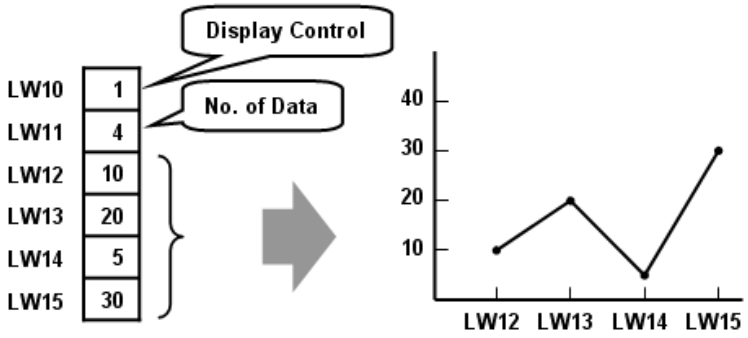
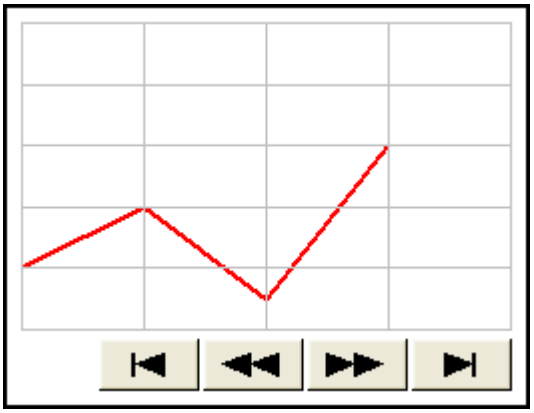
13.19 Data Block Display

Overview

Data Block is a combination of several word devices with continuous address, for example LW12, LW13, LW14, LW15 and so on. Use Data Block Display object to display multiple data blocks in trend curve, for example, it can display two data blocks LW12~LW15 and RW12~RW15 in trend curve simultaneously. It is very useful to observe and compare the difference of trend curves.



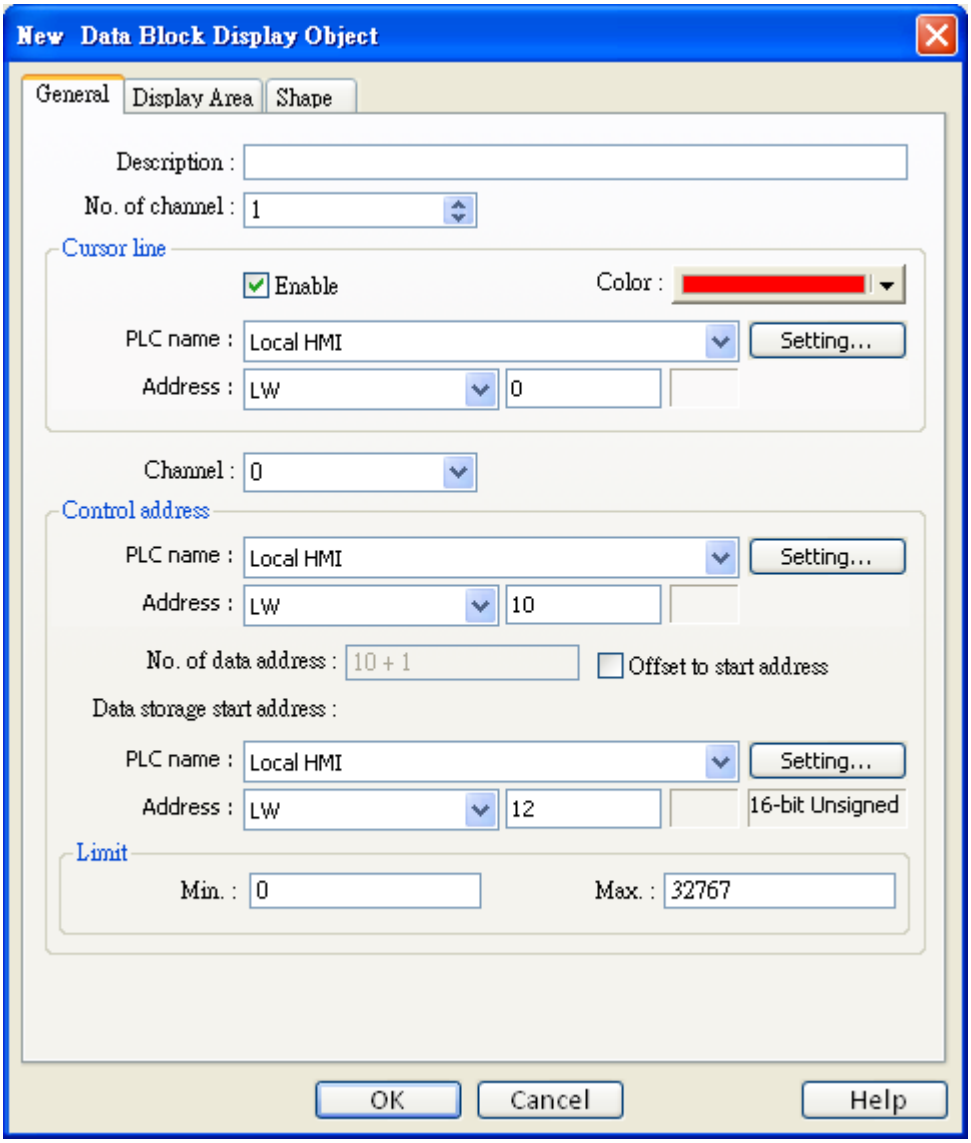


Snapshot of Data Block Display

Configuration

[New object]

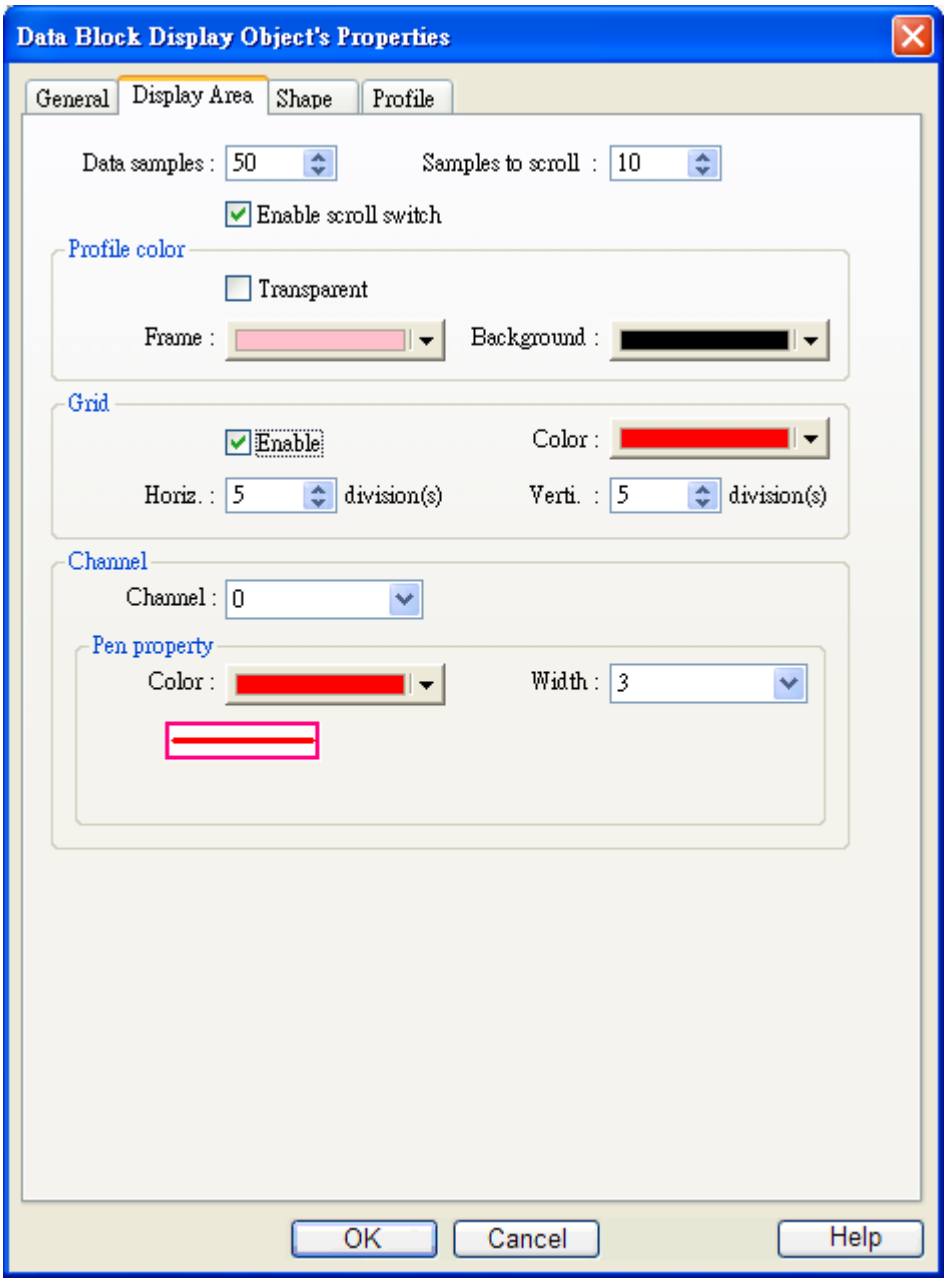
Click the "Data Block Display" icon , "Data Block Display's properties" dialogue box appears as follows:

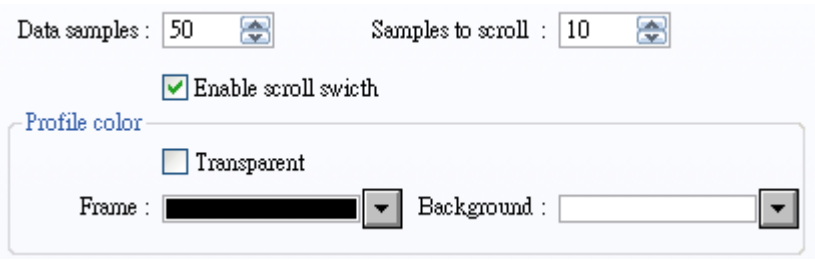


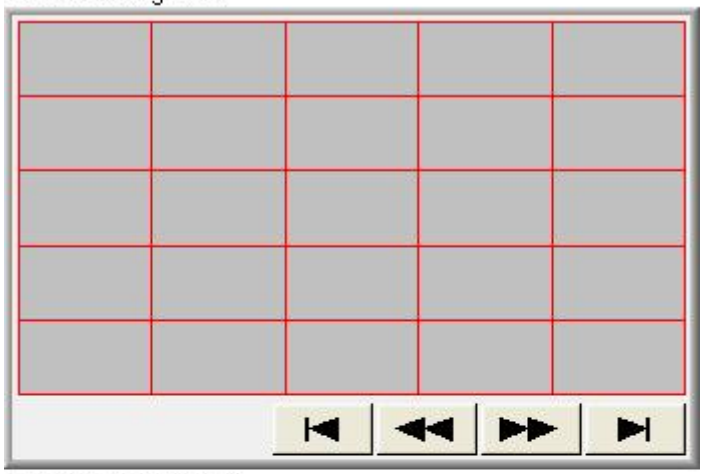
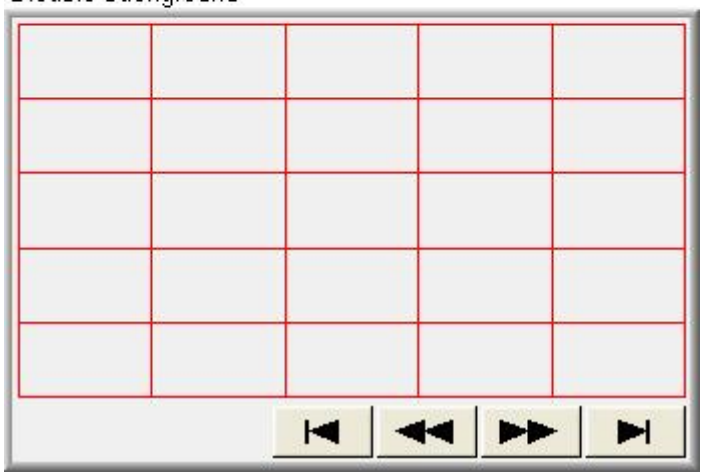
Setting	Description
[No. of channel]	Set the no of channel for this object. Each channel represents one data block. The max. no. of channel is 12.
Cursor Line	Using the "Cursor line" function, when user touches the Data Block display object, it will display a cursor line on the data block display object, and transfer the position of cursor and the data at the cursor position to

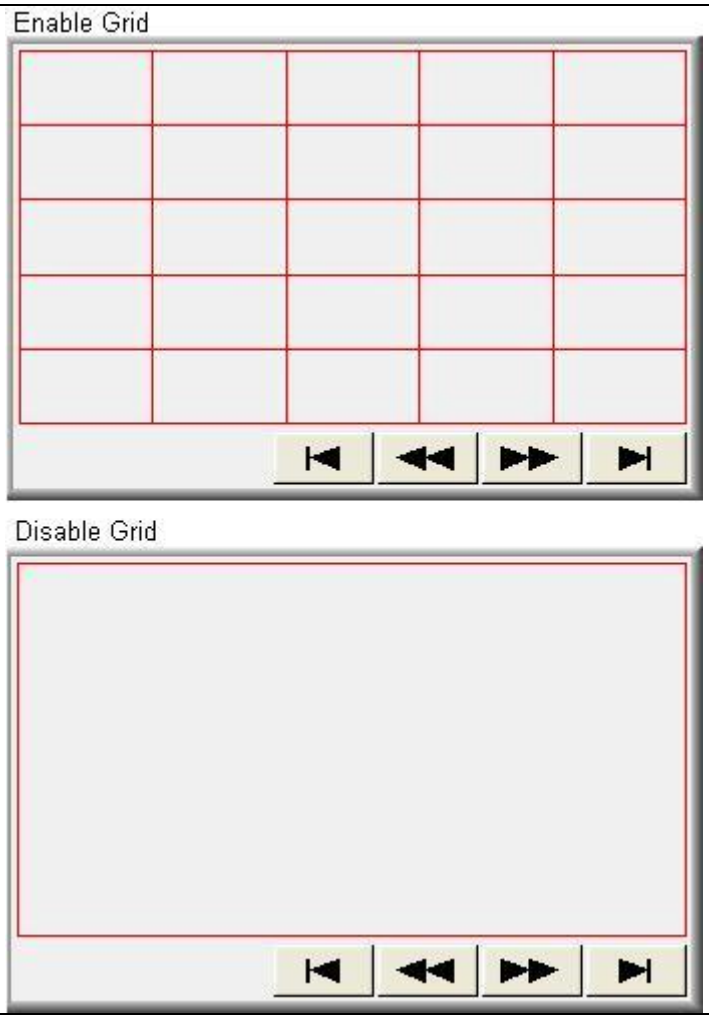
	the designated registers. Please refer 19.3 On line operation for further information.
[Channel]	Select each channel and set the attributes.
Control address	**[PLC name]** Select the PLC where the target data block located. Click [Setting…] to Select the **[PLC name], [Device type], [Address], [System tag], [Index register] of Control address.** Users can also set address in General tab while adding a new object. **[Device type]** Select the device type where the target data block located. **[Control word address]** "Control word" is used to control and clear trend curve display. 0 = No action (default) 1 = Plot trend curve 2 = Clear trend curve 3 = Redraw trend curve After executing the operation above, the system will reset the control word to zero. **[No. of data address]** "No. of data address" is default as "Control word address +1". "No. of data" is to store the number of word device in each data block, i.e. the number of data to plot in trend curve. The maximum value is 1024. **[Data storage start address]** Click [Setting…] to Select the **[PLC name], [Device type], [Address], [System tag], [Index register] of Data storage start address.** Users can also set address in General tab while adding a new object.

	.**[Offset value storage address]** If "offset to start address" is enabled, the "Offset value storage address" is default as "Control word address" + 2. **[Format]** If you select 16-bit data format, the address of each data will be start address, start address + 1, start address + 2 and so on. If you select 32-bit data format, the address of each data will be start address, start address + 2, start address + 4 and so on.
Limit	Set the minimum and maximum limit of trend curve, the trend curve is limited by the minimum and maximum limit.



Setting	Description
[Data samples]	Set the data samples, samples to scroll, frame and color of background. 

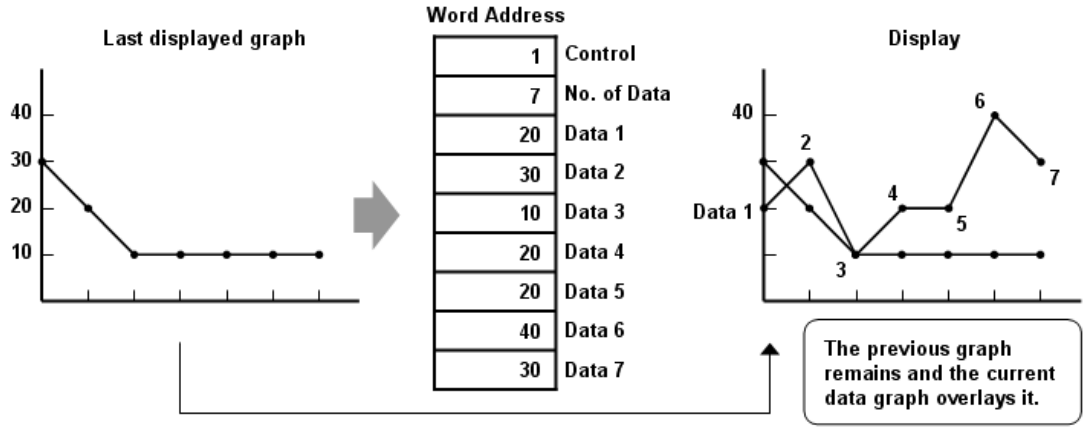
	Enable background  Disable background 

Grid	
Channel	Set the color and width of each trend curve. 

On line operation

How to show a trend curve

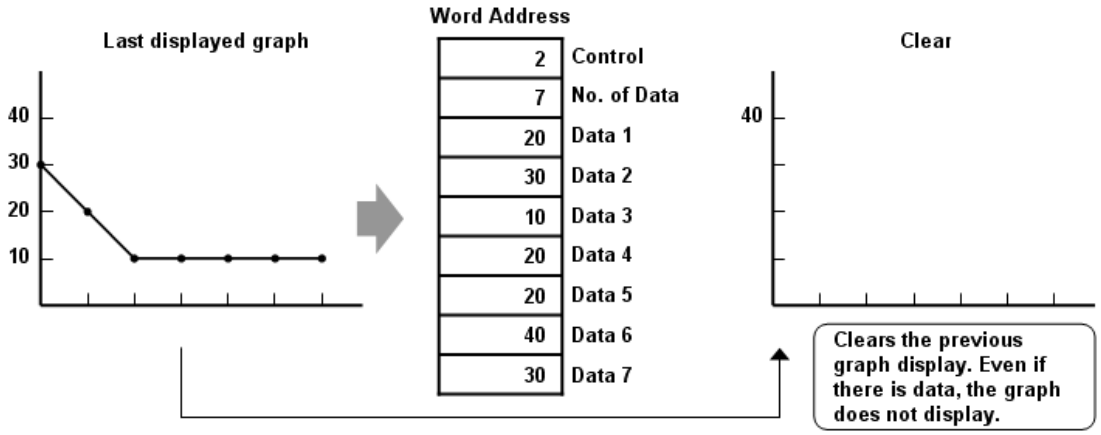
a. Write the number of data to [No. of data address], i.e. "control word address+1"
b. Have the content of data block ready for display.
   NOTE: data block start from "control word address + 2".
c. Write "1" to [Control word address], the previous trend curve remains and the new content in data block will be plot on the screen.
d. The system will write "0" to [Control word address] after the trend curve displayed.



NOTE : During the period between c and d, do not change the content of [Control], [No. of Data] and [Data], it might cause error for trend curve plot.

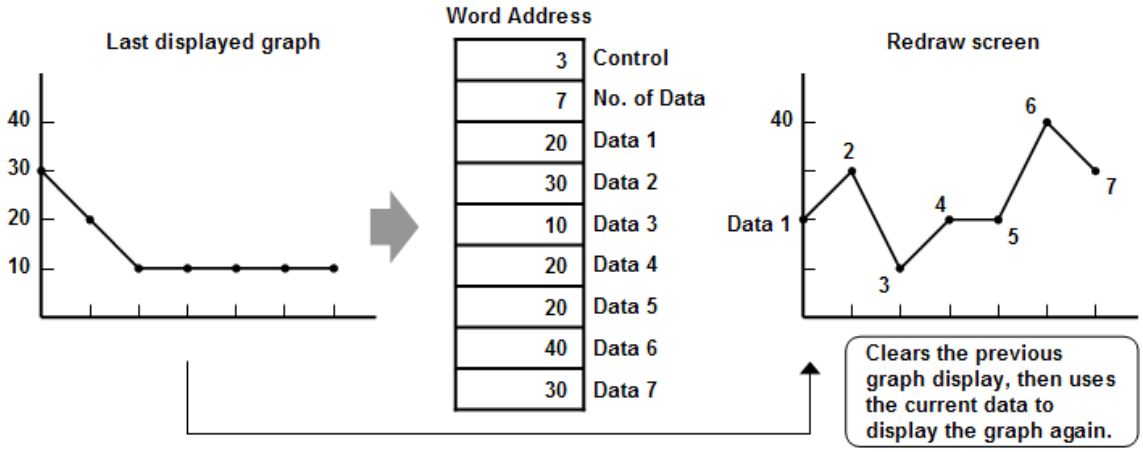
How to clear a trend curve

a. Write "2" to [Control word address], all the trend curves will be cleared.
b. The system will write "0" to [Control word address] after the trend curve is cleared.



How to clear the previous trend curve and display new one

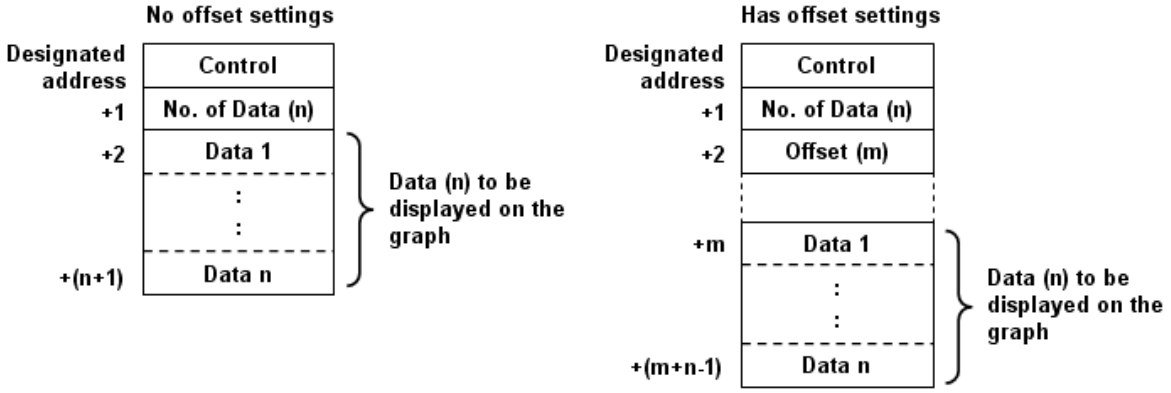
a. Write the number of data to [No. of data address], i.e. "control word address+1"
b. Have the content of data block ready for display.
   Note: data block start from "control word address + 2".
c. Write "3" to [Control word address], the previous trend curves will be cleared and the new content in data block will be plot on the screen.
d. The system will write "0" to [Control word address] after the trend curve displayed.



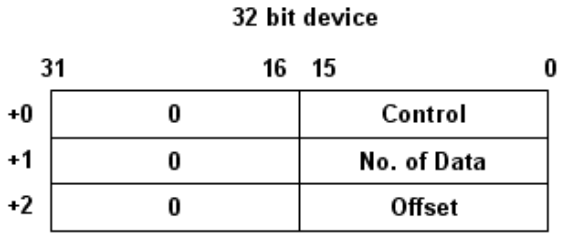
How to use offset mode

If "offset to start address" is selected, the "Data storage start address" will be calculated from "control word address + [Offset value storage address]". "Offset value storage address" is "control word address +2".

In the following example, the content of "Offset value storage address" is "m", therefore the data block is started from the address "control word address + m".



NOTE If the control register is 32 bits device, only bit 0-15 will be used as control purpose, bit 16-31 will be ignored. (as illustration below)

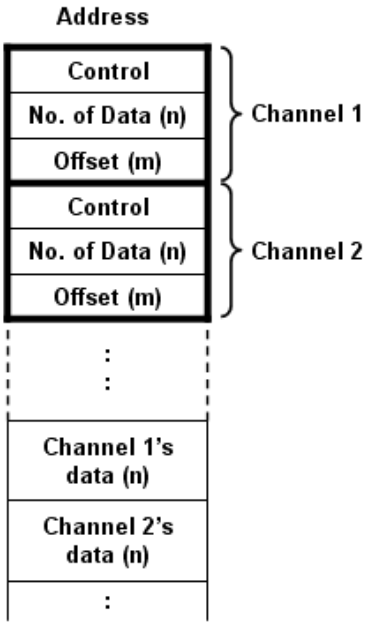


If you do not use "offset to start address", the system will continuously read [Control] and [No. of Data]. At the time [Control] is changed to non-zero, the system will then read the data block. If you use "offset to start address", the system will continuously read [Control], [No. of Data] and [Offset].

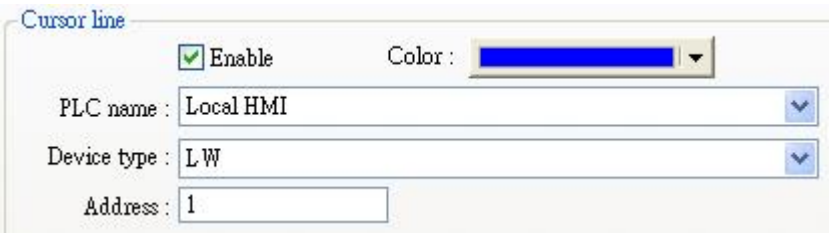
It is recommended to use "offset to start address" for data block display

with multiple channels and the same device type. You can register [Control], [No. of Data] and [Offset] in continuous address for each channel. The system will read the control words of all the channels in one read command and it shall speed up the response time.

Please refer to the following picture. The control words of channel 1 is located from address 0, the control words of channel 2 is located from address 3, there are continuous address and the system will read all the control words in one read command.



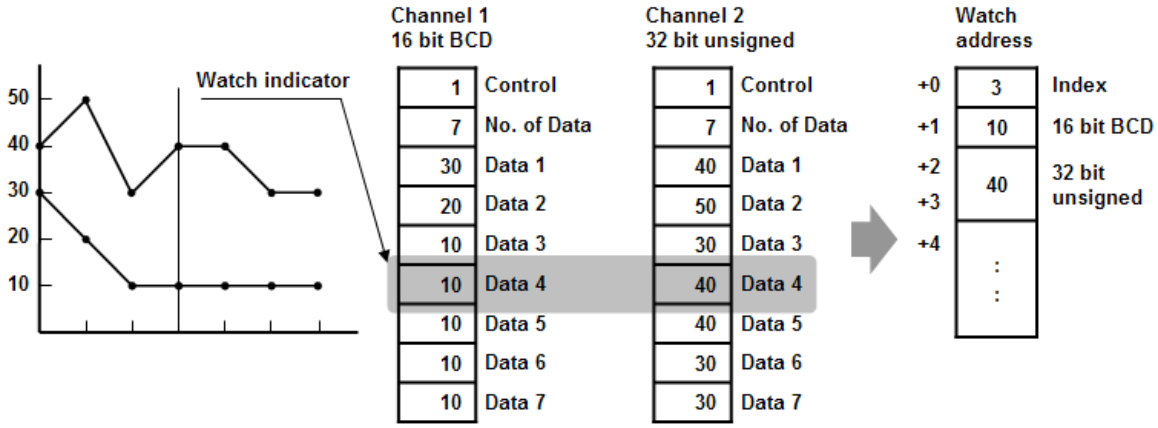
How to use watch (Cursor Line) feature



You may use the "Watch" function to check the value of any point in trend curve. When operator touches the data block object, it will display a "Cursor line", the system will write the index and value of that data in cursor line to the designated address. The user

shall register NI objects with the designated address. The operator shall be able to observe the numeric value in across with the cursor line.

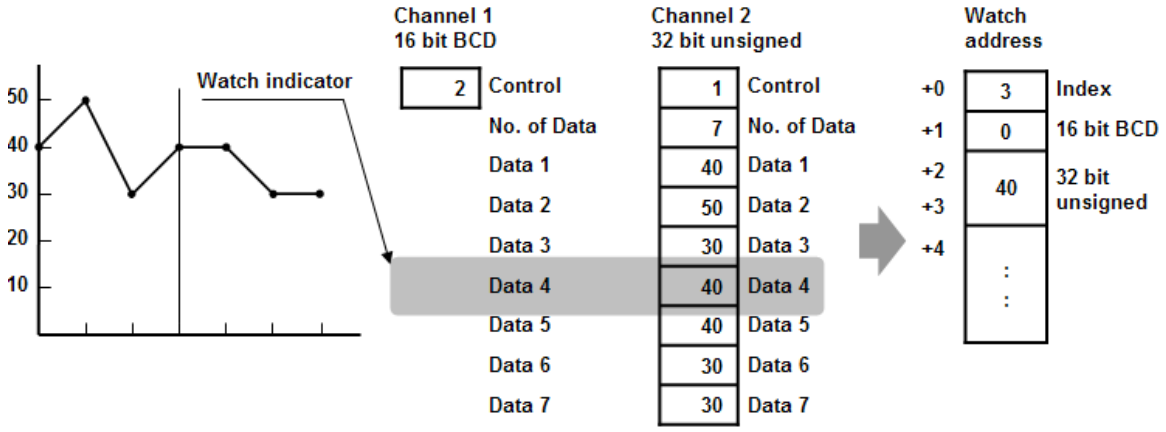
In the following example, the data block display contains two data blocks. The data format of channel 1 is 16 bit BCD and that of channel 2 is 32 bit unsigned. The cursor is positioned in data index 3 which is corresponding to the fourth data in data block. The system writes "data index" and the content of watched data to the watch address as shown in the following picture.



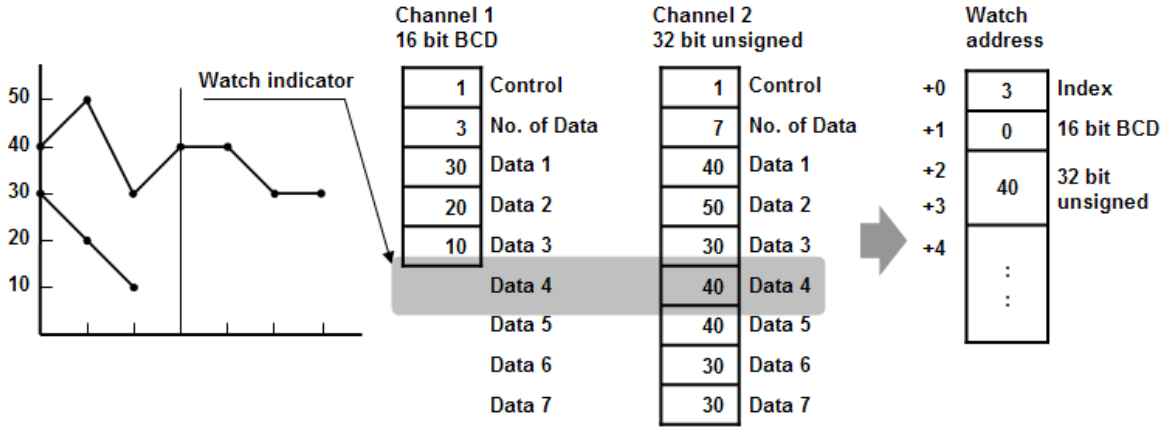
NOTE 1. [Data Index] is a 16 bit unsigned integer; when the designated register of cursor line is 32 bit device, it will be stored in the bit 0-15.

2. The watch function can only inspect current value in the data block. If there are multiple trend curves of the same channel on the screen, the data of previous trend curves is not exist, only the latest value is available for watch.

3. If the trend curve is cleared, when position the cursor line, the "0" will be displayed as shown below.



4. If there are only three data in Channel 1, when position the cursor in Data 4, the "0" will be displayed as shown below.



Limitation:

1. The maximum number of channels is 12.
2. The system can draw up to 32 trend curves.
3. The system can draw up to 1024 points for each channel.