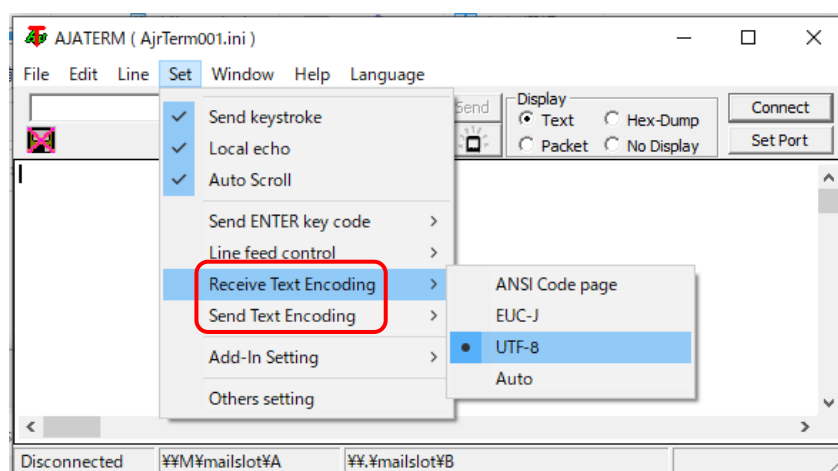


When you move the cursor to  the path name of the output file is displayed in the tooltip text.



2.2. Character code

You can select the character code to be sent and received from the "Set" -> "Send / Receive Text Encoding" -> "ANSI Code page", "EUC-J" or "UTF-8". When "Auto" is selected, the character code that seems to be the most probable is selected from the received text.

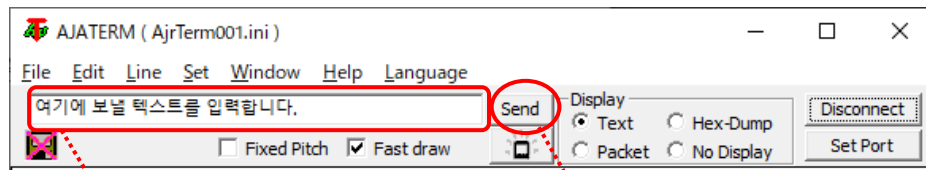


2.3. Send key input contents and local echo

If you select "Send keystroke" on the "Set" menu, you will send the key you entered on the main window. Also, if "Local Echo" is selected, the contents of the transmitted key will be displayed in the main window.

2.4. Send text

You can send the text you enter by entering the text to send in the text box and pressing the "send" button (or press the Enter key).



Inputs text here.

Press the "Send" button to send the text you entered.

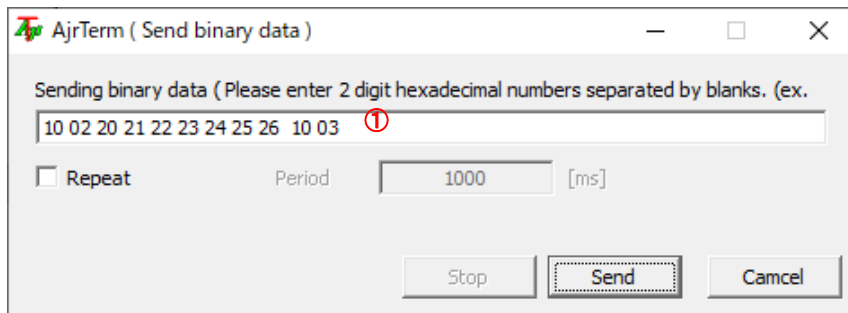
The text can contain the following escape characters. (Ex. Enter "xxxxx¥n" to add LF (0x0A) to the end.)

Please input sending text here.
The text can contain the following escape characters:

¥a - 0x07 (BEL)	¥v - 0x0B (VT)	¥' - 0x27 (')
¥b - 0x08 (BS)	¥f - 0x0C (FF)	¥? - 0x3F (?)
¥t - 0x09 (TAB)	¥r - 0x0D (CR)	¥¥ - 0x5C (¥)
¥n - 0x0A (LF)	¥" - 0x22 (")	
¥xhhhh - 16bits Hex. value(h = 0-9 / A-F)		
¥ooooo - 16bits Octal value(o = 0-7)		

2.5. Send binary data

Select "Send binary data" in the "Line" menu, the following window will be displayed.



Enter the binary data to be sent to the text box of ①, separating the two-digit hexadecimal number with spaces. (ex. 41 42 0D 0A)

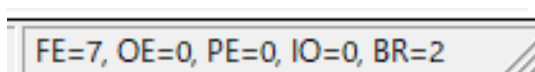
When you press the "Send" button, the input binary data will be transmitted.

Check "Repeat" and press the send button to repeat transmission at the cycle specified by "period".

If you press the "Stop" button during continuous transmission, transmission will stop.

2.6. Receive error counter display

When the communication line is set to COM port, the reception error counter is displayed at the lower right of the main window.



※To display the receive error counter, widen the main window to the side.

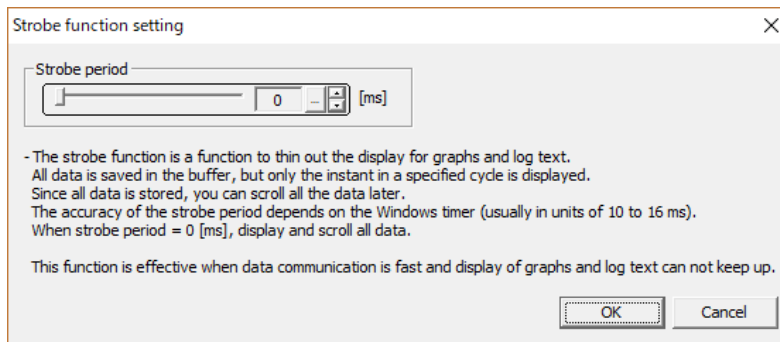
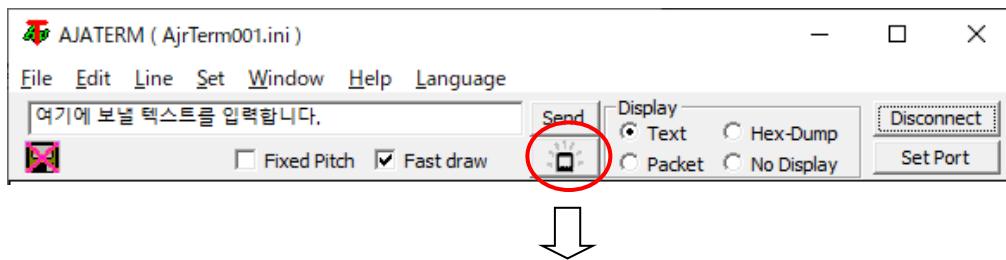
※Double clicking the error counter display part clears the counter.

The display contents are as follows.

Display item	Content
FE=n	Framing error
OE=n	Overrun error
PE=n	Parity error
IO=n	I/O error
BR=n	Break signal detection

2.7. Strobe Function

When you press the  button, the setting dialog for the strobe function appears.



The strobe function reduces the graph (time chart, 2D / 3D plot) and log display processing.

Normally, the display of graphs and logs is updated each time data is updated and scrolled as necessary. However, if you enable the strobe function, it does not update the display even if the data is updated, only that moment is displayed.

When the strobe period is 0 [ms], the strobe function becomes invalid and the display is updated every time data is updated.

If the strobe period is set to something other than 0 [ms], the strobe function is enabled and the display is updated at the specified cycle.

Even if the strobe function is enabled, the data is updated, so you can scroll through all the data later.

The strobe cycle is rounded up to the Windows timer accuracy (about 10 to 16 ms).

The strobe function is effective when data communication is fast and the display of graphs and logs can not keep up (display becomes heavy).

2.8. Character transformation of numeric recognition and received text

When extracting numerical values from received text, we decompose the received text into lexical and recognize only those recognized as "numerical constants" as numerical values. The decomposition method of the lexical is the same as the C language, and the underscore (_) is regarded as the same as the alphabetic letter.

If "+" or "-" exists immediately before the numerical constant, it is regarded as the sign of the numerical constant.

Word text	Resolved word	Kind of the word	Recognized value
123_456_789	123	Numeric-constant	123
	_456_789	Symbol	
123, 456, 789	123	Numeric-constant	123
	,	Delimiter	
	456	Numeric-constant	456
	,	Delimiter	
-7.89	789	Numeric-constant	789
	-	Delimiter	
3.14ABC999	7.89	Numeric-constant	-7.89
3.14ABC999	3.14	Numeric-constant	3.14
	ABC999	Symbol	

For example, the character string "123_456_789" is decomposed into two lexes, "123" (numerical constant) and "_456_789" (symbol), and only "123" is recognized as a numeric value.

In this way, by converting the inconvenient characters to another letter, you can let everything be recognized as a numerical value.

By converting the underscore (_) to a comma (,) like "123, 456,789" in the above "123 _ 456 _ 789", you can make three numbers "123", "456" and "789" recognized.

Character change of received text

When you select "Character change of numeric extraction text" on the "Window" menu, the following window will be displayed.



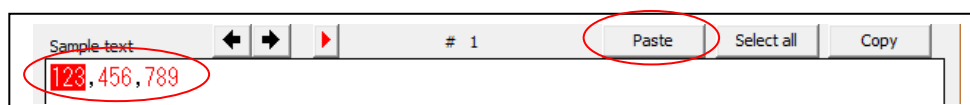
Converts underbar (_) in text to comma (,) when pasting text for numeric extraction

You must enter two characters to convert, one before conversion and one after return.

If you have not entered both characters, the arrow (-->) will be grayed out.

Check "Change characters" and set the character pairs (up to 4) to change.

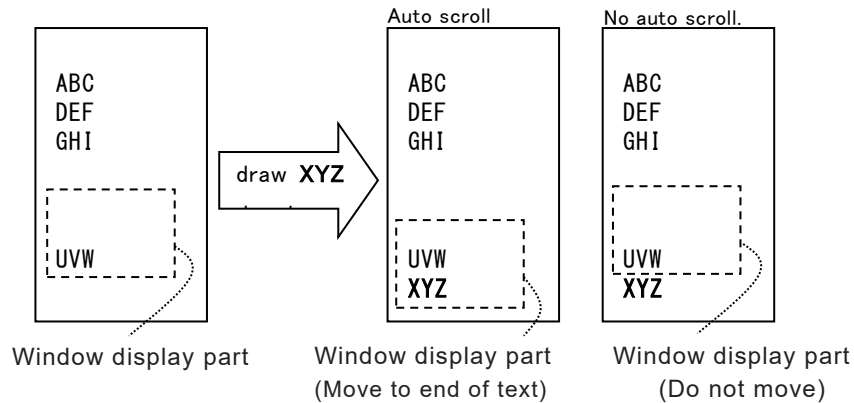
If you press the "Paste" button in the sample text for numerical extraction, the characters in the text will be changed.



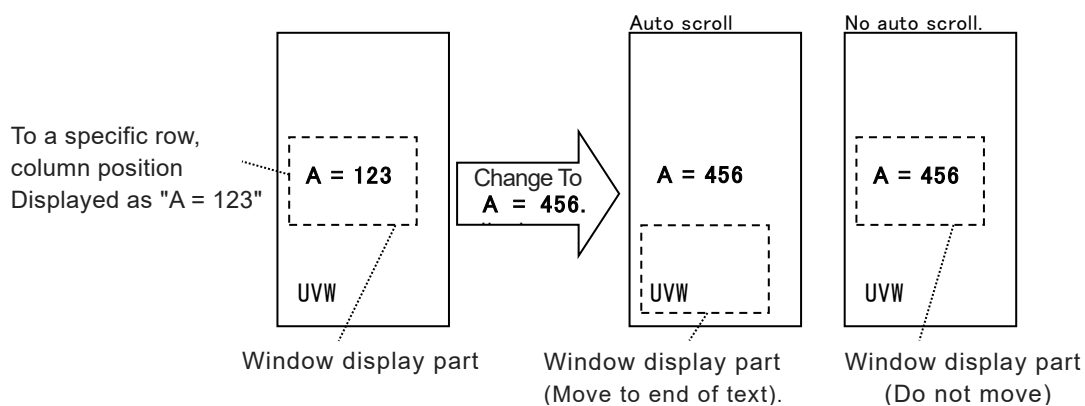
2.9. Automatic scroll

When "Auto Scroll" is selected in the "Set" menu, when data is received, it will automatically scroll to the end of the data. If "Auto Scroll" is not selected, scrolling will not be performed unless scrolling manually.

"Auto scroll" is effective when moving to the latest display part at all times with log display etc.



"No auto scroll" is effective, for example, when displaying information on the fixed position (fixed line, digit position) of the screen.



2.10. ANSI escape code

In the text display of the main window, the following ANSI escape codes are supported.

The ANSI escape code

#	ESC sequence	Contents
1	ESC·[0J	Clear from the cursor position to the right end of the last line
2	ESC·[1J	Clear from the left end of the first line to the cursor position
3	ESC·[2J ESC·*	Clear the screen and move the cursor to home
4	ESC·[0K ESC·[K	Clear from the cursor position to the right end of the this line.
5	ESC·[1K	Clear from the left end of the cursor line to the cursor position
6	ESC·[2K	Clear the cursor line
7	ESC·[s	Save the cursor position
8	ESC·[u	Recover cursor position
9	ESC·[>5l	Shows the cursor
10	ESC·[>5h	Do not show cursor
11	ESC·[pl;pcH	Cursor position setting (pl is line position (1 ~), pc is column position (1 ~)) Regardless of full width or half width, the digit position is calculated as one digit.
12	ESC·[pnA	Move the cursor upward (pn is the number of moving lines, assuming 1 when omitted)
13	ESC·[pnB	Move the cursor down (Same as above)
14	ESC·[pnC	Move the cursor to the right(pn is the number of moving digits, and 1 is assumed when omitted.)
15	ESC·[pnD	Move the cursor to the left (same as above)
16	ESC·[pnM	Scroll up after the cursor line (pn is the number of scroll lines)
17	ESC·[pnL	Scroll down after the cursor line (pn is the number of scroll lines)
18	ESC·[psm	Drawing attribute settings (ps = attribute value, 0 = default attribute, 7 = inversion, 30-37 (character color) = black, red, green, yellow, blue, purple, light blue, white, 40-47 = background color)
19	ESC·D	Move the cursor down one line
20	ESC·E	Move the cursor down one line to the left edge
21	ESC·M	Move the cursor up one line

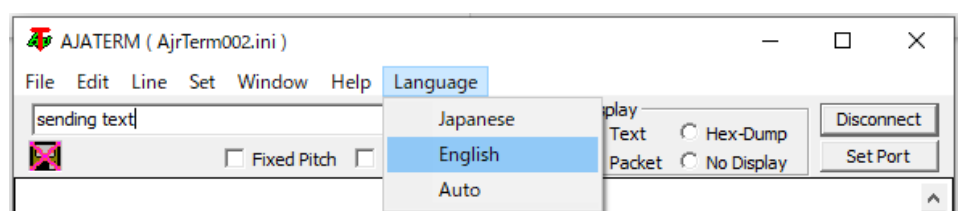
[Note] "ESC·" means an escape code (0x1B).

2.11. Language setting

AJATERM corresponds to two languages (Japanese and English).

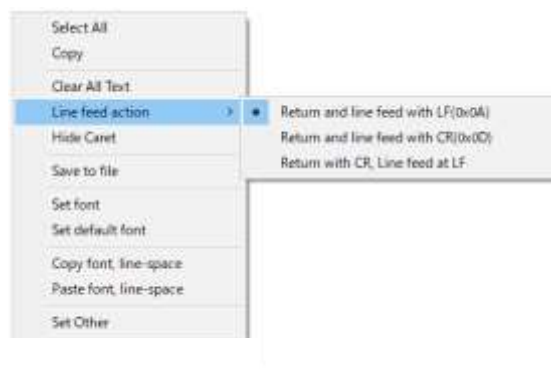
The default language is Japanese for Japanese Windows and English for other Windows.

Language settings can also be switched in the "Language" menu. (Language setting will be effective the next time you start up)



2.12. Popup menu

Right click on the main window, the following popup menu will be displayed.

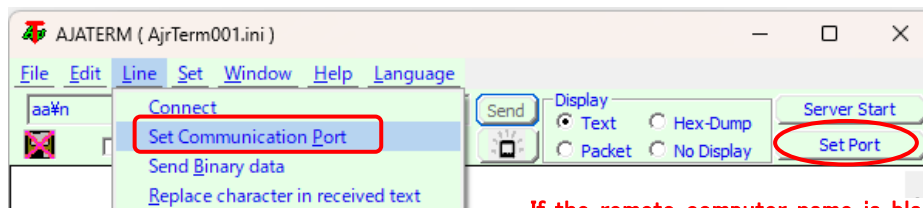


The contents of each menu item are as follows.

#	Menu item	Content
1	Select All	Select all text
2	Copy	Copy the selected text to the clipboard (This menu will not be displayed if text is not selected)
3	Clear All Text	Clear (discard) all texts.
4	Line feed action	Select the line feed operation in CR and LF
5	Hide Caret	Hide the caret (blink character cursor). Next time will change to "caret display" menu
6	Save to File	Writes all text / selected text to file in text file / HTML file format.
7	Set Font	Font setting by dialog
8	Set default font	Set default font (Confirmation message display)
9	Copy font, line-space	Copy font and line space information to clipboard.
10	Paste font, line-space	Paste font and line space information from clipboard.
11	Set Other	Display various setting dialog

3. Communication line setting

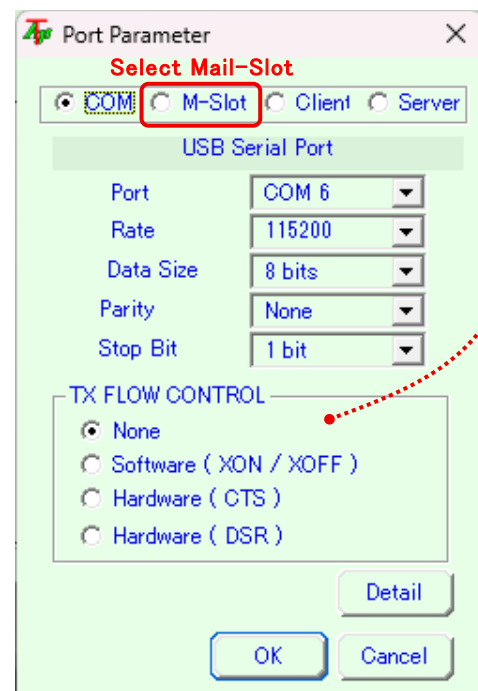
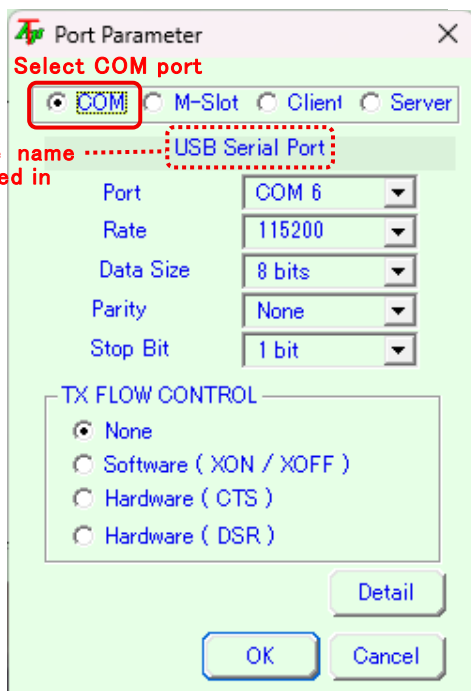
To select a communication port, choose the communication resource (COM port, mailslot, TCP/IP client, or TCP/IP server) using the radio buttons found either via the "Port Settings" button or by navigating to "Line Menu" > "Communication Port Settings."



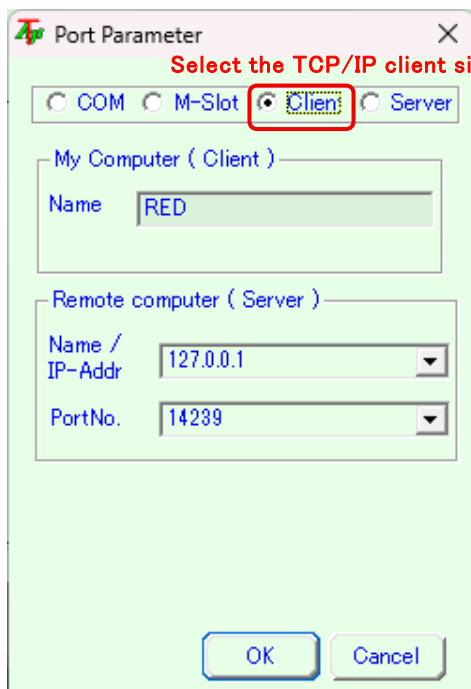
If the remote computer name is blank, inter-process communication within the local computer is used.

*Note: In the latest versions of Windows 11, remote communication is unavailable, so the field should be left blank.

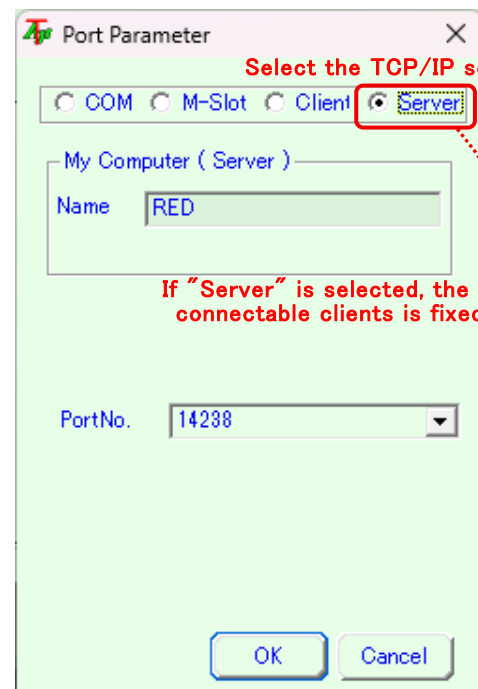
COM port device name
(the name displayed in
Device Manager)



Select the TCP/IP client side.

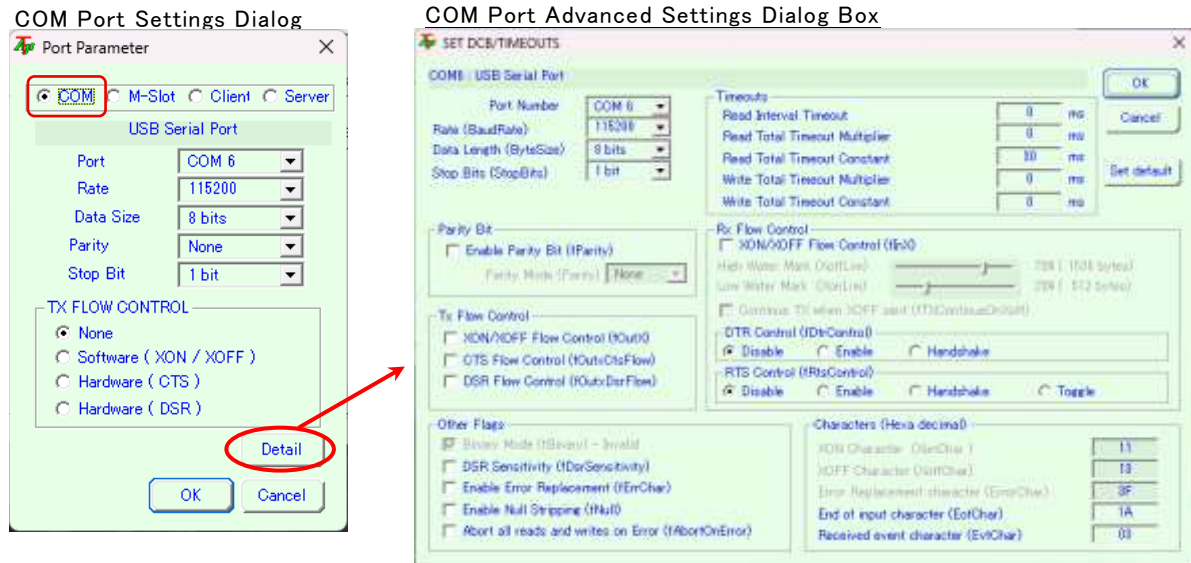


Select the TCP/IP server side.



If "Server" is selected, the number of connectable clients is fixed at 1.

Clicking the "Detail" button in the COM port settings dialog displays the COM port advanced settings dialog.



For "RATE", select the desired value from the combo box, or enter the value directly in the combo box (if there is no desired value for the list).

When you press the "OK" button, the input contents are set, and when you press the "Cancel" button, the input contents are discarded.

When "Mail Slot" is selected, enter the computer name of the other computer and both slots, and press the "OK" button.

To communicate with other processes on the computer, set a blank in the name of the other computer and enter the slot name of another process. In this case, the slot name must be different from your own process.

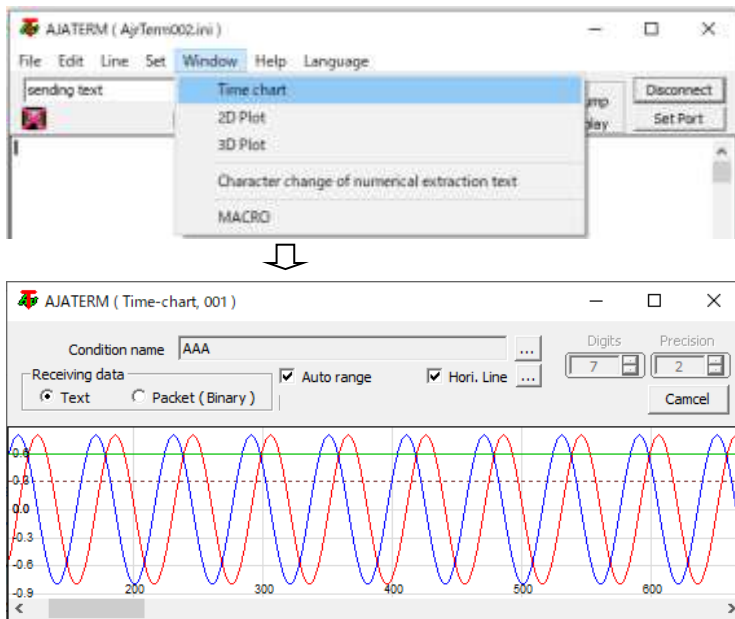
When "Limitation of speed" is checked, data is transmitted in a pseudo manner at the speed (kilobytes / second) set by "transmission speed". (Wait is inserted and the average transfer rate is controlled so that it becomes the specified value)

When you press the "OK" button, the input contents are set, and when you press the "Cancel" button, the input contents are discarded.

4. Display of time chart (waveform graph)

You can extract numerical values from received text and packets and display the time chart · graph.

To display the time chart · graph, select "Time chart" from the "Window" menu.



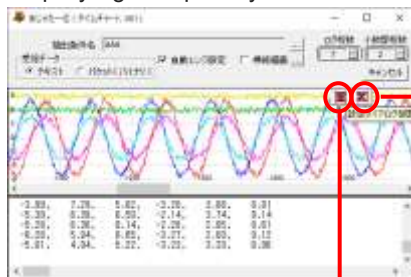
When "Auto Range" is checked, the range of the graph is automatically set so as to be the minimum value to the maximum value of the received data.

When "Loading the corrected value" is checked (as shown in the lower left figure), the numerical value is displayed in the lower part of the window.

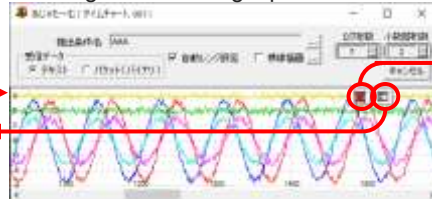
The number of display digits of the numerical value displayed in the log is set with "Digits" and "Precision".

Place the cursor on the upper right part of the chart window to display a button ( ) that allows you to show/hide the dialog and log window.

Displaying completely



Dialog and Chart graph



Only the chart graph

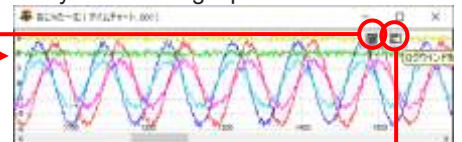
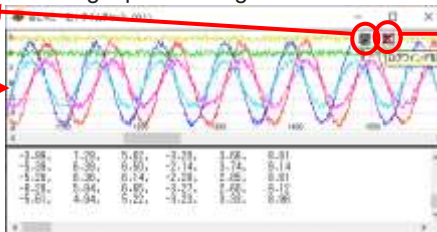


Chart graph and log



4.1. Selection of received data and setting of numerical recognition method

To extract the numerical value, you can select either text data or packet data for the received data.

Select text data



Select packet data



If "Text" is selected, set the position of numeric words in the text data line to be extracted.

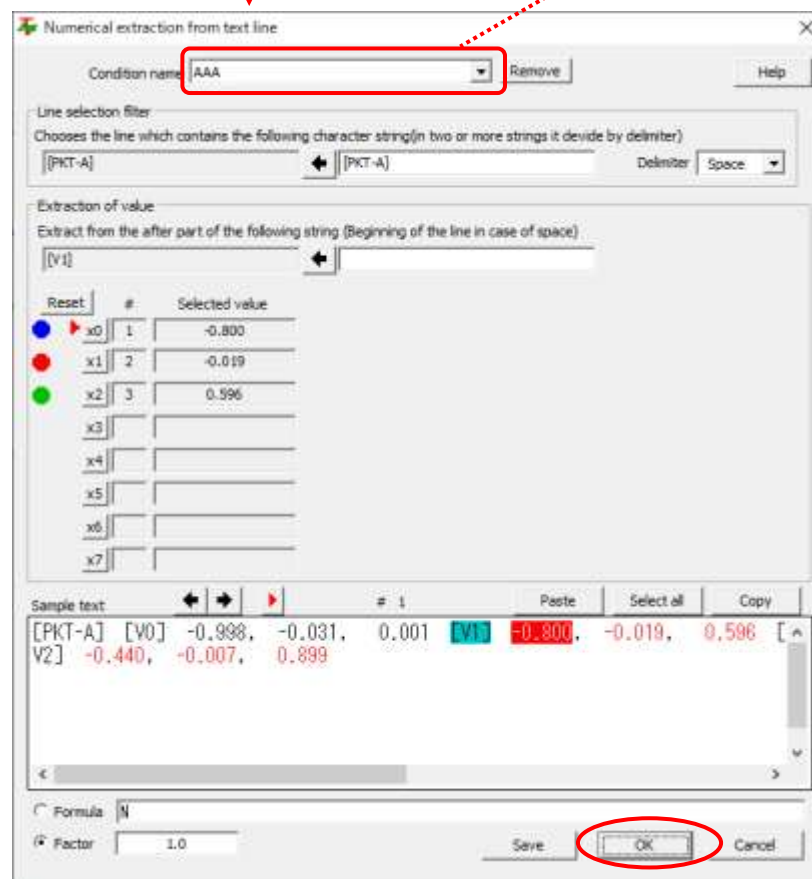
When "Packet (binary)" is selected, specify byte position in packet data and type of numeric value.

4.1.1. When extracting numerical values from received text data

If the numerical value extraction condition has already been set, from the "..." button, select the condition name in the combo box and click the "OK" button.



Select the desired numerical extraction condition from the combo box

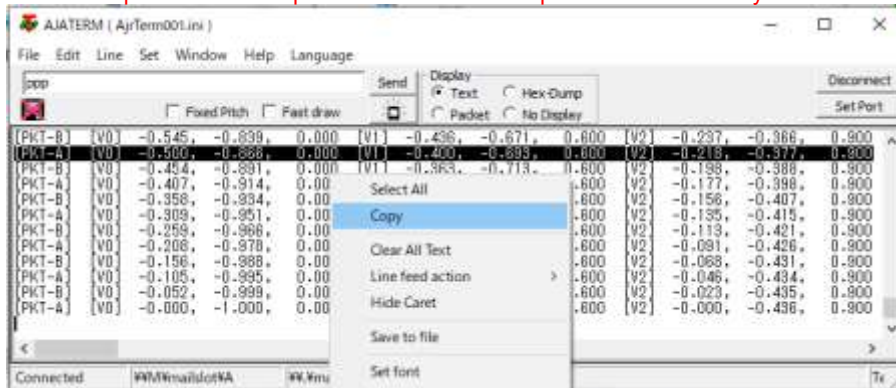


To set a new numerical value extraction condition, follow the procedure below.

1) Sample text line setting

First of all, we set a sample text line from which to retrieve a number.

I have copied some sample text lines to the clipboard in some way



Push "Paste" button, sample text line is set.

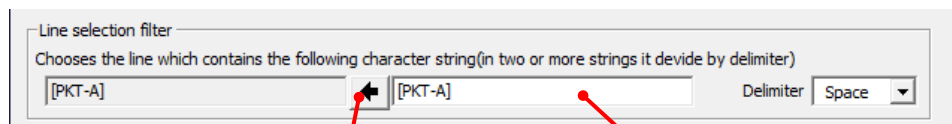


A red character means a recognized numeric item.

Red's reverse is the currently selected item, you can move with ←→ button.

2) Line selection filter

To select the desired text line from several types of text lines, set "Line selection filter".



A filter character string is set.

Inputs a filter character

In the above example, only the text line containing the character string "[PKT - A]" will be processed.

To set multiple filter strings, enter multiple character strings separated by "delimiter" (ex. "[PKT - A] [TYP 1]")

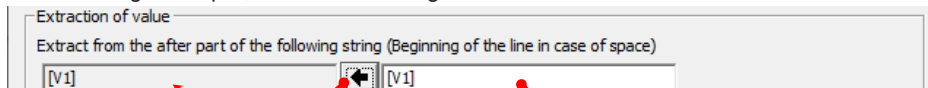
In this case, text lines containing all the specified multiple character strings are processed.

If the line selection filter is set to the empty string, all text lines are processed.

3) Specify the position of the numerical value to be extracted.

By specifying the character string located immediately before the numerical value group to be extracted, it is possible to recognize the numerical value from and after the character string.

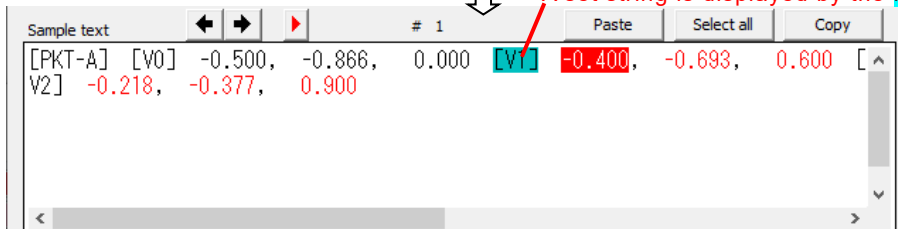
In the following example, it is set to recognize the numerical value after the character string "[V1]".



When this button is pressed, a character string is set

Enter a character string located immediately before the numerical value group here

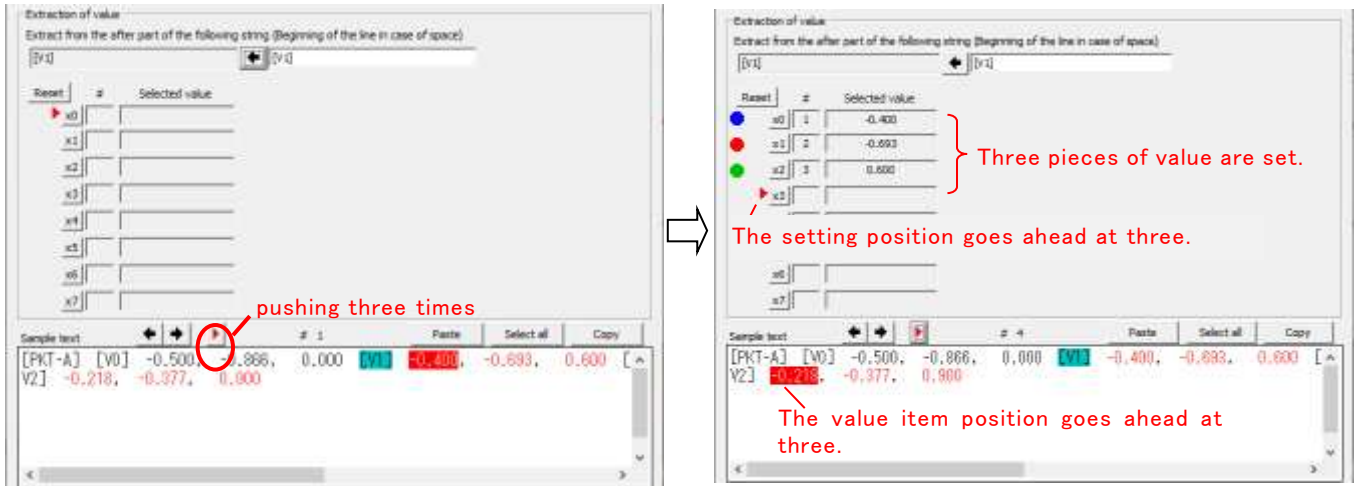
A set string is displayed by the blue reverse.



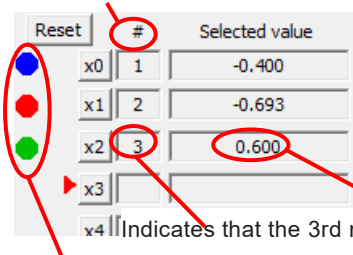
4) Setting of numerical value to be extracted

Select the target numerical value with the button and set it to the position of that button with the **x0** - **x7** buttons. Or press the button to set to the position indicated by , and the setting position and numerical value advance by 1.

For example, if you press the button three times in the bottom left state, it will look like the figure on the bottom right



"#" Indicates the number of the selected value.

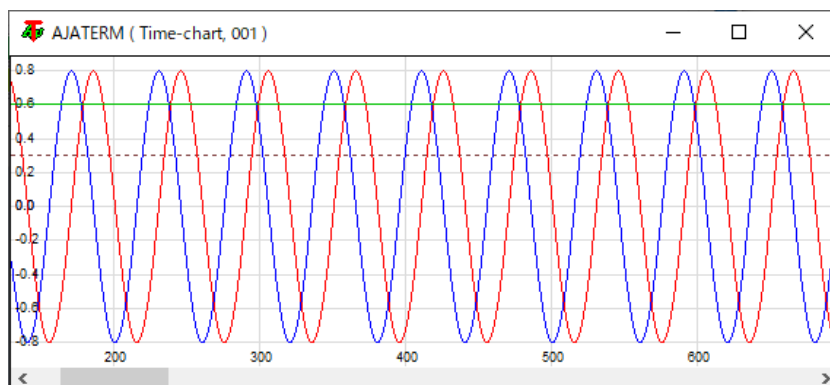


Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

Pressing the "Reset" button clears all numerical value selection settings. (It will be as shown in the left figure above)

When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the setting example above, three numerical values are extracted from the received text line, and the following time chart graph (waveform) is displayed.



4.1.2. When extracting numerical values from packet data

If the numeric extraction condition has already been set, select the condition set in the combo box from the "..." button and press the "OK" button.

From the combo box to the desired
Select numerical extraction condition.

To set new numerical value extraction conditions, set as follows.

Specify the "packet selection filter" of the binary packet data and the position and type of the numerical value to be extracted.

For example, for the following binary data, set as shown below.

Binary data

Loc=0	1	2	3	4	8	1
0x01	-	-	-	x0 (INT-32)	x1 (INT-32)	x2 (INT-32)

Dialog settings

Binary packet data whose location 0 is 0x01 (8-bit integer) is targeted

Located at location 8, 12, 16 respectively Specify signed 32-bit integer

Pressing the "Reset" button clears all numerical value selection settings.

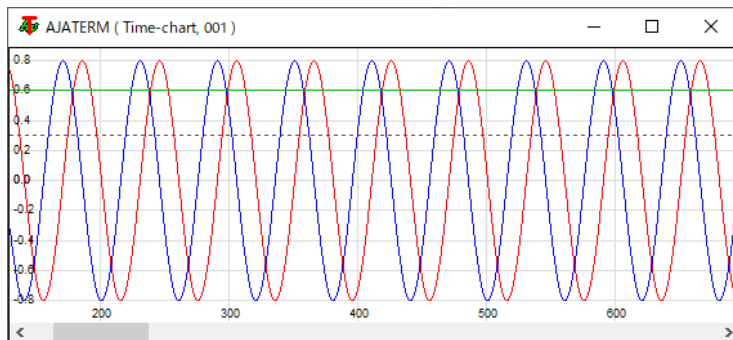
"Calculation formula" calculates the value displayed in the graph, where N is the extracted value.
"Factor" is a value that is multiplied to all the numerical values extracted when the graph is displayed.

Check if the number is in big endian format.

Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

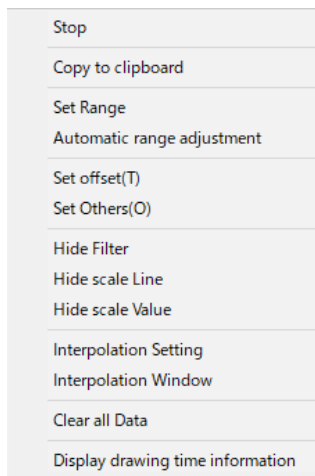
When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the setting example above, three numerical values are extracted from the received binary packet data row, and the following time chart (waveform) graph is displayed.



4.2. Pop-up menu

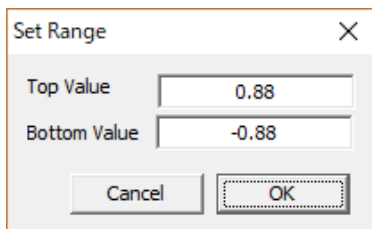
Right click on the graph, the following popup menu will be displayed.



Stop	: Stop the graph display. Next time will be the "Start" menu.
Copy to clipboard	: Copy the graph display contents (bitmap) to the clipboard.
Set Range	: Sets the range (upper limit, lower limit) of the graph.
Auto adjust range	: Calculate and set the range of graph automatically from plot data.
Set offset	: Set the offset value to be added to the plot data.
Set Others	: Set the averaged number, time scale width, number of data to store in the buffer.
Hide filter	: Hide the filter (check box) in the upper left of the control. The "Display filter" menu will change the next time.
Hide scale line	: Hide the scale lines (light gray lines). Next time will change to "Scale line display" menu.
Hide scale value	: Hide the scale value. The display will change to "Display scale value" next time.
Interpolation setting	: Set parameters related to waveform interpolation display.
Interpolation window	: Opens a window that interpolates and displays the waveform.
Clear all data	: Discard all buffered data.
Display drawing time information:	Measures and displays the drawing time of graphic images.

4.3. Set Range

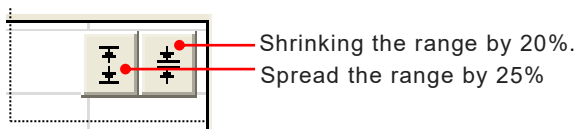
When "Range Setting" is selected from the pop-up menu, the following dialog box will be displayed.



If you enter the range value here and press the "OK" button, the range of the graph is set.
Press the "Cancel" button to cancel the setting.

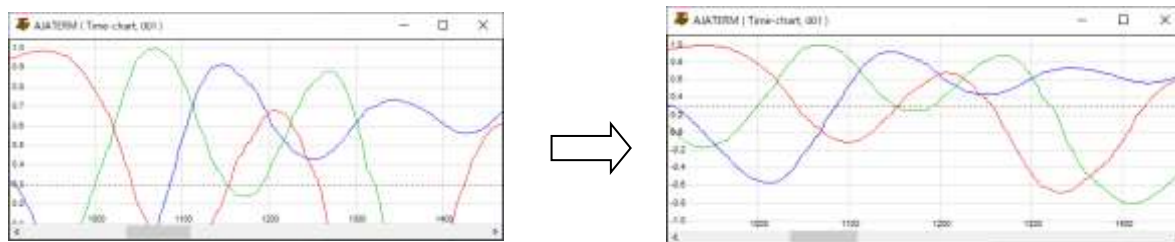
4.4. Range setting with one touch.

When placing the mouse cursor in the upper right corner of the time chart graph, two buttons are displayed.
With these buttons, you can widen the range by 25% or reduce it by 20%.



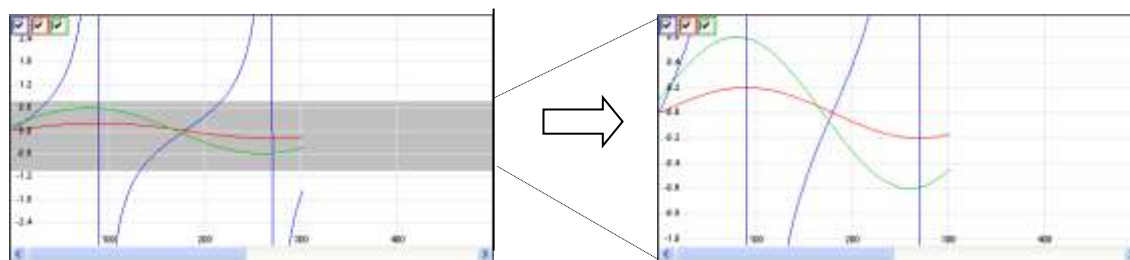
4.5. Automatic Range Adjustment

When "Auto adjust range" is selected from the pop-up menu, minimum value and maximum value are calculated from all data (excluding data items which are not displayed by filter), and range setting with $\pm 5\%$ margin I will do.



4.6. Range setting by drag operation

While holding down the CTRL key, you can set the range by dragging the part you want to set the range with the left mouse button.



While holding down the CTRL key, drag the range setting part with the mouse(The part being dragged is grayed out.)

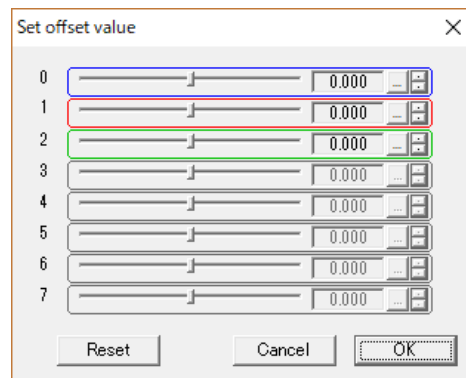
Hold down the CTRL key and release the left mouse button, the range is set for the dragged part

Even if you drag to the part beyond the top / bottom of the graph, the drag range is set as the range.

If you release the CTRL key first and release the left mouse button, the range setting will not be performed.

4.7. Set offset

When you select "Set Offset" from the popup menu, the following dialog will be displayed.



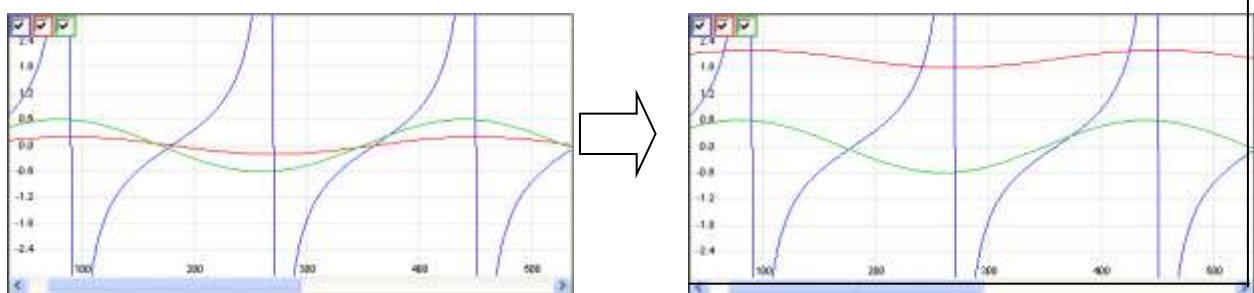
The items 0 to 7 correspond to the displayed data items. (The display color of the outer frame is the same as the graph display color)

If you set a value here, the graph is displayed with the data value of the relevant data item plus the setting value. The offset value set following the value setting is reflected in the graph.

Press the "OK" button to confirm the setting. When you press the "Cancel" button, the setting contents are discarded and the original offset value is restored.

When you press the "Reset" button, all offset values are set to "0".

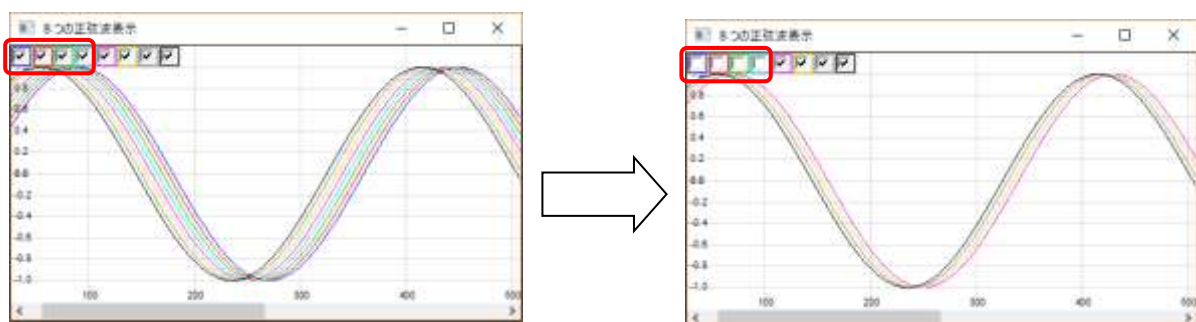
In the following example, "+2.0" is set as the offset value in the data of red display.



Filter function

When placing the mouse cursor in the upper left corner of the time chart graph, a check box will be displayed.

The check box on the upper left corner of the window is a display filter, and if you uncheck it, the data for that display color will be hidden.



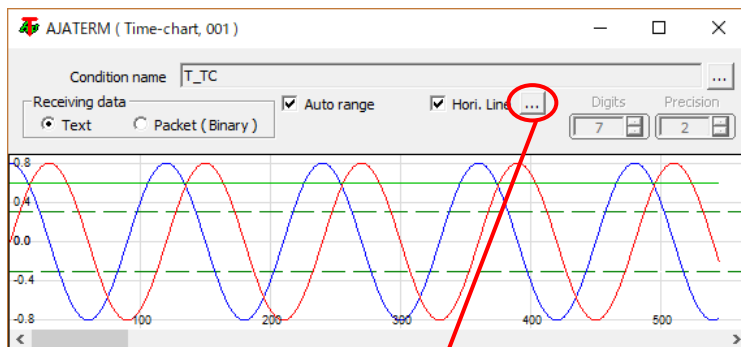
4.8. Drawing horizontal lines

Up to 8 horizontal lines can be drawn on the waveform graph.

Drawing horizontal lines allows you to visually display border lines (eg minimum and maximum values of tolerance).

To draw a horizontal line on the graph, check the "Draw a horizontal line" check box and set the horizontal line drawing condition with the "...".

In the following example, the green dotted line is displayed at the position of -0.3 and +0.3.



A setup of horizontal line drawing

	Color	Width	Style	Position
1.	☒ [Green]	[1]	Dash(-----)	0.3
2.	☒ [Green]	[1]	Dash(-----)	-0.3
3.	☐ [Grey]	[1]	Solid	0.0
4.	☐ [Grey]	[1]	Solid	0.0
5.	☐ [Grey]	[1]	Solid	0.0
6.	☐ [Grey]	[1]	Solid	0.0
7.	☐ [Grey]	[1]	Solid	0.0
8.	☐ [Grey]	[1]	Solid	0.0

OK Cancel

Enter horizontal line display position

Select the type of horizontal line (solid, practice, dotted ...)

Thickness of wire (Set to "1" in cases other than solid line)

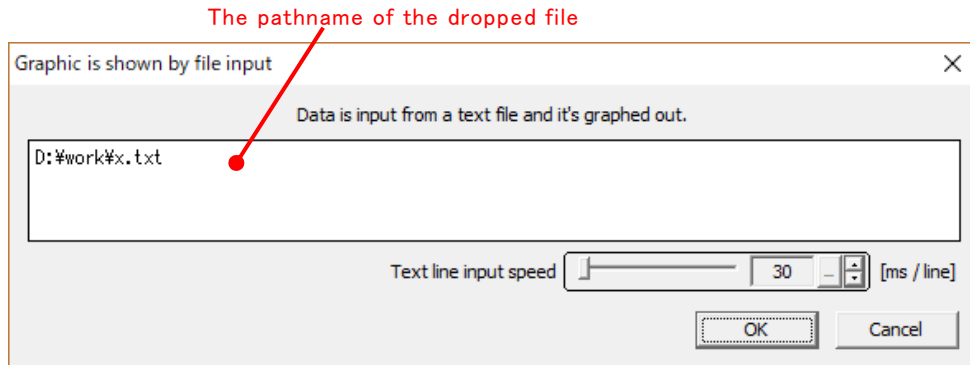
Horizontal line drawing color setting button

Check horizontal / vertical display

4.9. Enter text file and display waveform graph

By dropping a text file in the waveform graph window, data can be extracted from a text file and displayed in a waveform graph.

When you drop a text file in the waveform graph window, the following dialog is displayed.



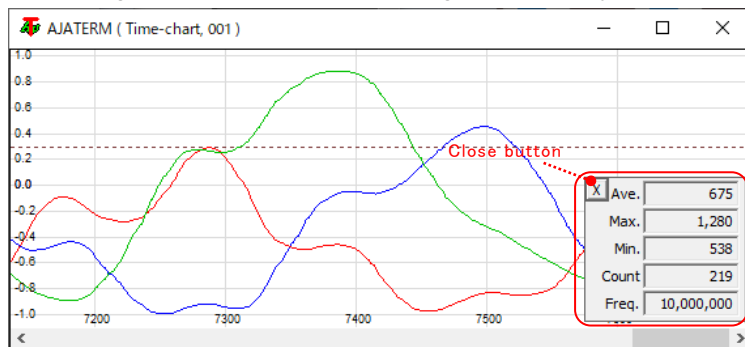
"Text line input speed" is the speed of reading one line from a text file.

If you press the "OK" button here, data is extracted from the text file and the waveform graph is displayed.

When you press the "Cancel" button, reading of the text file is canceled.

1.1.1. Drawing time information display

Right-click the time-chart-image and select "Display drawing time information" from the popup menu to measure the drawing time of the time-chart-image and display it in the lower right as shown below.



Ave : Average time required to draw once[us]
 Max.: Maximum drawing time[us]
 Min.: Minimum drawing time [us]
 Count: Number of measurements
 Freq: Measurement frequency [Hz] (fixed value on PC)

If you resize the window, try the measurement again.

If the data is administered in a short cycle, the processing becomes heavy and the time chart image cannot be displayed smoothly.

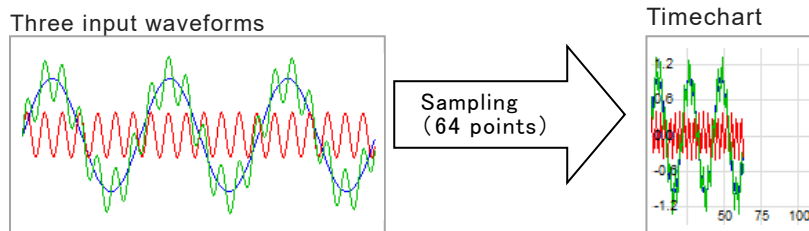
If you want to display data cyclically, you should at least display it at a period that is longer than the average value.

4.10. Interpolation display of waveform

If the number of samples is small and the waveform can not be normally displayed on the graph, interpolation between the sampled data can reproduce the original waveform and display it. (Interpolation display by cubic spline curve (curve passing through sampling point))

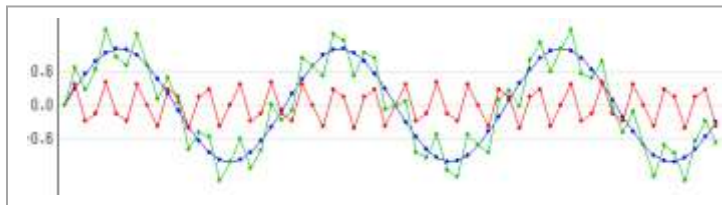
Below is an example of waveform interpolation display.

In the figure below, three waveforms are sampled at equal intervals and displayed in a time chart graph.



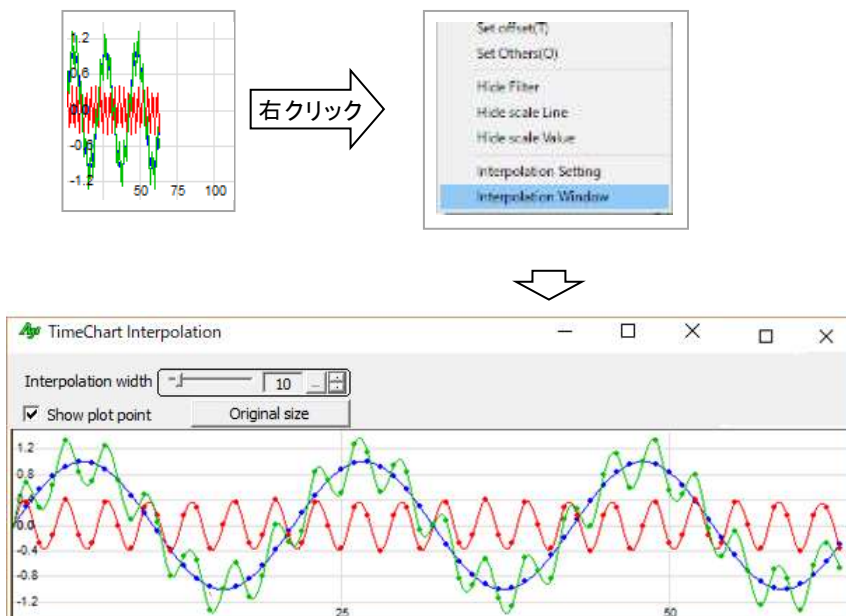
With this, you can not see the original waveform (from the time chart · graph).

So draw the graph horizontally and connect the plot points with a line. (Lower figure)



Low frequency waveforms can be displayed as it is, but high frequency waveforms can not be displayed yet. (There is no function to stretch horizontally to connect the plot points with a line in the time chart · control, the above figure is separately created.)

Next, right click on the time chart graph and select "Interpolation window" from the popup menu.



A graph is displayed by stretching the graph horizontally and interpolating between the plot points with a curve (not a straight line).

The points on the graph indicate the plotted data (sampling data).

If you uncheck the "Plot point display" checkbox, the plotted point graph is displayed. (It will be displayed only with lines)

"Interpolation width" is the display interval (number of pixels) of the plot point. (That is, it will be the magnification that extends the graph horizontally)

Changing "Interpolation Width" will redisplay the graph with the plot point display interval changed.

The "Timing chart interpolation display" window is displayed so that it becomes the same size as the original graph (as much as possible) at the first display, and you can change the size freely after that.

Pressing the "Restore Original Size" button resets the size of the window to the size at the first display.

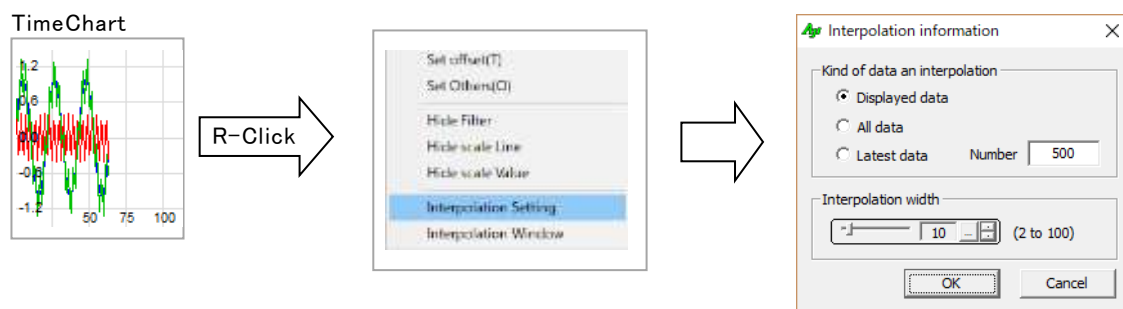
In the "Timing chart interpolation display" window, data at the time when "waveform interpolation display window" is selected from the popup menu is cropped and interpolated. Even if you update the original time chart graph, the interpolation display will not be updated.

To update the interpolation display, close the "Timing chart interpolation display" window once and then display it again.

If interpolation display target data is small (less than 8), interpolation display is not possible.

4.11. Interpolation display of waveform

To set parameters related to waveform interpolation display, right click on the time chart graph and select from the pop-up menu "Interpolation setting".



The setting contents are as follows.

Item		Content
Select interpolation data	Diaplayed data	Data displayed by time chart · control
	All data	All data stored in the buffer
	Latest data	The latest plot data group
Number		Number of data when "Latest data" is selected
Interpolation width		Display interval of plot points (number of pixels)

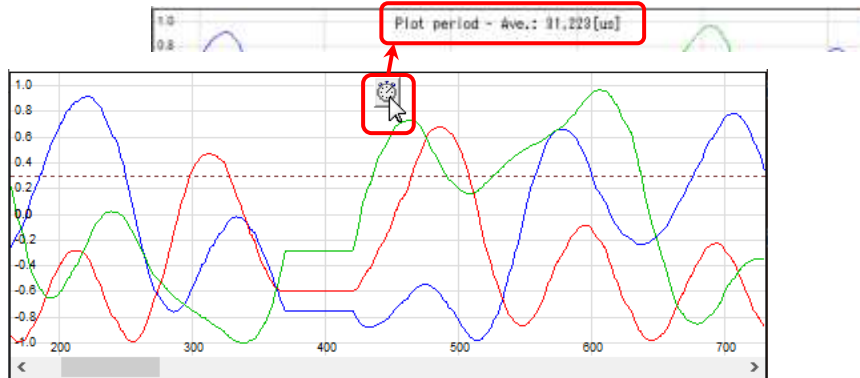
4.12. Plot cycle display

In the chart graph, the plot period is constantly measured.

Plot cycle means the reception interval of the data that draws the graph.

When you press the  button that appears when you place the cursor on the upper center of the window, the plot cycle (average value) at the time the button is pressed is displayed.

The plot cycle is displayed for 5 seconds and then disappears automatically.



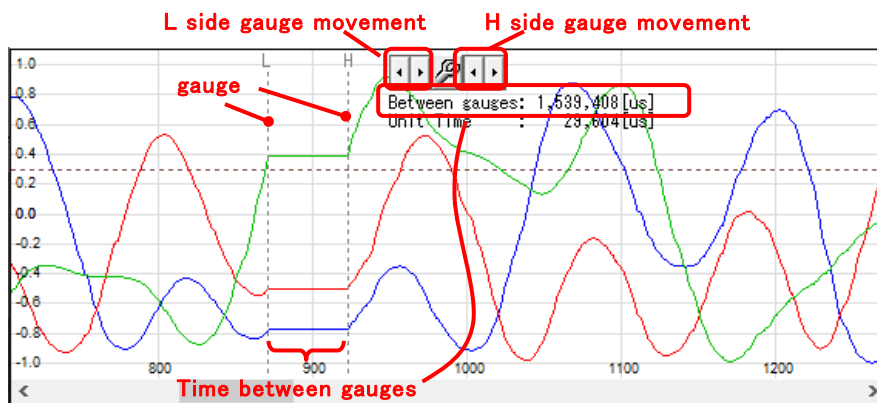
Press the mouse wheel button to reset the plot cycle measurement.

4.13. Time measurement

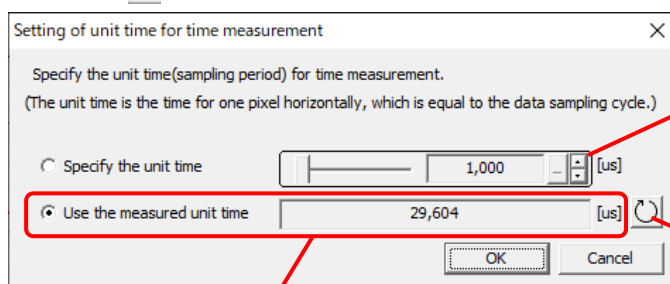
You can display two gauges and measure the time between the gauges.

Hold down the Ctrl key and press the wheel button on the mouse to display two gauges (vertical dotted lines).

Here, move the gauge with the two  buttons near when you place the cursor on the upper center of the window.



If you press the  button, you can set the unit time (plot cycle) using the following dialog.



If you do not want to use the measured unit time, check "Specify unit time" and specify your own unit time.

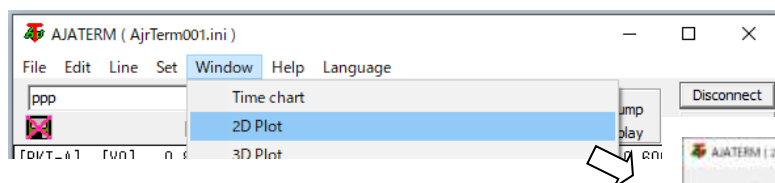
Remeasure the unit time

Automatically measured unit time

5. 2D-plot graph

You can extract 2D vector values from received text and packets and display 2D plot graphs.

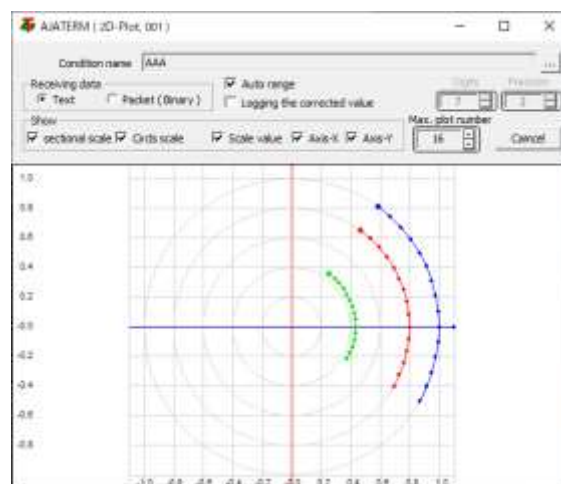
To display a 2D plot graph, select "2D plot" from the "Window" menu.



When "Auto Range" is checked, the range of the graph is automatically set so as to be the minimum value to the maximum value of the received data.

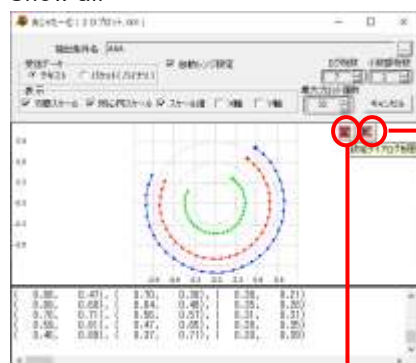
If you check "Logging the corrected value" (as shown in the figure on the left below) The extracted vector value is displayed in the log at the bottom of the window.

The number of display digits of the numerical value displayed in the log is set with "Digits" and "Precision".

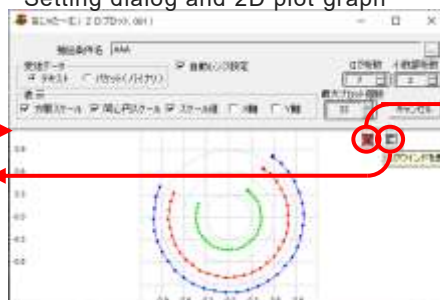


Place the cursor on the upper right part of the chart window to display a button ( ) that allows you to show/hide the dialog and log window.

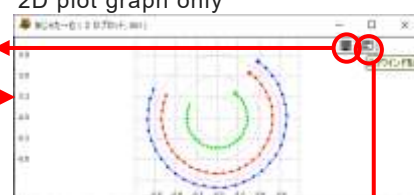
Show all



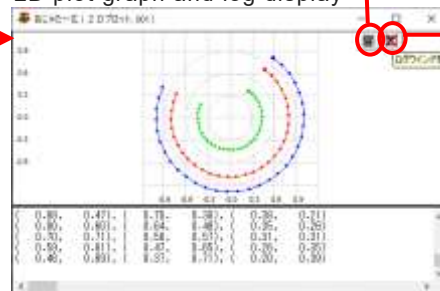
Setting dialog and 2D plot graph



2D plot graph only



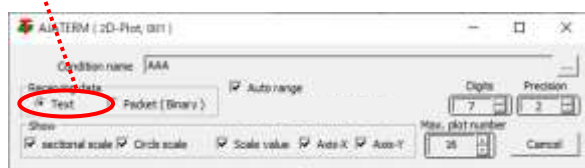
2D plot graph and log display



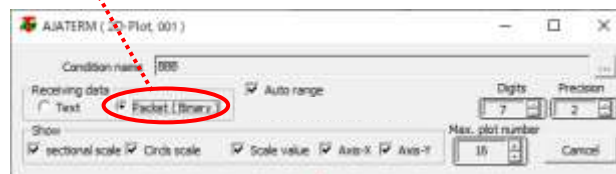
5.1. Selection of received data and setting of numerical recognition method

To extract the numerical value, you can select either text data or packet data for the received data.

Select text data



Select packet data

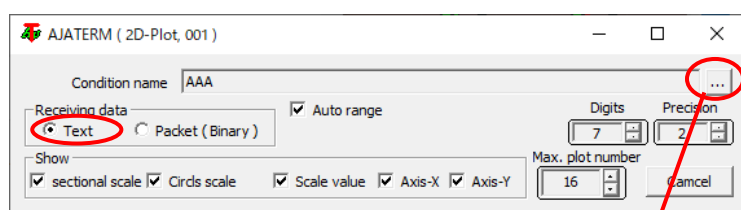


If "Text" is selected, set the position of numeric words in the text data line to be extracted.

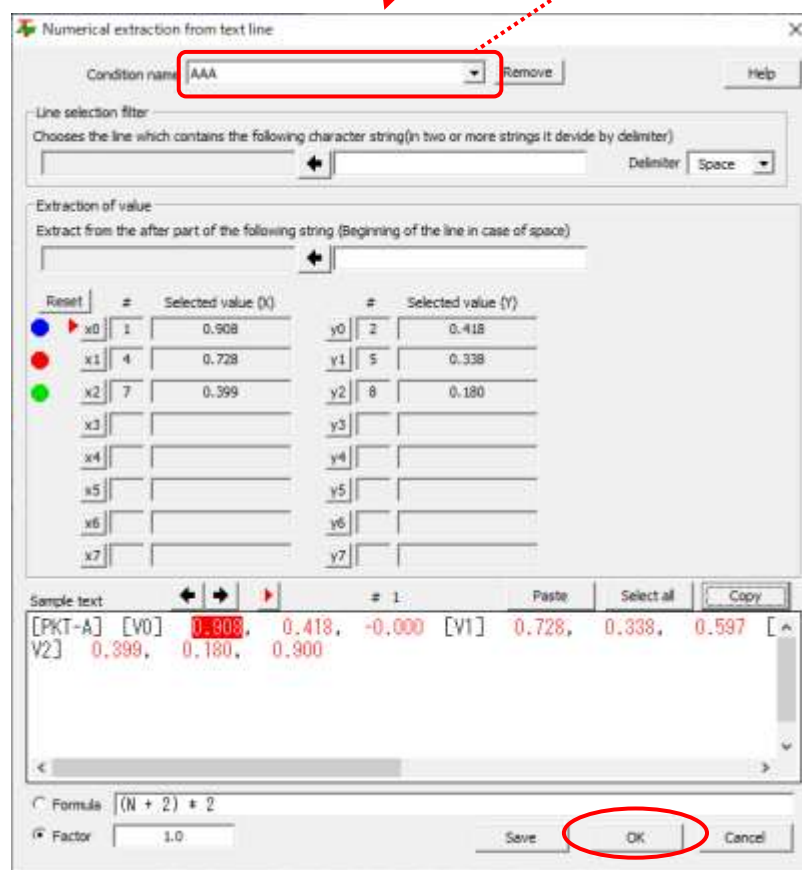
When "Packet (binary)" is selected, specify byte position in packet data and type of numeric value.

5.1.1. When extracting numerical values from received text data

When a value extraction condition is already set, choose the condition name on the combo box.



Select the desired numerical extraction condition from the combo box

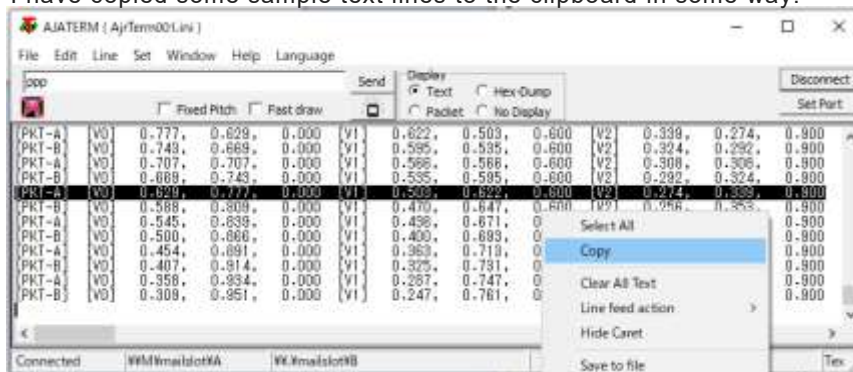


To set a new numerical value extraction condition, follow the procedure below.

1) Sample text line setting

First of all, we set a sample text line from which to retrieve a number.

I have copied some sample text lines to the clipboard in some way.



Push "Paste" button, sample text line is set.

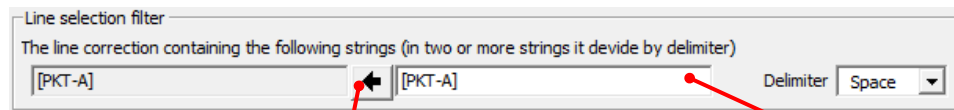


Red character means a recognized numeric item.

Red inversion is the currently selected item, you can move with the $\leftarrow \rightarrow$ button.

2) Line selection filter

To select the desired text line from several types of text lines, set "Line selection filter".



When this button is pushed, a filter character string is set.

Enter filter string here.

In the above example, only text lines containing the character string "[PKT - A]" will be processed.

To set multiple filter strings, enter multiple character strings separated by "delimiter" (ex. "[PKT - A] [TYP 1]").

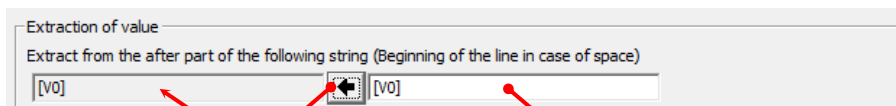
In this case, text lines containing all the specified multiple character strings are processed.

If the line selection filter is set to the empty string, all text lines are processed.

3) Specify the position of the numerical value to be extracted

By specifying the character string located immediately before the numerical value group to be extracted, it is possible to recognize the numerical value from and after the character string.

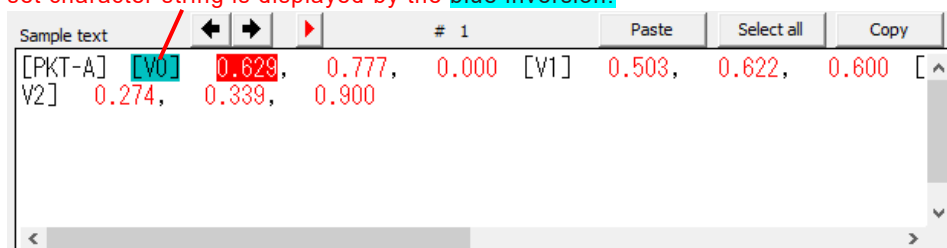
In the following example, it is set to recognize numerical values starting with the character string "[V0]".



When this button is pressed, a character string is set

Enter a character string located immediately before the numerical value group here.

The set character string is displayed by the blue inversion.

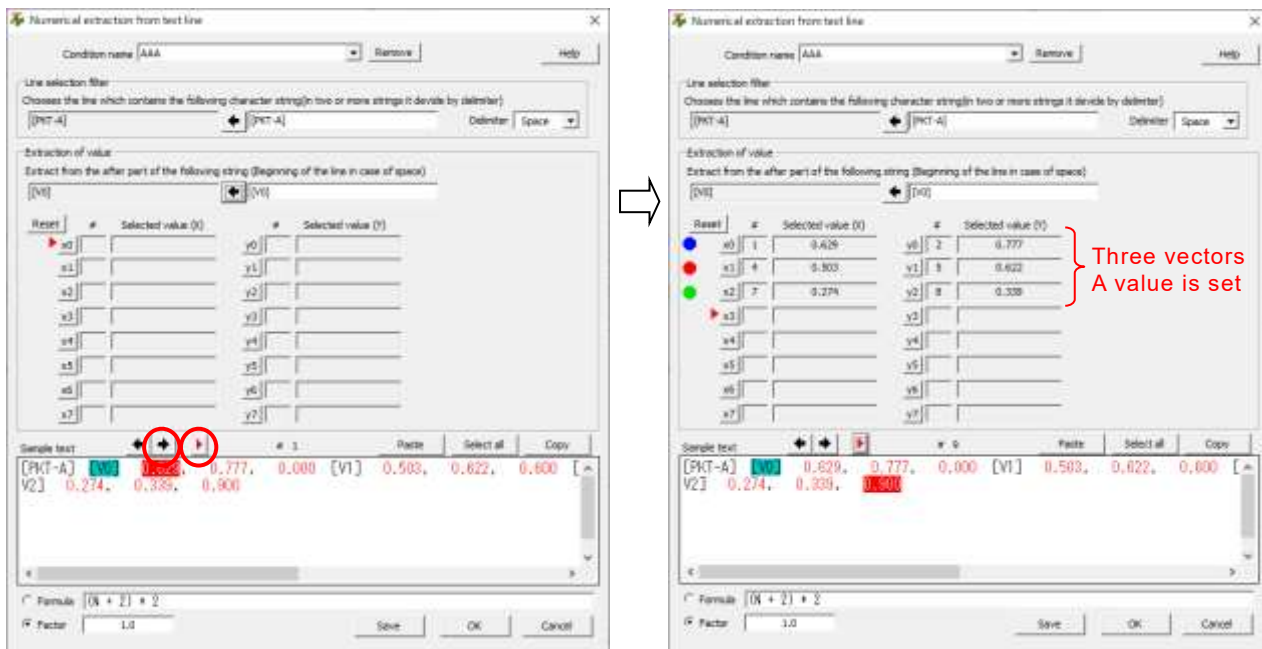


4) Setting of numerical value to be extracted

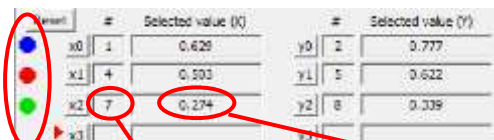
Select the target numerical value with the $\leftarrow \rightarrow$ button and set it to the position of the corresponding button with the $x0 \sim y7$ buttons.

Or press the $\rightarrow$ button to set the position indicated by $\rightarrow$, and the setting position and numerical value advance by 1.

For example, if you press the button in the order of $\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow$ in the lower left state, it will be set as shown in the lower right figure.



"#" Indicates which number is selected



Displays the seventh numerical value selected on the sample text

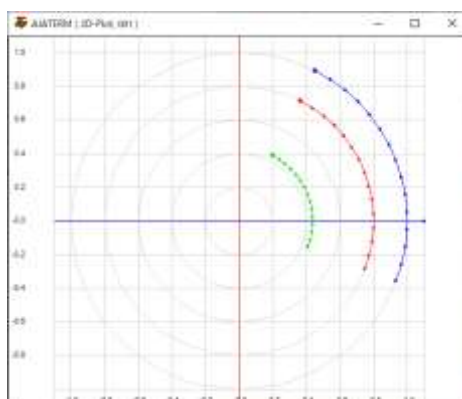
Indicates that the seventh numerical value of the recognized numerical value is selected.

Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

Pressing the "Reset" button clears all numerical value selection settings. (It will be as shown in the left figure above)

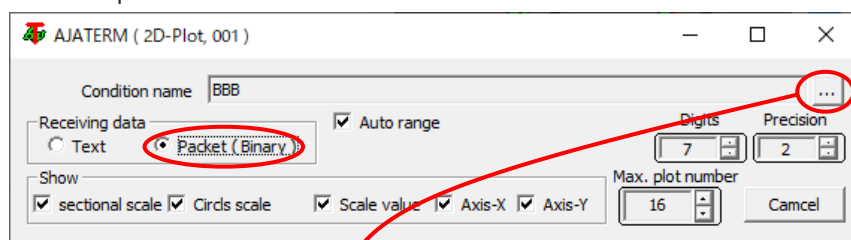
When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the setting example above, three vector values are extracted from the received text line, and the following 2D plot graph is displayed.

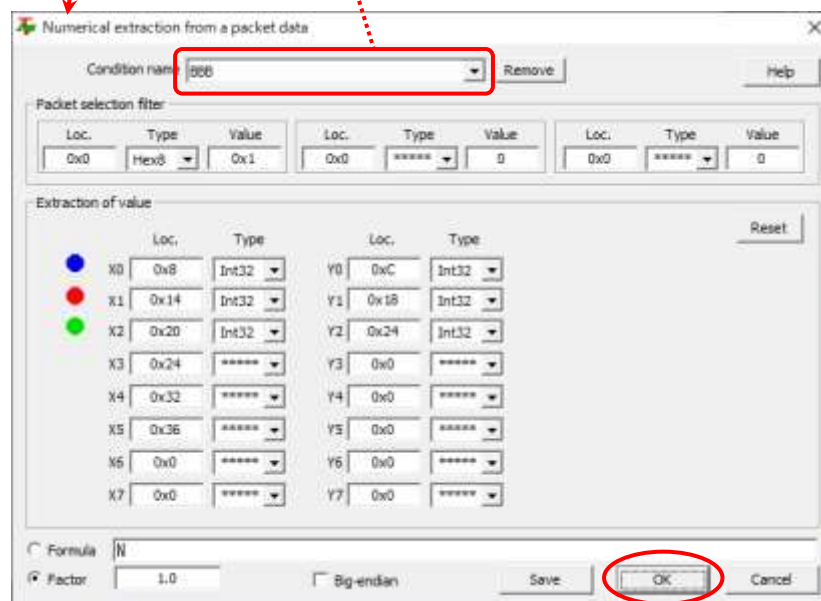


5.1.1. When extracting numerical values from received packet data

If the numeric extraction condition has already been set, select the condition set in the combo box from the "..."
button and press the "OK" button.



Select the desired numerical extraction condition from the combo box.



To set new numerical value extraction conditions, set as follows.

Specify the "packet selection filter" of the binary packet data and the position and type of the numerical value to be extracted.

For example, for the following binary data, set as shown below.

Binary data

Loc=0	1	2	3	4	5	6	7	8	12 (0xC)	16 (0x10)
0x01	-	-	-	-	-	-	-	x0 (INT-32)	y0 (INT-32)	-
20 (0x14)	24 (0x18)	28 (1 C of 0x)	32 (0x20)	36 (0x24)	40 (0x28)					
x1 (INT-32)	y1 (INT-32)	-	x2 (INT-32)	y2 (INT-32)	-					

Setting of a dialog

Binary packet data whose location 0 is 0x01 (8-bit integer) is targeted.

Pressing the "Reset" button clears all numerical value selection settings.

Specify three 2D vectors

"Calculation formula" calculates the value displayed in the graph, where N is the extracted value.

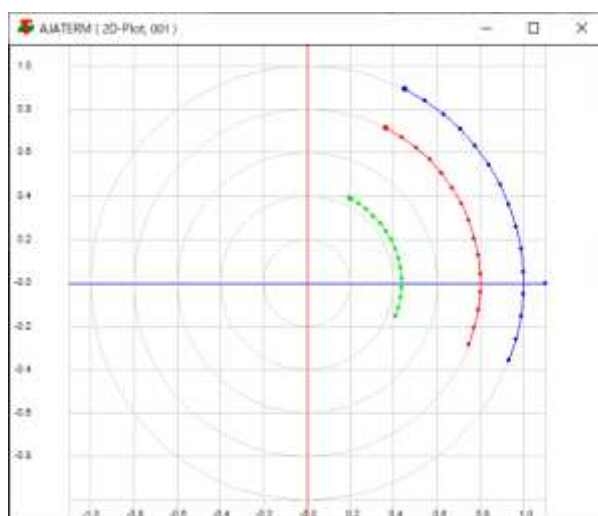
"Factor" is a value that is multiplied to all the numerical values extracted when the graph is displayed.

Check if the number is in big endian format.

Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the setting example above, three vector values are extracted from the received binary packet data row, and the following 2D plot graph is displayed.



5.2. Pop-up menu

Right click on the graph, the following popup menu will be displayed.



The contents of each menu are as follows.

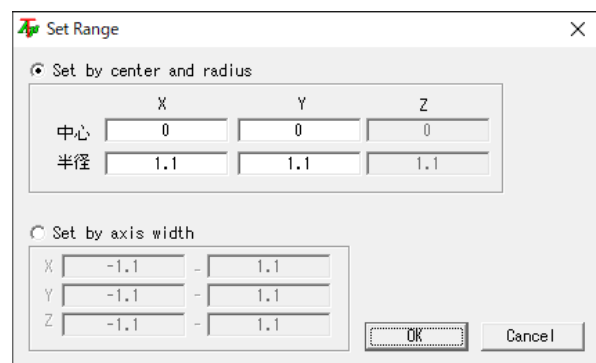
#	The menu	The contents
1	Copy to clipboard	Copy the graph display contents (bitmap) to the clipboard
2	Set Range	Displays the range setting dialog of the graph
3	Auto adjust range	Search the maximum and minimum values from the data and automatically set the range.
4	All axis made the same width	Do not change the center position, make the range width of each axis the same. (Adjust to the maximum range width)
5	Fixed aspect 1.0 / Variable Aspect by window size	Selection of whether the aspect ratio in drawing drawing is fixed to 1 or window size.
6	Show/Hide filter	Show / hide the filter (check box) at the upper left of the window
7	Clear all data	Discard all plot data and drawing data
8	Display drawing time information	Measures and displays the drawing time of graphic images.

5.3. Range setting

When selecting "Set Range" from the popup menu, the dialog box shown on the right appears.

Here, set the center position and radius / range of each axis, and press the "OK" button, the graph range is set.

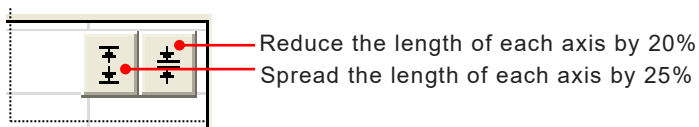
Press the "Cancel" button to cancel the setting.



5.4. Range setting with one touch

When placing the mouse cursor in the 2D plot graph upper right corner, two buttons are displayed.

With these buttons, you can increase the length (diameter) of each axis by 25% or reduce it by 20%.



5.5. Automatic range adjustment

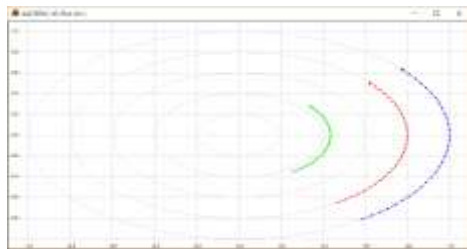
When "Auto adjust range" is selected from the pop-up menu, the maximum value and the minimum value are calculated from all the data (excluding items which are not displayed in the filter), and Make the range setting with the 5% margin.

In other words, set the range so that all the data being drawn is in view.

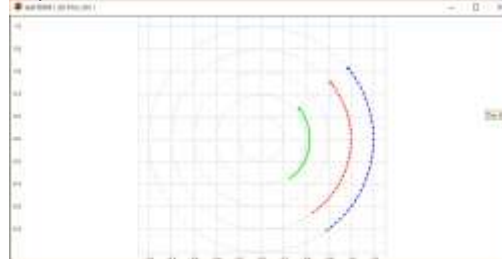
5.6. Setting the aspect ratio

You can set whether the aspect ratio can be made variable (according to the window size) or the aspect ratio is fixed to 1.

Aspect is adjusted to the window size



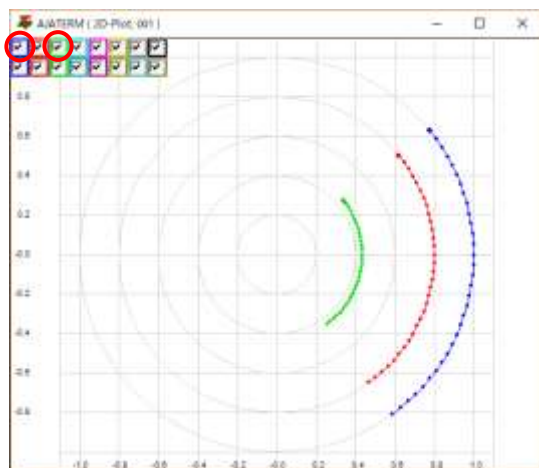
Aspect is fixed to 1



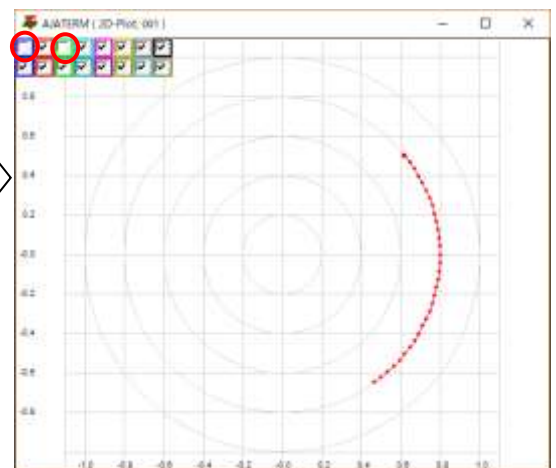
5.7. Filter function

When placing the cursor in the upper left corner of the 2D plot graph, a check box will be displayed.

The check box on the upper left corner of the window is a display filter, and if you uncheck it, the data for that display color will be hidden.



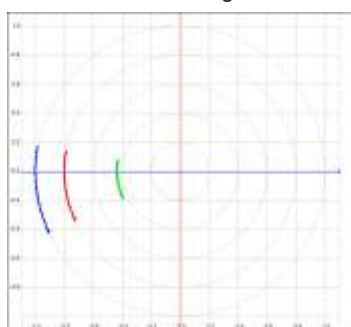
Hide Blue
and Green



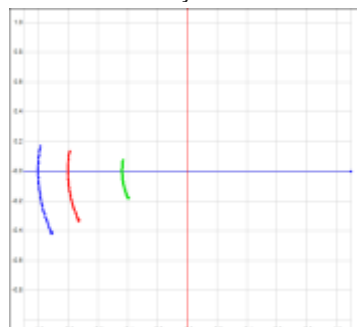
5.8. Scale display

You can select "Grid Scale" "Concentric (Elliptical) Scale" by dialog ("Display" group). In addition, it is possible to select scale value and display / non-display of X axis and Y axis.

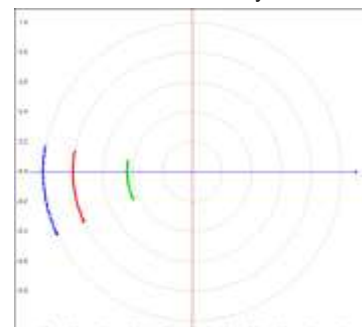
Concentric circle + grid scale



Grid scale only



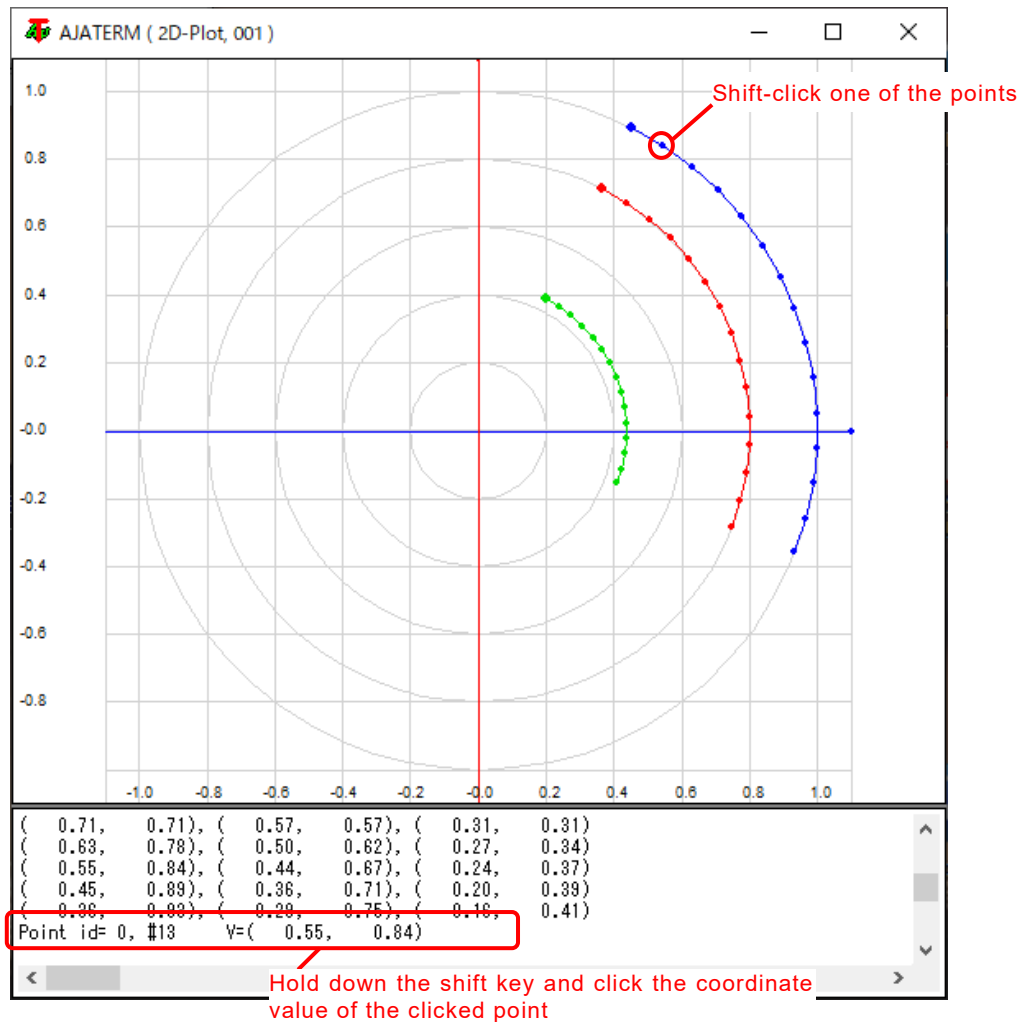
Concentric scale only



5.9. Display of coordinate values of plot points on graphics

On the graphic, you can display the coordinate value of the plot point by holding down the Shift key and clicking the plot point.

The coordinates of the plot point are displayed in the log window as follows.



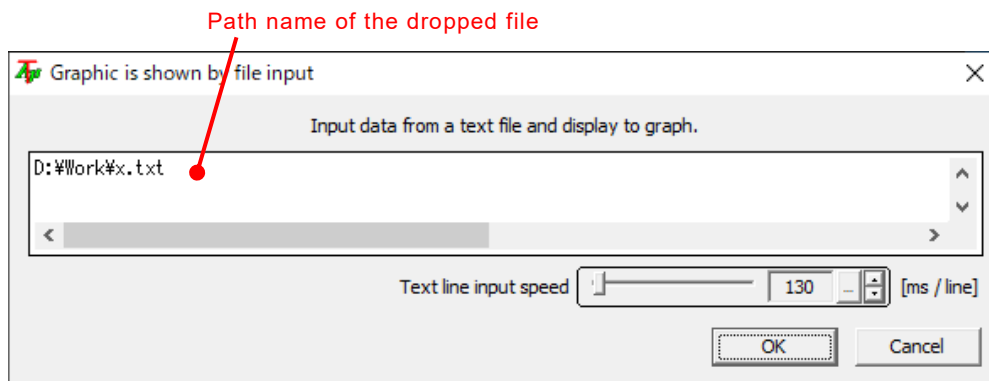
"Id" indicates data identification (blue = 0, red = 1 ...), "# nnn" indicates the data position, and "V = (· · ·)" indicates the coordinate value.

When multiple points overlap at the clicked position, the coordinate values of multiple points are displayed.

5.10. Enter text file and display 2D plot graph

By dropping a text file on the 2D plot · graph window, you can extract data from a text file and display 2D plot · graph.

When you drop a text file in the 2D plot · graph window, the following dialog will be displayed.



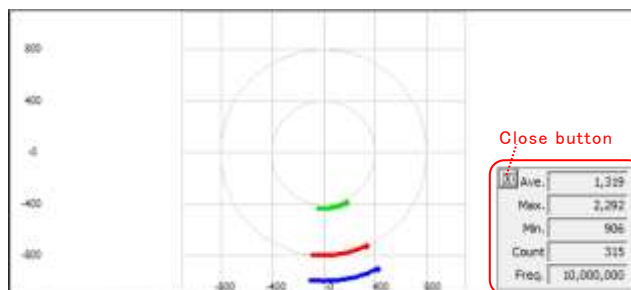
"Text line input speed" is the speed at which one line is read from the text file.

If you press the "OK" button here, data is extracted from the text file and a 2D plot graph is displayed.

When you press the "Cancel" button, reading of the text file is canceled.

1.1.2. Drawing time information display

Right-click the 2D-plot -image and select "Display drawing time information" from the popup menu to measure the drawing time of 2D-plot -image and display it in the lower right as shown below.



Ave : Average time required to draw once[us]

Max.: Maximum drawing time[us]

Min.: Minimum drawing time [us]

Count: Number of measurements

Freq: Measurement frequency [Hz] (fixed value on PC)

If you resize the window, try the measurement again.

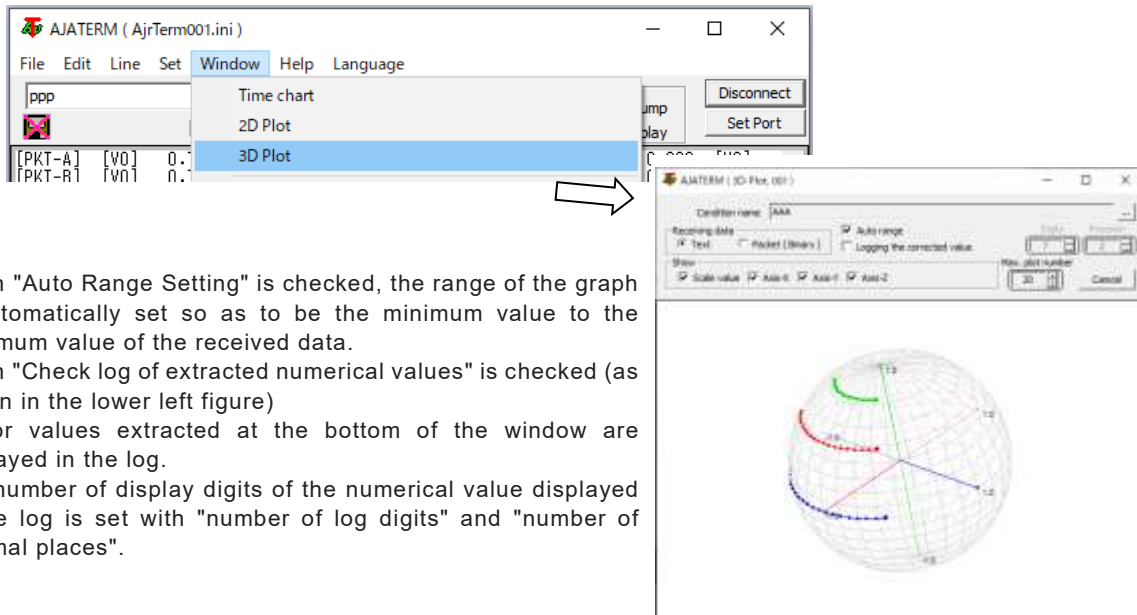
If the data is received in a short cycle, the processing becomes heavy and the 2D-plot -image cannot be displayed smoothly.

If you want to display data cyclically, you should at least display it at a period that is longer than the average value.

6. Display of 3D plot graph

You can extract 3D vector values from received text and packets and display 3D plot graphs.

To display a 3D plot graph, select "3D Plot" from the "Window" menu.



When "Auto Range Setting" is checked, the range of the graph is automatically set so as to be the minimum value to the maximum value of the received data.

When "Check log of extracted numerical values" is checked (as shown in the lower left figure)

Vector values extracted at the bottom of the window are displayed in the log.

The number of display digits of the numerical value displayed in the log is set with "number of log digits" and "number of decimal places".

Place the cursor on the upper right part of the chart window to display a button ( ) that allows you to show/hide the dialog and log window.

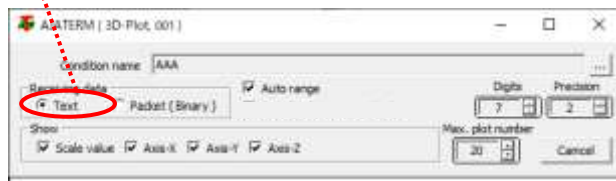
Show all



6.1. Selection of received data and setting of numerical recognition method

To extract the numerical value, you can select either text data or packet data for the received data.

Select text data



Select packet data

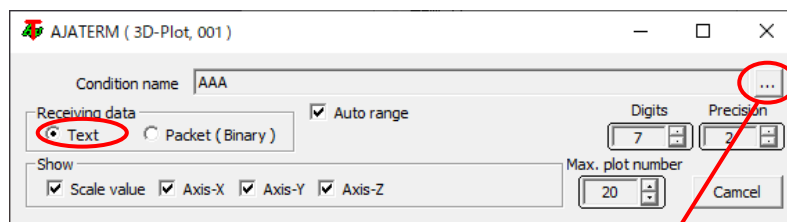


If "Text" is selected, set the position of numeric words in the text data line to be extracted.

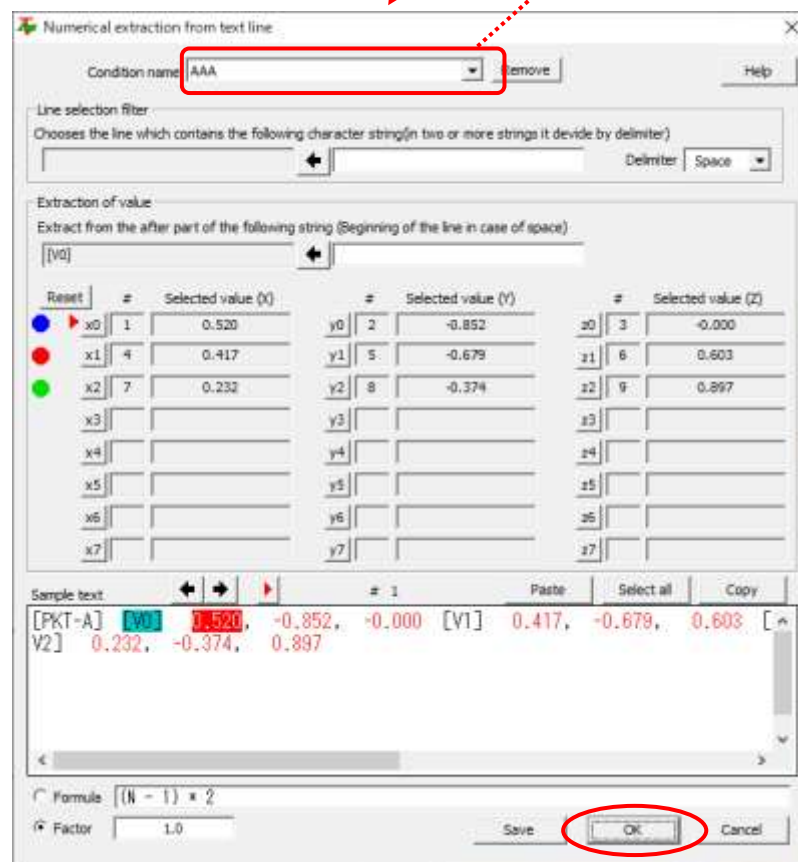
When "Packet (binary)" is selected, specify byte position in packet data and type of numeric value.

6.1.1. When extracting numerical values from received text data

If the numeric extraction condition has already been set, select the condition set in the combo box from the "..." button and press the "OK" button.



From the combo box to the desired
Select numerical extraction condition

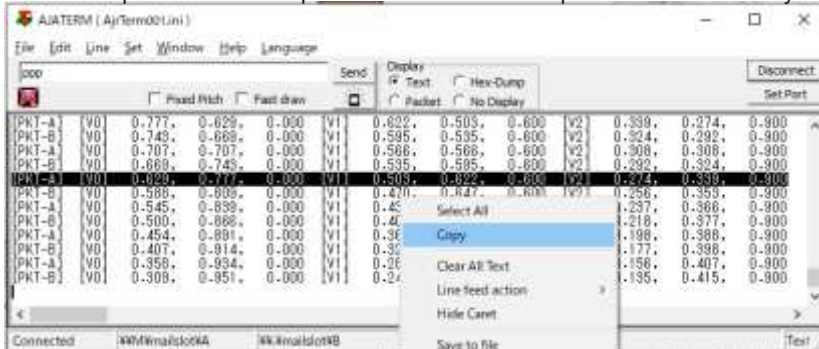


To set a new numerical value extraction condition, follow the procedure below.

1) Sample text line setting

First of all, we set a sample text line from which to retrieve a number.

I have copied some sample text lines to the clipboard in some way



When pushing "Paste" button, a sample text line is set.

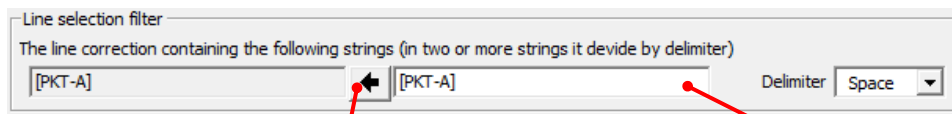


A red character means a recognized numeric item.

Red inversion is the currently selected item, you can move with the $\leftarrow$ $\rightarrow$ button.

2) Line selection filter

To select the desired text line from several types of text lines, set "Line selection filter".



When this button is pushed, a filter character string is set.

Enter filter string here.

In the above example, only text lines containing the character string "[PKT - A]" will be processed.

To set multiple filter strings, enter multiple character strings separated by "delimiter" (ex. "[PKT - A] [TYP 1]")

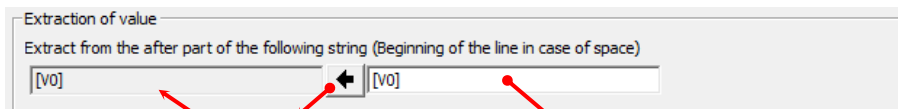
In this case, text lines containing all the specified multiple character strings are processed.

If the line selection filter is set to the empty string, all text lines are processed.

3) Specify the position of the numerical value to be extracted

By specifying the character string located immediately before the numerical value group to be extracted, it is possible to recognize the numerical value from and after the character string.

In the following example, it is set to recognize numerical values starting with the character string "[V1]".

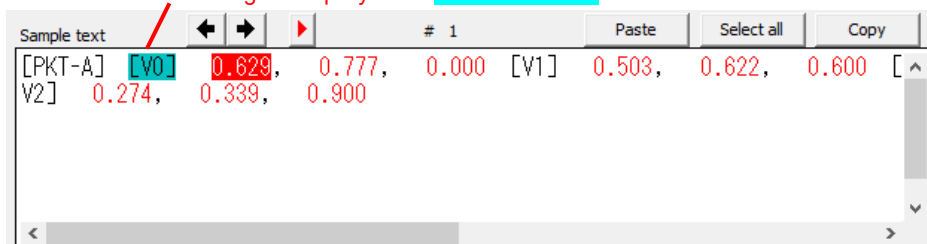


When this button is pressed, a character string is set



Enter a character string located immediately before the numerical value group here.

The set character string is displayed in blue inversion.

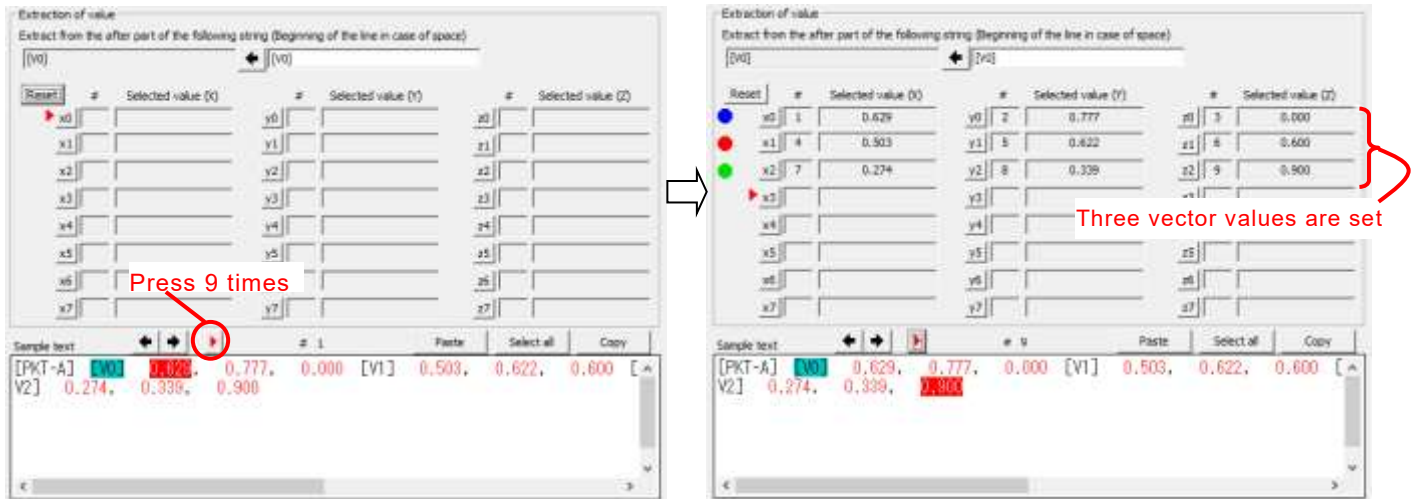


4) Setting of numerical value to be extracted

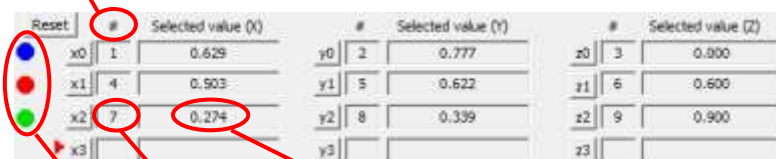
Select the target numerical value with the $\leftarrow$ $\rightarrow$ button and set it to the position of the corresponding button with the $x_0 \sim y_7$ buttons.

Or press the $\rightarrow$ button to set the position indicated by $\rightarrow$, and the setting position and numerical value advance by 1.

For example, if you press the $\rightarrow$ button nine times in the state of the bottom left figure, it will be set as shown in the lower right figure.



"#" Indicates the number of the selected value.



Displays the seventh numeric value selected on the sample text

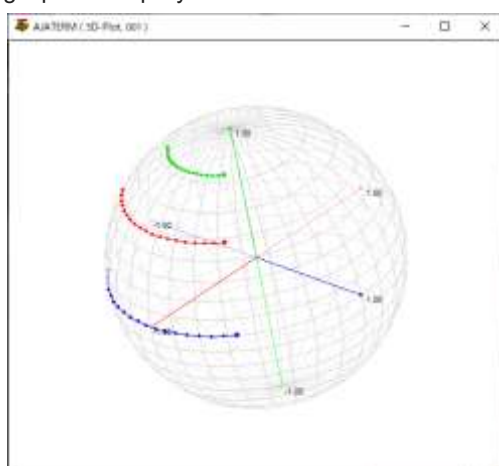
Indicates that the seventh numerical value of the recognized numerical value is selected.

Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

Pressing the "Reset" button clears all numerical value selection settings. (It will be as shown in the left figure above)

When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the above setting example, three vector values are extracted from the received text line, and the following 3D plot graph is displayed.



Setting the viewpoint

To set the viewpoint, set a specific viewpoint with "XY coordinate plane", "XZ coordinate plane", "YZ coordinate plane", "3D coordinate plane" in the pop-up menu, or drag on the graph window with the left button of the mouse. By doing so, you can set any viewpoint.

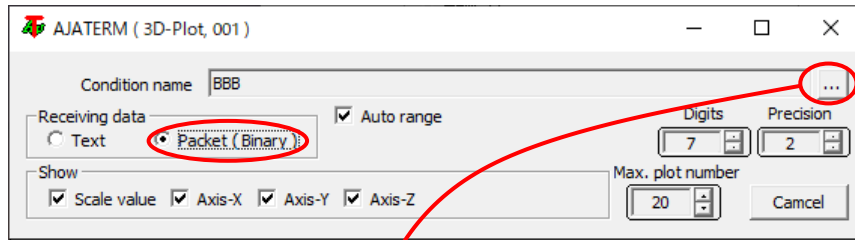
If you drag horizontally with the mouse, the display object rotates around the X axis.

If you drag in the vertical direction with the mouse, the display object rotates around the Y axis.

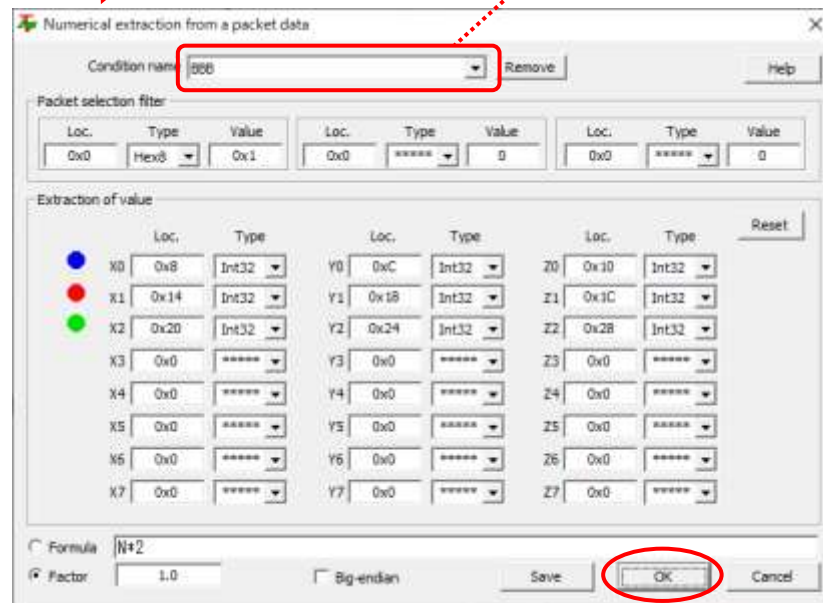
Hold the CTRL key and drag horizontally to rotate the display object around the Z axis.

6.1.2. When extracting numerical values from received packet data

If the numeric extraction condition has already been set, select the condition set in the combo box from the "... " button and press the "OK" button.



Select the desired numerical extraction condition from the combo box



To set newly known extraction conditions, set as follows.

Specify the "packet selection filter" of the binary packet data and the position and type of the numerical value to be extracted.

For example, for the following binary data, set as shown below.

Binary data

Loc=0	1	2	3	4	5	6	7	8	12 (0xC)	16 (0x10)
0x01	-	-	-	-	-	-	-	x0 (INT-32)	y0 (INT-32)	z0 (INT-32)
20 (0x14)	24 (0x18)	28 (1 C of 0x)	32 (0x20)	36 (0x24)	40 (0x28)					
x1 (INT-32)	y1 (INT-32)	z1 (INT-32)	x2 (INT-32)	y2 (INT-32)	z2 (INT-32)					

Dialog settings

Binary packet data whose location 0 is 0x01 (8-bit integer) is targeted

Pressing the "Reset" button clears all numerical value selection settings.

Specify three 3D vectors

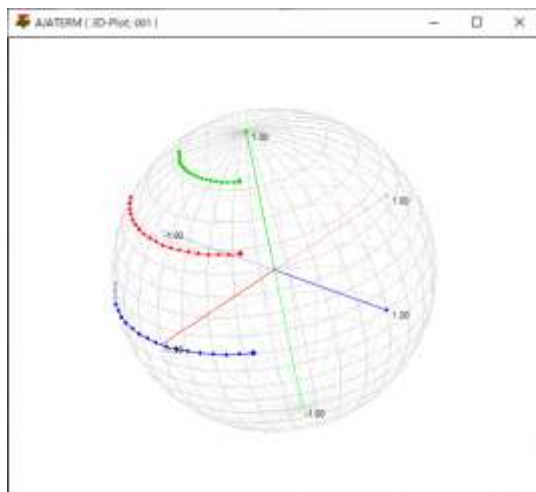
"Calculation formula" calculates the value displayed in the graph, where N is the extracted value.
"Factor" is a value that is multiplied to all the numerical values extracted when the graph is displayed.

Check if the number is in big endian format.

Indicator when valid numeric value is set. The color of this circle is the drawing color on the graphic.

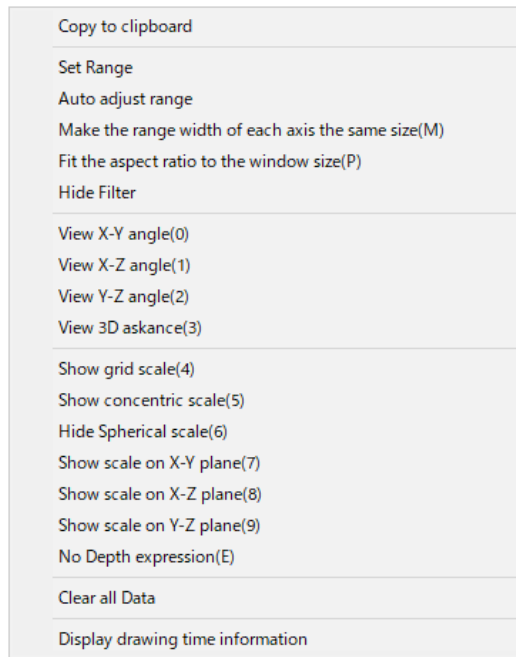
When setting is completed, please overwrite it with "OK" button or save it by giving a name with "Save" button.

In the setting example above, three vector values are extracted from the received binary packet data row, and a 3D plot graph like the one shown below is displayed.



6.2. Pop-up menu

Right click on the graph, the following popup menu will be displayed.



The contents of each menu are as follows.

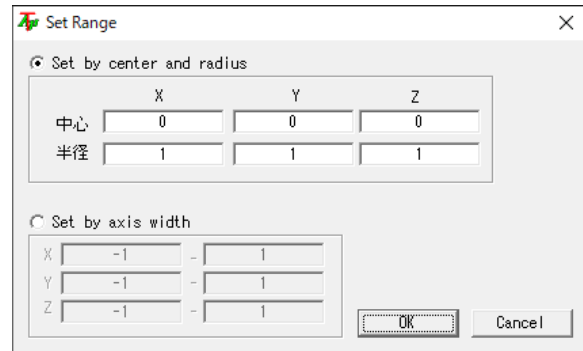
#	The menu	The contents
1	Copy to clipboard	Copy the graph display contents (bitmap) to the clipboard
2	Set range	Displays the range setting dialog of the graph
3	Auto adjust range	Search the maximum and minimum values from the data and automatically set the range.
4	All axis made the same width	Do not change the center position, make the range width of each axis the same. (Adjust to the maximum range width)
5	Fixed aspect 1.0 / Variable Aspect by window size	Selection of whether the aspect ratio in drawing drawing is fixed to 1 or window size.
6	Show/Hide filter	Show / hide the filter (check box) at the upper left of the window
7	View X-Y angle	Set the viewpoint to display XY plane
8	View X-Z angle	Set the viewpoint to display YZ plane
9	View Y-Z angle	Set the viewpoint to display YZ plane
10	View 3D askance	Set the viewpoint to display the 3D image
11	Show/Hide squared scale	Display / hide the grid scale on the plane set and displayed by # 13 to 15
12	Show/Hide concentric scale	Same as Concentric scale
13	Hide/Hide sphere scale	Show / hide sphere scale
14	Show/Hide scale on X-Y plane	Allow / prohibit display of grid / concentric circle scale on XY plane
15	Show/Hide scale on X-Z plane	Same as XY plane
16	Show/Hide scale on Y-Z plane	Same as YZ plane
17	No Depth expression	Permit / prohibit the depth representation (change the display color on the front side and the far side from the origin)
18	Clear all Data	Discard all plot data and drawing data
19	Display drawing time information	Measures and displays the drawing time of graphic images.

6.3. Range setting

When selecting "Range Setting" from the popup menu, the dialog box shown on the right appears.

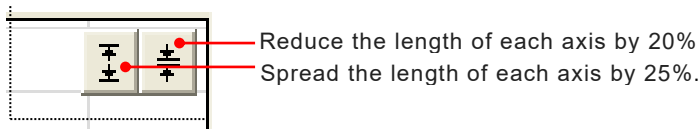
Here, set the center position and radius / range of each axis, and press the OK button, the graph range is set.

Press the "Cancel" button to cancel the setting.



6.4. Range setting with one touch

When placing the mouse cursor in the upper right corner of the 3D plot graph, two buttons are displayed. With these buttons, the length (diameter) of each axis can be widened or shortened by 30%.



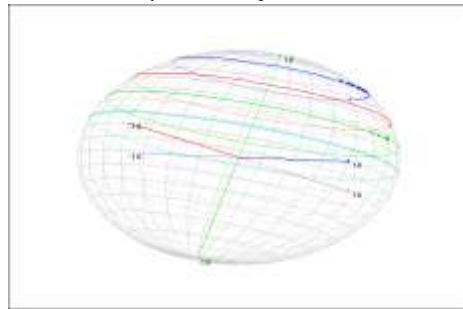
6.5. Automatic range adjustment

When "Auto adjust range" is selected from the pop-up menu, the maximum value and the minimum value are calculated from all the data (excluding items which are not displayed in the filter), and Make the range setting with the 5% margin. In other words, set the range so that all the data being drawn is in view.

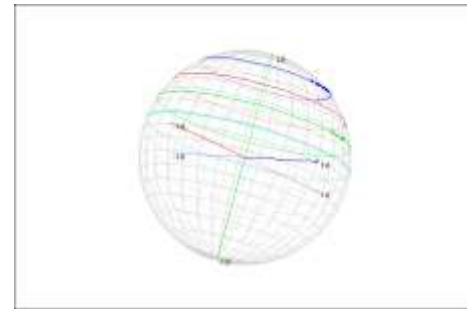
6.6. Setting the aspect ratio

You can set whether the aspect ratio can be made variable (according to the window size) or the aspect ratio is fixed to 1.

When the aspect is adjusted to the window size

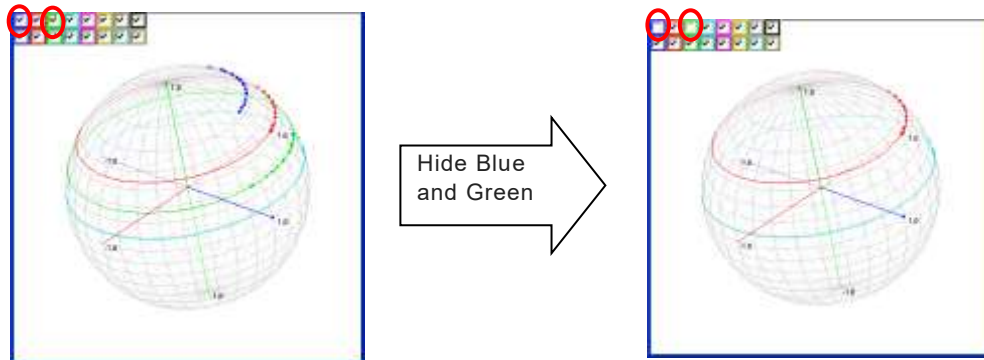


When the aspect is fixed to 1



6.7. Filter function

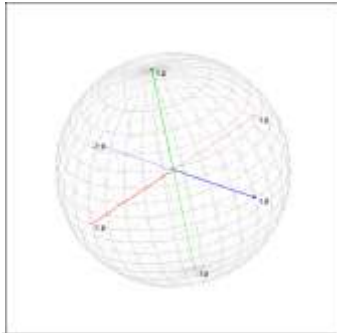
When placing the cursor in the upper left corner of the 3D plot graph, a check box will be displayed. This check box is a display filter, and if you uncheck it, the data of that display color will be hidden.



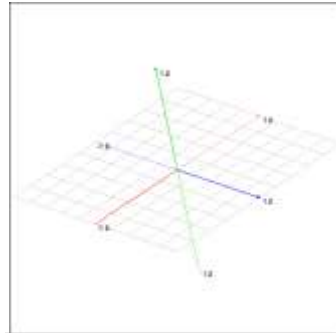
6.8. Scale display

You can select "Grid scale" "Concentric (elliptical) scale" "Sphere / ellipsoid scale" by pop-up menu / setting dialog. It is also possible to display / hide the scale value.

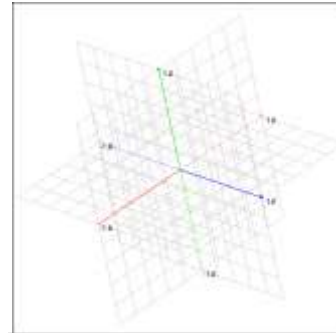
Spherical scale



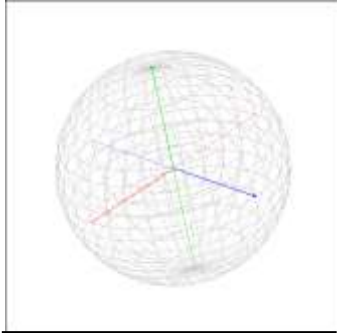
XY plane, a grid scale



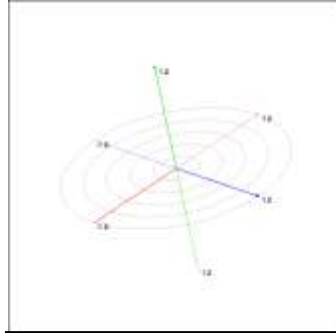
S Gradient scale on all coordinate planes



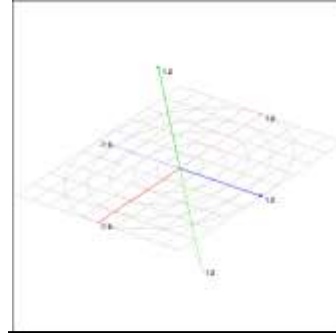
Hide Scale Value



Concentric scale on XY te plane



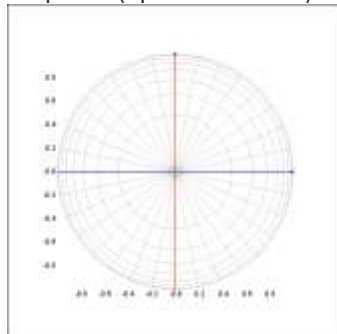
Grid and concentric circle scale



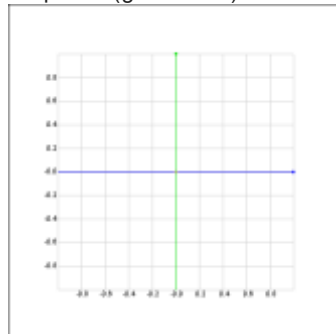
The scale value will also be displayed as an intermediate value only if the viewpoint coincides with one of the coordinate axes (that is, see the plane of any two axes).

In other viewpoint settings, only the tip value of each axis is displayed.

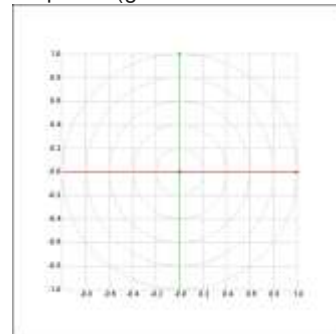
XY plane (spherical scale)



XZ plane (grid scale)

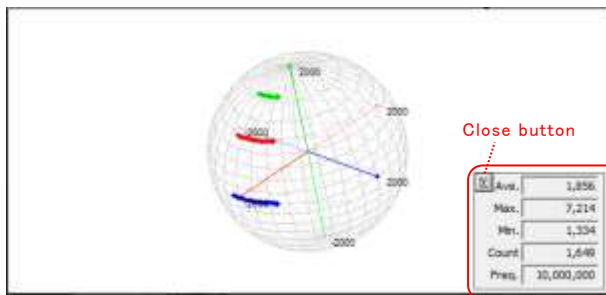


YZ plane (grid + concentric circle scale)



1.1.1. Drawing time information display

Right-click the 3D-plot -image and select "Display drawing time information" from the popup menu to measure the drawing time of 3D-plot -image and display it in the lower right as shown below.



Ave : Average time required to draw once[us]
 Max.: Maximum drawing time[us]
 Min.: Minimum drawing time [us]
 Count: Number of measurements
 Freq: Measurement frequency [Hz] (fixed value on PC)

If you resize the window, try the measurement again.

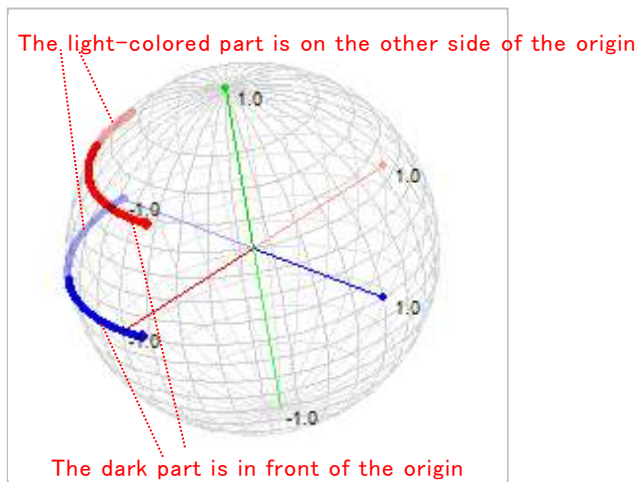
If the data is administered in a short cycle, the processing becomes heavy and the 2D-plot -image cannot be displayed smoothly.

If you want to display data cyclically, you should at least display it at a period that is longer than the average value.

1.1.2. Depth representation

By drawing the image on the side facing away from the origin a little thin, it is possible to express whether the image is on the front side of the origin or on the other side.

The image looks like it goes through frosted glass that stands perpendicular to the origin.

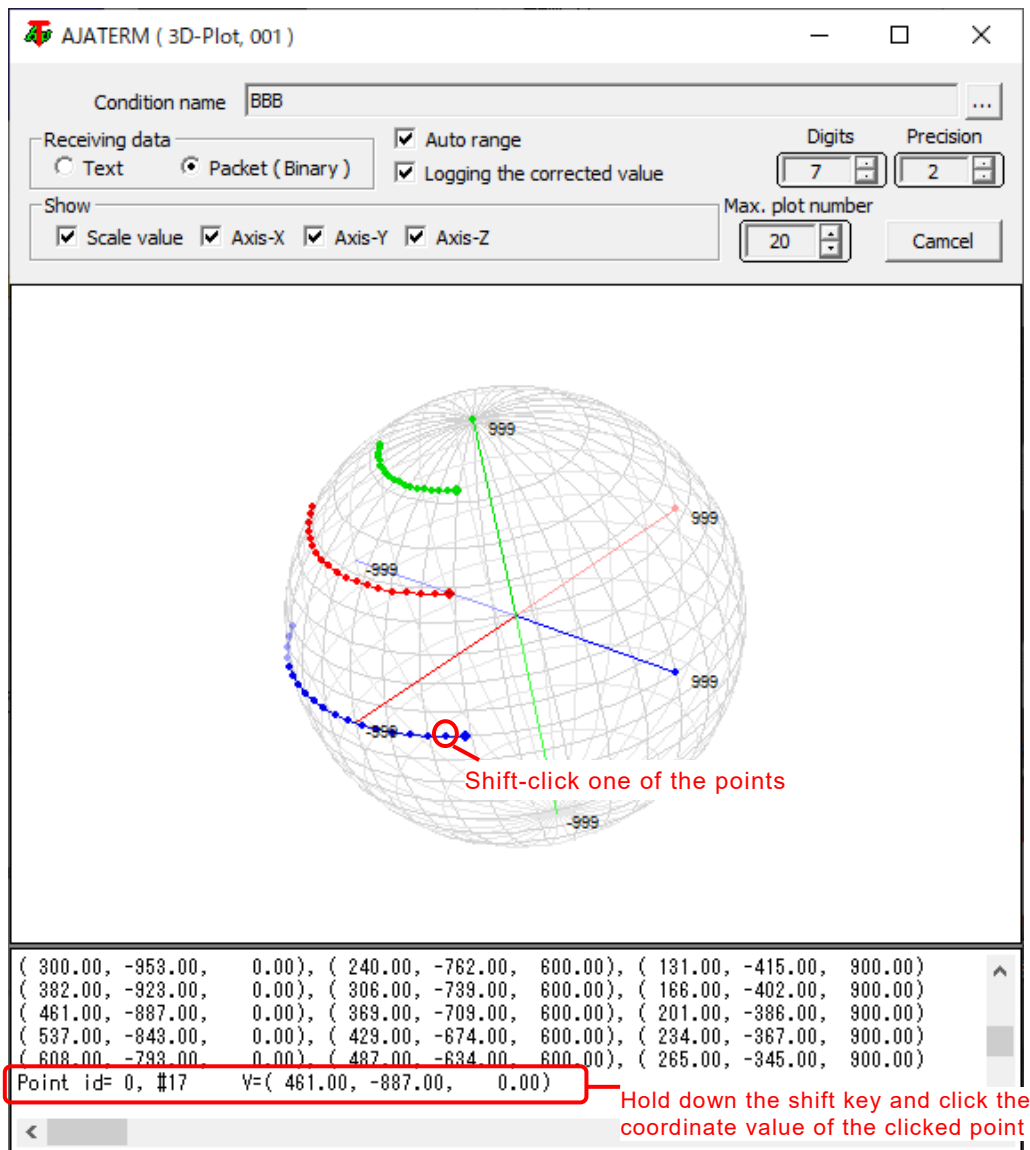


If you select "No Depth expression" in the pop-up menu, the same drawing (dark color) will be drawn on the front side and the other side of the origin.

6.9. Display of coordinate values of plot points on graphics

On the graphic, you can display the coordinate value of the plot point by holding down the Shift key and clicking the plot point.

The coordinates of the plot point are displayed in blue in the log window as follows.



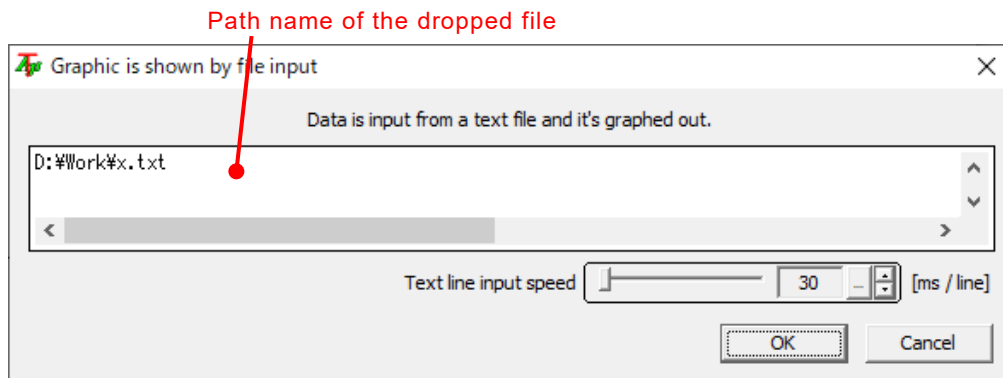
"Id" indicates data identification (blue = 0, red = 1 ...), "# nnn" indicates the data position, and "V = (· · ·)" indicates the coordinate value.

When multiple points overlap at the clicked position, the coordinate values of multiple points are displayed.

6.10. Enter text file and display 3D plot / graph

3D plot · By dropping a text file on the graph window, you can extract data from a text file and display it in 3D plot and graph.

3D Plot · When you drop a text file to the graph window, the following dialog will be displayed..



"Text line input speed" is the speed of reading one line from a text file.

If you press the "OK" button here, data is extracted from the text file and a 3D plot graph is displayed.

When you press the "Cancel" button, reading of the text file is canceled.

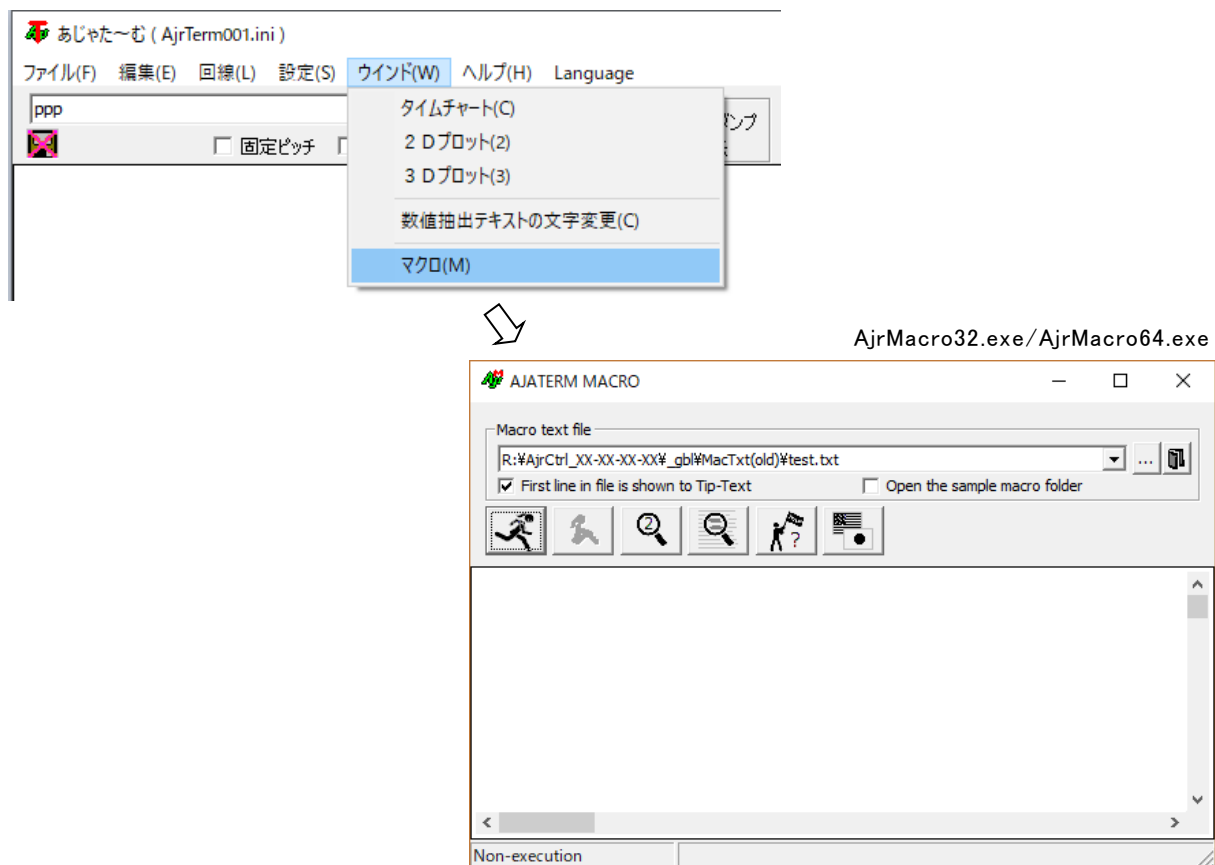
7. MACRO Function

If you use the macro function, you can send and receive data using the line connected by AJATERM.

Also, you can send and receive lines only with macros without connecting AJATERM.

(The macro function execution program is AjrMacro32.exe / AjrMacro64.exe)

When selecting "Macro" from the "Window" menu, the following macro · window will be displayed.



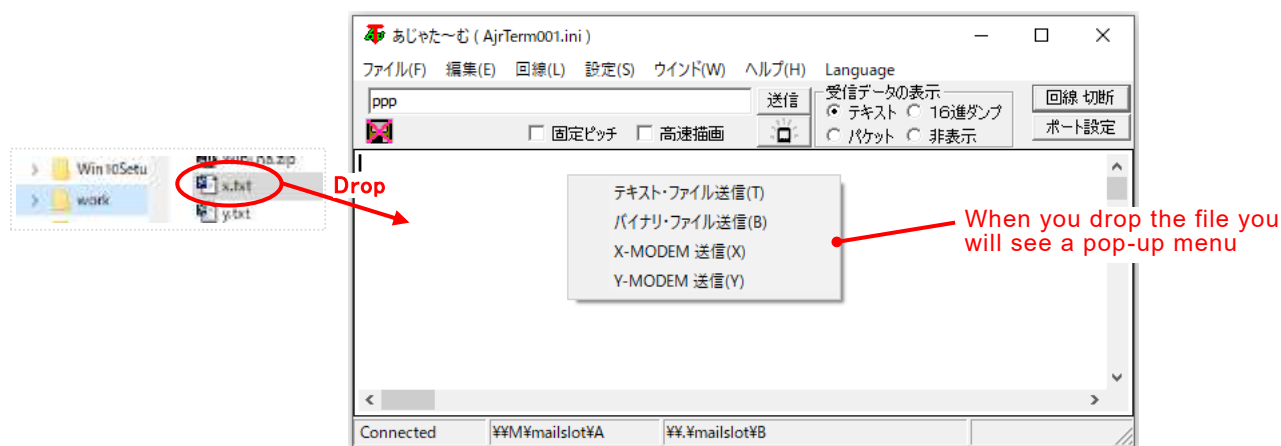
Please refer to "AjmMacroE.pdf" for the detailed contents of MACRO function.

8. File transmitting and receiving

AJATERM supports the file transfer function by the XMODEM and YMODEM protocols in addition to simple file transmission.

You can select files from the "File" menu, but you can drop the files to be sent to the main window and select from the popup menu.

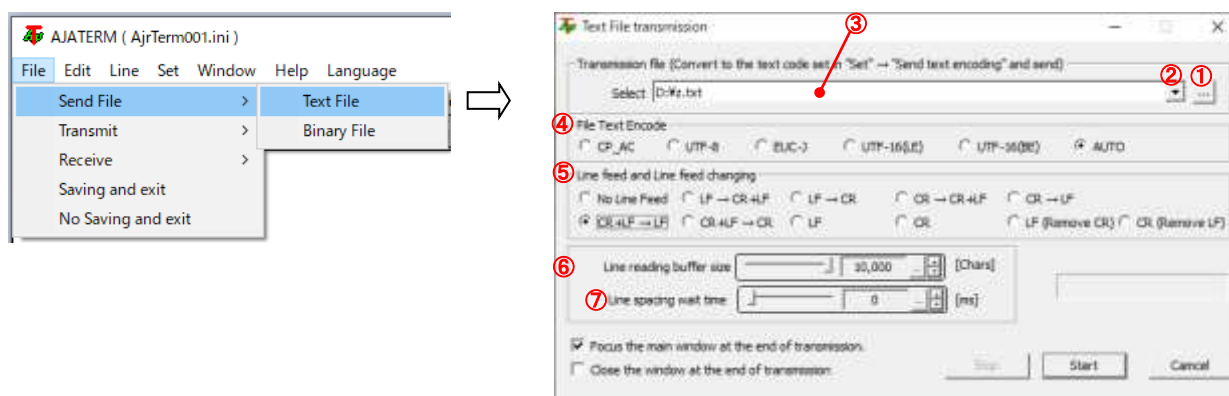
When multiple files are dropped, popup menu is not displayed and YMODEM transmission mode is entered.



8.1. Send text file

It is a function to send a text file

Select "Send File" -> "Text File" from the "File" menu (or select "Send Text File" from the pop-up menu) to display the following dialog.



Select the file to send by clicking the "..." button in ①. (Alternatively, drop the file to be sent to ③)

Alternatively, select the file to send from the combo box in ②.

Click the "Start" button to start sending the file

④ is specifies the text encoding type of the file. When "AUTO" is specified, the encoding type is automatically determined.

(If there is a BOM in the UTF-8 or UTF-16 file, the specification will be ignored and the encoding type will be the one specified in the BOM.)

⑤ is specifies the line feed code of the text file and the conversion of the line feed code.

⑥ is specifies the buffer size when reading one line from the file by the number of characters.

If the size of one line is larger than the buffer size, the middle line is regarded as one line, and the following lines are regarded as the next line.

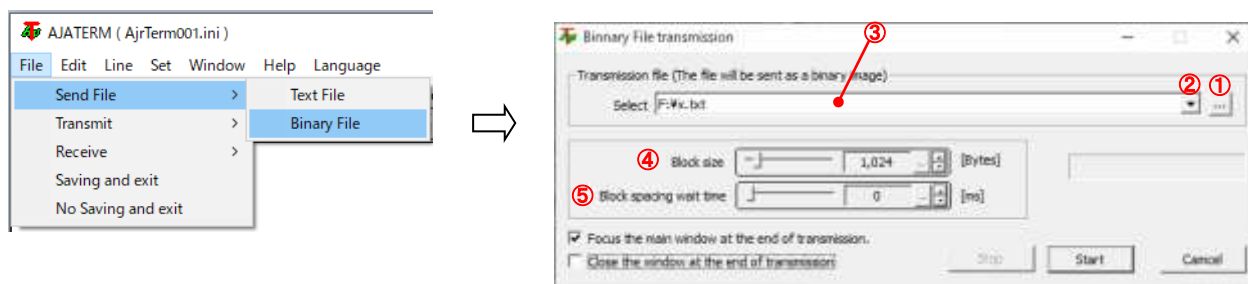
⑦ is specifies the wait time to be inserted between lines.

The actual wait time is rounded up to a multiple of the accuracy of the system timer (about 15ms))

8.2. Send binary file

It is a function to send a file as a binary image.

Select "Send File"-> "Binary File" from the "File" menu (or select "Send Binary File" from the pop-up menu) to display the following dialog.



Select the file to send by clicking the "..." button in ①. (Alternatively, drop the file to be sent to ③)

Alternatively, select the file to send from the combo box in ②.

Click the "Start " button to start sending the file.

④ is specifies the number of bytes of binary data to be sent at one time.

⑤ is specifies the wait time to insert between send blocks.

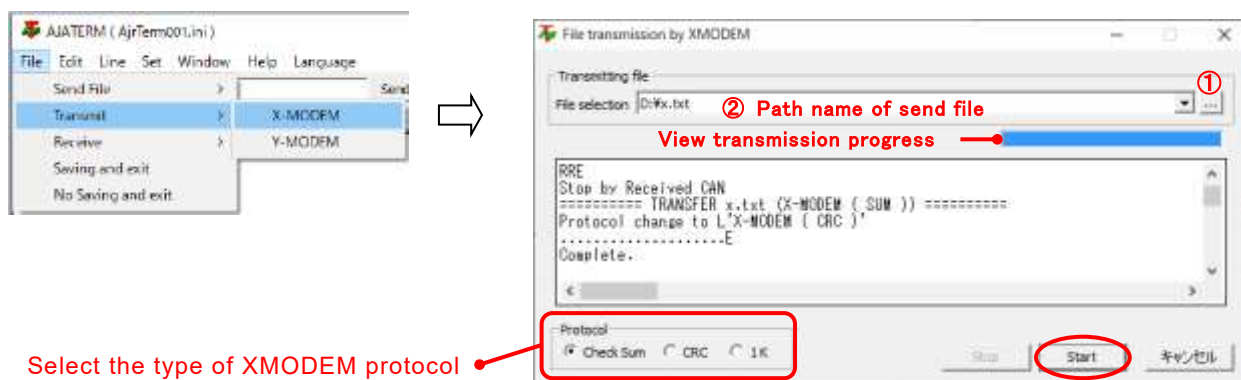
The actual wait time is rounded up to a multiple of the accuracy of the system timer (about 15ms))

8.3. File transfer (XMODEM)

A single file can be sent and received using the XMODEM protocol.

8.3.1. File transmission by XMODEM

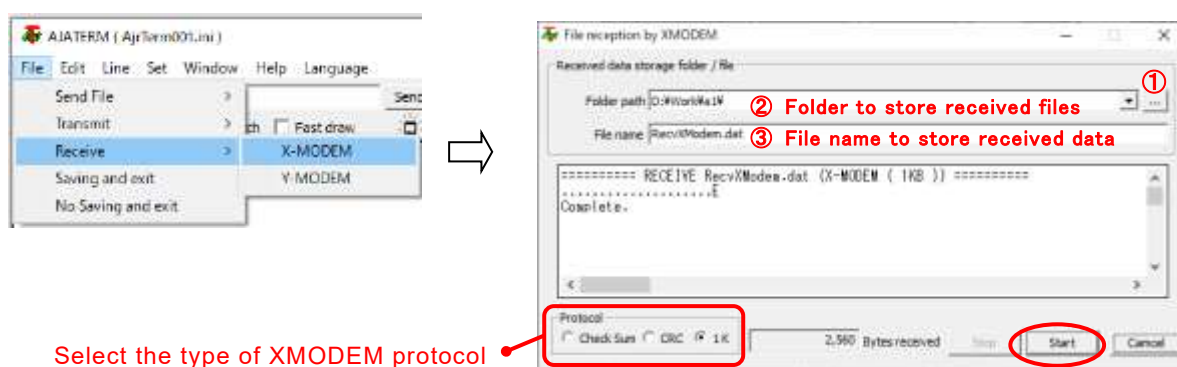
Select "File Transfer"-> "XMODEM" from the "File" menu (or select "XMODEM Send" from the pop-up menu), and the following dialog will be displayed.



Select the file to send by clicking the "..." button in ①. (Alternatively, drop the file to be sent to the ② part)
Alternatively, select the file to send from the combo box in ②.
Click the "Start" button to start sending the file.

8.3.2. Receive file by XMODEM

Select "Receive File"-> "XMODEM" from the "File" menu to display the following dialog.



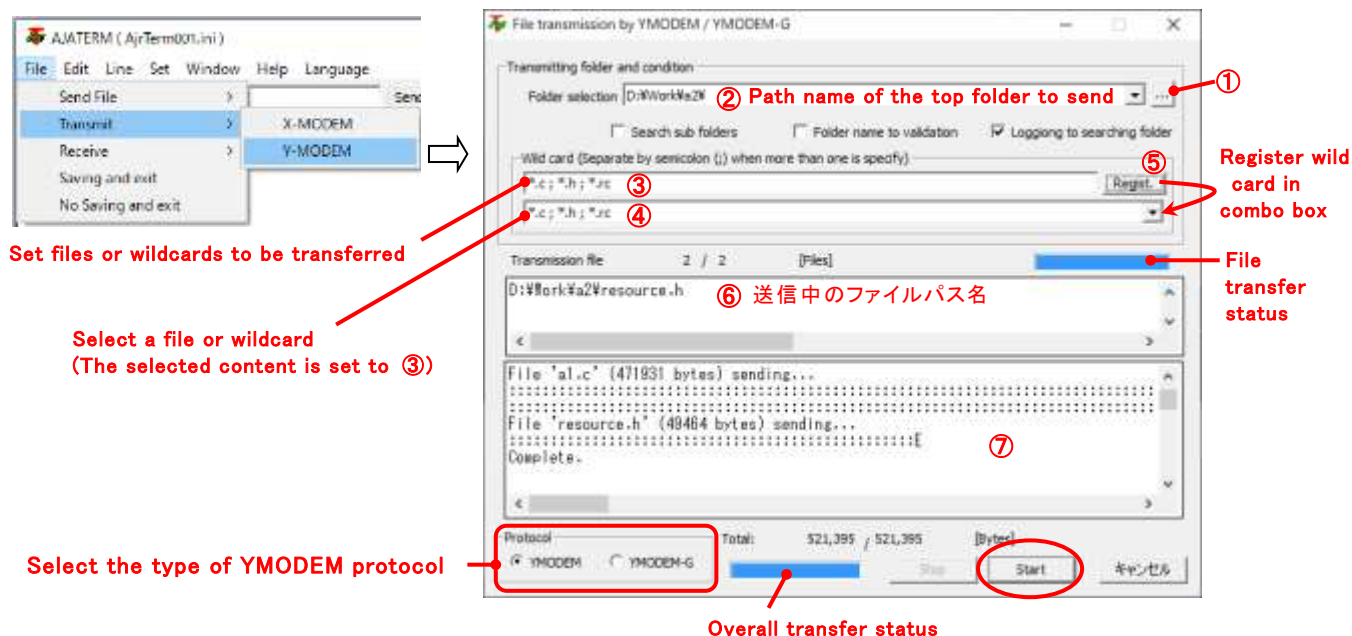
Use the "..." button in ① to set the folder for storing received files. (Alternatively, drop the file to be sent to the ②)
Alternatively, select the folder to store from the combo box in ③.
Set the file name to store the received data in ③.
Click the "Start" button to start receiving the file.

8.4. File transfer (YMODEM)

You can send and receive a single file or multiple files by YMODEM protocol in batch.

8.4.1. File transmission by YMODEM

Select "File Transfer"-> "YMODEM" from the "File" menu (or select "YMODEM Send" from the pop-up menu) to display the following dialog.



Set the folder to be transferred by clicking the "... button in ①. (Or drop the folder to ②)

Alternatively, select the folder to be sent from the combo box in ②.

Next, enter the wildcard / file name of the file to be transferred to ③. (Or select from the ④ combo box)

If you specify multiple wildcards / file names, separate them with a semi-colon (;).

The blanks before and after the entered wildcard / file name are ignored.

("Temp.txt;*.Png" and "Temp.txt ; *.png" are the same)

If you press the "Regist" button in ⑤, the entered wildcard / file name will be registered in the combo box in ④, and you will be able to select it later.

You can set up sending file(s) by dropping a single (or more) file into the ②. (The dropped files is set to ③)

Click the "Start" button to start sending the specified file(s).

If you check "Search subfolders", not only the specified folder but also the subfolders below it will be searched.

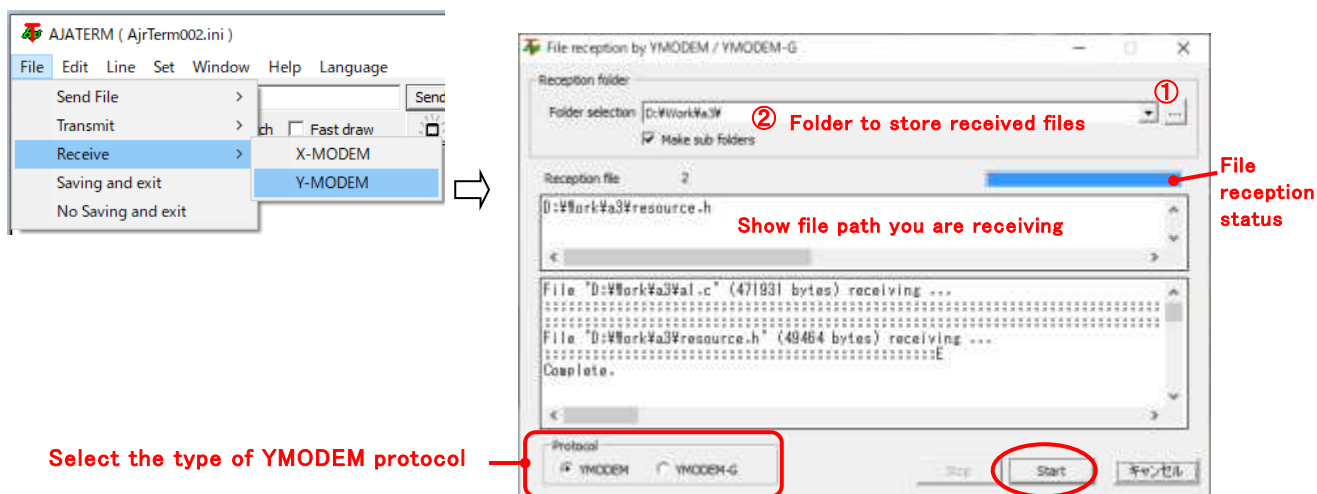
When "Folder name to validation" is checked, the relative address from the top folder is append to the file information sent by the YMODEM protocol. (ex .. ¥ Sub1 ¥ Sub2 ¥ sample.txt)

If you do not check "Folder name to validation", only the file name part will be set without adding the relative address from the top folder to the file information sent by the YMODEM protocol. (ex .sample.txt)

If you check "Logging to serching folder", all the folders for which the sent file was searched will be displayed in the log in window of ⑦.

8.4.2. Receive file by YMODEM

Select "Receive File"-> "YMODEM" from the "File" menu to display the following dialog.



Specify the folder to store the received file by clicking the "..." button in ①. (Or drop the folder to the ②t)

Alternatively, select a folder from the combo box in ②.

Click the "Start" button to start receiving files.

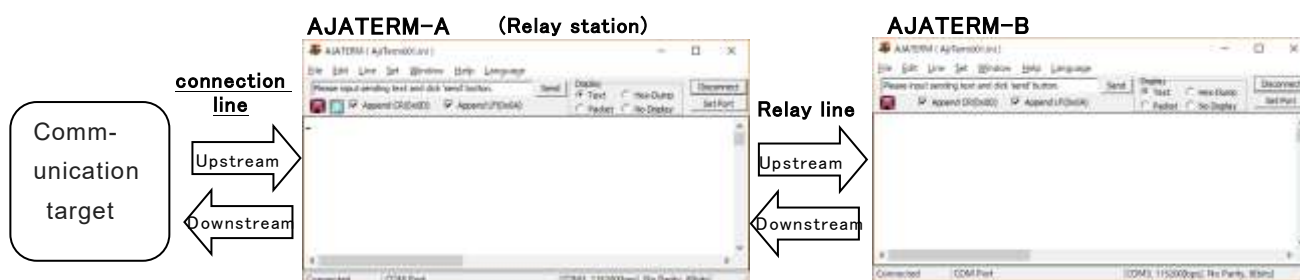
When "Make sub folder" is checked, if the folder information is added to the file information received by the YMODEM protocol, it is regarded as a relative address from the top folder and the folder is created.

If you do not check "Make sub folder", all received files will be stored in the top folder.

9. Relay function

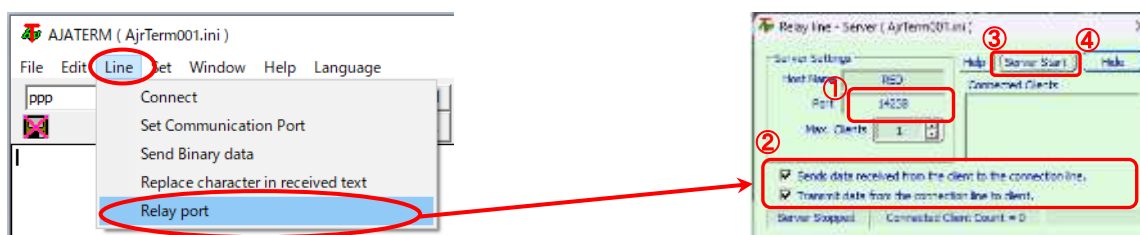
Using TCP/IP (socket) connections, lines can be relayed between AJATERM.

That is, it is possible for AJATERM-A to transfer data received from the connection line to AJATERM-B or to send data received from AJATERM-B to the connection line of AJATERM-A.



To relay data, select "Trunk line setting" from the "Line" menu and follow the procedure below.

- 1) Set the "Port" number.
- 2) Use the two check boxes to set the content to be relayed.
- 3) Click the "Server Start" button to start the IPV4 socket server. (The button face will change to "ServerStop")
- 4) Click the "Hide" button to hide the window. (The connection status of the trunk line will be maintained.)



When a trunk line is connected,  is displayed in the main window.



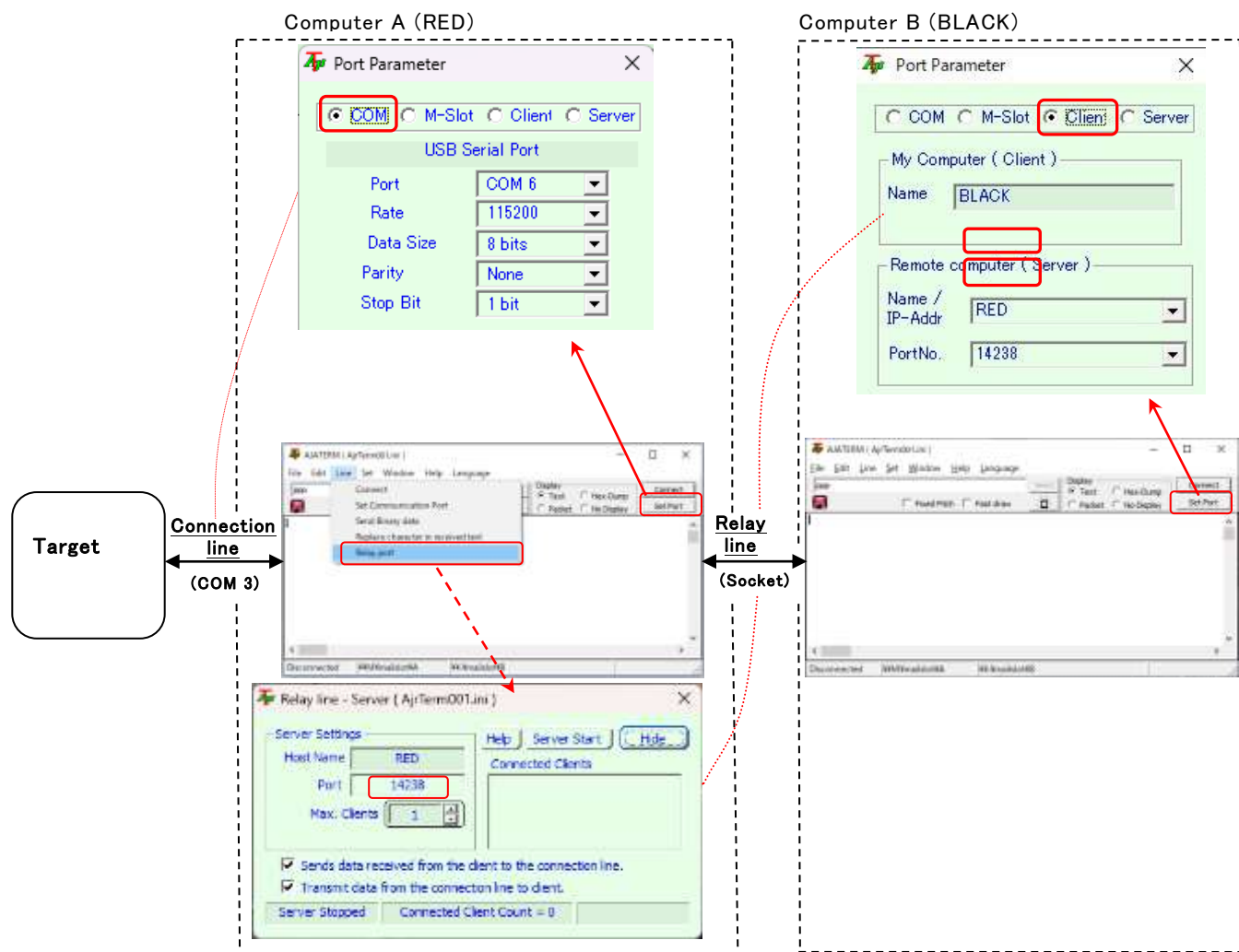
1

If you check "Reception data from relay port is sent to connection port", it will send the data received from the relay destination ("AJATERM - B" in the case of the above figure) to "communication target".

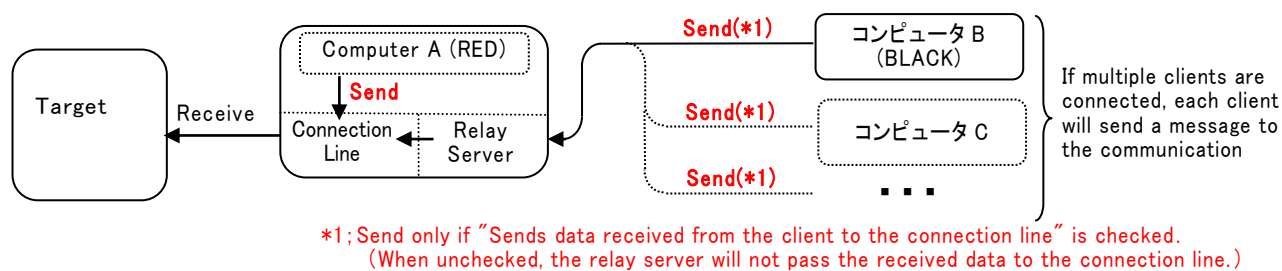
If you check "Reception data from connection port is sent to relay port", send the data received from the communication target to the relay destination ("AJATERM - B" in the above figure).

*The relay function used a mail slot in the previous version, but since version 24H2, the remote mail slot is disabled by default, so it has been changed to a socket connection.

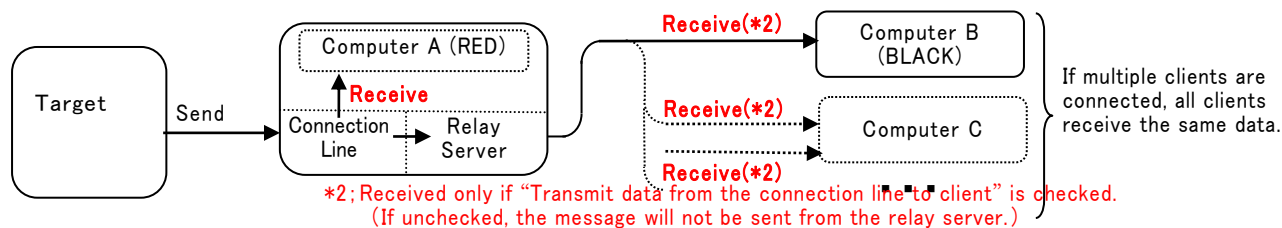
For example, if you set the port as follows, you can remotely control the communication target connected to the computer A via the COM port from the computer B.



Both data sent from "Computer A" and "Computer B" are received by the Target.



The data sent from "Target" is received by both "Computer A" and "Computer B".



10. Initial file

All contents set with AJATERM are recorded as initialization file.

The storage folder for the initialization file is "C: ¥ Ajara ¥ AjrTerm ¥ Init" by default.

In case of starting multiple, the initialization file is allocated "AjrTerm001.ini" "AjrTerm002.ini" . . . in the order of AJATERM startup, but you can also specify the initialization file directly in the following way.

1) Specify the initialization file on the command line

Specify the initialization file with the first parameter specified on the command line.

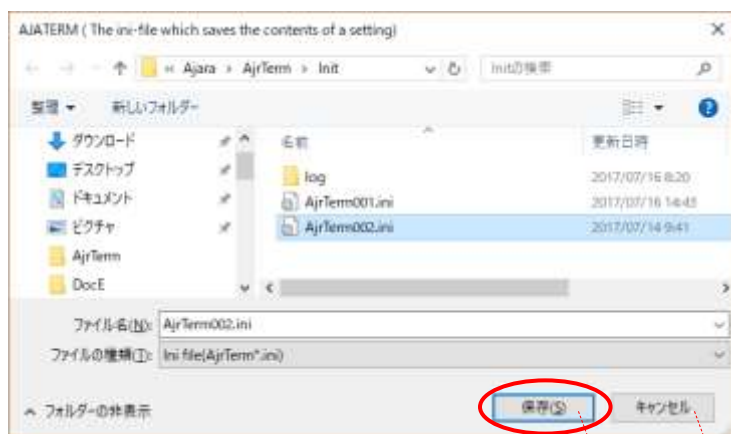
(Ex.)

```
d:> AjrTerm.exe C:¥Ajara¥AjrTerm¥Init¥AjrInit001.ini
```

2) Drop initialization file to shortcut ().

3) Hold down the Shift key and start AJATERM

If you start "Aja-tamu" with the Shift key pressed, you can select the initialization file in the following dialog.



This dialog image in Japanese windows

Save

Cancel

In the dialog above, specify the initialization file (AjrTermnnn.ini) and press the "Save" button.

* If the initialization file is created with a version earlier than Ver1.6.0.0 (if it is not a UNICODE file), the initialization file will be converted to a UNICODE file.

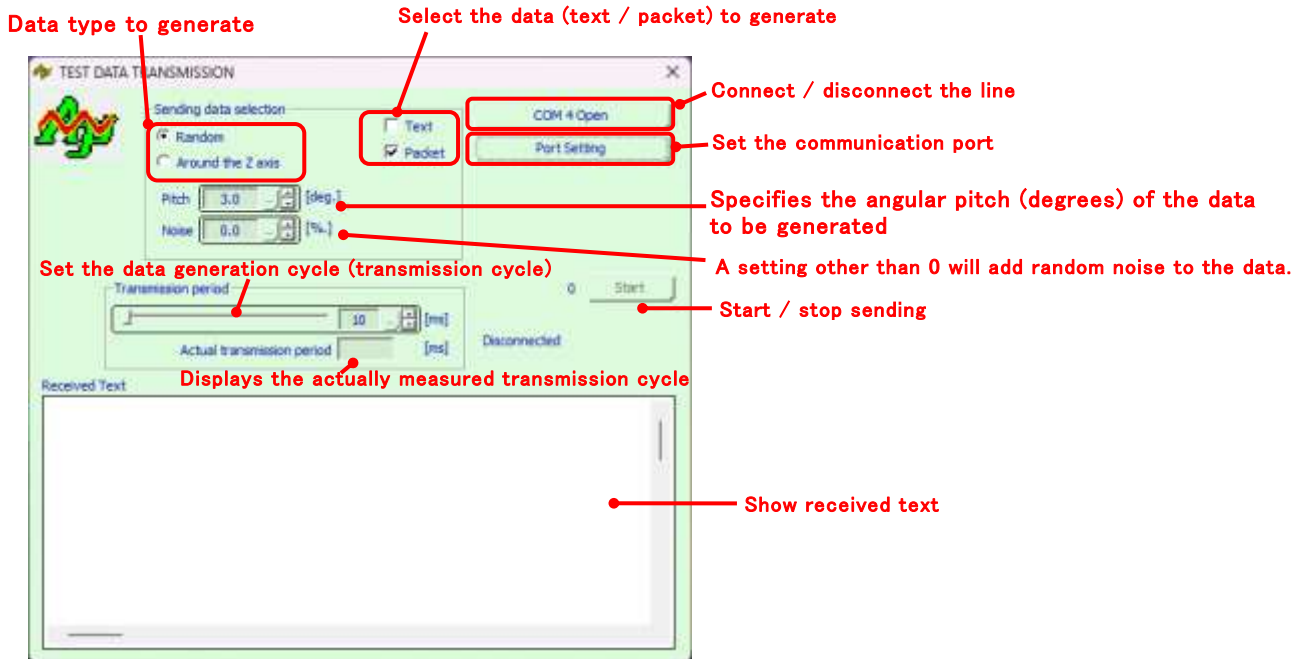
At this time, the original initialization file is saved by creating a "bkup" folder under the initialization file folder.

11. Sample program for test data (Test32.exe / Test64.exe)

For AJATERM operation sample, a program for generating test data is prepared.

This program is started from "All Programs" -> "AjaTerm" -> "Test-Program".

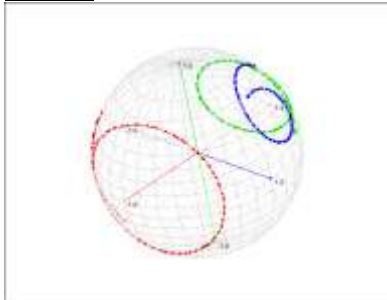
The appearance of this program is as follows.



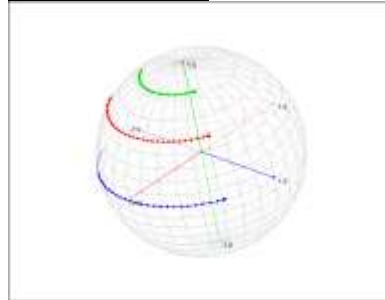
When Random (radio button) is checked, 3 types of 3D vector data that randomly orbit the spherical surface are generated and transmitted.

When Around Z-axis (radio button) is checked, 3 types of 3D vector data that rotates around the Z-axis are generated and transmitted.

Random



Around the Z axis



When sending as text data, send in the following format.

[PKT-A]	[V0]	-0.977,	0.213,	-0.005	[V1]	-0.785,	0.173,	0.601	[V2]	-0.423,	0.088,	0.900	'¥n'
[PKT-B]	[V0]	-0.992,	0.157,	0.005	[V1]	-0.789,	0.130,	0.600	[V2]	-0.433,	0.073,	0.904	'¥n'

The beginning of the line is a repetition of "PKT-A" and "PKT-B", and x0 to z2 and x0'to z2' are all real numbers from -1.000 to +1.000.

When sending as packet data (binary data), send in the following format.

Loc=0	4	8	12 (0xC)	16 (0x10)	
1 (Fixed)	2 (Fixed)	x0	y0	z0	
20 (0x14)	24 (0x18)	28 (0x1C)	32 (0x20)	36 (0x24)	40 (0x28)
x1	y1	z1	x2	y2	z2

All data (x0 to z2) are 32-bit integers (-1000 to +1000) in Little endian format.

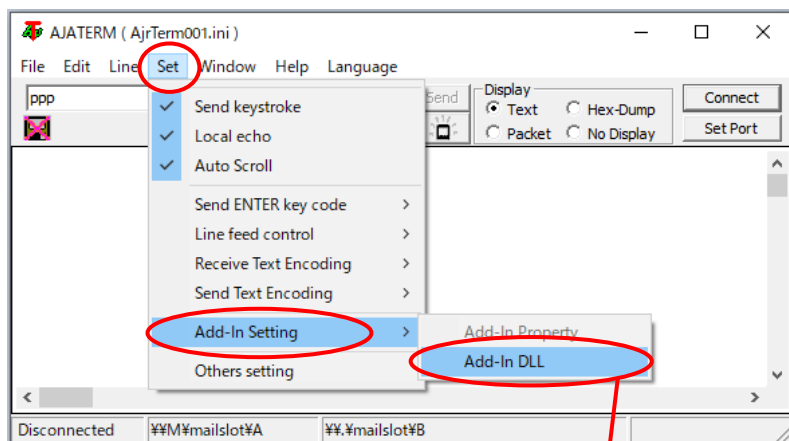
12. Add-in

With the add-in function, you can extend the function of AJATERM.

When you set up an add-in, a specific function in the DLL will be called at the following timing.

#	関数名	呼び出しタイミング	備考
1	AjtAddinValid	When the add-in DLL to valid	
2	AjtAddinInvalid	When the add-in DLL to invalid	
3	AjtAddinSetProp	When "Set"→"Add-in setting"→"Add-in property" menu is selected	
4	AjtAddinOpened	When the communication line is opened	
5	AjtAddinClosed	When the communication line is closed	
6	AjtAddinChartData	Immediately before displaying data on the time chart	You can change the data value to be displayed or stop displaying the data.
7	AjtAddin2DPlotData	Immediately before displaying data on the 2D plot.	
8	AjtAddin3DPlotData	Immediately before displaying data on the 3D plot.	
9	AjtAddinChartOpen AjtAddinChartClose	When the time chart window is open / closed	
10	AjtAddinChartClear	When Cleared the time chart window	
11	AjtAddin2DPlotOpen AjtAddin2DPlotClose	When the 2D plot window is open / closed	
12	AjtAddin2DPlotClear	When Cleared the 2D plot window	
13	AjtAddin3DPlotOpen AjtAddin3DPlot	When the 3D plot window is open / closed	
14	AjtAddin3DPlotClear	When Cleared the 3D plot window	

To use the add-in function, make a DLL for the add-in and specify the DLL in "Set" → "Addin setting" → "Addin Setting" menu.



If you check here, the add-in will be effective..



When this button is pushed, the DLL selection dialog is displayed

12.1. Structure of vector data

The format of the 2D / 3D vector data structure is as follows.

2D vector

```
typedef struct {
    double x, y ;
} AJC2DVEC, *PAJC2DVEC ;
typedef const AJC2DVEC *PCAJC2DVEC;
```

3D vector

```
typedef struct {
    double x, y, z ;
} AJC3DVEC, *PAJC3DVEC ;
typedef const AJC3DVEC *PCAJC3DVEC;
```

12.2. Specification of add-in functions

Implement the following function into add-in DLL.(The unused one doesn't have to implement).

12.2.1. Add-in PLL activation process

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinValid(HWND hwnd);`

Argument : `hwnd` – Main window handle of AJATERM

Description : Called when the add-in DLL is loaded and enabled.

Return : None

12.2.2. Processing of add-in DLL invalidation

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinInvalid(HWND hwnd);`

Argument : `hwnd` – Main window handle of AJATERM

Description : Called when the add-in DLL is already loaded and disabled.

Return : None

12.2.3. Processing when "Set"-> "Add-in setting"-> "Add-in properties" menu is selected

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinSetProp(HWND hwnd);`

Argument : `hwnd` – Main window handle of AJATERM

Description : Called when the "Set"-> "Add-in setting"-> and "Add-in property" menus are selected in the main window of AJATERM.
You can set the parameters of the add-in function using a dialog box or the like.

Return : None

12.2.4. Processing when the communication port is open

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinOpen (int com);`

Argument : `com` – Types of open communication ports (1–255: COM1–COM255, 256: mail slot, 257: socket)

Description : Called when the communication port is opened.

Return : None

12.2.5. Processing when the communication port is closed

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinClose (void);`

Argument : None

Description : Called when the communication port is closed.

Return : None

12.2.6. Change data/ cancel display of Time-chart data

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinExcChart (HWND hwnd, int seq, int n, double dat[]);`

Argument :

- `hwnd` – Time chart window handle
- `seq` – Identification number (used for identification when multiple time charts are displayed)
- `n` – Number of data (1–8)
- `dat` – Start address of time chart data array

Description : Called just before displaying data on the time chart.
 “seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant Time-chart window.
 “dat” is address of array of to be displayed on the time chart.
 “n” is the number of elements of the data array.
 To change the displayed value, rewrite the value in the array indicated by “dat”.
 If you specify “FALSE” as the return value, this data will not be displayed in the Time-chart and will be discarded.

Return :

- TRUE – Display this data on the time chart
- FALSE – Discard this data without displaying it on the time chart.

12.2.7. Change data/ cancel display of 2D-Plot data

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin2DPlotData (HWND hwnd, int seq, int n, AJC2DVEC vec[]);`

Argument :

- hwnd – 2D-Plot window handle
- seq – Identification number (used for identification when multiple 2D-Plot are displayed)
- n – Number of data (1-16)
- dat – Start address of 2D-Vector data array

“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 2D-Plot window.

“dat” is address of array of to be displayed on the 2D-Plot.

“n” is the number of elements of the 2D-Vector data array.

To change the displayed value, rewrite the value in the array indicated by “dat”.

If you specify “FALSE” as the return value, this data will not be displayed in the 2D-Plot and will be discarded.

Return :

- TRUE – Display this data on the time chart
- FALSE – Discard this data without displaying it on the time chart.

12.2.8. Change data/ cancel display of 3D-Plot data

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin3DPlotData (HWND hwnd, int seq, int n, AJC3DVEC vec[]);`

Argument :

- hwnd – 3D-Plot window handle
- seq – Identification number (used for identification when multiple 3D-Plot are displayed)
- n – Number of data (1-16)
- dat – Start address of 3D-Vector data array

“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 3D-Plot window.

“dat” is address of array of to be displayed on the 3D-Plot.

“n” is the number of elements of the 3D-Vector data array.

To change the displayed value, rewrite the value in the array indicated by “dat”.

If you specify “FALSE” as the return value, this data will not be displayed in the 3D-Plot and will be discarded.

Return :

- TRUE – Display this data on the time chart
- FALSE – Discard this data without displaying it on the time chart.

12.2.9. Time-chart window open / close notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinChartOpen(HWND hwnd, int seq, HWND hCtrl);`
`__declspec(dllexport) void CALLBACK AjtAddinChartClose(HWND hwnd, int seq);`

Argument : `hwnd` – Time-chart window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple Time-chart are displayed)
`hCtrl` – Handle of Time-chart control

Description : Called when the Time-chart window is opened / closed.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant Time-chart window.

Return : None

12.2.10. Time-chart window data clear notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddinChartClear(HWND hwnd, int seq);`
`__declspec(dllexport) void CALLBACK AjtAddinChartClear(HWND hwnd, int seq);`

Argument : `hwnd` – Time-chart window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple Time-chart are displayed)

Description : Called when the display data of the Time-chart window is cleared.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant Time-chart window.

Return : None

12.2.11. 2D-Plot window open / close notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin2DPlotOpen(HWND hwnd, int seq, HWND hCtrl);`
`__declspec(dllexport) void CALLBACK AjtAddin2DPlotClose(HWND hwnd, int seq);`

Argument : `hwnd` – 2D-Plot window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple 2D-Plot are displayed)
`hCtrl` – Handle of 2D-Plot control

Description : Called when the 2D-Plot window is opened / closed.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 2D-Plot window.

Return : なし

12.2.12. 2D-Plot window data clear notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin2DPlotOpen(HWND hwnd, int seq, HWND hCtrl);`
`__declspec(dllexport) void CALLBACK AjtAddin2DPlotClose(HWND hwnd, int seq);`

Argument : `hwnd` – 2D-Plot window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple 2D-Plot are displayed)

Description : Called when the display data of the 2D-Plot window is cleared.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 2D-Plotwindow.

Return : None

12.2.13. 3D-Plot window open / close notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin3DPlotOpen(HWND hwnd, int seq, HWND hCtrl);`
`__declspec(dllexport) void CALLBACK AjtAddin3DPlotClose(HWND hwnd, int seq);`

Argument : `hwnd` – 3D-Plot window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple 3D-Plot are displayed)
`hCtrl` – Handle of 3D-Plot control

Description : Called when the 3D-Plot window is opened / closed.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 3D-Plot window.

Return : なし

12.2.14. 3D-Plot window data clear notification

Prototype : `__declspec(dllexport) void CALLBACK AjtAddin3DPlotClear(HWND hwnd, int seq, int kind);`

Argument : `hwnd` – 3D-Plot window handle(Container window including dialogs and controls)
`seq` – Identification number (used for identification when multiple 3D-Plot are displayed)
`kind` – Indicates the type of cleared data (0x01: plot data, 0x02: drawing data, 0x03: all data)

Description : Called when the display data of the 3D-Plot window is cleared.
“seq” indicates the numerical value (nnn) of the title (Time-chart, nnn) displayed in the relevant 3D-Plotwindow.

Return : None

12.3. Message from add-in

The following operations can be performed by sending a message from the add-in to the Time-chart or 2D / 3D plot window.

名称	文字タイプ	値	内容	wParam	lParam
WM_AJT_CLEAR_DATA	—	WM_USER + 102	Clear all	0	0
WM_AJT_SHOW_DATA	—	WM_USER + 110	Put data	0	Address of double type data array
WM_AJT_SET_TOOLTEXT	ANSI	WM_USER + 160	Set tool top text	0	Toolchip string address
	UNICODE	WM_USER + 161			
WM_AJT_SET_TITLETEXT	ANSI	WM_USER + 162	Set title text	0	Title string address
	UNICODE	WM_USER + 163			

※The above symbols are defined in AjtAddinDef.h.

※"WM_AJT_SHOW_DATA" is only possible on time charts.

12.4. DLL export name with add-in function

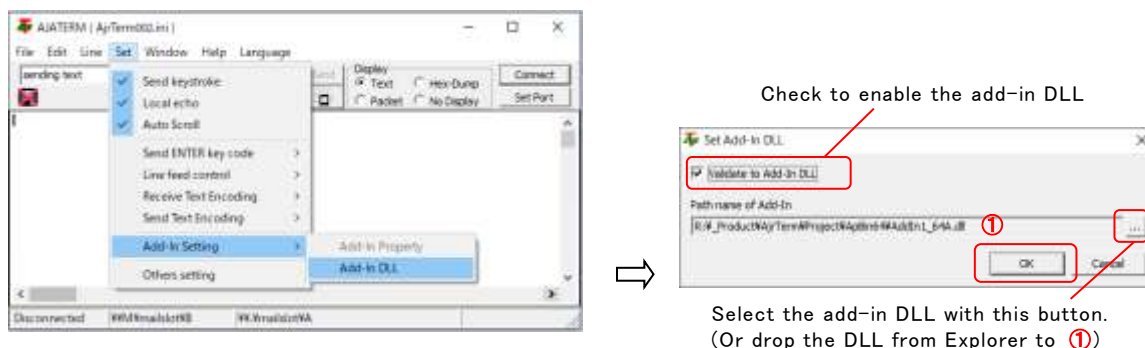
Export the add-in function from the DLL with the following names.

#	関数名	エクスポート名称	
		32ビット (WIN32)	64ビット (WIN64)
1	AjtAddinValid	_AjtAddinValid@4	AjtAddinValid
2	AjtAddinInvalid	_AjtAddinInvalid@4	AjtAddinInvalid
3	AjtAddinSetProp	_AjtAddinSetProp@4	AjtAddinSetProp
4	AjtAddinComOpen	_AjtAddinComOpen@4	AjtAddinComOpen
5	AjtAddinComClose	_AjtAddinComClose@0	AjtAddinComClose
6	AjtAddinChartOpen	_AjtAddinChartOpen@12	AjtAddinChartOpen
7	AjtAddinChartData	_AjtAddinChartData@16	AjtAddinChartData
8	AjtAddinChartClose	_AjtAddinChartClose@8	AjtAddinChartClose
9	AjtAddinChartClear	_AjtAddinChartClear@8	AjtAddinChartClear
10	AjtAddin2DPlotOpen	_AjtAddin2DPlotOpen@12	AjtAddin2DPlotOpen
11	AjtAddin2DPlotData	_AjtAddin2DPlotData@16	AjtAddin2DPlotData
12	AjtAddin2DPlotClear	_AjtAddin2DPlotClear@12	AjtAddin2DPlotClear
13	AjtAddin2DPlotClose	_AjtAddin2DPlotClose@8	AjtAddin2DPlotClose
14	AjtAddin3DPlotOpen	_AjtAddin3DPlotOpen@12	AjtAddin3DPlotOpen
15	AjtAddin3DPlotData	_AjtAddin3DPlotData@16	AjtAddin3DPlotData
16	AjtAddin3DPlotClose	_AjtAddin3DPlotClose@8	AjtAddin3DPlotClose
17	AjtAddin3DPlotClear	_AjtAddin3DPlotClear@12	AjtAddin3DPlotClear

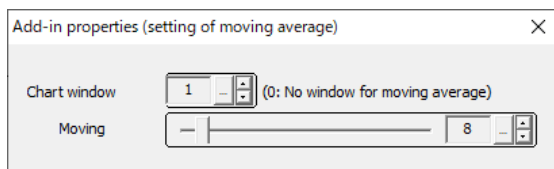
12.5. Add-in sample program

The following sample program displays the moving average waveform in the specified time chart window as an add-in for AJATERM. (No processing is done for 2D / 3D plots)

First, specify the add-in DLL by selecting "Set" -> "Add-in setting" -> "Add-in DLL".

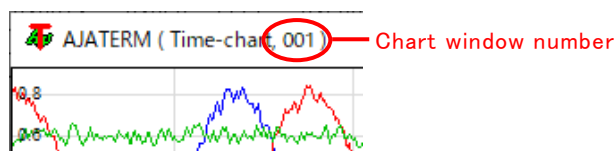


When the add-in DLL is enabled, the following moving average setting dialog is displayed.



To close the dialog and redisplay it, select Set -> Add-in Setting -> Add-in Property.

The chart window number is the number of the time chart window to be moved and averaged (the number displayed in the title bar).

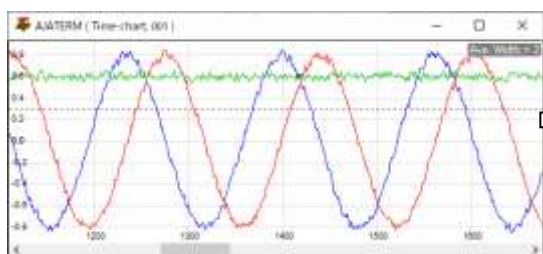


If zero (0) is specified for the chart window number, moving averaging will not be performed.

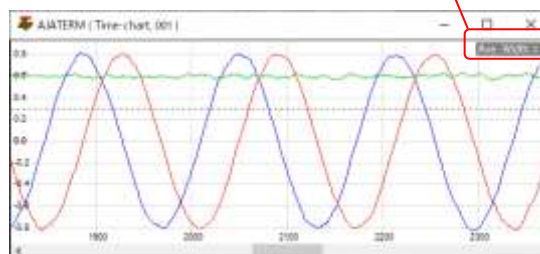
The moving average width sets the number of data used for the moving average.

In the designated chart window, a moving averaged chart is displayed as shown below.

No moving average



Moving average



In the case of a moving average target window, the moving average width is displayed.

* This sample program uses the "custom library" (AjrCst32.dll / AjrCst64.dll).

For information on AjrCst32.dll / AjrCst64.dll, refer to "<http://www.ne.jp/asahi/ajara/kojara/ajrctl32.htm>".

Sample program source list**AjtAddinDef.h**

```

1 :
2 : #ifndef AJTADDINDEF_H_
3 : #define AJTADDINDEF_H_
4 :
5 : /*****
6 :
7 : #ifdef UNICODE
8 :     #define WM_AJT_SET_TOOLTEXT    WM_AJT_SET_TOOLTEXTW
9 :     #define WM_AJT_SET_TITLETEXT  WM_AJT_SET_TITLETEXTW
10 : #else
11 :     #define WM_AJT_SET_TOOLTEXT    WM_AJT_SET_TOOLTEXTA
12 :     #define WM_AJT_SET_TITLETEXT  WM_AJT_SET_TITLETEXTA
13 : #endif
14 :
15 : #define WM_AJT_CLEAR_DATA          (WM_USER + 102) // アドインからのデータクリアー      (wParam = 0, lParam = 0)
16 : #define WM_AJT_SHOW_DATA          (WM_USER + 110) // アドインからのデータ表示メッセージ (wParam = 0, lParam = データアドレス)
17 :
18 : #define WM_AJT_SET_TOOLTEXTA      (WM_USER + 160) // アドインからのツールテキスト設定 (wParam = 0, lParam = ANSI テキストアドレス)
19 : #define WM_AJT_SET_TOOLTEXTW      (WM_USER + 161) // アドインからのツールテキスト設定 (wParam = 0, lParam = UNICODE Text アドレス)
20 :
21 : #define WM_AJT_SET_TITLETEXTA      (WM_USER + 162) // アドインからのタイトルテキスト設定 (wParam = 0, lParam = ANSI テキストアドレス)
22 : #define WM_AJT_SET_TITLETEXTW      (WM_USER + 163) // アドインからのタイトルテキスト設定 (wParam = 0, lParam = UNICODE Text アドレス)
23 :
24 : /*****
25 : #endif

```

AjtAddin1.c

```

1 : //*****
2 : //
3 : // あじやた〜む用アドインDLL (タイムチャートの移動平均処理)
4 : //
5 : //*****
6 : #pragma warning(disable:4996)
7 : #include <AjrCstXX.h>
8 : #include <AjtAddinDef.h>
9 : #include <mbctype.h>
10 : #include "resource.h"
11 :
12 : #define MYSECT TEXT("MySect")
13 : #define PROPBIF TEXT("AjtAddinPropBif")
14 : #define PROPSEQ TEXT("AjtAddinPropSeq")
15 : #define DLLEXPORT __declspec ( dllexport )
16 :
17 : //-----
18 : // 移動平均データバッファエントリ
19 : //-----
20 : #define MAX_CH 8
21 :
22 : typedef struct {
23 :     double dat[MAX_CH];
24 : } AVEDAT, *PAVEDAT;
25 : //-----
26 : // 移動平均データバッファ情報
27 : //-----
28 : typedef struct {
29 :     int num; // バッファサイズ (データ数)
30 :     int ix; // データ格納インデクス
31 :     int cnt; // データ数カウンタ
32 :     AVEDAT pBuf; // バッファアドレス
33 : } BUFINFO, *PBUFINFO;
34 : //-----
35 : // 作業領域

```

```

36 : //-----//
37 : static HINSTANCE hDllInst = NULL; // DLLインスタンス ハンドル
38 : static HWND hDlgAve = NULL; // ダイアログ・ハンドル
39 : static UI AveWndSeq = 0; // 移動平均対象チャートウィンド番号 (0 : 移動平均なし)
40 : static UI AveWidth = 10; // 移動平均幅
41 :
42 : //-----//
43 : // 内部サブ関数 //
44 : //-----//
45 : AJC_DLGPROC_DEF(SetAddinProp);
46 : static BOOL IsChartWindow(HWND hwnd);
47 : static PBUFINFO GetAveBuf (HWND hwnd);
48 : static PBUFINFO AllocAveBuf(HWND hwnd);
49 : static VO FreeAveBuf (HWND hwnd);
50 : static BOOL CALLBACK cbEnumShowTitle(HWND hwnd, LPARAM lParam);
51 : static BOOL CALLBACK cbEnumAlloc (HWND hwnd, LPARAM lParam);
52 : static BOOL CALLBACK cbEnumFree (HWND hwnd, LPARAM lParam);
53 :
54 : //=====//
55 : // //
56 : // DllMain //
57 : // //
58 : //=====//
59 : int WINAPI DllMain (HINSTANCE hInstance, DWORD fdwReason, PVOID pvReserved)
60 : {
61 :     int rc = TRUE;
62 :
63 :     //----- 初期設定処理 -----//
64 :     if (fdwReason == DLL_PROCESS_ATTACH) { // プロセス起動?
65 :         hDllInst = hInstance;
66 :         //----- プロパティ値ロード -----//
67 :         AJCGETPF_UINT(MYSECT, AveWndSeq, 0);
68 :         AJCGETPF_UINT(MYSECT, AveWidth, 10);
69 :     }
70 :     //----- 終了時後処理 -----//
71 :     else if (fdwReason == DLL_PROCESS_DETACH) { // プロセス終了?
72 :         //----- プロパティ値セーブ -----//
73 :         AJCPUTPF_UINT(MYSECT, AveWndSeq);
74 :         AJCPUTPF_UINT(MYSECT, AveWidth);
75 :     }
76 :     return rc;
77 : }
78 : //=====//
79 : // アドインDLL有効化 //
80 : // //
81 : // 引数 : hwnd - あじやた〜むメインウィンドのハンドル //
82 : // //
83 : // 戻り値 : なし //
84 : //=====//
85 : DLLEXPORT VO CALLBACK AjtAddinSetProp(HWND hwnd);
86 :
87 : DLLEXPORT VO CALLBACK AjtAddinValid(HWND hwnd)
88 : {
89 :     // ダイアログ表示
90 :     AjtAddinSetProp(hwnd);
91 :     // チャートウィンドを検索し、移動平均バッファ割り当て
92 :     EnumThreadWindows(GetCurrentThreadId(), (WNDENUMPROC) cbEnumAlloc, 0);
93 : }
94 : //=====//
95 : // アドインDLL無効化 //
96 : // //
97 : // 引数 : hwnd - あじやた〜むメインウィンドのハンドル //
98 : // //
99 : // 戻り値 : なし //
100 : //=====//
101 : DLLEXPORT VO CALLBACK AjtAddinInvalid(HWND hwnd)
102 : {
103 :     // チャートウィンドを検索し、移動平均用バッファ破棄
104 :     EnumThreadWindows(GetCurrentThreadId(), (WNDENUMPROC) cbEnumFree, 0);
105 :
106 :     // 移動平均設定ダイアログクローズ
107 :     if (hDlgAve != NULL) {
108 :         DestroyWindow(hDlgAve);
109 :         hDlgAve = NULL;
110 :     }
111 : }
112 : //=====//
113 : // アドインプロパティの設定 //

```

```

114 : // //
115 : // 引 数 : hwnd - あじやた〜むメインウインドのハンドル //
116 : // //
117 : // 戻り値 : なし //
118 : //=====//
119 : DLLEXPORT VOID CALLBACK AjtAddinSetProp(HWND hwnd)
120 : {
121 :     if (hDlgAve == NULL) {
122 :         // ダイアログ表示
123 :         hDlgAve = CreateDialogParam(hDllInst, MAKEINTRESOURCE(IDD_ADDIN_PROP), hwnd,
124 :                                     AJC_DLGPROC_NAME(SetAddinProp), (LPARAM)hwnd);
125 :         ShowWindow(hDlgAve, SW_SHOWNORMAL);
126 :     }
127 : }
128 : //-----//
129 : // アドイン・プロパティ設定ダイアログ・プロシージャ //
130 : //-----//
131 : //----- ダイアログ初期化 -----//
132 : AJC_DLGPROC(SetAddinProp, WM_INITDIALOG)
133 : {
134 :     // ダイアログにあじやた〜むウインドハンドルを関連付け
135 :     SetProp(hDlg, TEXT("hWndAjrTerm"), (HANDLE)IPARAM);
136 :     // 日英テキスト
137 :     SetWindowText(hDlg, AJCLNGSEL(TEXT("アドイン・プロパティ (移動平均の設定)"),
138 :                                     TEXT("Add-in properties (setting of moving average)")));
139 :     AjcSetDlgItemStr(hDlg, IDC_LBL_AVEWNDSEQ, AJCLNGSEL(TEXT("チャートウインド番号"), TEXT("Chart window number")));
140 :     AjcSetDlgItemStr(hDlg, IDC_LBL_AVEWIDTH, AJCLNGSEL(TEXT("移動平均幅"), TEXT("Moving average width")));
141 :     AjcSetDlgItemStr(hDlg, IDC_LBL_NOTE, AJCLNGSEL(TEXT("(0 : 移動平均対象ウインドなし)"),
142 :                                                     TEXT("(0: No window for moving average)")));
143 :     // ダイアログ項目の設定
144 :     AjcSetDlgItemUInt(hDlg, IDC_INP_AVEWNDSEQ, AveWndSeq);
145 :     AjcSetDlgItemUInt(hDlg, IDC_INP_AVEWIDTH, AveWidth);
146 :
147 :     return TRUE;
148 : }
149 : //----- ダイアログ破棄 -----//
150 : AJC_DLGPROC(SetAddinProp, WM_DESTROY)
151 : {
152 :     hDlgAve = NULL;
153 :     return TRUE;
154 : }
155 : //----- 移動平均対象の設定 -----//
156 : AJC_DLGPROC(SetAddinProp, IDC_INP_AVEWNDSEQ)
157 : {
158 :     if (HIWORD(wParam) == AJCIVN_INTVALUE) {
159 :         if (AveWndSeq != (UI)IPARAM) {
160 :             AveWndSeq = (UI)IPARAM;
161 :             // チャートウインドを検索し、タイトル表示
162 :             EnumThreadWindows(GetCurrentThreadId(), (WNDENUMPROC)cbEnumShowTitle, 0);
163 :         }
164 :     }
165 :     return TRUE;
166 : }
167 : //----- 移動平均幅の設定 -----//
168 : AJC_DLGPROC(SetAddinProp, IDC_INP_AVEWIDTH)
169 : {
170 :     HWND hwnd = (HWND)GetProp(hDlg, TEXT("hWndAjrTerm"));
171 :
172 :     if (HIWORD(wParam) == AJCIVN_INTVALUE) {
173 :         if (AveWidth != (UI)IPARAM) {
174 :             // 移動平均幅設定
175 :             AveWidth = (UI)IPARAM;
176 :             // チャートウインドを検索し、移動平均バッファ再割り当て
177 :             EnumThreadWindows(GetCurrentThreadId(), (WNDENUMPROC)cbEnumAlloc, 0);
178 :         }
179 :     }
180 :     return TRUE;
181 : }
182 : //----- キャンセル -----//
183 : AJC_DLGPROC(SetAddinProp, IDCANCEL)
184 : {
185 :     DestroyWindow(hDlg);
186 :     return TRUE;
187 : }
188 : //----- ウインド通知 (タイトル表示) -----//
189 : static BOOL CALLBACK cbEnumShowTitle(HWND hwnd, LPARAM IPARAM)
190 : {
191 :     UI seq = 0;

```

```

192 :     UT         txt[64] = {0};
193 :
194 :     if (IsChartWindow(hwnd)) {                // チャートウインド?
195 :         seq = (UI) (UX) GetProp(hwnd, PROPSEQ); // チャートウインド番号取得
196 :         if (seq == AveWndSeq) {
197 :             AjsnPrintf(txt, AJCTSIZE(txt), TEXT("Ave. Width = %d"), AveWidth);
198 :         }
199 :         SendMessage(hwnd, WM_AJT_SET_TITLETEXT, 0, (LPARAM)txt);
200 :     }
201 :     return TRUE;
202 : }
203 : //----- ウインド通知 (移動平均バッファ割り当て) -----//
204 : static BOOL CALLBACK cbEnumAlloc(HWND hwnd, LPARAM lParam)
205 : {
206 :     if (IsChartWindow(hwnd)) {                // チャートウインド?
207 :         AllocAveBuf(hwnd);                    // 移動平均バッファ割り当て
208 :         cbEnumShowTitle(hwnd, lParam);        // タイトル表示
209 :     }
210 :     return TRUE;
211 : }
212 : //----- ウインド通知 (移動平均バッファ解放) -----//
213 : static BOOL CALLBACK cbEnumFree(HWND hwnd, LPARAM lParam)
214 : {
215 :     PBUFINFO    pW;
216 :
217 :     if (IsChartWindow(hwnd)) {                // チャートウインド?
218 :         if (pW = (PBUFINFO) GetProp(hwnd, PROPBIF)) { // 移動平均バッファ有り?
219 :             FreeAveBuf(hwnd);                // 移動平均バッファ破棄
220 :             cbEnumShowTitle(hwnd, lParam);    // タイトル消去
221 :         }
222 :     }
223 :     return TRUE;
224 : }
225 : //-----//
226 : AJC_DLGMAP_DEF(SetAddinProp)
227 :     AJC_DLGMAP_MSG(SetAddinProp, WM_INITDIALOG )
228 :     AJC_DLGMAP_MSG(SetAddinProp, WM_DESTROY   )
229 :     AJC_DLGMAP_CMD(SetAddinProp, IDC_INP_AVEWNDSEQ )
230 :     AJC_DLGMAP_CMD(SetAddinProp, IDC_INP_AVEWIDTH )
231 :     AJC_DLGMAP_CMD(SetAddinProp, IDCANCEL       )
232 : AJC_DLGMAP_END
233 :
234 : //=====//
235 : // 通信ポートのオープン通知 //
236 : // //
237 : // 引 数 : com - オープンしたCOMポート番号 (1 ~ 255) //
238 : // //
239 : // 戻り値 : なし //
240 : //=====//
241 : DLLEXPORT V0 CALLBACK AjtAddinComOpen(int com)
242 : {
243 : }
244 : //=====//
245 : // 通信ポートのクローズ通知 //
246 : // //
247 : // 引 数 : なし //
248 : // //
249 : // 戻り値 : なし //
250 : //=====//
251 : DLLEXPORT V0 CALLBACK AjtAddinComClose(V0)
252 : {
253 : }
254 : //=====//
255 : // タイムチャートウインドのオープン //
256 : // //
257 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
258 : // seq - 識別番号 (1 ~ , タイムチャートが複数表示されている場合の識別に使用します) //
259 : // hCtrl - タイムチャート・コントロールのハンドル //
260 : // //
261 : // 戻り値 : なし //
262 : //=====//
263 : DLLEXPORT V0 CALLBACK AjtAddinChartOpen(HWND hwnd, int seq, HWND hCtrl)
264 : {
265 :     PBUFINFO    pW = NULL;
266 :
267 :     // 移動平均対象チャートならば、バッファ情報ワークを確保
268 :     if (AveWndSeq == seq) {
269 :         // 移動平均バッファ割り当て

```

```

270 :      AllocAveBuf(hwnd);
271 :      // タイトル表示
272 :      cbEnumShowTitle(hwnd, 0);
273 :  }
274 : }
275 : //=====//
276 : // タイムチャートウインドのクローズ //
277 : // //
278 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
279 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
280 : // //
281 : // 戻り値 : なし //
282 : //=====//
283 : DLLEXPORT VOID CALLBACK AjtAddinChartClose(HWND hwnd, int seq)
284 : {
285 :     // 移動平均バッファを破棄
286 :     FreeAveBuf(hwnd);
287 : }
288 :
289 : //=====//
290 : // タイムチャートデータの通知/変更 //
291 : // //
292 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
293 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
294 : //      n - データの個数 (1~8) //
295 : //      dat - タイムチャートデータ配列の先頭アドレス (この配列の要素数は「n」です) //
296 : // //
297 : // 戻り値 : TRUE - このデータをタイムチャートに表示します //
298 : //      FALSE - このデータをタイムチャートへ表示せずに破棄します //
299 : //=====//
300 : DLLEXPORT BOOL CALLBACK AjtAddinChartData(HWND hwnd, int seq, int n, double dat[])
301 : {
302 :     BOOL rc = TRUE; // 戻り値
303 :     int i, j;
304 :     PBUFINFO pW; // バッファ情報ポインタ
305 :     PAVEDAT p; // バッファデータ項目ポインタ
306 :     double ave[MAX_CH]; // 移動平均算出ワーク
307 :
308 :     // 移動平均対象チャートならば、移動平均処理実行
309 :     if (AveWndSeq == seq) {
310 :         // 移動平均バッファ情報取得 (バッファ無しならば割り当て)
311 :         if ((pW = GetAveBuf(hwnd)) != NULL) {
312 :             // バッファにデータを格納
313 :             memcpy(&pW->pBuf[pW->ix], dat, sizeof(double) * n);
314 :             pW->ix = (pW->ix + 1) % pW->num;
315 :             if (pW->cnt < pW->num) pW->cnt++;
316 :             // バッファ満了ならば、移動平均計算
317 :             if (pW->cnt >= pW->num) {
318 :                 for (i = 0; i < n; i++) {
319 :                     ave[i] = 0.0;
320 :                     for (j = 0, p = pW->pBuf; j < pW->num; j++, p++) {
321 :                         ave[i] += p->dat[i];
322 :                     }
323 :                     ave[i] /= (double)pW->num;
324 :                 }
325 :                 // データを移動平均値で書き換え
326 :                 memcpy(dat, ave, sizeof(double) * n);
327 :             }
328 :             // バッファ未了ならば、データ非表示
329 :             else rc = FALSE;
330 :         }
331 :     }
332 :     return rc;
333 : }
334 : //=====//
335 : // タイムチャートウインドのクリアー //
336 : // //
337 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
338 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
339 : // //
340 : // 戻り値 : なし //
341 : //=====//
342 : DLLEXPORT VOID CALLBACK AjtAddinChartClear(HWND hwnd, int seq)
343 : {
344 :     PBUFINFO pW; // バッファ情報ポインタ
345 :
346 :     // 移動平均バッファ情報リセット
347 :     if (pW = (PBUFINFO)GetProp(hwnd, TEXT(PROPBIF))) {

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348 :         pW->num = AveWidth;
349 :         pW->ix = 0;
350 :         pW->cnt = 0;
351 :     }
352 : }
353 : //=====//
354 : // 2Dプロットウィンドのオープン //
355 : // //
356 : // 引数 : hwnd - 2Dプロットウィンドのハンドル //
357 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
358 : //      hCtrl - 2Dプロット・コントロールのハンドル //
359 : // //
360 : // 戻り値 : なし //
361 : //=====//
362 : DLLEXPORT V0 CALLBACK AjtAddin2DPlotOpen(HWND hwnd, int seq, HWND hCtrl)
363 : {
364 : }
365 : //=====//
366 : // 2Dプロットウィンドのクローズ //
367 : // //
368 : // 引数 : hwnd - タイムチャートウィンドのハンドル //
369 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
370 : // //
371 : // 戻り値 : なし //
372 : //=====//
373 : DLLEXPORT V0 CALLBACK AjtAddin2DPlotClose(HWND hwnd, int seq)
374 : {
375 : }
376 : //=====//
377 : // 2Dプロットデータの通知/変更 //
378 : // //
379 : // //
380 : // 引数 : hwnd - 2Dプロットウィンドのハンドル //
381 : //      seq - 識別番号 (2Dプロットが複数表示されている場合の識別に使用します) //
382 : //      n - データの個数 (1~16) //
383 : //      dat - 2Dベクトルデータ配列の先頭アドレス (この配列の要素数は「n」です) //
384 : // //
385 : // 戻り値 : TRUE - このデータを2Dプロットに表示します //
386 : //          FALSE - このデータを2Dプロットへ表示せずに破棄します //
387 : //=====//
388 : DLLEXPORT BOOL CALLBACK AjtAddin2DPlotData(HWND hwnd, int seq, int n, AJC2DVEC vec[])
389 : {
390 :     return TRUE;
391 : }
392 : //=====//
393 : // 2Dプロットウィンドのクリアー //
394 : // //
395 : // 引数 : hwnd - タイムチャートウィンドのハンドル //
396 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
397 : //      kind - クリアー種別 () 0x01:プロットデータ, 0x02:描画データ, 0x03:全データ //
398 : // //
399 : // 戻り値 : なし //
400 : //=====//
401 : DLLEXPORT V0 CALLBACK AjtAddin2DPlotClear(HWND hwnd, int seq, int kind)
402 : {
403 : }
404 : //=====//
405 : // 3Dプロットウィンドのオープン //
406 : // //
407 : // 引数 : hwnd - 3Dプロットウィンドのハンドル //
408 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
409 : //      hCtrl - 3Dプロット・コントロールのハンドル //
410 : // //
411 : // 戻り値 : なし //
412 : //=====//
413 : DLLEXPORT V0 CALLBACK AjtAddin3DPlotOpen(HWND hwnd, int seq, HWND hCtrl)
414 : {
415 : }
416 : //=====//
417 : // 3Dプロットウィンドのクローズ //
418 : // //
419 : // 引数 : hwnd - タイムチャートウィンドのハンドル //
420 : //      seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
421 : // //
422 : // 戻り値 : なし //
423 : //=====//
424 : DLLEXPORT V0 CALLBACK AjtAddin3DPlotClose(HWND hwnd, int seq)
425 : {

```

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426 : }
427 : //=====//
428 : // 3Dプロットデータの通知／変更 //
429 : // //
430 : // 引数 : hwnd - 3Dプロットウィンドのハンドル //
431 : // seq - 識別番号 (3Dプロットが複数表示されている場合の識別に使用します) //
432 : // n - データの個数 (1~16) //
433 : // dat - 3Dベクトルデータデータ配列の先頭アドレス (この配列の要素数は「n」です) //
434 : // //
435 : // 戻り値 : TRUE - このデータを3Dプロットに表示します //
436 : // FALSE - このデータを3Dプロットへ表示せずに破棄します //
437 : //=====//
438 : DLLEXPORT BOOL CALLBACK AjtAddin3DPlotData(HWND hwnd, int seq, int n, AJC3DVEC vec[])
439 : {
440 :     return TRUE;
441 : }
442 : //=====//
443 : // 3Dプロットウィンドのクリア //
444 : // //
445 : // 引数 : hwnd - タイムチャートウィンドのハンドル //
446 : // seq - 識別番号 (1~, タイムチャートが複数表示されている場合の識別に使用します) //
447 : // kind - クリアー種別 () 0x01:プロットデータ, 0x02:描画データ, 0x03:全データ //
448 : // //
449 : // 戻り値 : なし //
450 : //=====//
451 : DLLEXPORT VOID CALLBACK AjtAddin3DPlotClear(HWND hwnd, int seq, int kind)
452 : {
453 : }
454 :
455 : //-----//
456 : // タイムチャートウィンドかチェック //
457 : // //
458 : // 引数 : hwnd - ウィンドのハンドル //
459 : // //
460 : // 戻り値 : TRUE - タイムチャートウィンドである //
461 : // FALSE - タイムチャートウィンド以外 //
462 : //-----//
463 : static BOOL IsChartWindow(HWND hwnd)
464 : {
465 :     UT cname[256];
466 :
467 :     GetClassName(hwnd, cname, 256);
468 :     return (MAjCStrCmp(cname, TEXT("CBackTmc")) == 0);
469 : }
470 :
471 : //-----//
472 : // 移動平均バッファ取得 (無ければ新規作成) //
473 : // //
474 : // 引数 : hwnd - タイムチャートウィンドのハンドル //
475 : // //
476 : // 戻り値 : ≠NULL - 成功 //
477 : // =NULL - 失敗 //
478 : //-----//
479 : static PBUFINFO GetAveBuf(HWND hwnd)
480 : {
481 :     PBUFINFO pW = NULL;
482 :
483 :     // バッファ管理インスタンス取得
484 :     if ((pW = (PBUFINFO)GetProp(hwnd, TEXT("PROPBIF"))) == NULL) {
485 :         // バッファ管理インスタンス無しならば割り当て
486 :         if (pW = (PBUFINFO)malloc(sizeof(BUFINFO))) {
487 :             memset(pW, 0, sizeof(BUFINFO));
488 :             // 移動平均バッファ確保
489 :             if (pW->pBuf = (PAVEDAT)malloc(sizeof(AVEDAT) * AveWidth)) {
490 :                 // バッファ管理インスタンスをウィンドに登録
491 :                 SetProp(hwnd, TEXT("PROPBIF"), (HANDLE)pW);
492 :                 // バッファ情報初期化
493 :                 pW->num = AveWidth;
494 :                 pW->ix = 0;
495 :                 pW->cnt = 0;
496 :             }
497 :         } else {
498 :             free(pW);
499 :             pW = NULL;
500 :         }
501 :     }
502 : }
503 : return pW;

```

```

504 : }
505 : //-----//
506 : // 移動平均バッファ割り当て //
507 : // //
508 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
509 : // //
510 : // 戻り値 : ≠NULL - 成功 //
511 : //          =NULL - 失敗 //
512 : //-----//
513 : static PBUFINFO AllocAveBuf(HWND hwnd)
514 : {
515 :     PBUFINFO pW = NULL;
516 :
517 :     // バッファ管理インスタンス取得（無ければ新規作成）
518 :     if ((pW = (PBUFINFO)GetProp(hwnd, PROPBIF)) == NULL) {
519 :         if (pW = (PBUFINFO)malloc(sizeof(BUFINFO))) {
520 :             memset(pW, 0, sizeof(BUFINFO));
521 :         }
522 :     }
523 :     // 移動平均バッファ作成
524 :     if (pW != NULL) {
525 :         // 旧バッファ解放
526 :         if (pW->pBuf != NULL) {
527 :             free(pW->pBuf);
528 :             pW->pBuf = NULL;
529 :         }
530 :         // 移動平均バッファ確保
531 :         if (pW->pBuf = (PAVEDAT)malloc(sizeof(AVEDAT) * AveWidth)) {
532 :             // バッファ管理インスタンスをウインドに登録
533 :             SetProp(hwnd, PROPBIF, (HANDLE)pW);
534 :             // チャート番号をウインドに登録
535 :             SetProp(hwnd, PROPSEQ, (HANDLE)((UX)AveWndSeq));
536 :             // バッファ情報初期化
537 :             pW->num = AveWidth;
538 :             pW->ix = 0;
539 :             pW->cnt = 0;
540 :         }
541 :         // 移動平均バッファ確保失敗・・・
542 :         else {
543 :             // バッファ管理インスタンスをウインドから削除
544 :             RemoveProp(hwnd, PROPBIF);
545 :             // バッファ管理インスタンス解放
546 :             free(pW);
547 :             pW = NULL;
548 :         }
549 :     }
550 :     return pW;
551 : }
552 : //-----//
553 : // 移動平均バッファ破棄 //
554 : // //
555 : // 引 数 : hwnd - タイムチャートウインドのハンドル //
556 : // //
557 : // 戻り値 : TRUE - 成功 //
558 : //          FALSE - 失敗 //
559 : //-----//
560 : static VO FreeAveBuf(HWND hwnd)
561 : {
562 :     PBUFINFO pW;
563 :
564 :     if (pW = (PBUFINFO)GetProp(hwnd, PROPBIF)) { // 移動平均バッファ有り？
565 :         if (pW->pBuf != NULL) free(pW->pBuf); // 移動平均データバッファ解放
566 :         free(pW); // バッファ情報解放
567 :         RemoveProp(hwnd, PROPBIF); // ウインドプロパティ解除（バッファ情報）
568 :         RemoveProp(hwnd, PROPSEQ); // ウインドプロパティ解除（チャート番号）
569 :     }
570 : }

```

13. Contact

For inquiries regarding this software, please send the heading of the subject as "Ajara:" to the following e-mail address.

xxxajarakojara@kk. email. ne. jpxxx

[Note] Please delete "xxx" at the beginning and end.

--- We will only accept inquiries in Japanese. ---

---問い合わせは日本語のみ受け付けます。-----