.   Extended Graph 2 Tag

Extended Graph 2 tag is similar to trend graph/x-y chart in their execution form but totally different in specifying... Logged data or parameter moving data is displayed as form of trend graph or X-Y chart.

Popular application is using logging just for this Ex-graph only. General graph 2 tag can not display the just passed data (because it does not save) in case return to screen having graph 2 tag by screen change. To say, in case it returns to *RUN mode* or screen change, draw the graph from beginning. But this extended graph 2 tag display logged (saved) data as trend **regardless of screen change, past data can be displayed**. X axis is simply logged index (order) in trend graph of extended graph 2 tag.

(1) A simple registration of extended graph 2 tag

Extended graph 2 tag can visually display the value of logging or recipe. In case of trend graph, The X axis of graph is the order of save (the change of order can be done in data direction attribute of range tab) and the Y axis display the value. In case of X-Y chart graph, X and Y axis represent the value. One ExGraph2 tag can register 10 trend graph or x-y chart graph.

1) Register at screen after selecting extended graph 2 in pull down menu.
2) Select the graph type and form in display tab and register as many trends as you want in range tab.

.   .   Specifying Content

(1) General

Dots/Scale: Specifying the dots number per one scale in X-axis of trend graph. The softest graph is nearest to the value 1. In case of X-Y chart tag, specify the dots number per interval of two near number.

X axis start value: Specify the start value of X axis. In case of constant, the start value is fixed as the specifying number and in case of system buffer, logging or recipe, whenever the value is changed, changed start point graph can be displayed. (Specifying Range is 0~65535). Generally it is specified as 0.

X axis cursor existence: It can specify the existence of X axis cursor and in case of specifying system buffer, cursor existence can be changed as variable. If specifying 'X axis cursor as always being', you can specify the position of X axis. In case of invariable, the

position is fixed and in case of system buffer, the position of cursor can be changed according to the value. Generally it is specified as "nothing".

Y axis cursor existence: It can specify the existence of Y axis and in case of system buffer, the existence of cursor can be changed as variable. . If specifying 'Y axis cursor as always being', you can specify the position of Y axis. In case of invariable, the position is fixed and in case of system buffer, the position of cursor can be changed according to the value. Generally it is specified as "nothing".

   The value of Y axis cursor is converted to percentage and display the 2 digits below point. For example, the value 9999 displays 99.99% and the value 10000 display 100%. So, the value range to be specified is 0 to 10000.

Rate of X axis scale down: Use this function when you want to display the X axis content as down sized according to the ratio you specified. The scale is more than 0. Both 0 and 1 is 1 scale, to say, same with normal scale. You can specify the X axis scale down among Constant, System buffer, Logging and Recipe. Generally 0 or 1 is specified.

Rate of X axis enlargement: Use this function when you want to display the X axis content as enlargement according to the ratio you specified. The scale is more than 0. Both 0 and 1 is 1 scale, to say, same with normal scale. You can specify the Y axis scale down among Constant, System buffer, Logging and Recipe. Generally 0 or 1 is specified.
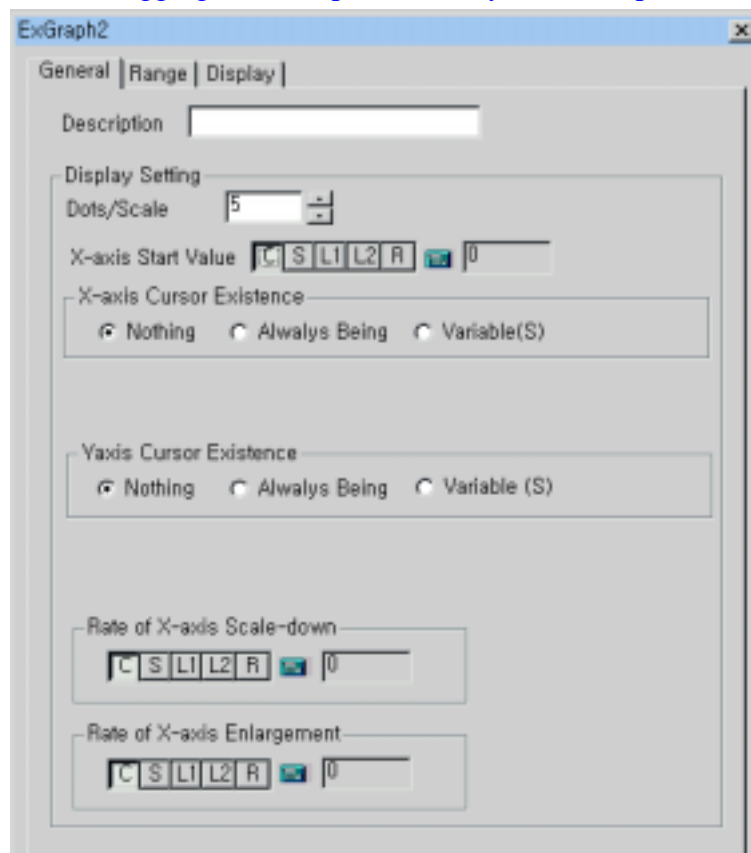
[General Tab of extended graph 2 tag]
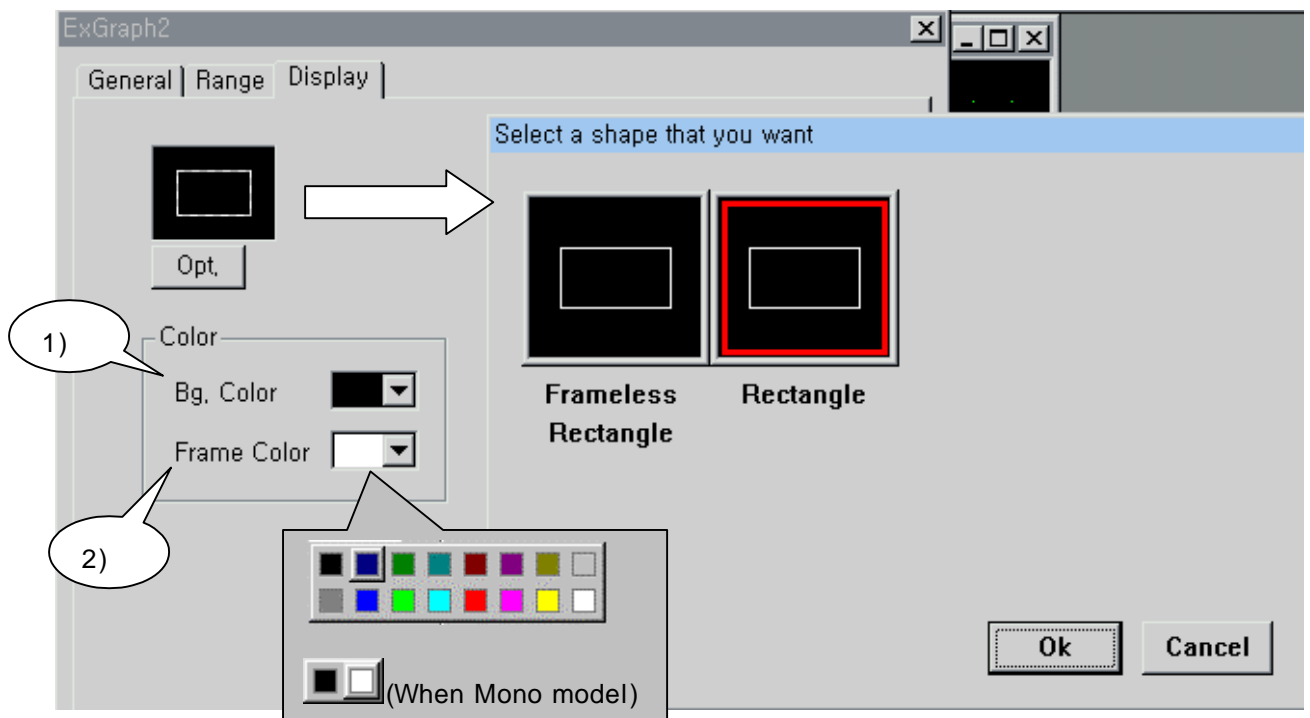
(2) Display Tab

  1) Select the shape of graph

You can choose a rectangle with or without frame. The default is frameless one.

  2) Specifying color

  Background color : Specify the back ground color

  Frame color : Specify the frame color except frameless rectangle.

[Display Tap of Extended Graph 2]

(3) Range

  You can specify maximum 10 trends or x-y charts

  Data type and size is common attribute of all trends/x-y chart and dose not registered at below list.

* Data Type: Choose the displaying graph data; signed decimal, unsigned decimal and BCD. And specify the data position and range in execution tap.

Data Type	Data Range
Signed Decimal	0~65535
Unsigned Decimal	-32767~32768
BCD	0~9999

* Data Size: You can choose between 16bit and 32bit.

If you insert following 1) ~ 6) contents at each and press insert button and then a trend or x-y chart is registered.

1) Type

Choose type of graph among 'trend' or 'x-y chart'

2) Reading Address

Insert the address (position) where you want to display by graph tag. To say, choose one among logging1~8 or recipe and specify block and word position.

3) Data Direction

You can display data at X axis in the order of column, low or word interval. In case of 'column', display graph after scan all block from read data block and word.

In case of 'row', display graph after scan all word from read address block and word. In case of "word interval', display graph after scan in the order of specified interval.

<Example of Scan Direction in case of logging>
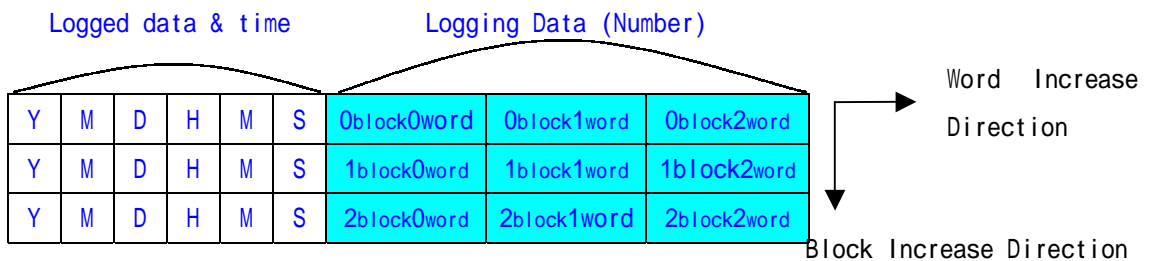
If you read data from 0block ,0word (specify read data 0block,0word)

- [column] direction means, read data in the order of [0block0word], [1block0word], [2block0word] and display

- [row] direction means, read data in the order of [0block0word], [0block1word], [0block2word] and display.

- [word interval] is **2** means, read data [0block0word], [0block2word], [1block1word], [2block0word], [2block2word] and display.

4) Y axis range

Specify the rage of display data, the maximum and minimum. You can specify the Y axis range by constant, system buffer, logging or recipe and can change the range of Y axis except constant.

5) Line Color

Specify the color of trend

6) Pattern

Specify 8 kinds of line pattern.

7) Y axis value crossing X axis cursor (system buffer) : *Trend type only*

Only system buffer can specify this value.

8) No. of dots : *X-Y chart type only*

Specify number of dots which will be displayed in x-y chart.

9) Max number of Dots : *X-Y chart type only*

Because 'No. of dots' is variable, It is necessary to limit the number. This item is that.

10) Visibility On/Off

Each graph(trend or x-y chart) can be shown or not according to this setting. If this is 'variable', 'System buffer' can be set. If the value of SysBuf is none-Zero, this graph is visible. If the value is zero, this graph is invisible.

* Insert, delete and modification of ExGraph2 are same with the way in using touch/calculation tag.
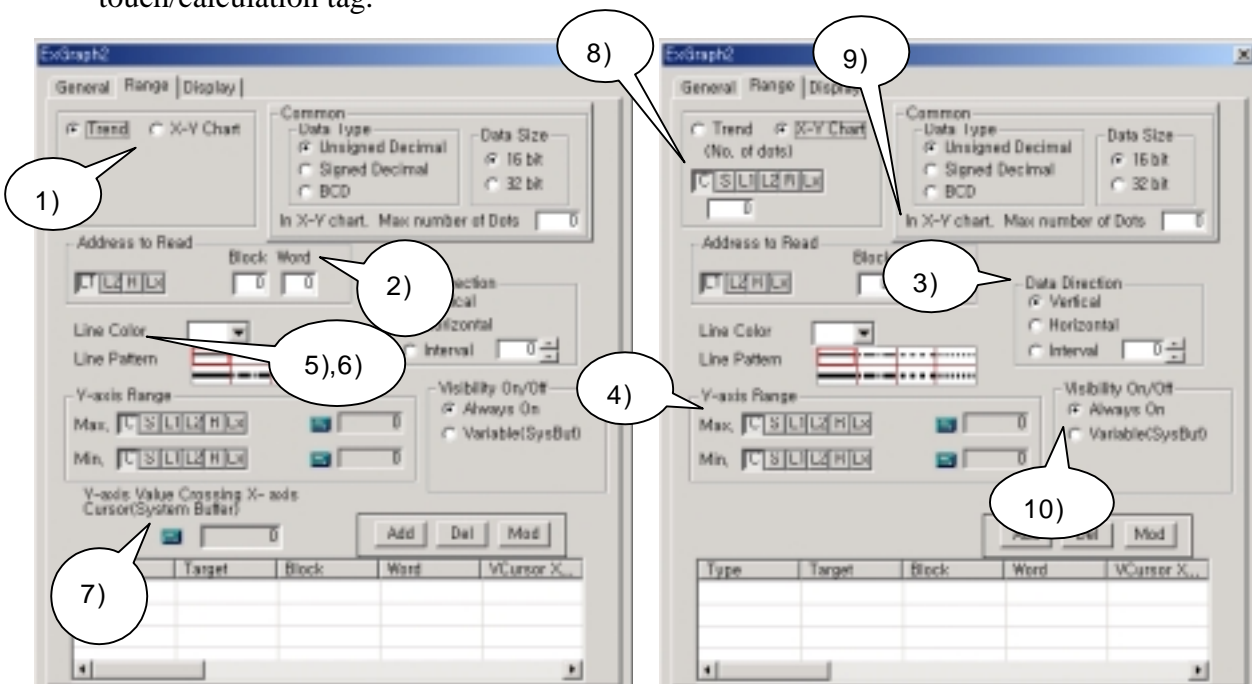
[Range tab of ExGraph2Tag when trend]   [Range tab of ExGraph2Tag when x- y chart]

Following message is displayed when you do not insert any content.

． ． **Example of extended graph 2 tag**

Register extended graph 2 which display logging 1 and logging 2 value as trend. Data type is unsigned decimal and data size is 16bit and dots/scale is 5 and X axis start value is converted to system buffer 100 and X axis and Y axis are always being and change the curser position as each system buffers 101, 102 respectively and do not use down scale or enlargement and use framed rectangle with black background color.

Display 3rd word of every block in logging 1 and every word of 0th block in logging 2 as graph. Each line pattern is (---) and (   ) with blue and cyan. Former trend Y axis value is 0 to 5000, the later is 5000 to 10000. Specify X axis cursor value crossing Y axis is system buffer 200 and 300 respectively.
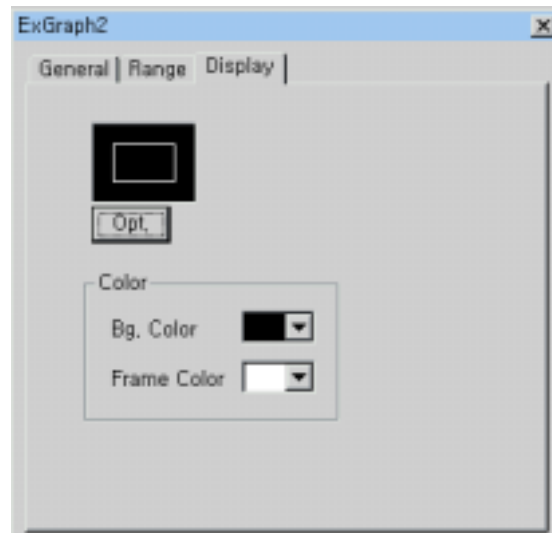
(1) General
- Dots/Scake: 5
- X axis Start Value: System Buffer 100
- X axis Cursor: Always Being
  System Buffer: 101
- Y axis Cursor: Always Being,
  System Buffer: 102
- X-axis scale down: 0 or 1
- X-axis enlargement: 0 or 1
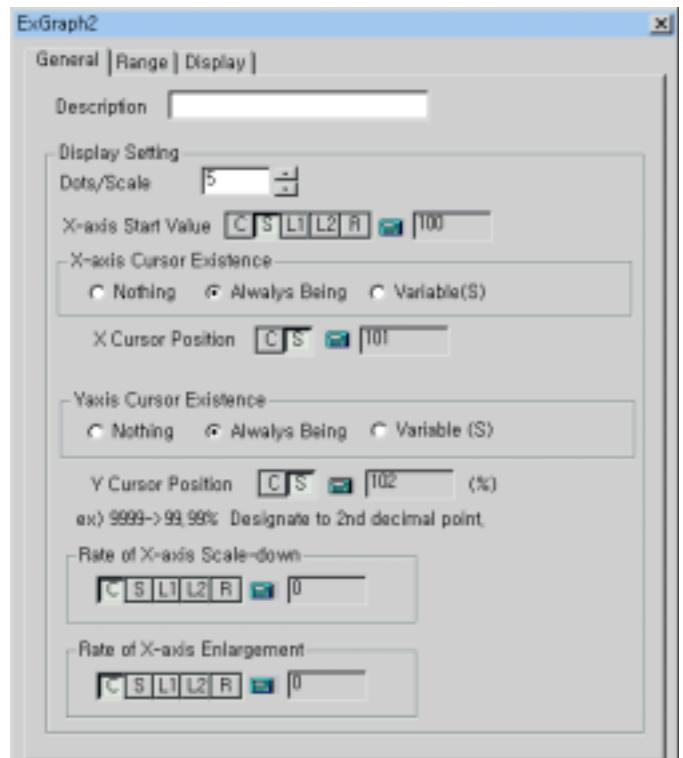
[Example of general tab in ExGraph2]

(2) Display

      - Graph Shape: Framed Rectangle
      - Background color: Black
      - Frame Color: White


[Example of display tab in ExGraph2]

(3) Range

-    Data Type: Decimal without +/- symbol
-    Data Size: 16bit

1) Trend 1:

  Address to read is the 3rd words of every block in logging 1 and direction is vertical. Color is blue and line pattern is --, Y axis value is 0 to 5000. Y axis value crossing X axis cursor is system buffer 200.

2) Trend 2:

 Address to read is every word of 0 block in logging 2. and direction is horizontal and color is cyan and line pattern is—— , Y axis value is 5000 to 10000. Y axis value crossing X axis cursor is system buffer 300.

Display every 3rd word of each block as trend

Display every word of 0 block as trend
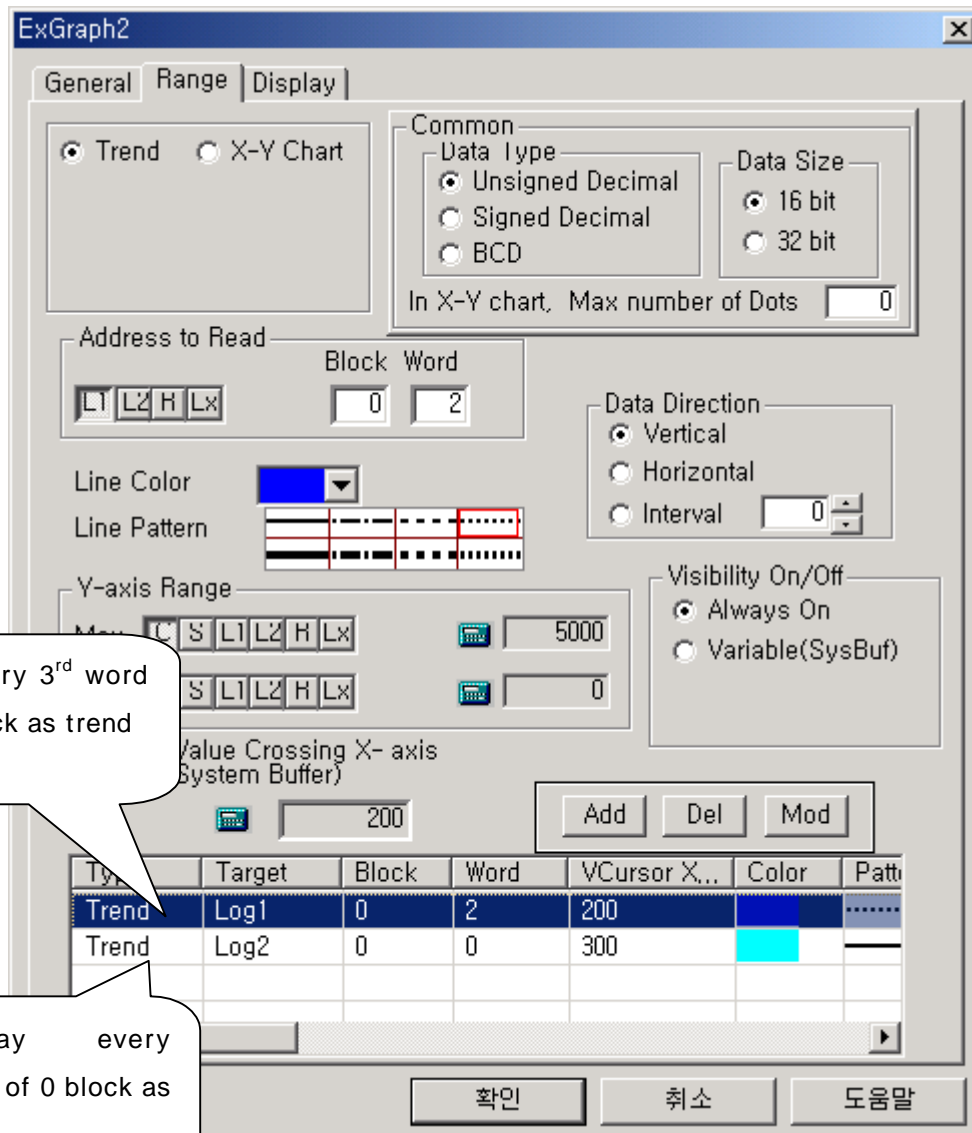
[Example. Range tab in extended graph 2]
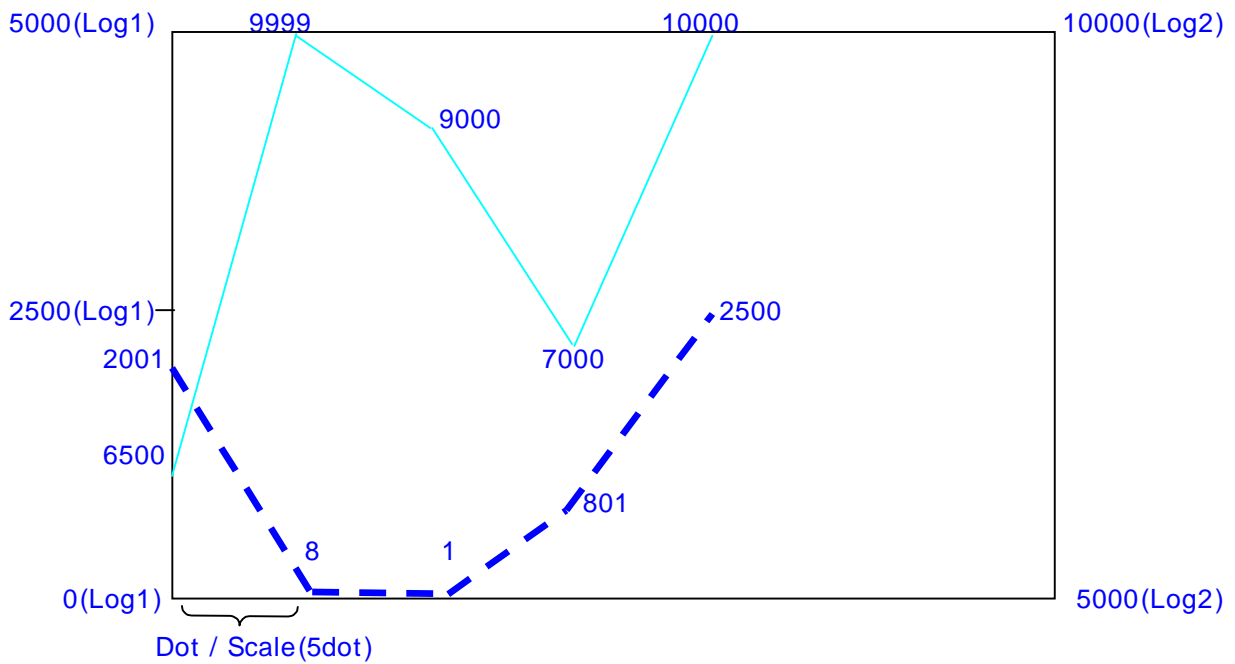
(4) Result

- The below shows current memory status of logging 1.
- Logged to **5 (0~4)** , word number of block is 8.
- The 2nd words of every block, to say, with vertical direction, are displayed as trend.

Logging1	0 word	1 word	2 word	3 word	4 word	5 word	6 word	7 word
Block 0	3244	435	2001	12	321	98	997	10
Block 1	5246	255	8	467	2334	421	4361	53
Block 2	2421	525	1	777	3500	366	8544	224
Block 3	12	788	801	844	2000	22	1375	620
Block 4	11	324	2500	133	51	47	619	71
Not logged until now	0(NULL)	0(NULL)	0(NULL)	0(NULL)	0(NULL)	0(NULL)	0(NULL)	0(NULL)

- The below shows current memory status of logging 2.
- Logged to 2**(0~1)**, word number of block is 5.
- The all words of 0nd block, to say, with horizontal direction, are displayed as trend.

Logging2	0 word	1 word	2 word	3 word	4 word
Block 0	6500	9999	9000	7000	10000
Block 1	10000	8543	8544	7522	619
Not logged until now	0(NULL)	0(NULL)	0(NULL)	0(NULL)	0(NULL)

logging1: - - - - - (Blue)

logging2: ——— (Cyan)

< Displaying Screen in main unit >