

OMC System Software

High-performanceHMI

VxDataAnalyzer Software

User Manual

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
Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

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VxDataAnalyzer User Manual

Section 1 Overview

VxDataAnalyzer is a software which can integrated with AdvanTrol-Pro or High-performanceHMI. Users can view historical data in an offline state. It provides various history trend view modes of historical trend for users to analyze.

Section 2 Operation Process

VxDataAnalyzer software is used shown below.

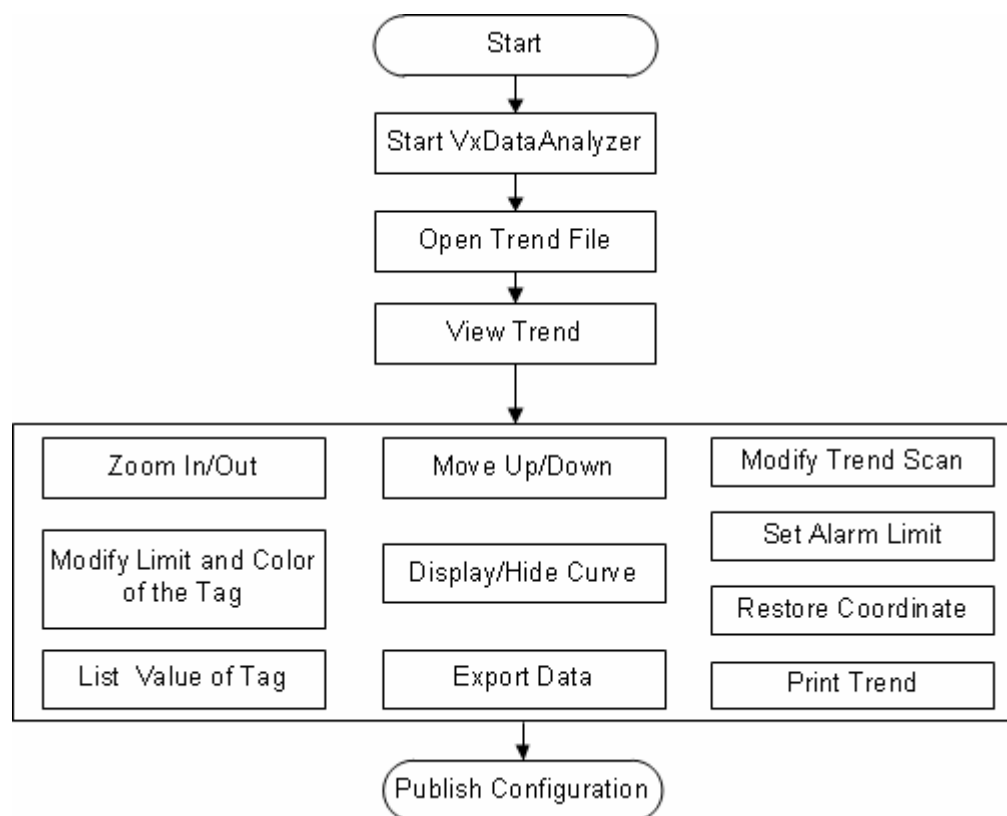


Figure 2-1 VxDataAnalyzer Flow

Section 3 Start Software

High-performanceHMI: select **OMC > Intelligent Application Management** from start menu. In Intelligent Application Management software, click  > **Tool> VxDataAnalyzer Software**, and then open the software and enter into the VxDataAnalyzer.

3.1 Main Interface

Software interface is shown in the Figure 3-1 .

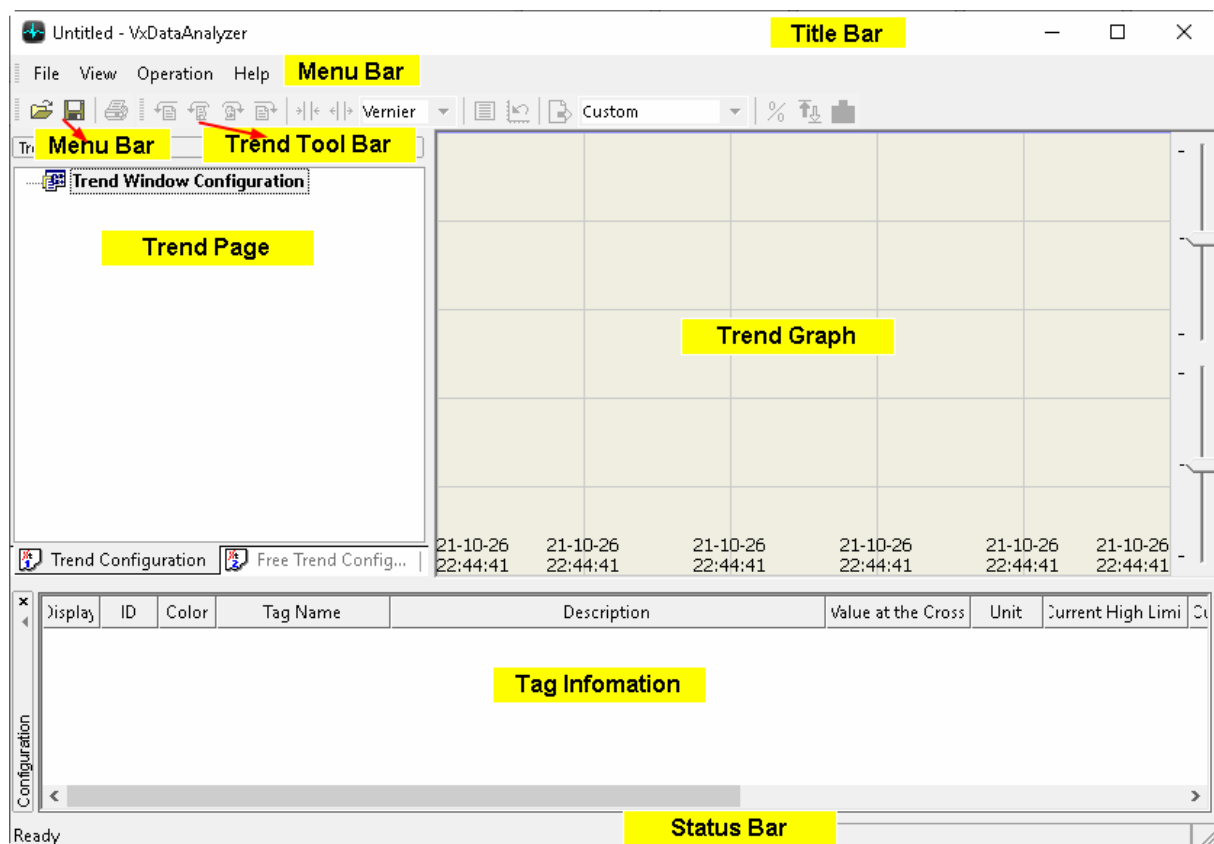


Figure 3-1 Trend History Data View Interface

Interface Instruction











- Title bar: show file name and software name.
- Menu bar/System tools bar/Trend tools bar: show shortcut key of software menu, system tools and trend tool, which are shown in 3.2Menu Bar and Tool Bar.
- Trend page: includes “trend configuration” and “free configuration”, which show trend picture file information by tree catalog.
- Trend picture and configuration information: respectively show trend picture and tag information


- Status bar: show software state, time and time span whether uniform in all trend picture.

Interface Operation Instruction

- Right click the blank place at right of menu bar, users can set the display or hide the “Trend page”, “Configuration information”, “Trend tools bar”, “System tools bar” and “Status Bar” in the pop-up right-key menu.
- File, View, Operate menu options are displayed in the menu bar and the letter in the bracket at the right of each menu option expresses the shortcut key. Press “ALT+shortcut letter” can open the relevant option and display the content of sub-menu.

3.2 Menu Bar and Tool Bar

Menu Bar			Tool Bar	Instruction
File	Open			Open history trend file
	Save			Save free configuration
	Print			Print trend picture
	Print preview		-	Print setup and preview
	Print Setup		-	Set print attributes of printer and paper
	Exit		-	Exit the software
View	Trend page		-	Display/hide trend page
	Trend information		-	Display/hide trend information
	Trend tools bar		-	Display/hide trend tools bar
	System tools bar		-	Display/hide system tools bar
	Status Bar		-	Display/hide status bar
Operate	Coordinates restoration			Upper and lower limit restore to setting same as configuration
	Data point			Display tag data of interface in list
	Page turning	Previous screen		Previous screen of trend page
		Previous half screen		Previous half screen of trend page
		Next half screen		Next half screen of trend page
		Next screen		Next screen of trend page
	Scale	Zoom out		Enlarge the time span of X axis to zoom out curve
		Zoom in		Reduce the time span of X axis to zoom in curve
-			Start ▼	Set zoom baseline
Help	About VxDataAnalyzer（A）		-	Display software version and copyright
-				Export history trend data
-			Custom ▼	Set history trend time span of show
-				Set data from work amount to percentage
-				Set alarm interval of analog quantity


Menu Bar	Tool Bar	Instruction
-		Set the time and span of the loop statistics.

Section 4 Open Trend File

Interface will not display any trend picture information after opening software. Users need to manual open history trend file of one project by “Open”.

Operating Steps of High-performanceHMI:

- 1) Choose one of the ways to open “Configuration choice” interface, which is shown in Figure 4-1:

- Choose **File/Open** in menu bar.
- Click  button in “System tools bar”.

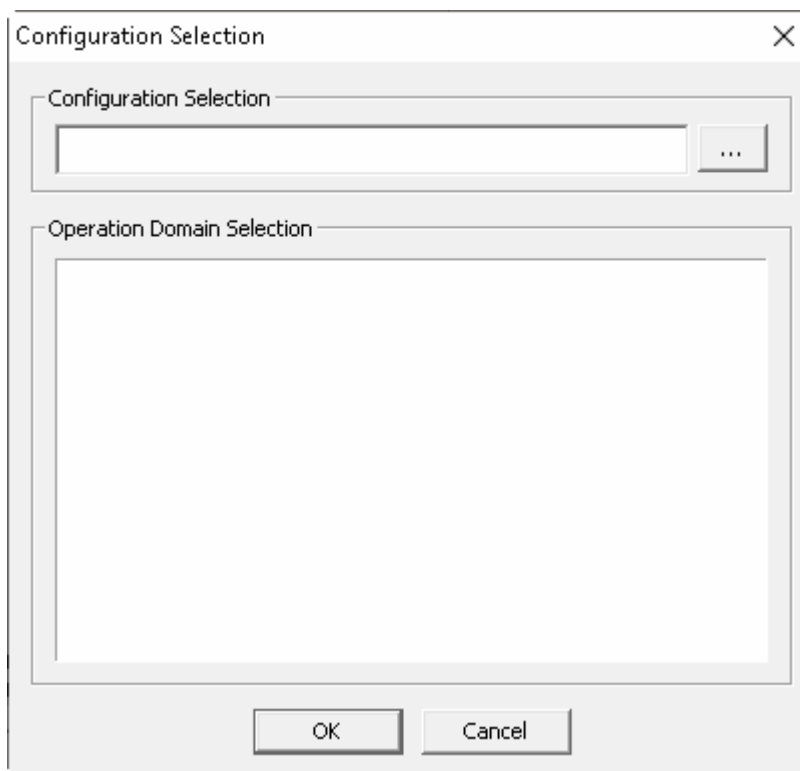



Figure 4-1 Configuration Selection Dialog Box (In High-performanceHMI)

- 2) Click  button in Figure 4-1, pop up “open” dialog box, select configuration file, click “open”, display full file path in input box of “Select configuration”.
If High-performanceHMI is installed by default, the default path of configuration file is “D:\ECSRun\Project Name”, select file names Project.scp. Set configuration file in any hard disk when software installation.
- 3) Choose an operating field, click “OK”.

Section 5 View Trend Picture

Users can operate after opening configuration file:

- View history trend of fixed tag: view tag history trend of “Trend picture” in “trend configuration” of trend page.
- History trend of free user-defined tag: set up trend picture in “Free configuration” of trend page, free combine and view history trend of some tag.

5.1 View History Trend of Fixed Tag

History trend of picture tag will display in trend page after trend picture which installs in project configuration successfully. Trend picture can't change, tag name and tag number can't change.

Operation Steps:

- 1) Open configuration file, “trend configuration” in trend page is shown below. View two trend picture of Team0001 in figure below: “Trend 1”.

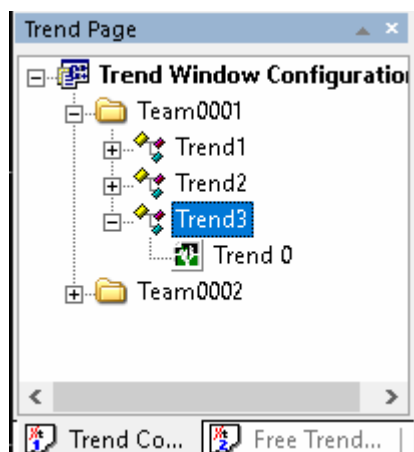


Figure 5-1 Trend configuration

- 2) Double-click “Picture 1”, choose trend 0, display tag trend and tag information in “Trend picture” and “Configuration information”, which shown below.

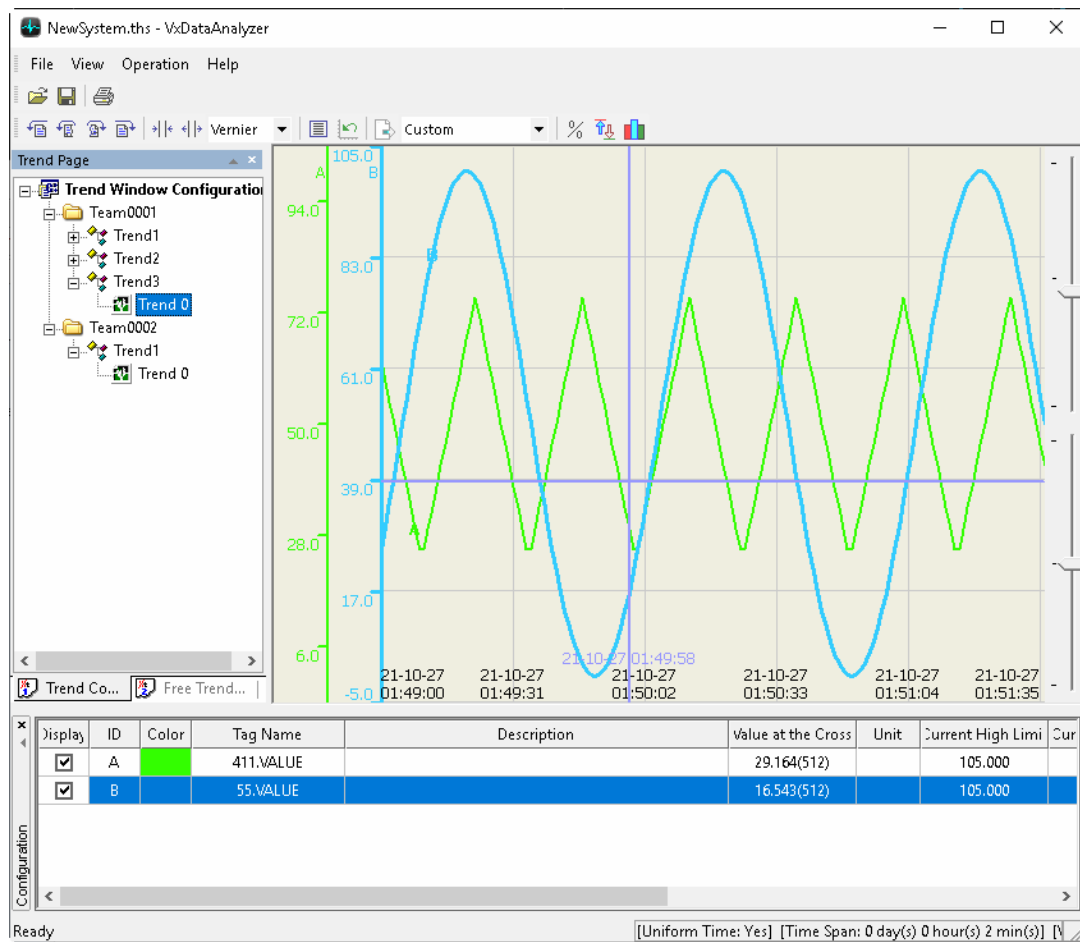


Figure 5-2 Trend picture

- 3) Operate trend picture to meet the need of viewing, please refer to more operation instruction in "Section 6 Basic Operation".

5.2 History Trend of Free User-Defined Tag

Users can install many trend pictures in free configuration page, and set all tag into one trend picture to convenient analysis.

Add and View operating Steps of trend picture:

- 1) Right click "Trend interface configuration", click "Add", pop up "Trend page setting" shown in figure below.

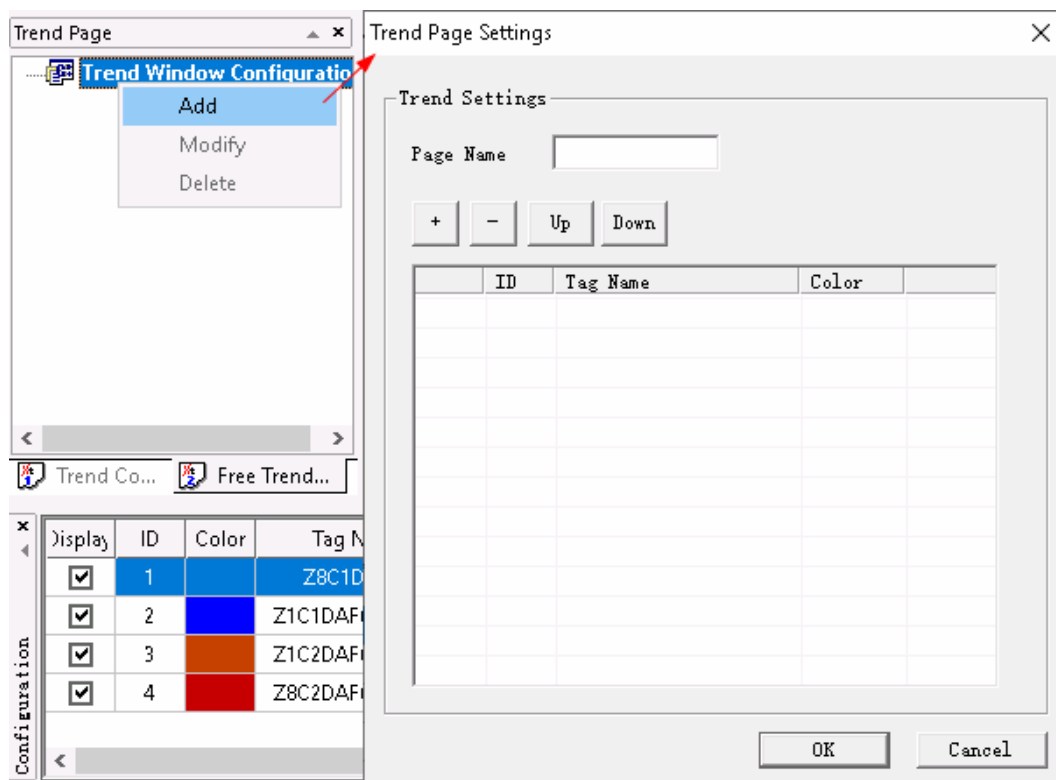



Figure 5-3 Free page trend configuration

- 2) Fill in "Page name" in trend page setting interface("Page name" can be null, suggest write: "Page name" to distinguish).
- 3) Input "Tag name" in the edit box next to "Tag name", or click  button, select needed tag in pop-up interface named "Trend tag select". Choose many tag by shortcut key when selecting tag, the method is as follows:
 - Choose multiple consecutive tag: press "Shift", choose another tag up or down, it can choose this two tag and the tag between the two.
 - Choose multiple discontinuity tag: choose one tag, press "Ctrl". Then select other tag.



Tip:

The tags added to the free trend should be history trend tag, for detail configuration of history trend tag, refer to *HMI Config Software User Manual*.

- 4) Select color of tag trend curve. Click color box, cursor becomes a dropper shape and come out color disk. Cursor of dropper shape gets color by clicking, click button at right of color disk, pop up more color plate.
- 5) Click "OK", add trend configuration page in free page.
- 6) After configured the free trend, the added trend page will show as figure below. Select "Page 1" to view the tag's history trend, for detail operation of history trend refer to

"Section 6Basic Operation".

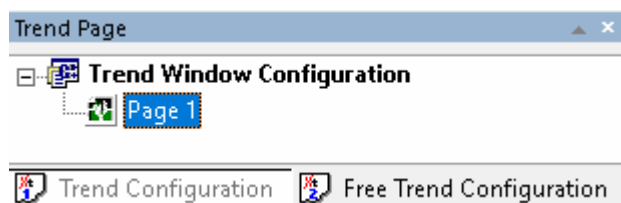



Figure 5-4 Free configuration trend page

7) Choose one way to save "free configuration" to view next time.

- Select menu bar **File/Save**.
- Click  in tools bar.
- Direct exit, software automatically saved.

Can do the followings for the existing free configuration:

- **Modify configuration:** Right click a trend picture needed modified in free configuration, click "Modify", pop up "Trend page" to modify page name, tag name, curve color and coordinates.
- **Delete configuration:** right click one trend picture for deletion in free configuration, click "Delete", and delete this configuration,

Section 6 Basic Operation

Introduce operation of trend picture, includes curve scaling, interface setting, time span setting of curve, data point setting, data export and return coordinates to initial setting.

6.1 Picture Introduction

Trend picture is shown in figure below, includes X axis(time coordinate), Y axis(value coordinate), trend curve picture, zoom in and zoom out switch button, up and down switch button, configuration information area, cursor.

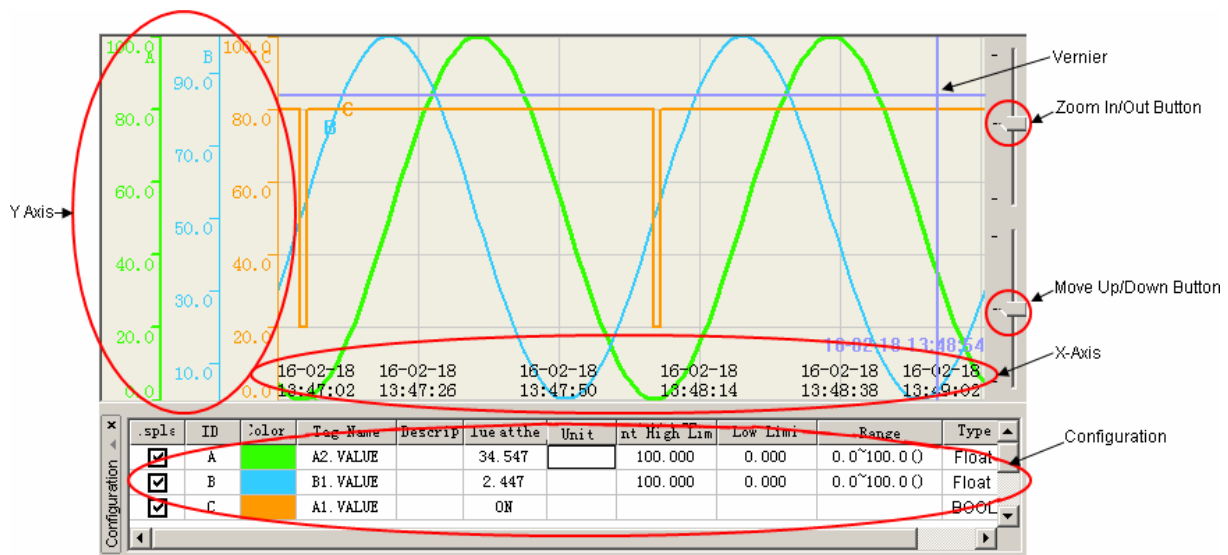



Figure 6-1 Trend picture

X axis(time coordinate),

Set a certain span of time into five groups, form a horizontal axis with an equal scale.

Y axis(value coordinate)

One tag is corresponds to a Y axis and show Y axis. The range of up and down limits forms a vertical axis with an equal scale. The default tag value display with engineering quantity. Click tools bar  if want to display by percentage.

Cursor

Locate time point. Cursor move around when mouse drag cursor by left button or move in the middle of the mouse up and down. The cursor bottom(time axis) will display time of the place for users to view data point of some time trend, can be as curve zoom zero line, please refer to 6.2.1Curve Zoom for more details.

Trend curve picture

Display trend curve of the tag selected.

Zoom in and zoom out switch button

Zoom in trend curve by moving button up, zoom out trend curve by moving button down.

Comparison diagram of normal, zoom in and zoom out in one trend picture is shown in figure below.

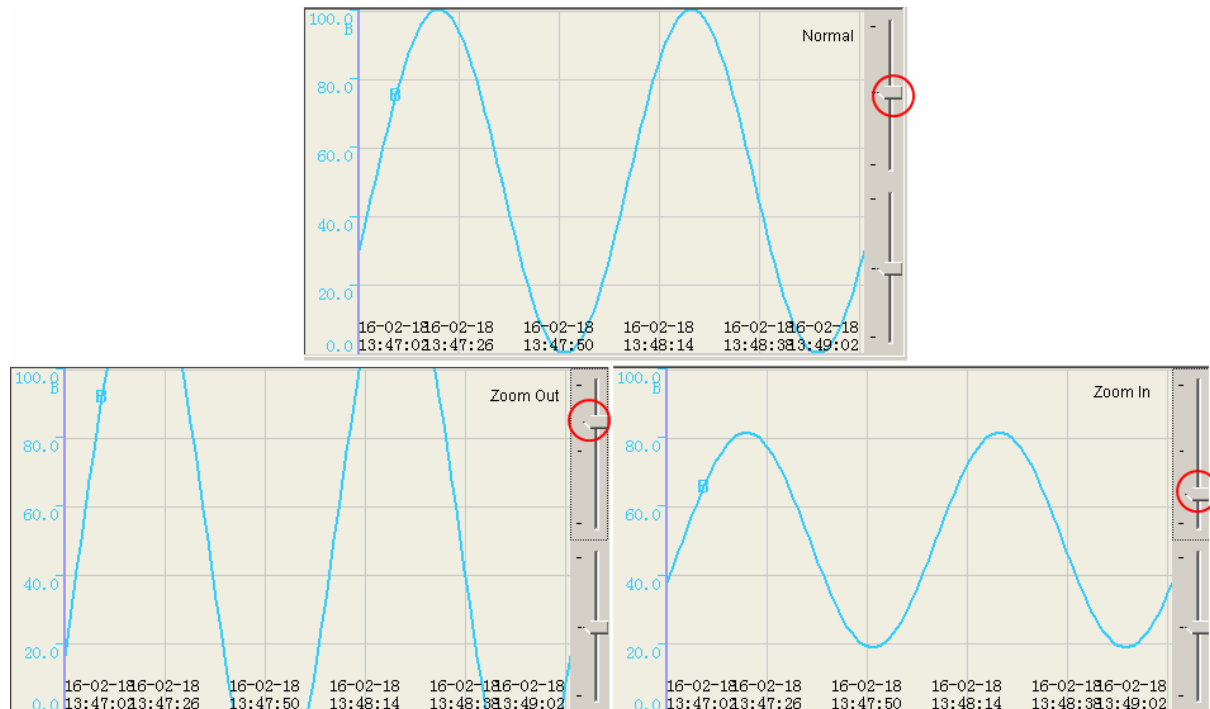


Figure 6-2 (Trend picture)zoom in and zoom out

Up and down switch button

Move up trend curve by slide up, move down trend curve by slide down, more details are in Figure 6-3.

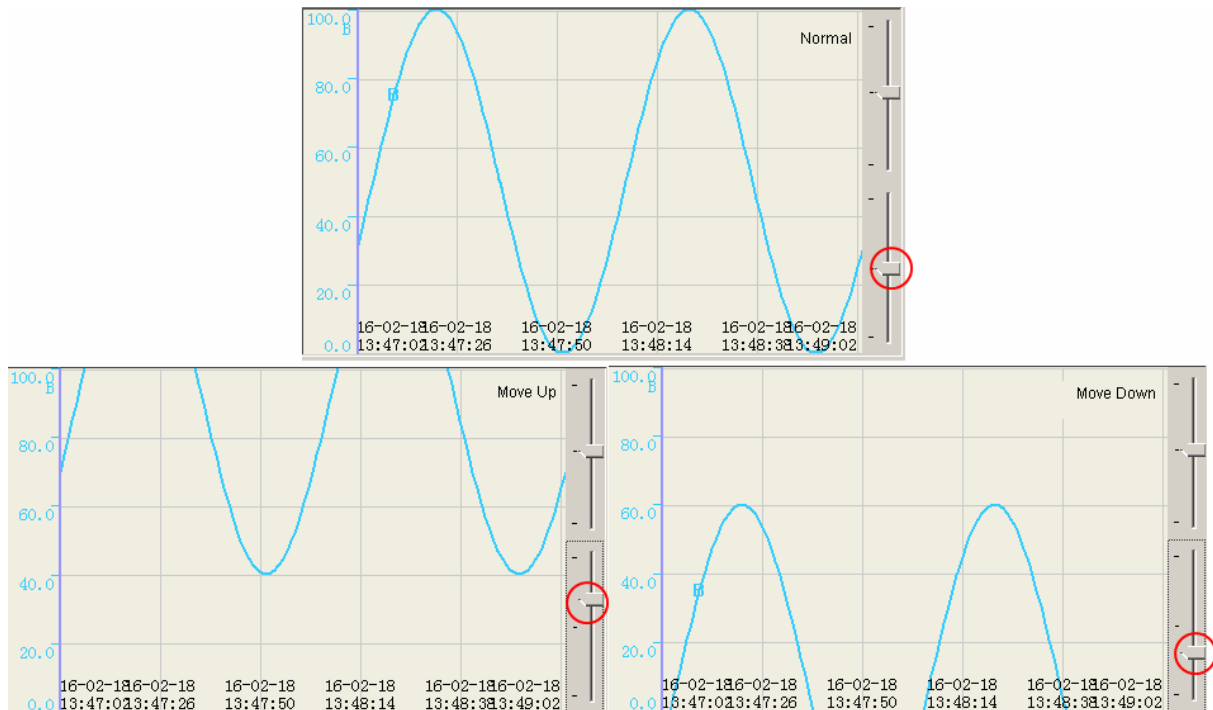


Figure 6-3 (Trend picture) up and down

Configuration information area

Display tag name, tag curve color and corresponding ordinal number, tag description, current cursor and intersection point value, unit, current limit(can set), range, data type of tag trend curve and maximum, minimum and average in current picture time. It can set to display one tag trend curve in trend picture.

Statistics of maximum, minimum and average in current picture time frame can be come true only when you have a software dog.

Display	ID	Color	Tag Name	Description	Value at the Cross	Unit	Current High Limit	Current Low Limit	Range	Type	Maximum	Minimum	Average
<input checked="" type="checkbox"/>	A		411.VALUE		70.833(256)		100.000	0.000	0.0~100.0	Float	75.000	25.000	48.651
<input checked="" type="checkbox"/>	B		55.VALUE		39.604		100.000	0.000	0.0~100.0	Float	100.000	0.000	49.957

Figure 6-4 Tag area

Can do the following in the configuration information area:

- Display/hide one tag trend curve: checking means tag history trend curve will display in trend picture in "Display", it doesn't show on the contrary.
- Highlighting display tag trend curve: click tag information, history trend curve and Y axis will display in bold. The first tag is selected in Figure 6-4 , trend curve and Y axis of tag in trend picture will thicker than other tag.
- Set coordinate up and down axis and tag color: double click tag information anywhere, pop up "Tag information setting" interface shown in Figure 6-5 . Users can set to "Coordinate up and down axis" and "Tag color"

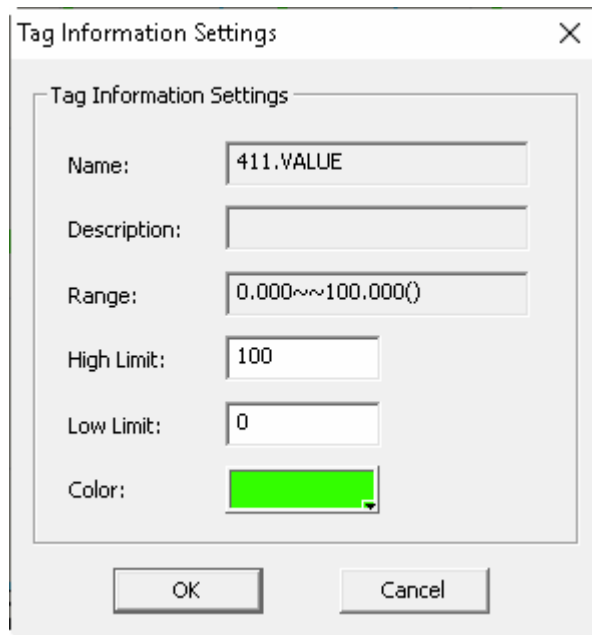


Figure 6-5 Tag information setting interface of tag area

- Modify trend page information: only works for configuration information area of free configuration. Select the right-menu command of "Modify" in the trend curve to pop up trend page setting interface, can modify trend page name, tag name, curve color, coordinate so on.

6.2 Modify Time Span




Time span by default in trend picture is 4 minutes, minimum is 2 minutes and maximum is 1 year.

This section mainly describes two ways of time span(X axis) in adjustable trend window: curve zoom and time setting.

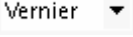
6.2.1 Curve Zoom

It can indirect adjust time span of trend by curve zoom function.



Three Function Shortcut Key:

- : Zoom out curve. Enlarge the time span of X axis (time axis) in the visible trend display window.
- : Zoom in curve. Reduce the time span of X axis (time axis) in the visible trend display window.
- : Zoom benchmark. Select benchmark of curve zoom(start tome, cursor time and final time.



Operation Step:

- 1) Select benchmark. Select zoom benchmark in  of “Zoom Benchmark” of “Trend Toolbar”.



- Start



Select “Start” as zoom benchmark line, “Start Time” has no change. Select 
() , time span enlarge (reduce) double.

- Cursor

When select “Cursor” as zoom benchmark, “Cursor Time” is set as intermediate line of trend window timer shaft. Select  () , time span enlarge (reduce) double.
Using “Cursor” as zoom benchmark is convenient to view trend in near time.


- Stop

Select “Stop” as zoom benchmark line, “Stop Time” has no change. Select 
() , time span enlarge (reduce) double.

- 2) Click  () icon, time span double(reduce).

Example 1:

Benchmark usage of “Start” is same as “Termination”. “Start” benchmark is set as an example to be introduction.

- 1) Original starting time of trend window is 16-02-18 09:00:00, final time is 16-02-18 09:10:00。
- 2) Set zoom out standard as “Start”, click  button, start time of trend window is 16-02-18 09:00:00, final time is 16-02-18 09:20:00. Time span is from 10 to 20 minutes. Before and after zoom in curve is shown below.

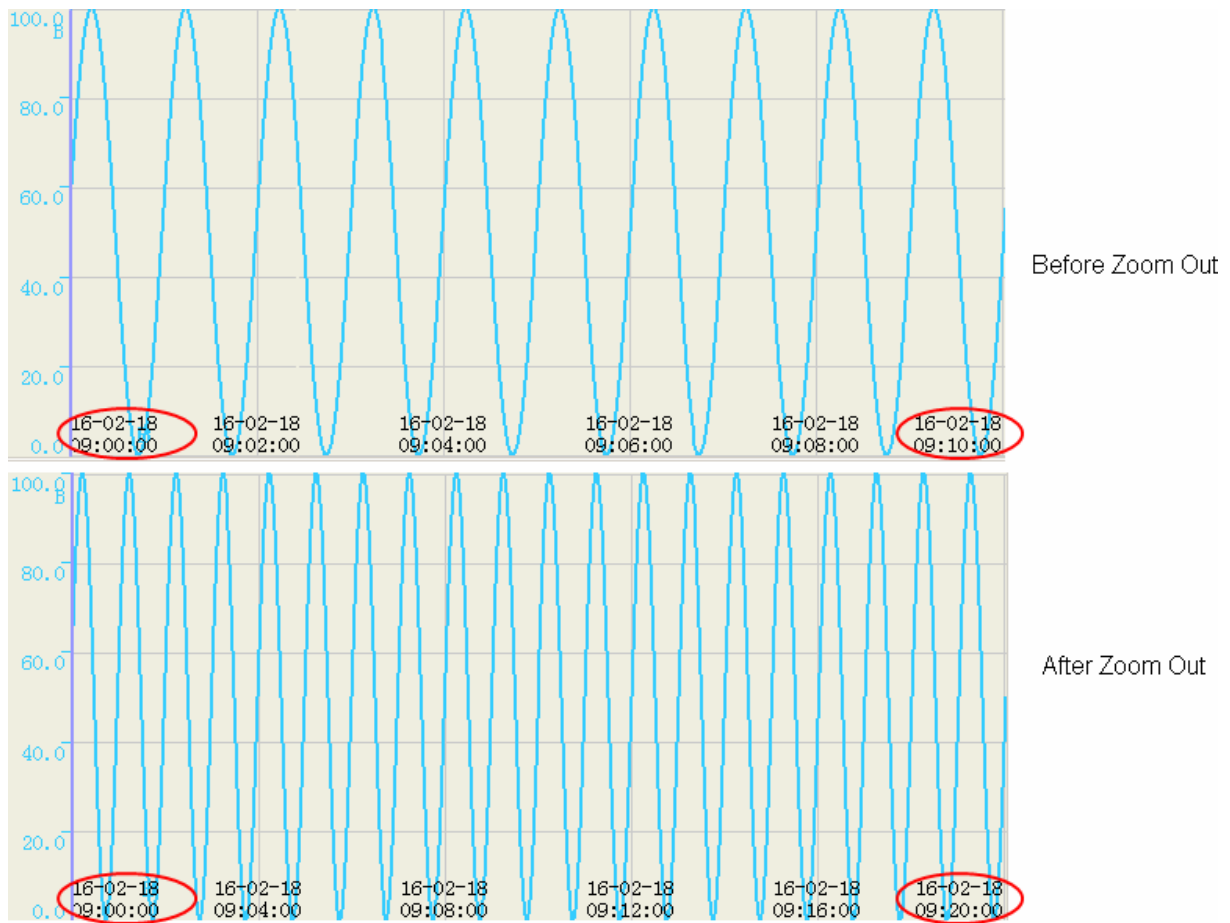



Figure 6-6 Before and after zoom in curve1

Example 2:

- 1) Original starting time of trend window is 16-02-18 13:20:18, final time is 16-02-18 13:22:18.
- 2) Set zoom out standard as "Cursor", cursor time is 16-02-18 13:21:00, click  button, start time of trend window is 16-02-18 13:19:00, final time is 16-02-18 13:23:00. Time span is from 2 to 4 minutes. Before and after zoom in curve is shown in Figure 6-7.

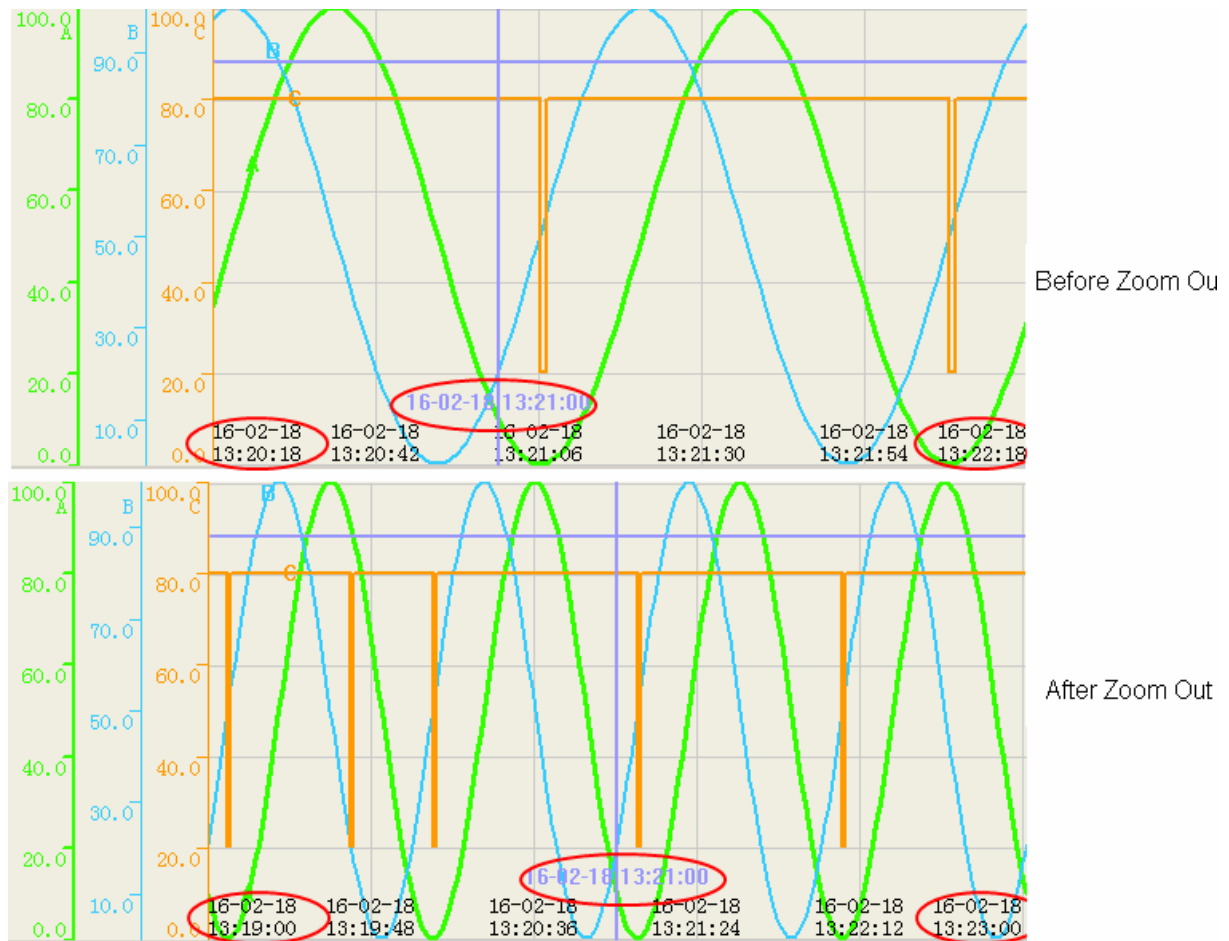


Figure 6-7 Before and after zoom in curve2

6.2.2 Time Setting

Users can directly set trend time span by time setting function.

Operation Step:

- 1) Click small triangle of time setting shortcut key Custom ▼ in toolbar, select any one in pop-up drop-down box.
 - 1 day, 7 day, 30 day, 90 day, 365 day: final time is current time, move forward through 1, 7, 30, 90, 365 is the time span which have set. All tag is the same time span.
 - User-defined: pop up time setting window for user-defined, access to the second step.
- 2) User-defined time setting window is shown in figure below. Set following parameter, click OK.

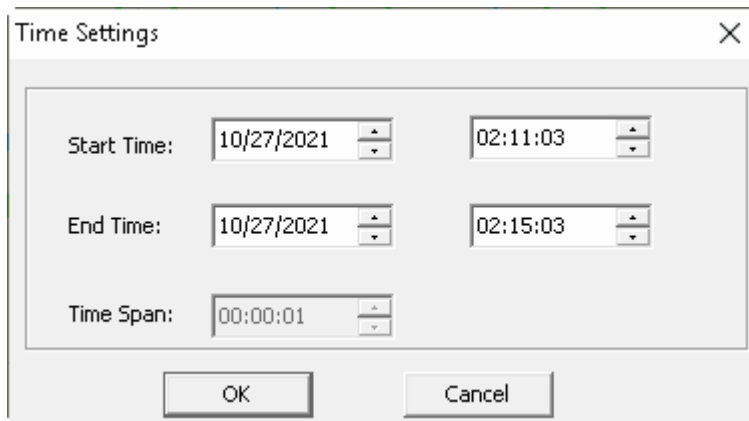


Figure 6-8 Time setting

- Start time and final time: display trend curve of every tag of start-stop time setting in trend window.

Setting method: Click one parameter (year, month, day or hour, minute, second), input or click increase/decrease button.

- Data interval: refers the time interval between two data point, as time interval in tag data list. Software minimum interval by default is 1s, users can't change.

6.3 Alarm Interval Setting

Highlight alarm area in trend window and view abnormal condition of tag by setting alarm interval function.

Operation Method:

- 1) Click  button in toolbar, pop up setting window of alarm interval as show below.

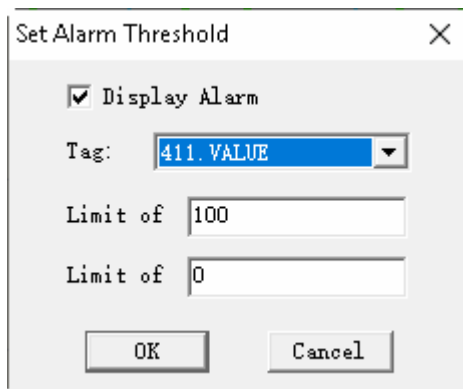


Figure 6-9 Alarm interval setting

- 2) Click “Display Alarm Interval”, select one analog quantity tag in tag bar, input high/low alarm range, click “OK”. Alarm range less than 20 is dark color in alarm interval which means abnormal tag in the interval.

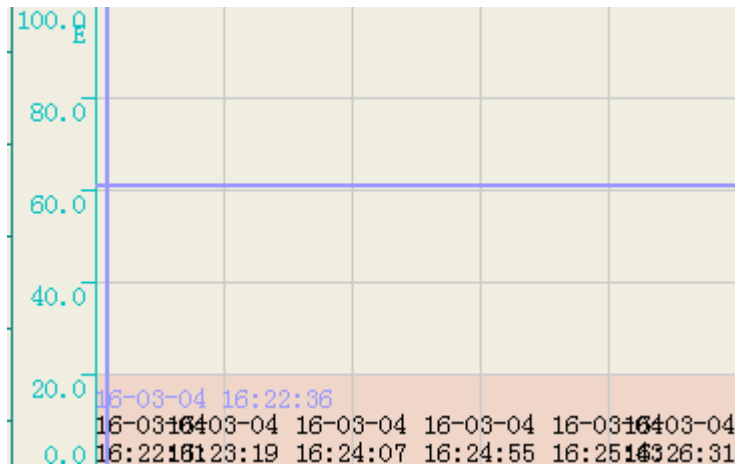



Figure 6-10 Display alarm interval

6.4 Data Point

Users can view all data value of all tag in current trend page by data point function.

Operation Method:

View relevant data by selecting one way to open “Tag Data List” window.

- Select **Operation/Data Point** in menu bar.
- Click  button in “Trend Toolbar”.

If one point data is empty, it refers there is no data at that point as shown in figure below.

Tag Data List				
ID	411.VALUE	411.VALUE	55.VALUE	
0	21-10-27 02:11:03	70.833	39.604	
1	21-10-27 02:11:04	66.667	44.774	
2	21-10-27 02:11:05	62.500	50.000	
3	21-10-27 02:11:06	58.333	55.226	
4	21-10-27 02:11:07	54.167	60.396	
5	21-10-27 02:11:08	50.000	65.451	
6	21-10-27 02:11:09	45.833	70.337	
7	21-10-27 02:11:10	41.667	75.000	
8	21-10-27 02:11:11	37.500	79.389	
9	21-10-27 02:11:12	33.333	83.457	
10	21-10-27 02:11:13	29.167	87.157	
11	21-10-27 02:11:14	25.000	90.451	
12	21-10-27 02:11:15	25.000	93.301	
13	21-10-27 02:11:16	29.167	95.677	
14	21-10-27 02:11:17	33.333	97.553	
15	21-10-27 02:11:18	37.500	98.907	
16	21-10-27 02:11:19	41.667	99.726	
17	21-10-27 02:11:20	45.833	100.000	
18	21-10-27 02:11:21	50.000	99.726	
19	21-10-27 02:11:22	54.167	98.907	
20	21-10-27 02:11:23	58.333	97.553	
21	21-10-27 02:11:24	62.500	95.677	
22	21-10-27 02:11:25	66.667	93.301	
23	21-10-27 02:11:26	70.833	90.451	
24	21-10-27 02:11:27	75.000	87.157	
25	21-10-27 02:11:28	70.833	83.457	
26	21-10-27 02:11:29	66.667	79.389	
27	21-10-27 02:11:30	62.500	75.000	
28	21-10-27 02:11:31	58.333	70.337	

Figure 6-11 Tag Data List

**Tip:**

Time interval of two data point of one tag depends on “Time Setting/Data interval. Refer to 6.2.2Time Setting for relevant instruction.

6.5 Coordinates Restore

Users can click “Zoom in/out Slide Button” and “up and down Move button” to operate trend window by coordinates restore function. Maximum and minimum of all tags will restore to the setting same as configuration.

Operation Method:

Realize coordinates restore function by selecting one following way.


- Select **Operation/Coordinates Restore** in menu bar.
- Click  button in “Trend Toolbar”.

6.6 Statistics of Loop Information

The statistics of loop information is for calculating the automatic rate of loop in the specified time span. The statistics supports the following items:

- Loops besides manual instrument in JX-300XP/ ECS-100 system.
- PID, PI_PLS, PI_AE, PD_SI, PIDEX, PID_TP and PID_EP function block in OMC system.

By following steps, the statistics of loop information can be counted:

- 1) Click the button of  on the toolbar to popup the dialog box shown as below.

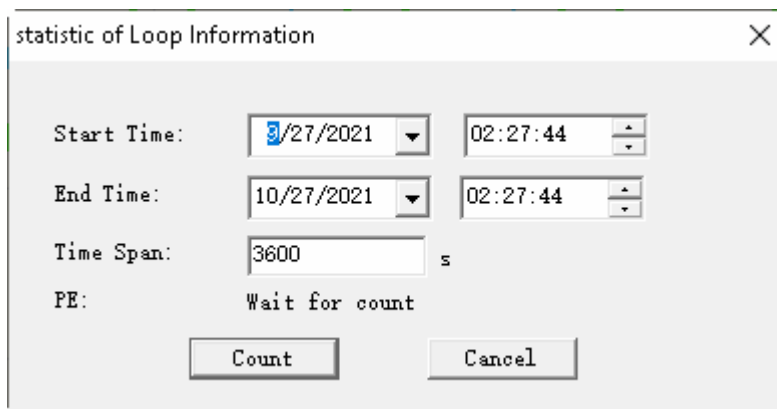


Figure 6-12 "Statistics of Loop Information" Configure Dialog Box

- 2) Configure "Start Time", "End Time", "Time Span" to specify the statistics span and interval of PE.
- 3) Click "Count" to display the result in "PE".

Tips:



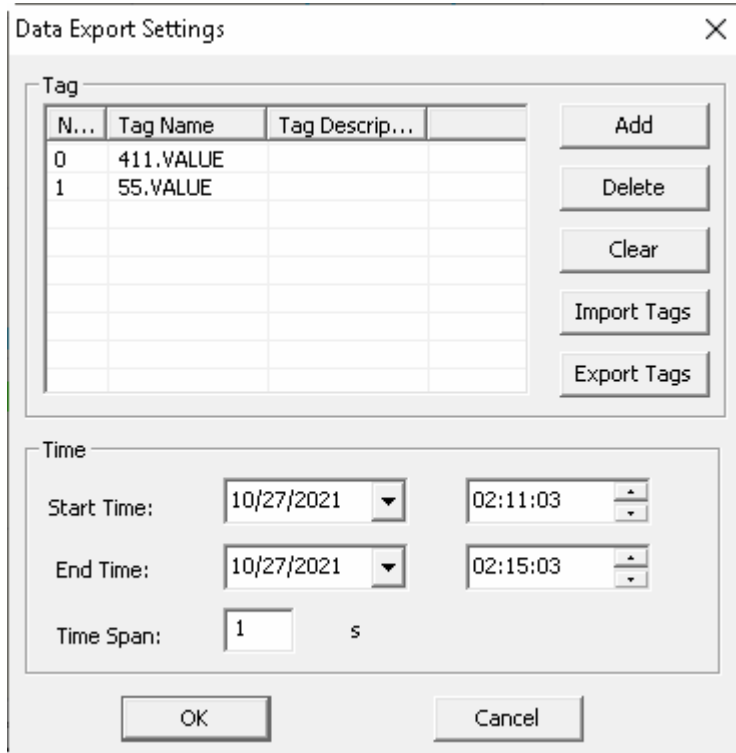
The PE of JX-300XP/ ECS-100 loop information is to count the forced status and the unforced status of the loop's input related tags. When the tag is in the forced status, the statistical result will be manual. When the tag is in the unforced status, the result will be automatic.

6.7 Data Export

Users can export trend data point of part or all tag in period time to .csv form document for viewing by data export function.

Operation Step

- 1) Click  button in “Trend Toolbar”, pop up “Data Export Setting” window as shown in figure below. Export tag is tag of current trend page for the first time open.



The "Data Export Settings" dialog box contains two main sections: "Tag" and "Time".

Tag Section: A table with columns "N...", "Tag Name", and "Tag Descrip...". It lists two tags: "0 411.VALUE" and "1 55.VALUE". To the right of the table are buttons for "Add", "Delete", "Clear", "Import Tags", and "Export Tags".

Time Section: Contains fields for "Start Time" (10/27/2021 02:11:03), "End Time" (10/27/2021 02:15:03), and "Time Span" (1 s). Each field has a dropdown or spinner control.

At the bottom are "OK" and "Cancel" buttons.

Figure 6-13 Data export setting window

- Add: click “Add” button, select tag to be export history data in the pop-up trend tag
 - Delete: select one tag and click “Delete” button.
 - Clear: click “Clear” button to delete all tags.
 - Time: start time, final time and data interval setting export from history data, minimum data interval is 1s.
- 2) Click “OK” after setting. Input file name and save path in pop-up “Save as” dialog box, click “Save”.

View the export Data

The exported history trend data can be viewed by Excel, as shown as figure below.

ID	Time	MA_01.VALUE	TagName.VALUE	MD_01.VALUE
0	2021-08-16 15:00:08	96	98.09375	OFF
1	2021-08-16 15:00:09	96	98.09375	OFF
2	2021-08-16 15:00:10	96	98.09375	OFF
3	2021-08-16 15:00:11	96	98.09375	OFF
4	2021-08-16 15:00:12	96	98.09375	OFF
5	2021-08-16 15:00:13	96	98.09375	OFF
6	2021-08-16 15:00:14	96	98.09375	OFF
7	2021-08-16 15:00:15	96	98.09375	OFF
8	2021-08-16 15:00:16	96	98.09375	OFF
9	2021-08-16 15:00:17	96	98.09375	OFF
10	2021-08-16 15:00:18	96	98.09375	OFF

Figure 6-14 Format of data export

You can view the file in .CSV format that the history trend exported by the text view tool and Excel. When view it by Excel, configure the time format to view the right time. The configuration is as follows:

- 1) Select the time bar, and select "Format Cell..." in its right menu and the cell format setting interface will pop up.
- 2) Select "Custom" in the "Category" and input "yyyy-m-d h:mm:ss.000" in the "Type" as shown as figure below.

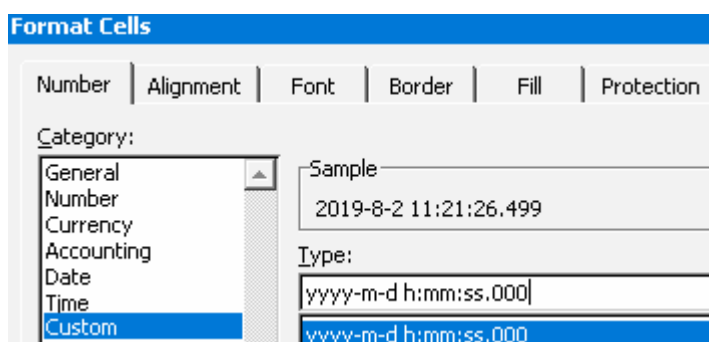



Figure 6-15 Format settings of cell when exported

6.8 Print

Print function can print current trend screen and tag information. It needs to set trend time range of print before printing.

Operation Step

- 1) Select one of the following ways to open print setting window as shown in figure below
 - Select **File/Print** in menu bar.
 - Click button  in "System Toolbar".

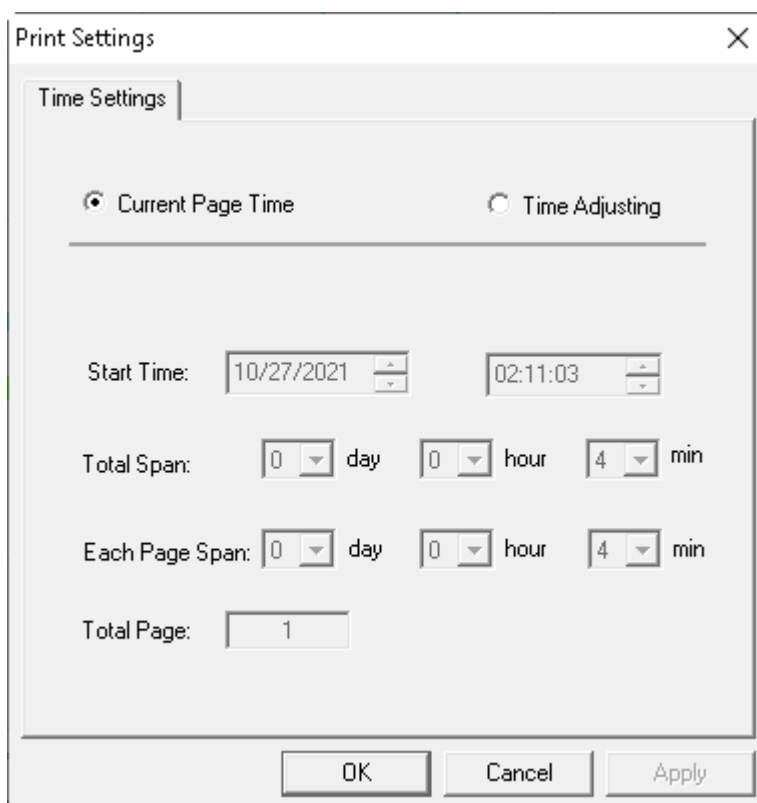


Figure 6-16 Print setting window

- 2) Set trend time span which needs print, click “OK” after setting in print setting window. More details is following.
 - Current page time: click current page time, and the print content is trend diagram of current software shows.
 - Time adjusting: click time adjusting, print trend diagram of user-defined time horizon, users need to set trend time span.

Setting window after clicking “Time Adjusting” is shown in figure below. The detail operations as following:

Figure 6-17 Time adjusting setting

- Start time: set time of trend start.
Setting method: click one parameter(year, month, day, hour, minute, second), direct input or click increase/decrease button can set starting time.
 - Total span: set total time span.
Setting method: click the button of “Day, Hour, Min” respectively.
 - Each page span: set trend time span of one page.
Setting method: click the button of “Day, Hour, Min” respectively.
 - Total page: display number of print page, software will calculate automatically by total span and each page of span, no need to set by users.
- 3) After setting trend time range, display “Print” window. Set printer and copies according to actual demand, start print after clicking “OK”. Set print attribution of printer and page by **File/Print Setup** in the menu bar.

6.9 Print Preview

Print preview function can view print result before printing.

Operation Step:

- 1) Select **File/Print Preview** in menu bar, pop up print preview setting window as shown in figure below to set print. Setting method refers to instruction of 6.8 Print.

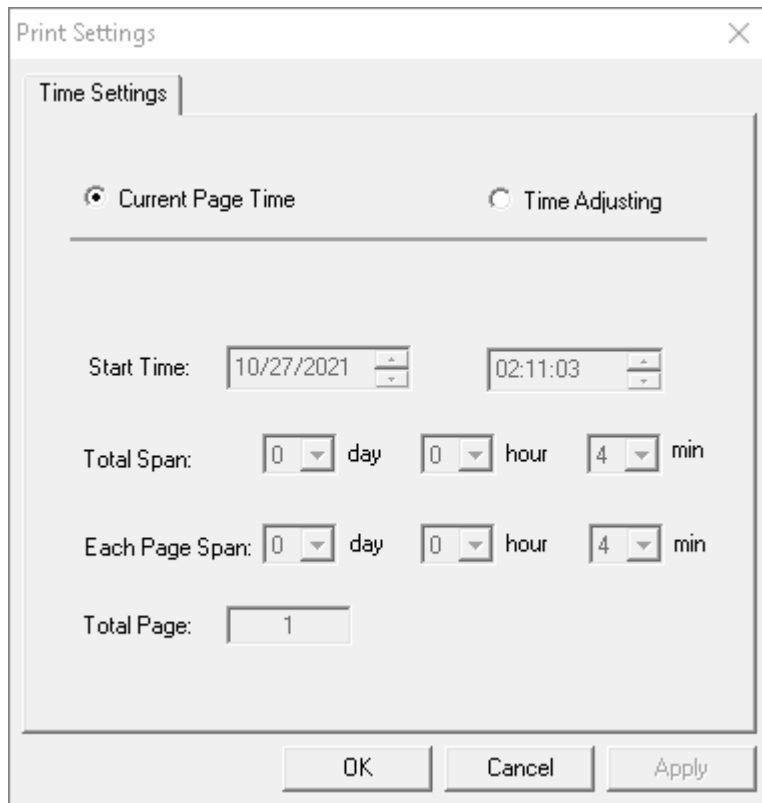










Figure 6-18 Print Preview Settings

1. Click "OK" after setting, the print preview window will pop-up shown as in figure below, can realize following operation in this window.
 - Click  **Print** button (its function is same as ) , pop up print setting window as shown in Figure 6-16.
 - Click  button to page down.
 - Click  button page up.
 - Click  button to display one or two pages in the same window.
 - Click  button to zoom in.
 - Click  button to zoom out.
 - Click  **Close Preview** button to close print preview.

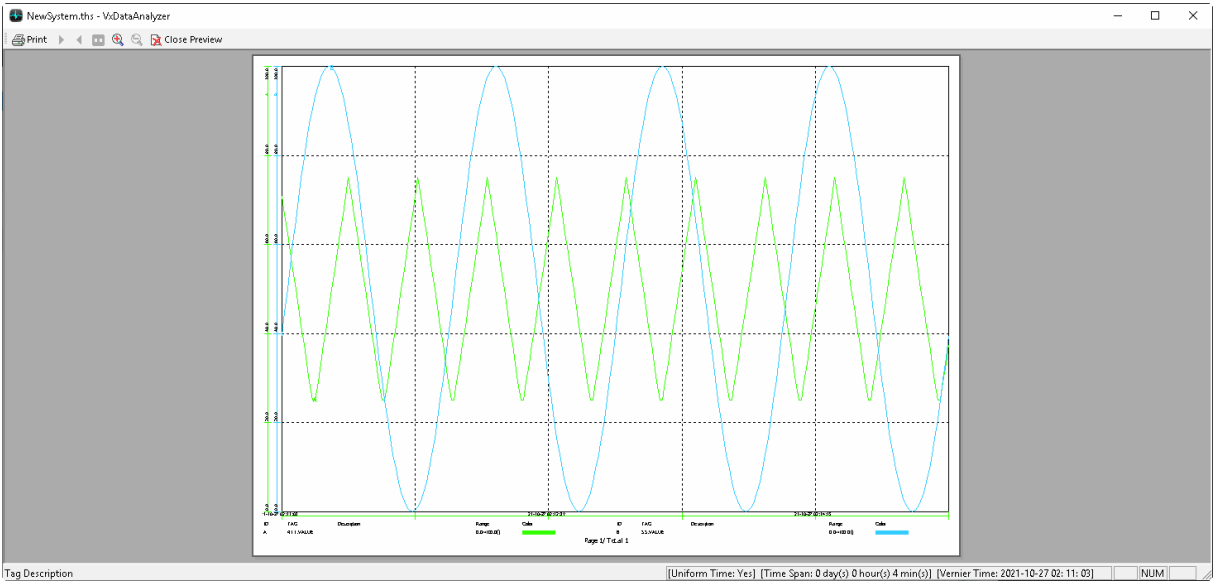


Figure 6-19 Print preview window

Section 7 Revision

Table 7-1 Retrofit list of the version

Document Version	Applicable Product Version	Remarks
V1.0 (20230306)	OMC High-performanceHMI V4.70.00.00	First release
V1.1 (20230830)	OMC High-performanceHMI V5.10.00.00-M	Updated screenshots.