

catalogue

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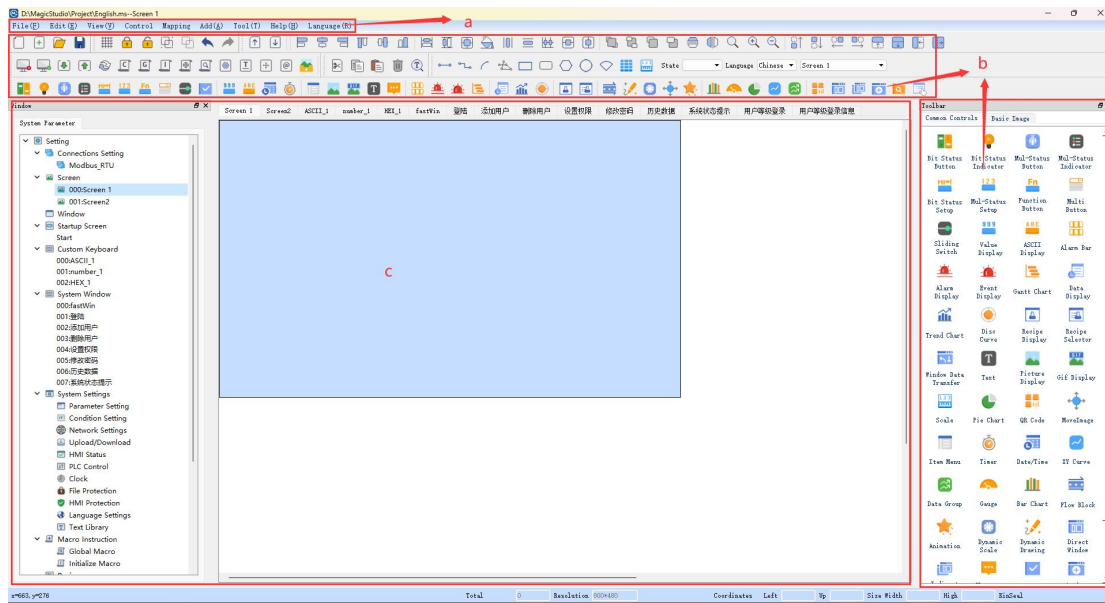
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Chapter1 Configuration Software Functions

This chapter briefly introduces the configuration structure of the software.

1.1 Interface Layout

After opening the configuration software project, the startup interface is shown in Figure 1.1-1:

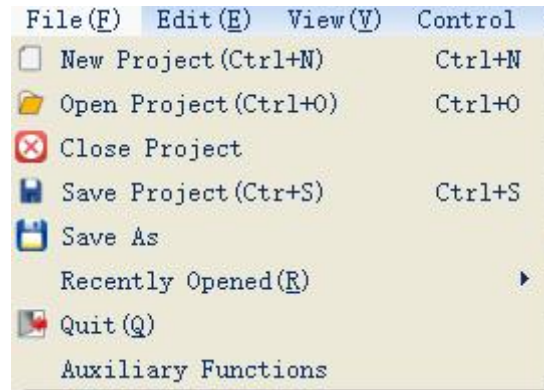


Chat 1.1-1

a. Menu bar; b.Toolbar; c.Workbench

1.2 Menu Bar

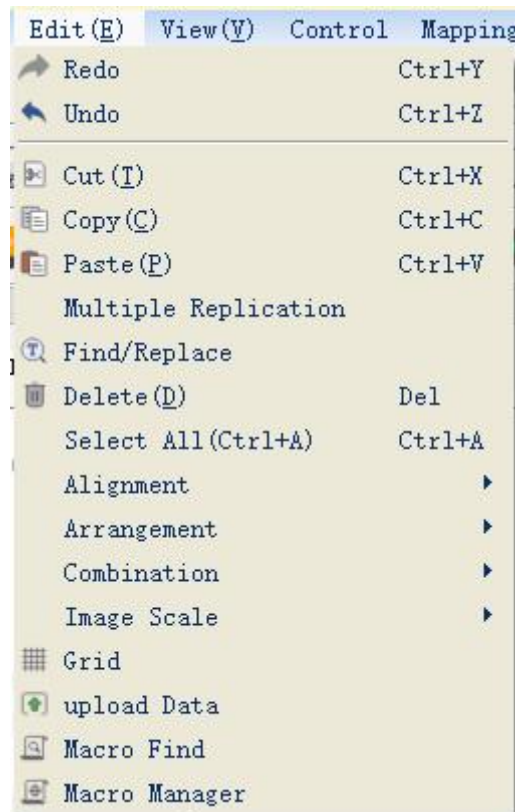
1.2.1 file



Chat 1.2-1

- [New Project]: Use this command to create a blank project.
- [Open Project]: Use this command to open project files that the user has created and saved in Windows, and to open project configuration files.
- [Close Project]: Use this command to close the current project screen configuration without exiting the configuration software.
- [Save Project]: Use this command to save the current modified screen configuration. The file name and save path default to the original file name and save path.
- [Save As]: Use this command to save the current screen configuration and rewrite the name and save path of the project screen configuration.
- [Recently opened projects]: Projects that the user has recently used or opened.
- [Quit]: Use this command to exit the configuration software.
- [Auxiliary Functions]: Use this command to pop up the engineering auxiliary setting window and set the attributes of the entire project.

1.2.2 edit

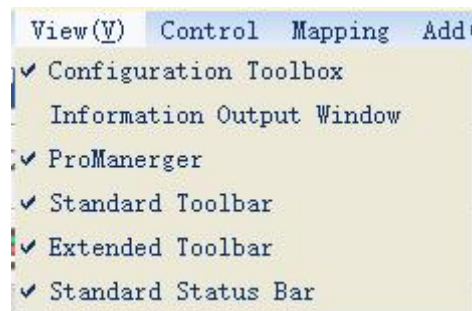


Chat 1.2-2

- [Redo]: Shortcut keys Ctrl+Shift+Z, use this command to restore the last operation command, and use this command to restore your last operation.
- [Undo]: Shortcut key Ctrl+Z, use this command to cancel the last operation command, and use this command to cancel your last operation.
- [Cut]: With the shortcut keys Ctrl+X, you can delete the selected graphic objects and copy them into the paste buffer.
- [Copy]: With the shortcut keys Ctrl+C, you can copy the selected graphic object into the paste buffer.
- [Paste]: With the shortcut keys Ctrl+V, you can copy the graphic objects in the paste buffer to the current screen.
- [Multiple Replication]: With the shortcut key Ctrl+D, you can copy multiple selected graphics that the user needs horizontally and vertically, and increase the address by 0-255 units in sequence.

- [Find/Replace]: With the shortcut key Ctrl+D, you can copy multiple selected graphics that the user needs horizontally and vertically, and increase the address by 0-255 units in sequence.
- [Delete]: Use the shortcut keys Ctrl+Del to delete the selected graphic object from the screen.
- [Select All]: The shortcut key Ctrl+A allows you to select all objects in the current screen of the current project using this command.
- [Alignment]: Use this command to align multiple selected objects (two or more) according to the selected alignment method. Alignment methods include top alignment, bottom alignment, vertical center, left alignment, right alignment, and horizontal center.
- [Arrangement]: Use this command to place the selected object in different levels of the screen. The hierarchy items that can be selected include getting to the top layer, getting to the previous layer, getting to the bottom layer, and getting to the next layer.
- [Combination]: This command can be used to combine multiple selected objects (two or more) into one control, or to split objects that can be split or combined into the original objects.
- [Image Scale]: This command allows you to scale the current screen to a certain ratio for more detailed control operations. The scaling options you can choose include image magnification, image proportional restoration, and image reduction by one time.
- [Grid]: Use this command to arrange and cancel the selected width grid of the current screen.
- [Upload Data]: Use this command to upload the touch screen program to the PC.
- [Macro Find]: Find the location where the input macro appears.
- [Macro Manager]: List all macros under the given conditions.

1.2.3 view



Chat 1.2-3

- [Configuration Toolbox]: Whether to display the configuration toolbox, which is the control toolbox on the right side of the software.
- [Information output window]: Whether to display the information output window, which is the second to last layer in the software.
- [ProManager]: Whether to display the project manager, which is the tree menu on the left side of the software.
- [Standard toolbar]: Whether to display the standard toolbar, which is the first layer of toolbar in the software.
- [Extended toolbar]: Whether to display the extension toolbar, which is the second layer toolbar in the software.
- [Standard status Bar]: whether to display the Standard state column, that is, the lowest status column in the software.

1.2.4 control



Chat 1.2-4

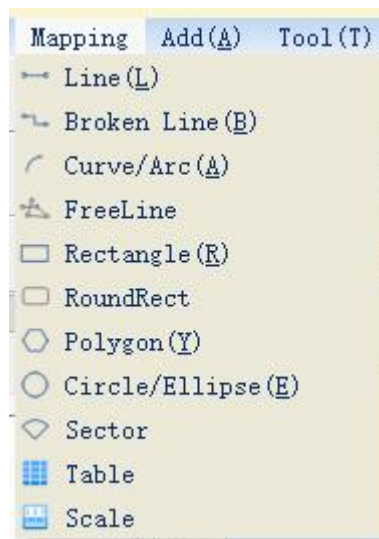
- [Bit Status Indicator]: Click to open the bit status button setting window, and set the operation type of the bit button.
- [Bit status indicator light]: Click to open the bit status indicator light setting

window, and set the indicator light monitoring address and status appearance.

- [Multi status Indicator]: Click to open the multi state button setting window, and set the operation type of the multi state button.
- [Bit Status Setting]: Click to open the bit status setting window and set the type of bit status operation.
- [Multi status Indicator]: Click to open the multi status indicator light setting window, and set the indicator light monitoring address and status appearance.
- [Multi State Settings]: Click to open the Multi State Settings window and set the operation type for multi state settings.
- [Function Button]: Click to open the function button setting window, set the type of function operation, etc.
- [Multifunction Button]: Click to open the multi function button setting window, and set the operation properties of the multi function.
- [Sliding Switch]: Click to open the sliding switch settings window and set the sliding switch properties.
- [Checkbox]: Click to open the checkbox setting window and set the checkbox properties.
- [Value Display]: Click to open the numerical display settings window and set the numerical display properties.
- [ASCII Display]: Click to open the ASCII Display Settings window and set the ASCII display properties.
- [Date/Time]: Click to open the date/time setting window and set the date/time display content.
- [Timer]: Click to open the timer settings window and set timer properties.
- [Item Menu]: Click to open the project menu settings window, and set the display type and appearance properties of the project menu.
- [Picture Display]: Click to open the image display settings window and select the image as the display content.
- [GIF Display]: Click to open the GIF display settings window, and select the GIF dynamic image as the display content.

- [Text]: Click to open the text setting window and set the text as the display content.
- [Message Display]: Click to open the message display settings window and set the text message as the display content.
- [Alarm]: click to select the alarm bar/alarm display/time display/Gantt chart chart setting window, and set the display properties, etc.
- [Data Acquisition]: click to select data to display its/Run chart/disc curve chart setting window, and set the data items to be displayed.
- [Recipe related]: Click to select the formula display/formula selector/setting window, and set the formula items to be displayed
- [Dynamic Drawing]: Click to select a flow block/dynamic drawing/dynamic scale/mobile graphics/animation settings window, set appearance properties, etc
- [Chart]: Click to open the chart setting window, and set the chart display type and appearance attribute content.
- [Data Transmission (window)]: Click to open the window data transfer settings window, modify/add data transfer items, etc.
- [QR Code]: Click to open the QR code setting window, and set the content and attributes of the QR code.
- [Direct Window]: Click to open the direct window settings window, set the display type of the direct window, and so on.
- [Indirect Windows]: Click to open the Indirect Window Settings window and set the display type of the indirect window.
- [Action Trigger (window)]: Click to open the action trigger (window) setting window, modify/add/delete action trigger (window) actions, etc.
- [File Browser]: Click to open the file browser settings window, and set the file browser properties.

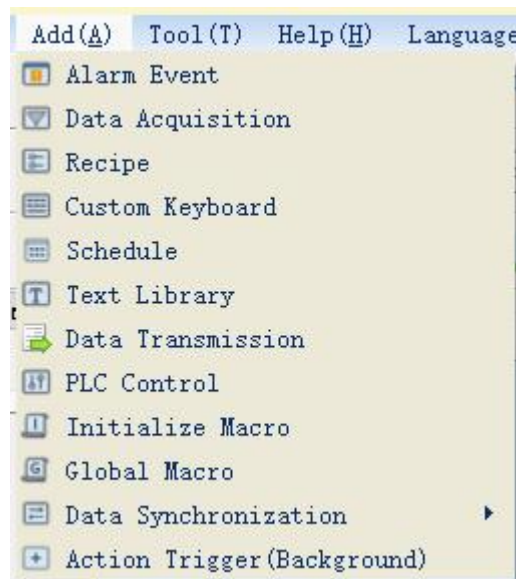
1.2.5 Mapping



Chat 1.2-5

- [Line]: Use this command to draw a straight line in any direction within the current screen.
- [Broken Line]: Use this command to draw a line in any direction within the current screen.
- [Curve/Arc]: Use this command to draw a straight line in the current screen, right-click to cancel the drawing, and adjust the arc as needed.
- [FreeLine]: Use this command to draw a line in any direction within the current screen, and the line will be drawn as the mouse moves.
- [Rectangle]: Use this command to draw a rectangle of any size within the current screen.
- [RoundRect]: Use this command to draw any rounded rectangle in the current screen.
- [Polygon]: Use this command to draw any polygon in the current screen.
- [Circle/Ellipse]: Use this command to draw an ellipse of any size in the current screen.
- [Sector]: Use this command to draw any fan in the current screen.
- [Table]: Use this command to create the desired number of rows and columns in the current screen as the underlying table.
- [Scale]: Use this command to draw the scale that the user needs.

1.2.6 Add

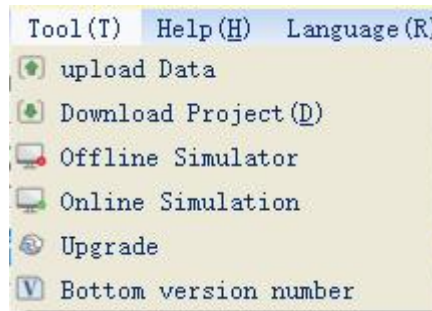


Chat 1.2-6

- [Alarm Event]: Open the alarm event setting window to create or modify alarm events.
- [Data Acquisition]: Open the data collection settings window to establish or modify data collection.
- [Recipe]: Open the recipe setting window to create or modify the recipe.
- [Custom Keyboard]: Open the custom keyboard settings window to select keyboard styles and modify keyboard button styles.
- [Schedule]: Open the scheduling settings window to create or modify the schedule.
- [Text Library]: Open the text library settings window to create or modify the text library.
- [Data Transmission]: Open the data transmission settings window to establish or modify data transmission.
- [PLC Control]: Open the PLC control settings window and modify the PLC control settings.
- [Initialize Macro]: Open the initialization macro setting window, and modify the macro instruction with or without calling it.
- [Global Macro]: Open the global macro settings window and modify macro instructions with or without calling them.

- [Data Synchronization]: Open the bit setting window for the data synchronization word address/bit address/word, and make settings and modifications.
- [Action Trigger (Background)]: Open the action trigger (background) setting window and make settings modifications.

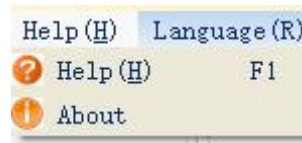
1.2.7 Tool



Chat 1.2-7

- [Upload Data]: After connecting the PC and touch screen using a download cable/Ethernet cable, click Upload Data in the menu bar tool, and the system will pop up a dialog box as shown in the following figure.
- [Download Project]: Use this command to download the set configuration to the screen.
- [Offline Simulator]: Using this command, the simulation panel can be opened, and users can simulate the current project configuration on a PC to observe the effect and correct the screen. Please save before offline simulation.
- [Online simulation]: This command can be used to open the simulation panel, which allows users to simulate the current project configuration on a PC to observe the effect and correct the screen. Please save before offline simulation.
- [Upgrade]: Use this command to open the upgrade window, click Browse to select the underlying file to be upgraded, and update the touch screen's underlying file.
- [Bottom version number]: Use this command to open a query window, query the current software version information, and click Query to view the current bottom version of the touch screen.

1.2.8 Help

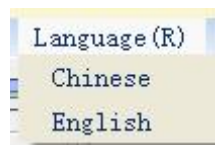


Chat 1.2-8

[Help]: Enter the configuration software help system.

[About]: Prompt for configuration software version number and copyright description.

1.2.9 Language



Chat 1.2-9

[Chinese]: Select the Simplified Chinese version of the software.

[English]: Select the English version of the software.

1.3 toolbar

The configuration screen editing software provides four toolbars, including "standard toolbar, extended toolbar, configuration toolbox, Standard state bar, information output window, project manager" and other toolbars。

1.3.1 standard toolbar



Chat 1.3-1

-  :New construction projects. The shortcut key Ctrl+N allows you to create a blank project using this command;

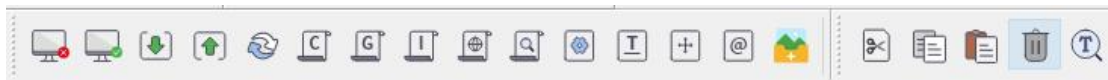
-  :Create a new screen. Use this command to create a new screen in the current project;
-  :Open the project. The shortcut key Ctrl+O allows you to open project files that have been created and saved by the user under Windows;
-  :Save. The shortcut key Ctrl+S allows you to save the current modified screen configuration. The file name and save path default to the original file name and save path;
-  :Grid. Click to add grid lines on the screen;
-  :Lock. Use this command to lock the selected buttons on the screen, which cannot be moved after being locked;
-  :Unlock. Use this command to unlock the screen buttons;
-  :Combination. Use this command to combine multiple selected graphic objects into one graphic object;
-  :Ungroup. Using this command can decompose the selected graphic object generated by the combination command into a single graphic object, which is the inverse operation of the combination command;
-  :Revoke. Shortcut keys Ctrl+Z, use this command to cancel the last operation command, and use this command to cancel your last operation;
-  :Restore. Shortcut key Ctrl+Y, use this command to restore the last operation command, and use this command to restore your most recent operation;
-  :Previous screen. Switch the current screen to the previous screen;
-  :Next screen. Switch the current screen to the next screen;
-  :Align left. Use this command to align the left boundary of multiple selected graphic objects on the left side;

-  :Center horizontally. Use this command to center multiple shapes you have selected horizontally;
-  :Align right. Use this command to align the right boundary of multiple selected drawing objects on the right side;
-  :Align up. Use this command to align the upper boundaries of multiple graphic objects you have selected with the upper edges;
-  :Vertically centered. Use this command to center multiple shapes you have selected vertically;
-  :Bottom alignment. Use this command to align the lower boundaries of multiple selected graphic objects at the bottom;
-  :Same width. Use this command to make the graphic width of the selection group the same; Set the benchmark based on the last selected control;
-  :Same height. Use this command to make the height of the selected group's graphics the same; Set the benchmark based on the last selected control;
-  :The height and width are the same. Using this command can make the width and height of the selected group's graphics the same; Set the benchmark based on the last selected control;
-  :Color consistency. Use this command to unify the colors of different shapes into consistency, using the last selected control as the setting benchmark;
-  :Horizontally equidistant. Use this command to perform horizontal equidistant operations between multiple (3 or more) shapes you have selected;
-  :Vertically equidistant. Use this command to perform vertical equidistant operations between multiple (3 or more) shapes you have selected;
-  :Equal distribution. Average the horizontal distance of the selected control;

-  :The horizontal center point of the window. Adjust the selected content to the horizontal center position of the screen/window;
-  :The vertical center point of the window. Adjust the selected content to the vertical center position of the screen/window;
-  :Move to the top level. Use this command to place the selected graphic object at the top of the screen;
-  :Move to the lowest level. Use this command to place the selected graphic object at the bottom of the screen;
-  :Move to the previous layer. Use this command to move the selected graphic object up one level;
-  :Move to the next level. Use this command to move the selected graphic object down one layer;
-  :Flip vertically. Use this command to flip a single or multiple selected shapes around the horizontal center axis;
-  :Flip horizontally. Use this command to flip a single or multiple selected shapes around the vertical center axis;
-  :Restore. Use this command to restore the current screen to its standard size;
-  :Zoom in. Use this command to double the current screen size. To continue zooming in, please continue executing this command;
-  :Zoom out. Use this command to double the current screen size. To continue shrinking, please continue executing this command;
-  :Move up one grid. Move the selected content up one pixel;
-  :Move down one grid. Move the selected content down one pixel;
-  :Move left one grid. Move the selected content to the left by one pixel;

-  :Move one grid to the right. Move the selected content to the right by one pixel;
-  :Reduce height. Reduce the height of the selected control by one pixel;
-  :Increase height. Increase the height of the selected control by one pixel;
-  :Reduce width. Reduce the width of the selected control by one pixel;
-  :Increase the width. Increase the width of the selected control by one pixel.

1.3.2 Expand toolbar



Chat 1.3-2

-  :Offline simulation. Offline simulation can be achieved as long as the software communicates with the PC;
-  :Online simulation. It requires software, a PC, and a touch screen to achieve online simulation, which is more intuitive and realistic;
-  :Download the project. Download the written configuration to the touch screen;
-  :Upload data. Upload the configuration from the touch screen to the PC;
-  :Upgrade. Connect the computer and HMI with a download cable to perform a low-level upgrade of the HMI;
-  :Macro instruction editor. Open the script browser and enter the macro instruction editing interface;
-  :Global macro. Enter the Global Macro Manager;
-  :Initialize macro. Enter the initialization macro manager;
-  :Macro instruction manager. Open the Macro Command Manager and view the call details of macro commands in the configuration screen;
-  :Macro instruction lookup. Find the call status of the specified macro instruction in the project based on its name;

- :Attribute settings. Open the selected control property settings window;
- :Text list. Open the text list to view the text information of the specified screen/all screens of the project, and edit and modify the text;
- :List of controls. Open the control list and view the usage of the specified screen/all screens/custom display controls for the project;
- :List of addresses. Open the address list and view the usage status of the specified screen/all screens/custom display addresses for the project;
- :Drawing library. Enter the Drawing Library Manager;
- :Cut. Cut the selected content;
- :Copy. Copy the selected content;
- :Paste, paste the cut/copied content onto the screen;
- :Delete, delete the selected content;
- :Find/Replace, open the Find/Replace window to find the usage of the project's text/address in the project screen, and replace the text.

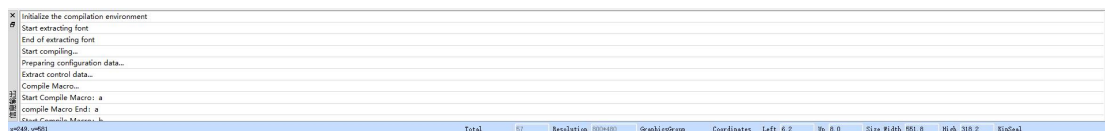
1.3.3 Standard state column



Chat 1.3-3

Standard state Bar: When a control is selected, the left and top coordinates of the control, as well as the width and height of the control are displayed.

1.3.4 Information output window



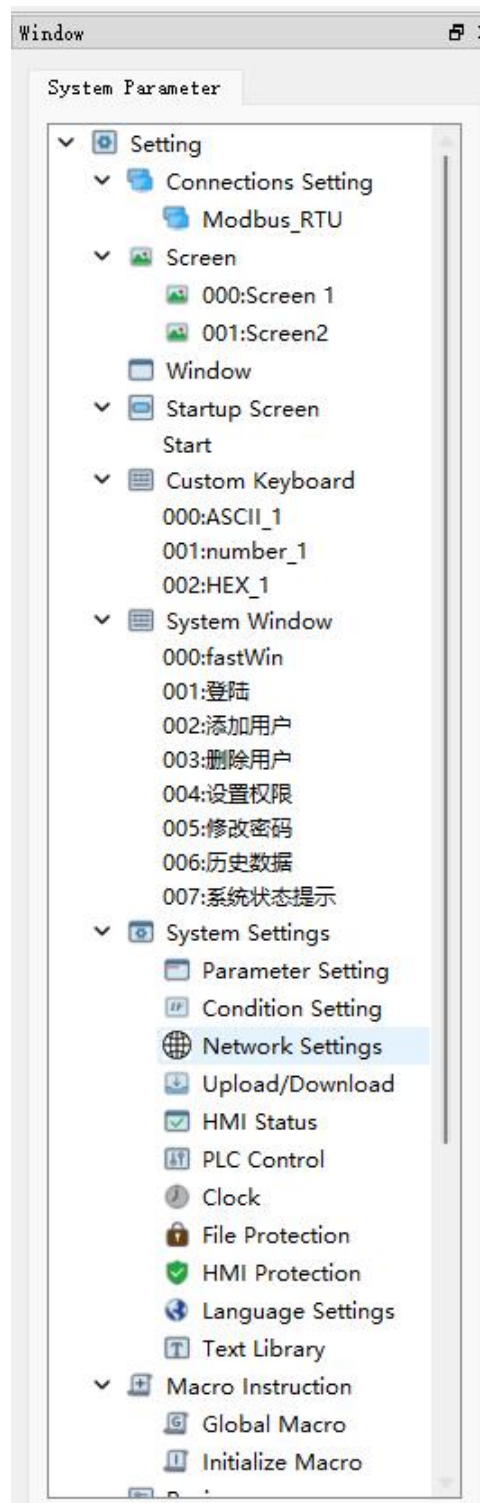
Chat 1.3-4

The main function of the information output window is to output information about a certain function currently being operated, such as address search, input address, click OK, and the control name with the same written address will be output in the

information output window.

1.4 staging

1.4.1 system parameter



Chat 1.4-1

Used to configure parameters related to the entire project, such as setting the cover window, permissions to run the project, and startup screen. There are several control buttons:

- [Connections Setting]: Mainly used to set communication parameters between the touch screen and the connected device through the communication port.
- [Screen]: Set the HMI screen.
- [Window]: Set the HMI window.
- [Startup screen]: Set the HMI startup display interface.
- [Custom Keyboard]: When users need to use their own defined keyboard functions and styles, they can set the required custom keyboard through the combination of function key controls, numerical controls, character controls, images, text, and other controls.
- [System Window]: The built-in window of the system.
- [System Settings]: In order to ensure the normal operation of the configuration project in the touch screen, including normal communication with the PLC, the parameters must be set in the configuration.
- [Parameter Setting]: Set the selection and initial parameters of the project
- [Condition Setting]: Set the conditions in advance and call them in Alarm Event Multi condition Alarm and Permission Setting.
- [Network Settings]: Set up the local network.
- [Download Status Setting]: Set the download project.
- [HMI Status]: Set the HMI status.
- [PLC control]: The data transmission between PLC and HMI is controlled by the value of the trigger address.
- [Clock]: The clock can be written to the HMI system through the PC, or the HMI system time can be synchronized to the PLC or the PLC time can be synchronized to the HMI system clock through settings.
- [File Protection]: Protects the project. When file protection is set, the correct password needs to be entered every time the project is opened.

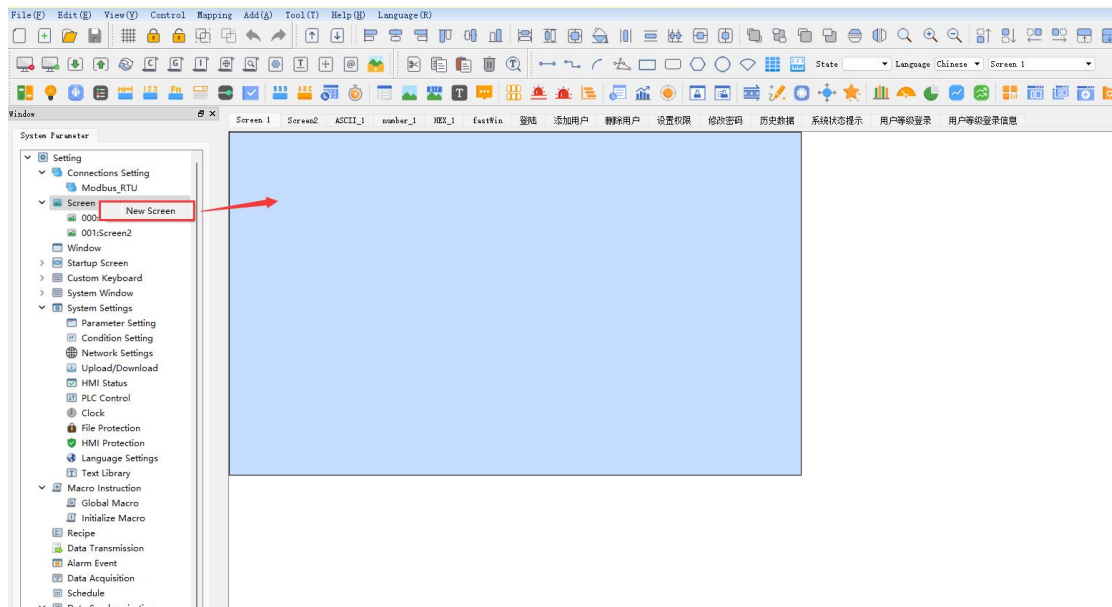
- [HMI Protection]: Set the usage period of the HMI and notify the expiration date in advance.
- [Language Settings]: When multiple languages are needed, language types can be added to the language settings and used in conjunction with the text library.
- [Text Library]: When the control needs to use the labels in the [Text Library], it can add labels in the [Text Library] and set corresponding states and text in different languages. When adding a new language, it can be added in the [Language Settings].
- [Macro Instructions]: Macro instructions are an advanced touch screen control method that makes the touch screen more powerful. By programming macro instructions, the touch screen can have the same logic and arithmetic operation functions as PLC. Flexible use of macro instructions can achieve many powerful functions that conventional controls cannot achieve, making your human-machine interface more perfect, including global macros and initialization macros.
- [Recipe]: To use the recipe function, it is necessary to first complete the configuration design of the recipe group before using the recipe components or functions to display and edit the recipe.
- [Data transmission]: Data transmission refers to the transmission of data (word values or bit states) from the source address to the target address at a fixed time frequency, and the transmission method is timed.
- [Alarm Event]: The trigger conditions and alarm information of the alarm event can be defined here. The HMI system will trigger the event according to the set trigger conditions, and the alarm information will be displayed in [Alarm Bar], [Alarm Display], [Event Display] and [Gant chart Chart].
- [Data acquisition]: the data can be collected in real time/historically, and the trigger mode can be periodic/triggered. The collected data can be displayed in [Data Display], [Run chart] and [Disk Curve Chart], or the collected data can be saved to the USB flash disk.
- [Schedule]: Set the status of the bit address to ON or OFF at the specified time, or write a value to the word address.
- [Data synchronization]: Data synchronization can achieve data exchange between two serial ports on the touch screen.
- [Recipe Import/Export]: Recipe import/export can export existing recipes to a USB drive, or import recipes from a USB drive into a recipe database.

- [Action trigger (background)]: When the conditions for idle time/numerical changes are met, the action will be triggered.
- [Operation Record Settings]: Click to enable the operation record function, and the operation record will be displayed in Operation Record Display.

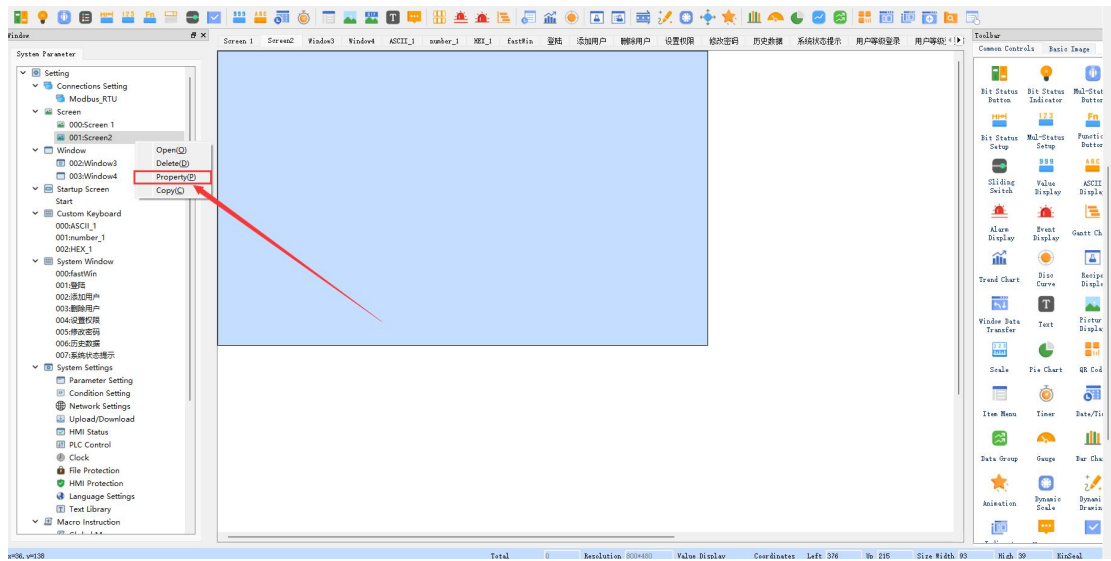
Chapter2 Application Examples of Window Screen

The window display screen of the human-machine interface bears the heavy responsibility of directly interacting with engineering users. This chapter displays several commonly used window screen display methods through configuration software, allowing users to quickly grasp the commonly used window screen function configuration methods.

As shown in Figure 2-1, users can click [New Screen] and set user screen attributes (such as screen name) in the screen attribute settings. Window Similarity.

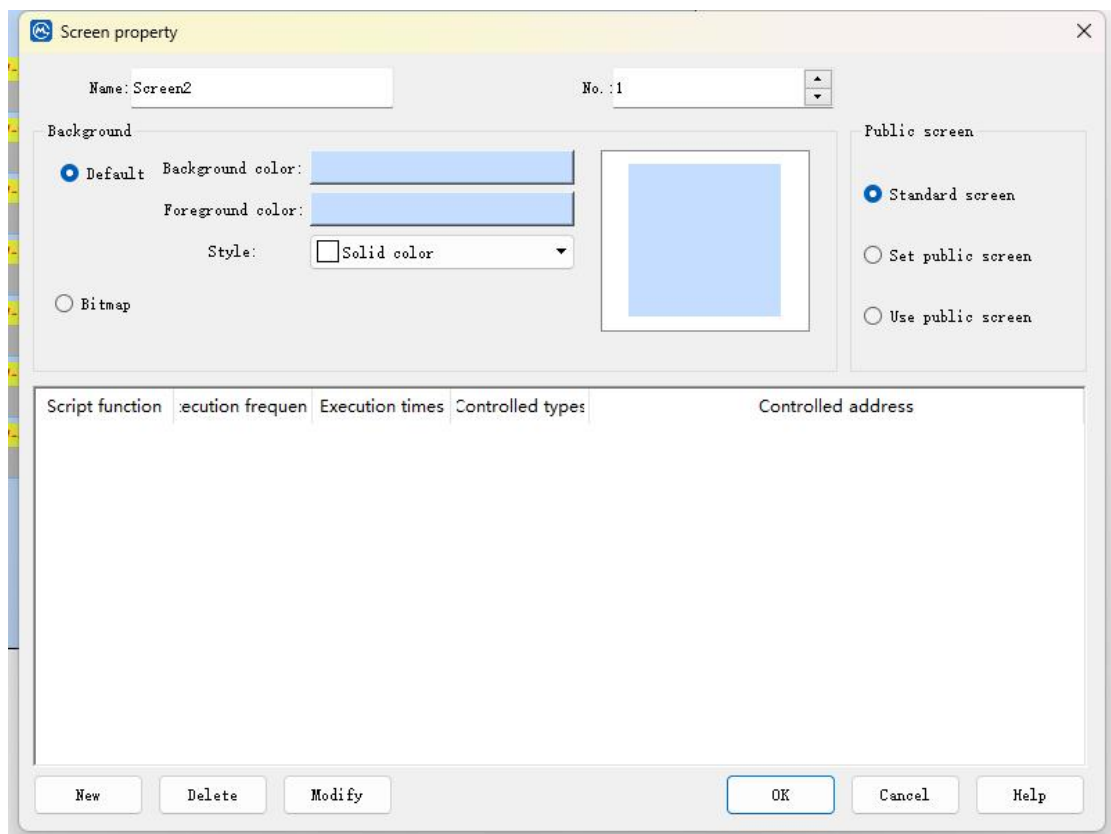


Chat 2-1



Chat 2-2

Enter [Screen Properties] to set the screen name, number, etc. As shown in Figure 2-3.



Chat 2-3

2.1 Engineering Business Card

This section mainly introduces how to set the initial window number, startup screen, and QR code display information function for the project.

2.1.1 Initial window number and startup screen settings

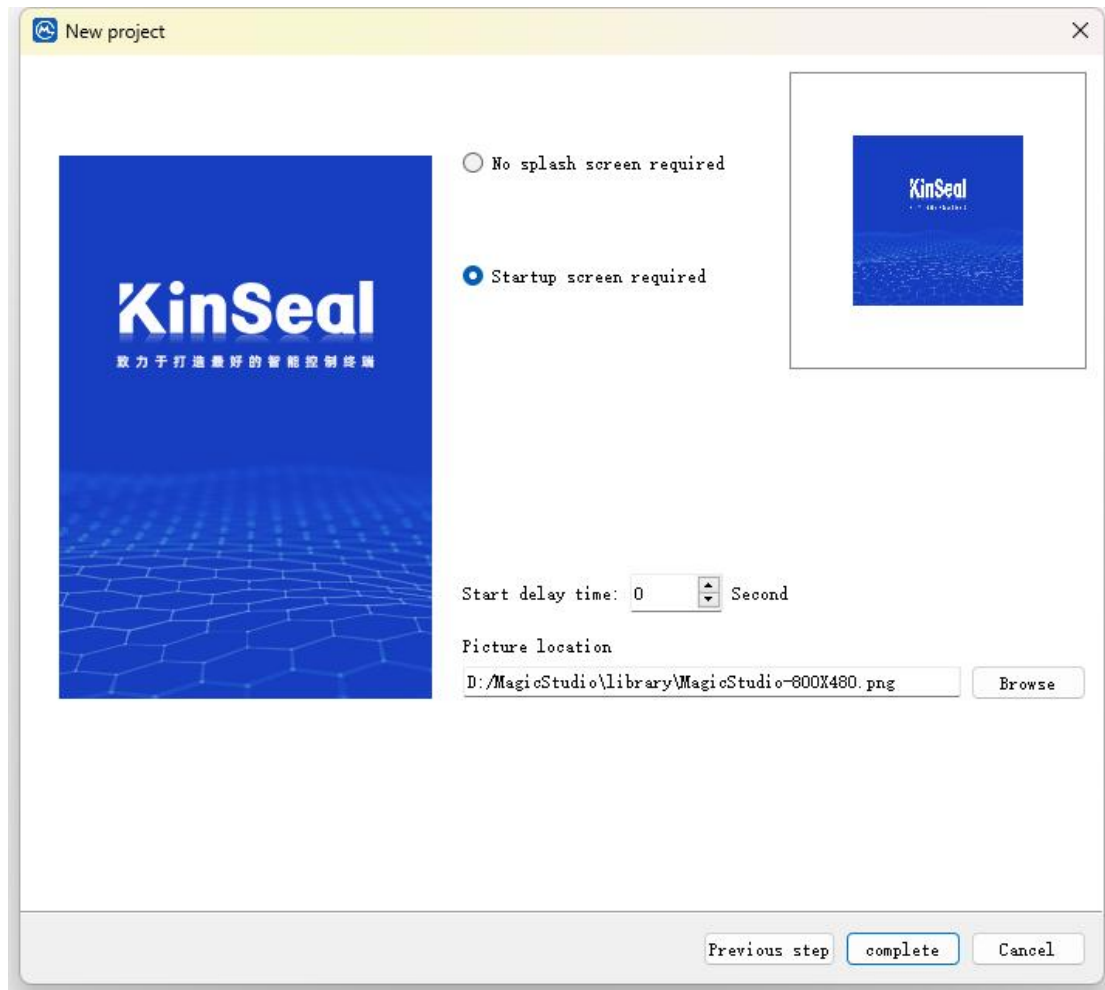
Initial window number and startup screen function: For configuration software engineering, the startup sequence of user window screens is: startup screen → initial window. If the project selects 'No startup screen required', the 'Initial window' will be displayed directly during offline simulation.

- **Startup screen**

The startup screen serves as the first user interface displayed in the project, and its display time can be manually specified. When the startup screen runs, wait for the cover window display time to run out, and the project will automatically open [Initial Screen].

The method for setting the startup screen is as follows:

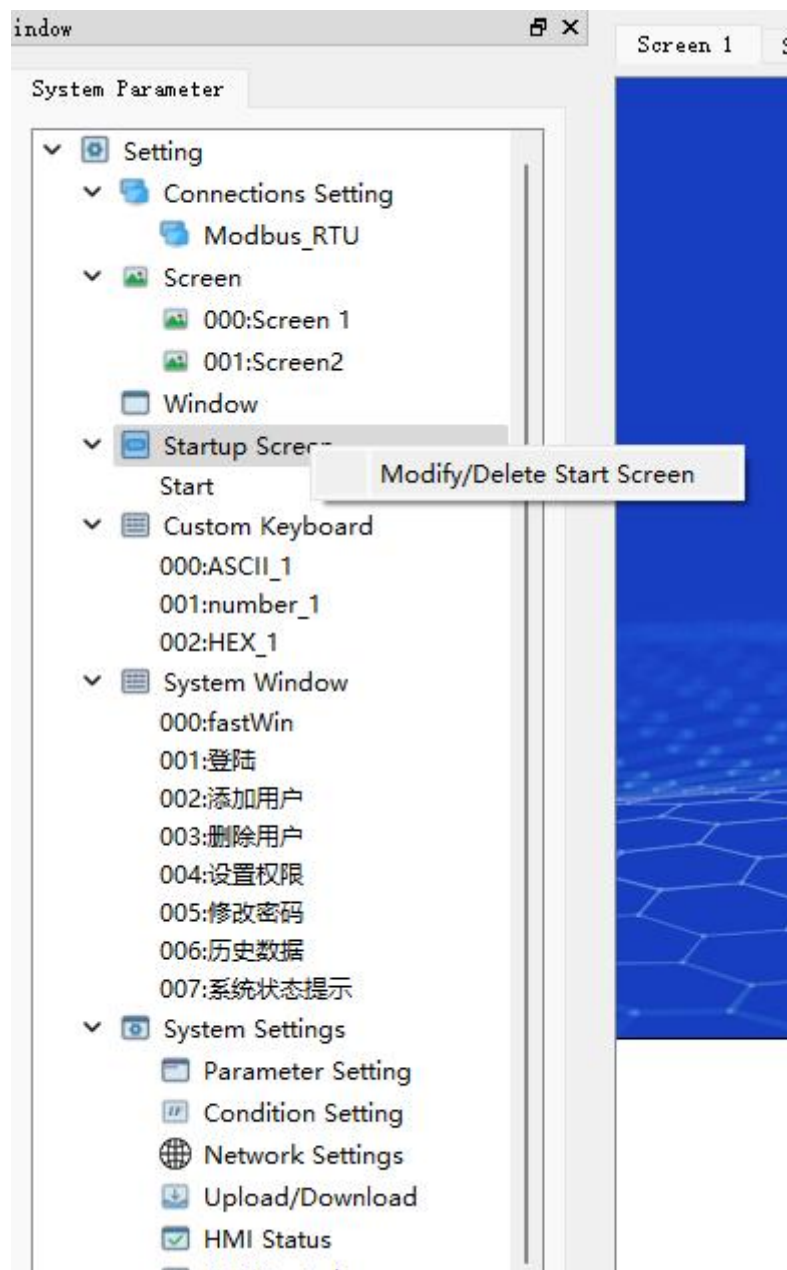
Method 1: When creating a new project, after setting the project name, click [Next] → [Next]. The following interface will appear, where you can set the image position and time of the startup screen. As shown in Figures 2.1-4;



Chat 2.1-4

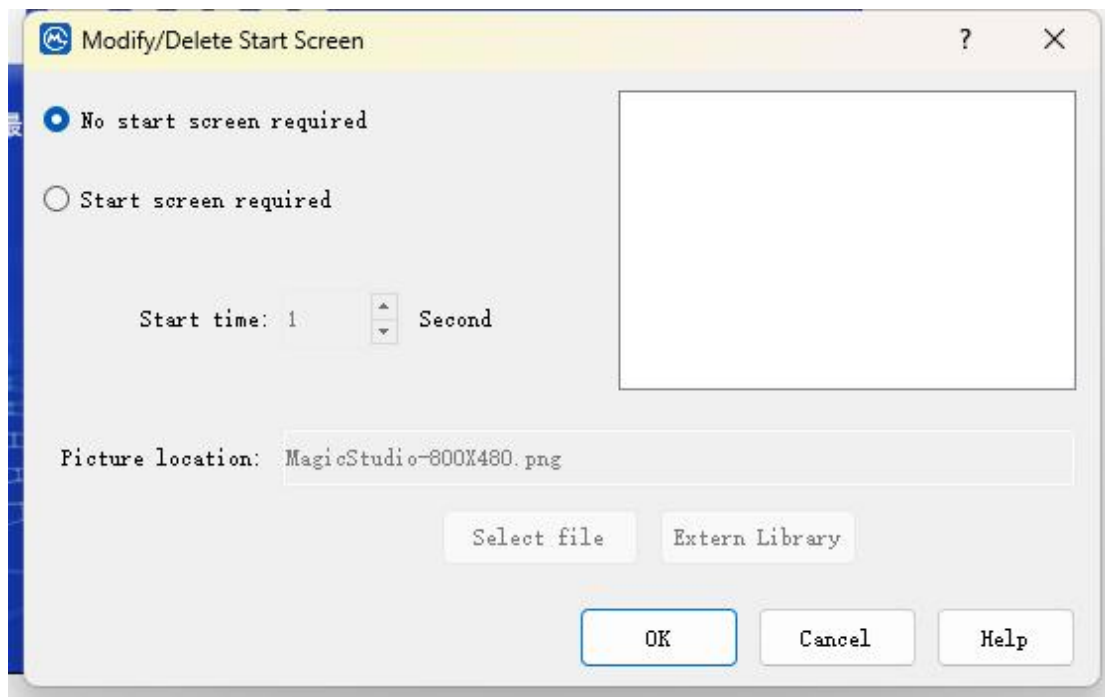
Method 2:

- ① Select and right-click on [Start Screen] in the left system parameter bar, click on [Add Start Screen], as shown in Figure 2.1-5.



Chat 2.1-5

② Set the startup screen image and time, click [OK] to set the successful startup screen.



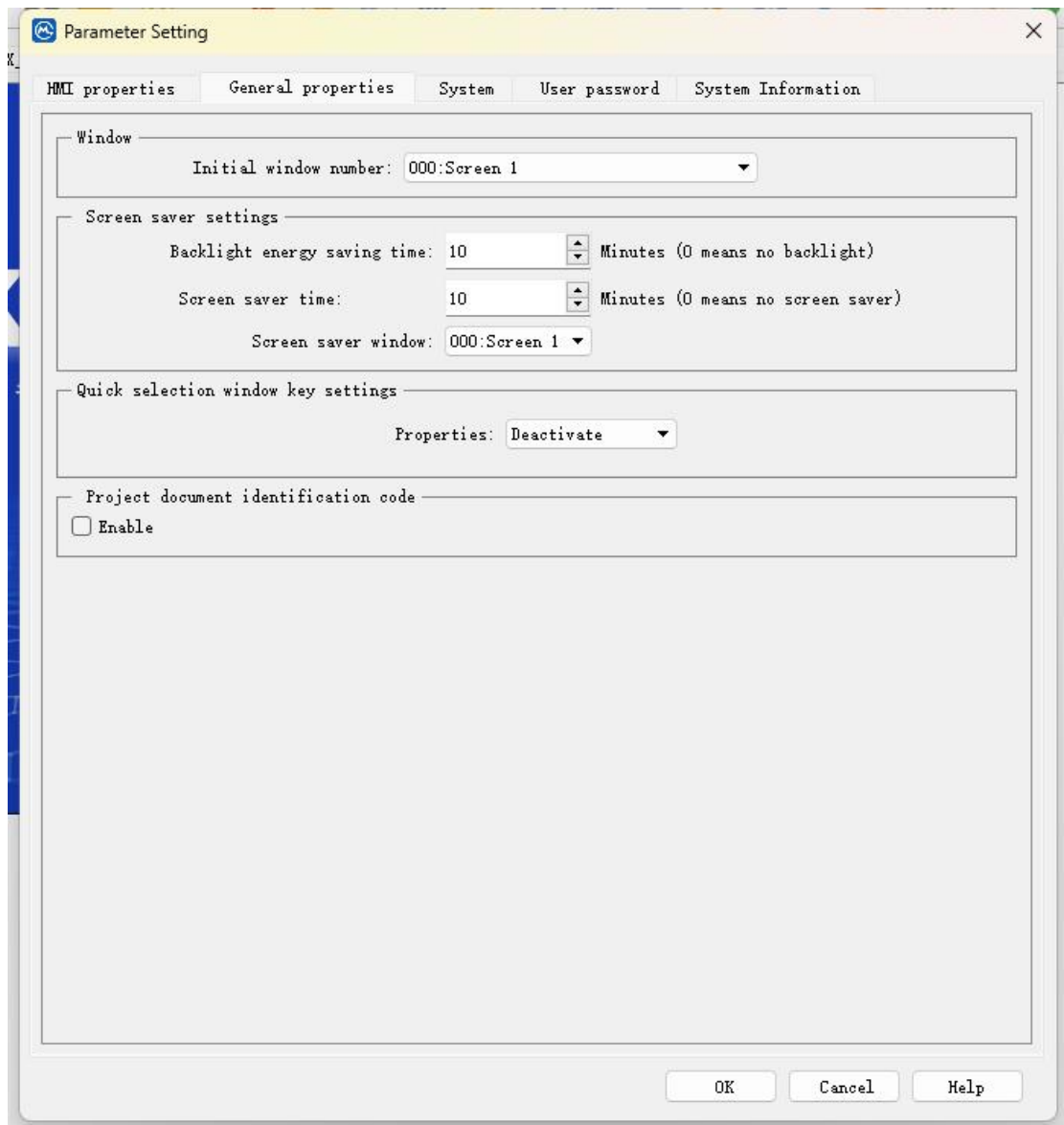
Chat 2.1-6

- Initial screen

Initial screen: As the user window that starts after the display of the startup screen is completed, it also needs to be manually set by the user. The initial screen can be set by the following methods.

① Double click on [Parameter Setting] in the left system parameter bar to enter the parameter setting interface, select [General Properties] → [Initial Window Number], as shown in Figure 2.1-7.

Note: This number refers to the numerical number before the screen name.



Chat 2.1-7

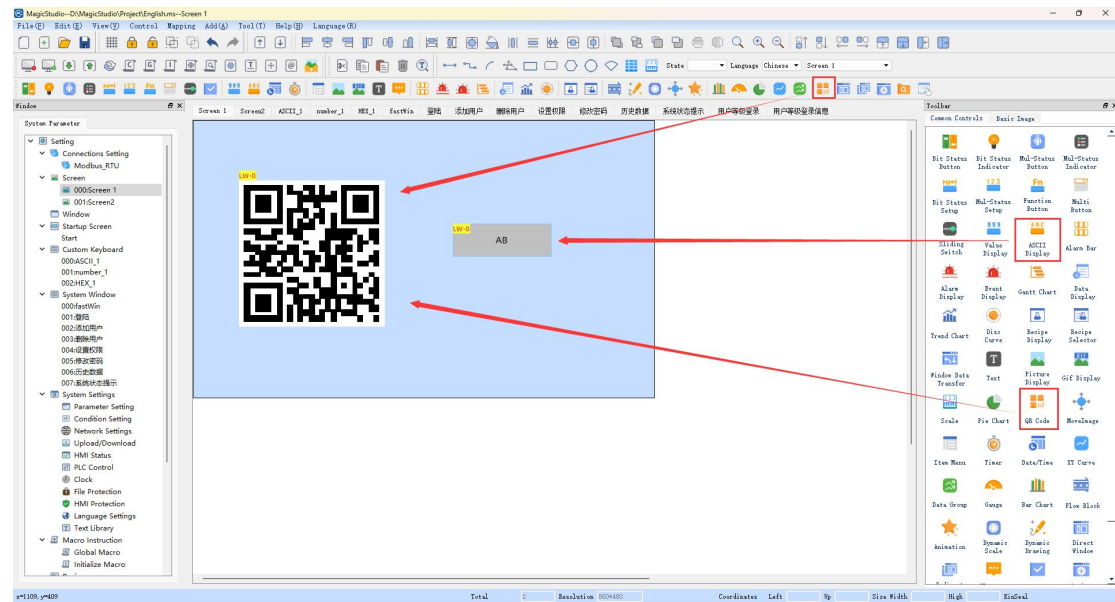
2.1.2 QR code display information

Users who use configuration software can display character information in a QR code format through the built-in QR code control of the software. Users can use an app with a "scan" function on their phone or directly use a QR code scanner to scan and obtain the displayed QR code information while the project is running.

The method for setting the QR code is as follows:

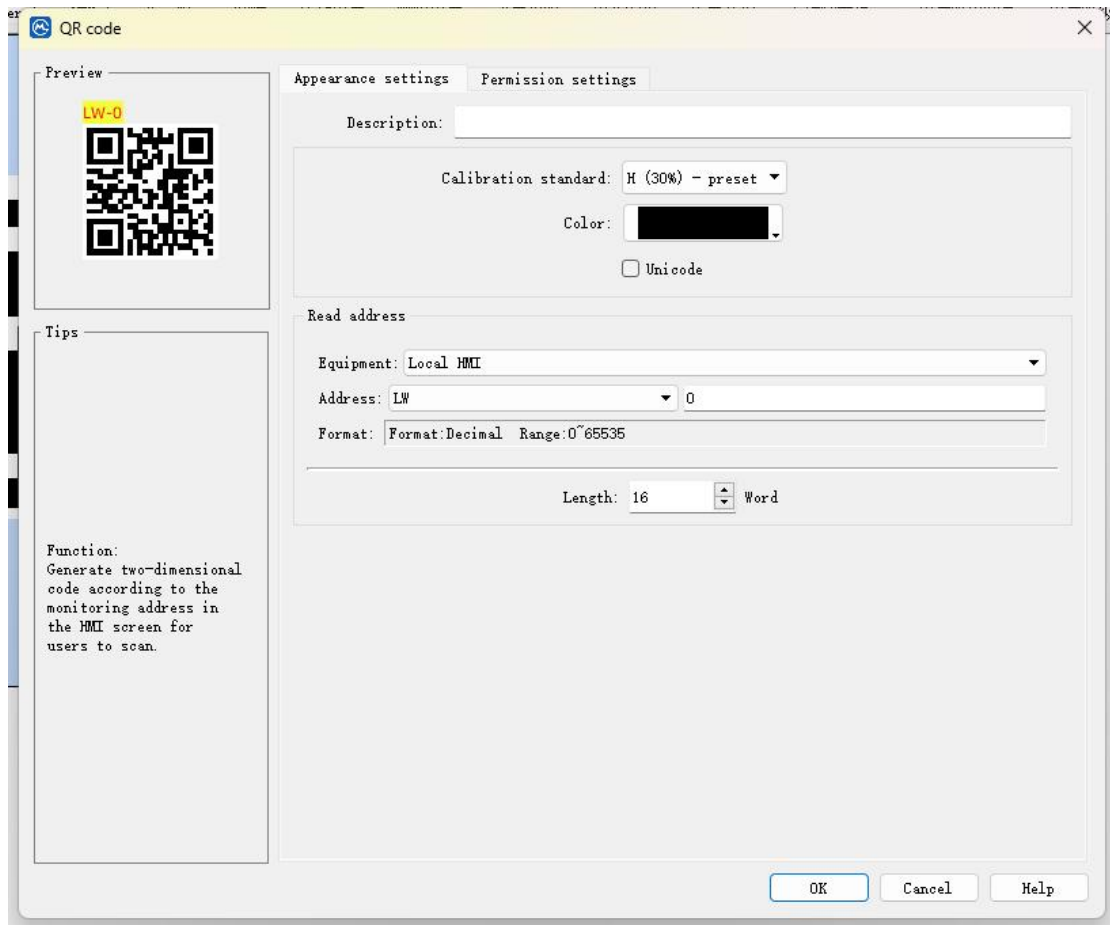
- ① Click on the [QR Code] control in Figure 2.2-1 to enter the attribute setting interface of the QR code control; Set the bit address in the QR code control property

setting interface, as shown in Figure 2.2-2; The QR code control needs to be used with an ASCII display or numerical display. By inputting data to a specified word address, a corresponding QR code of the data can be generated in the window for scanning.



Chat 2.2-1

② Double click on the QR code control in Figure 2.2-1 to enter the attribute setting interface of the QR code control shown in Figure 2.2-2;



Chat 2.2-2

QR code attribute configuration information

- a. **Calibration standards:** The fault tolerance of the QR code can be selected. (Fault tolerance refers to the ability of QR codes to read content even in a damaged state).
- b. **Color:** Select the display color for the QR code.
- c. **Unicode:** When checked, the content of the two-dimensional barcode will be generated in Unicode encoding form.
- d. **Length:** The length of data displayed in the QR code.

2.2 Data display and input

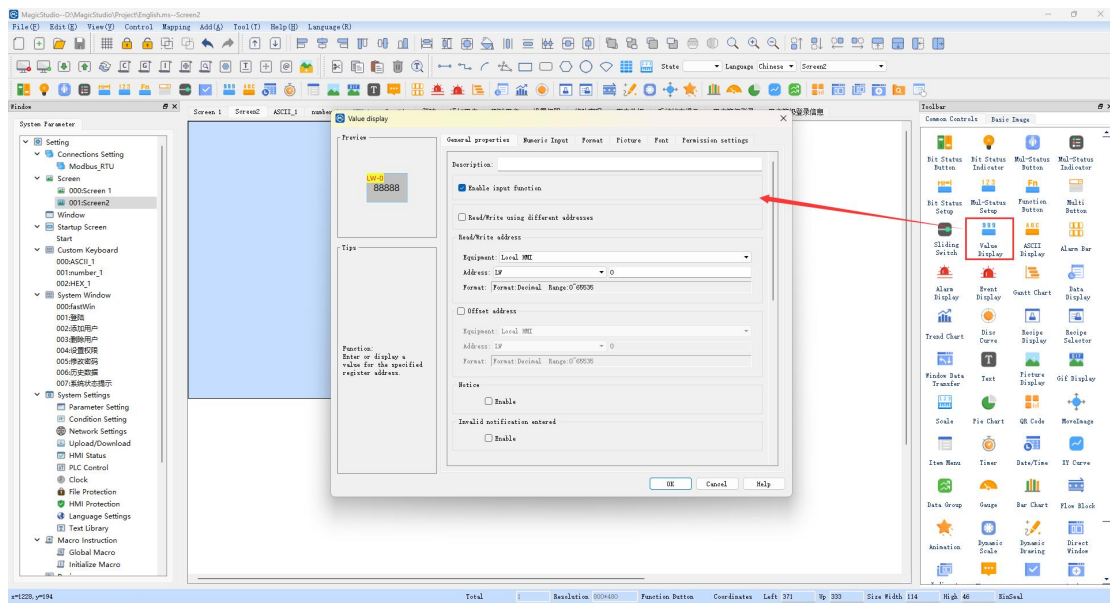
The display and input of data are commonly used functions by users during engineering configuration. Configuration software provides dedicated label controls and input box controls to achieve data display and input functions.

2.2.1 numeric display

Numeric controls include numerical input and display, where data is written in numerical form to a specified register address or read from a specified register address and displayed in numerical form.

The usage method is as follows:

① Click on the [Numerical Display] control in Figure 2.2-3 to enter the numerical display property setting interface, where you can set bit addresses and other information;



Chat 2.2-3

② Double click on the numerical display control in Figure 2.2-3 to enter the interface for setting the properties of the numerical display control;

Numerical display attribute configuration information

a. **Enable input function:** Check this option and when clicked, a keyboard will pop up for numerical input.

b. **Address:** Select the address corresponding to the protocol in the device, which can be an external address or an internal address (word address) of the touch screen.

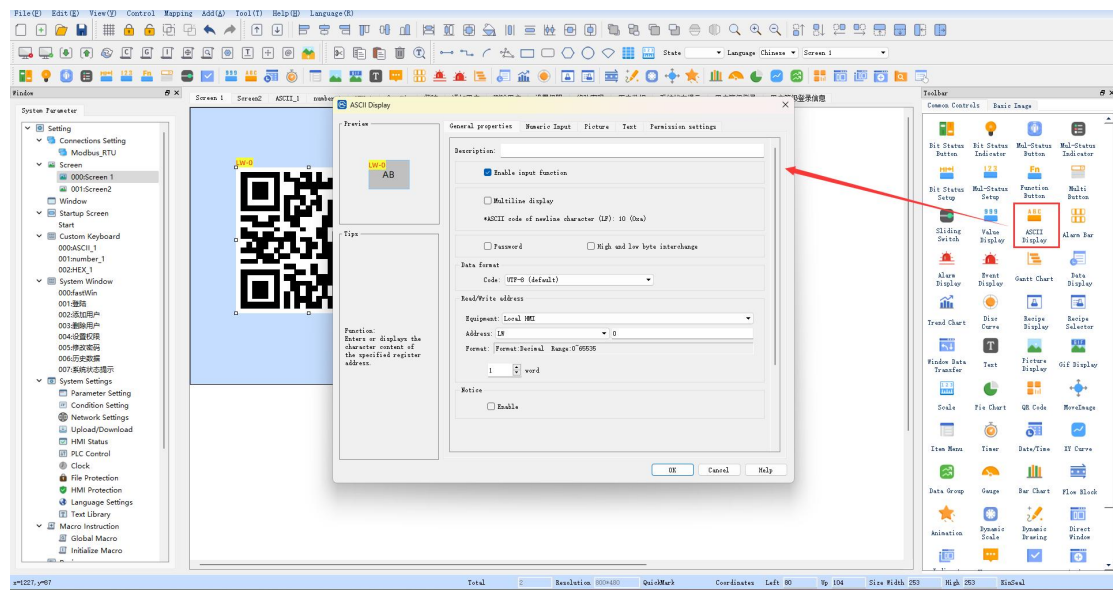
c. **Offset address:** When this option is checked, the read/write address can be specified through the offset address; Actual address=value of read/write address+offset address.

2.2.2 ASCII Display

Enter or display text and symbols within a word address.

The usage method is as follows:

① Click on the [ASCII Display] control in Figure 2.2-4 to enter the ASCII Display Attribute Setting interface, where you can set bit addresses and other information;



Chat 2.2-4

② Double click on the ASCII display control in Figure 2.2-3 to enter the ASCII display control property setting interface;

ASCII Display Attribute Configuration Information

a. **Enable input function:** If this option is checked, it means that the keyboard will pop up when touching the ASCII code display, allowing you to input the desired characters on the keyboard. If this option is not checked, it means that the ASCII code display can only display characters and cannot input characters.

b. **Multi line display:** When the number of input characters reaches the maximum number of digits on a single line of the display, the excess will be displayed in a new line (alignment methods are top, center, and bottom).

c. **Password:** After checking this option, the display of characters when entering characters is in the form of *, which is a mask.

- d. **High and low byte swapping:** The value taken by the user from the word monitoring address is swapped between high and low bytes before being displayed, that is, the first input character is converted to the second input character before being displayed. For example, when entering AB, BA is displayed, and every two characters are swapped.
- e. **Address:** Select the address corresponding to the protocol in the device, which can be an external address or an internal address (word address) of the touch screen.

2.3 Enter keyboard settings

Components with input functions (such as input boxes and label components) can be set with keyboard types. The configuration software supports the following two keyboard input methods:

System default keyboard: The system keyboard is selected by default without selecting a custom keyboard;

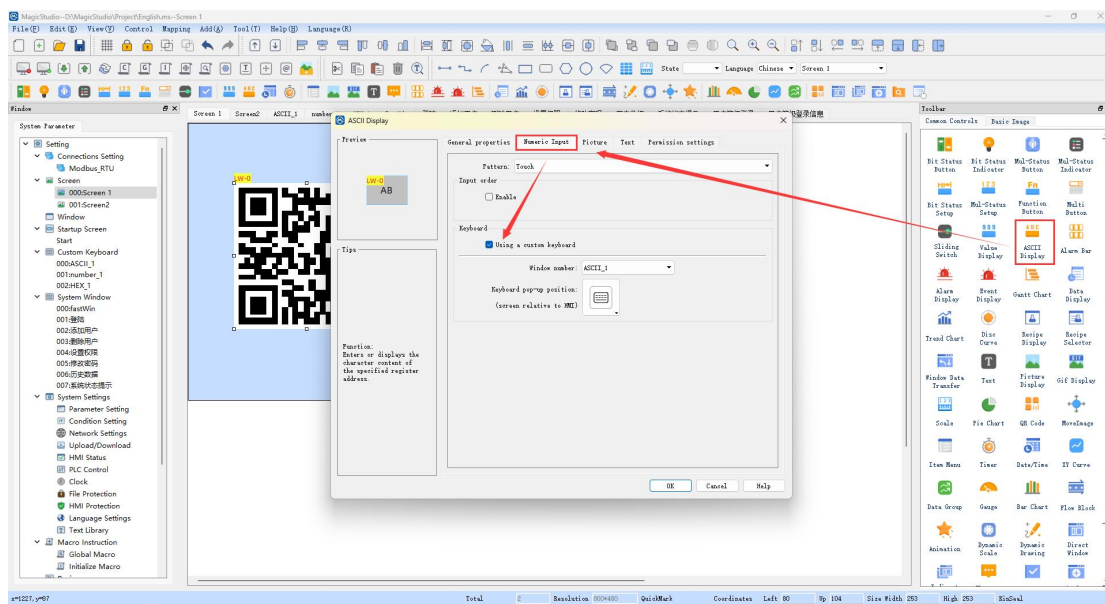
Custom keyboard: The input keyboard customized by users during engineering configuration. The configuration software comes with three custom keyboards.

This section mainly explains the usage of the system default keyboard and custom keyboard.

2.3.1 System default keyboard

Taking the ASCII display as an example, the default keyboard setting method for the system is as follows:

[ASCII Display]→[Numeric Input] → Uncheck [Use Custom Keyboard].



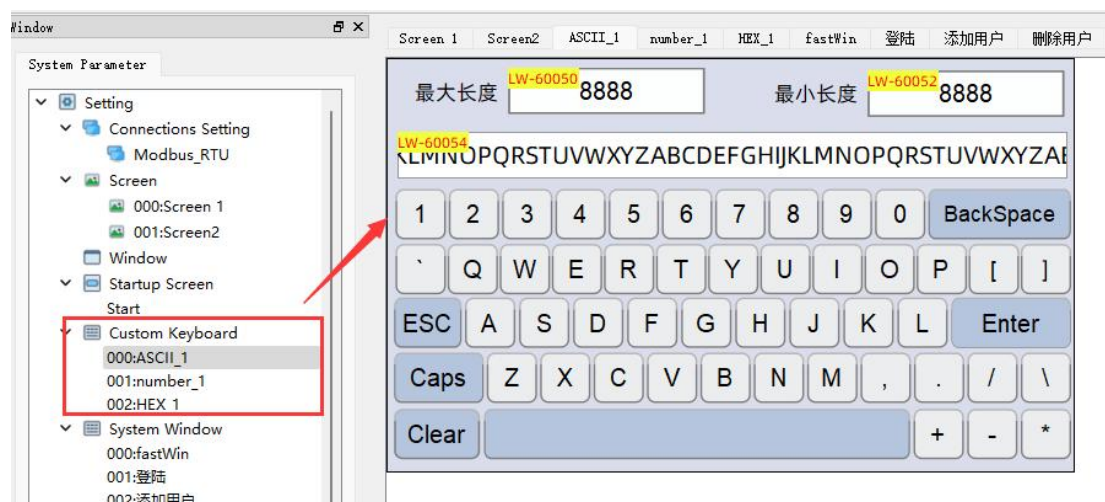
Chat 2.3-1

2.3.2 Customize Keyboard

A custom keyboard can be used to replace the system default keyboard, which essentially places the keyboard button in a specified window and then calls this window through components such as input boxes to implement the custom keyboard function.

When users need to use their own defined keyboard functions and styles, they can use the combination of function key controls, numerical controls, character controls, images, text, etc. to set the desired custom keyboard.

The system comes with a custom keyboard, as shown in Figure 2.3-2,



Chat 2.3-2

There are two ways to set up a custom keyboard.

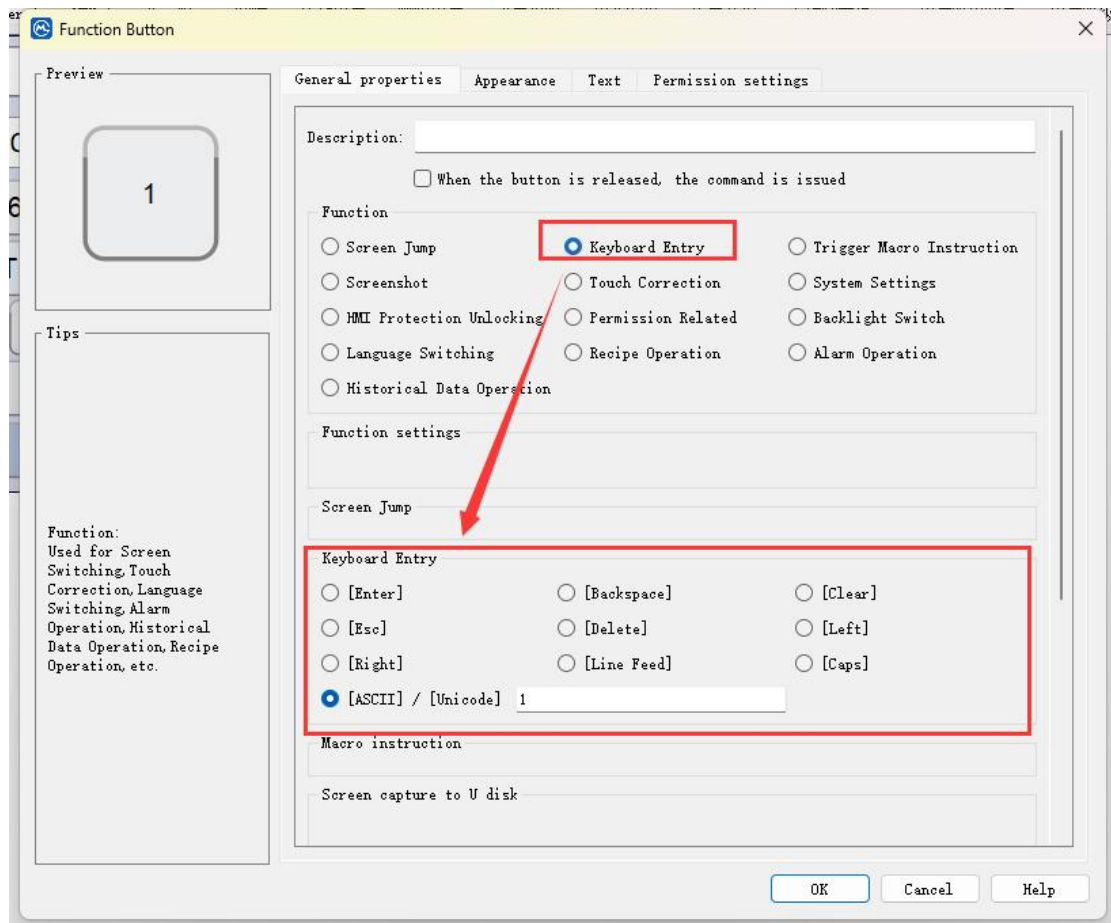
Method 1: Add a custom keyboard.

- ① Select a custom keyboard and right-click to add a new one.



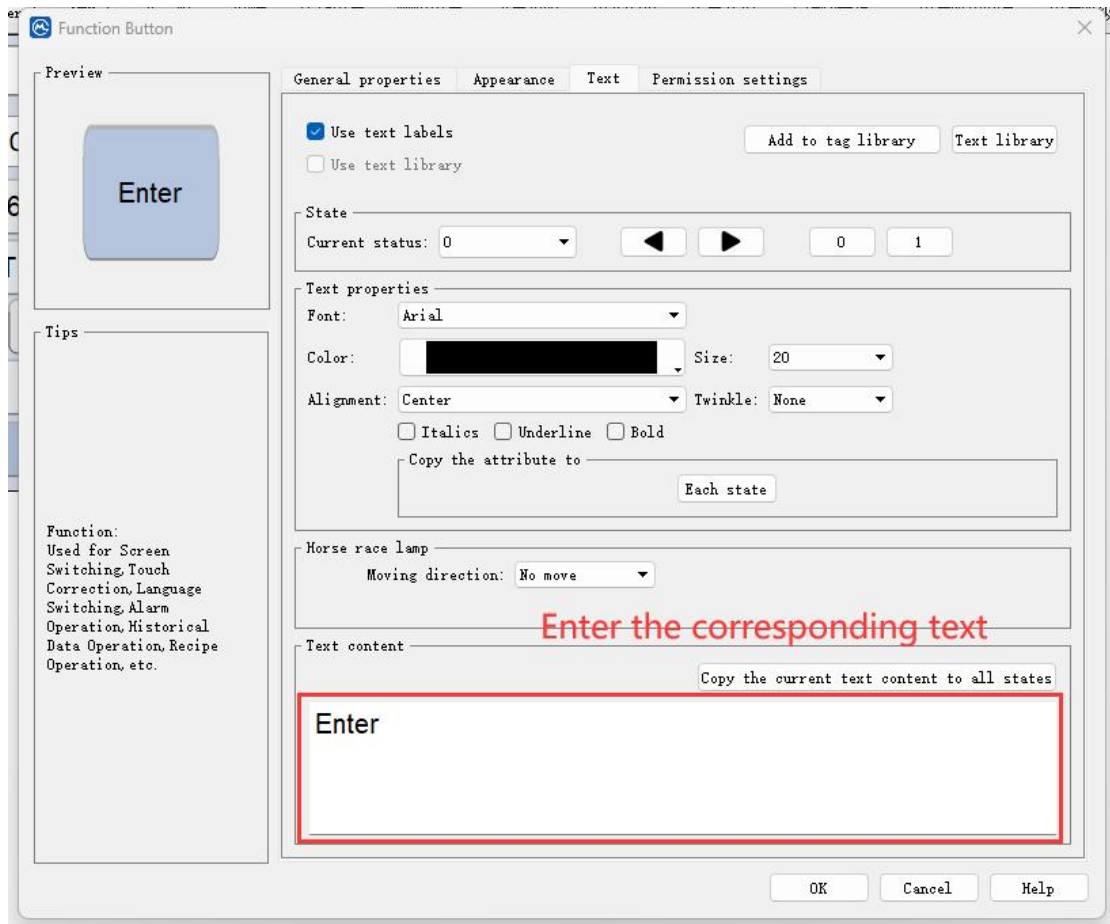
Chat 2.3-3

- ② Add function buttons on the custom keyboard screen and select keyboard input.



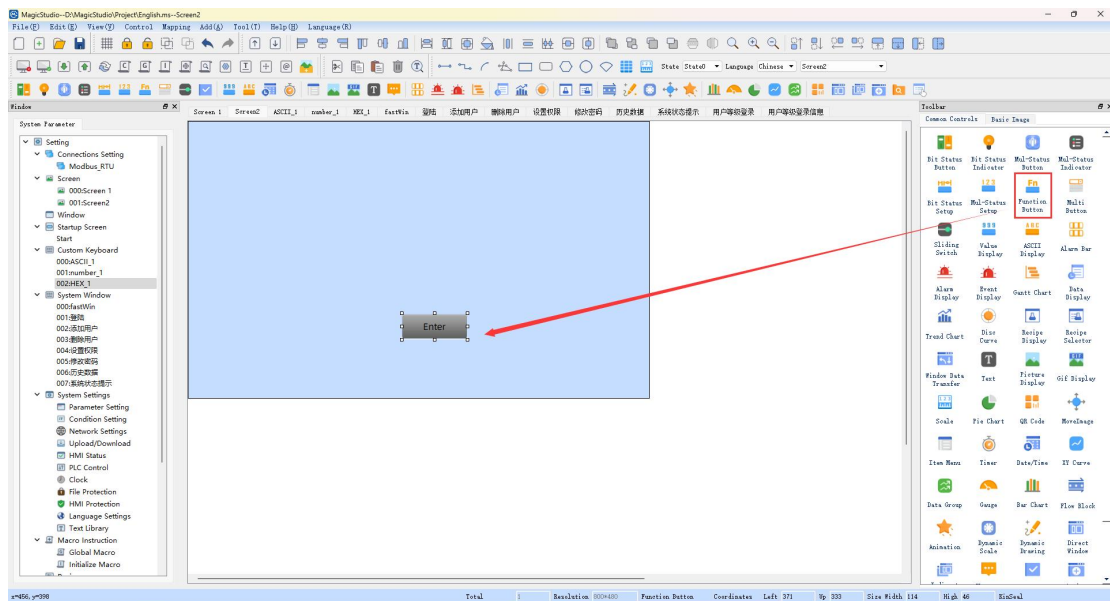
Chat 2.3-5

- ③ Select the corresponding kinetic energy in the keyboard input, such as Enter, and note the function in the text position.



Chat 2.3-6

④ After clicking OK, place it in the appropriate location.



Chat 2.3-7

Operation attribute configuration information

a. **Enter:** Enter operation on the same keyboard.

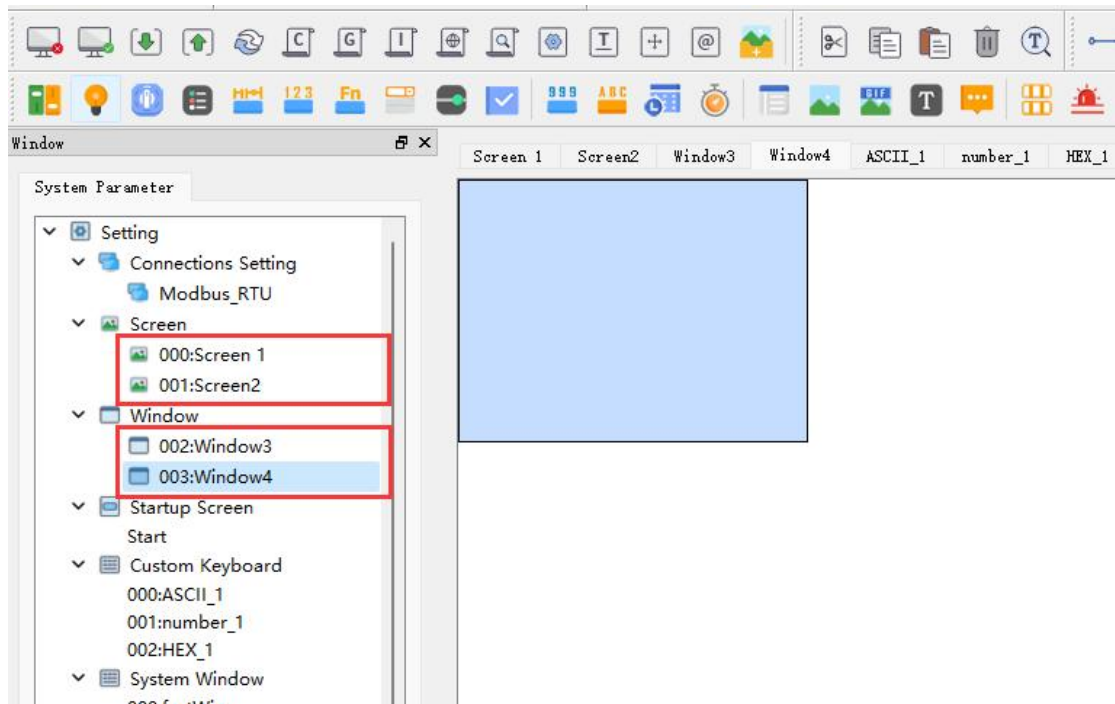
- b. **Backspace:** Same as the Backspace operation on the keyboard.
- c. **Clear:** Clears data that has been entered but not confirmed by the input control.
- d. **Esc:** Can be used to close pop-up keyboard windows.
- e. **Delete:** Delete operation on the same keyboard.
- f. **Left:** Left arrow key (←) operation on the same keyboard.
- g. **Right:** Right arrow key (→) operation on the same keyboard.
- h. **Line feed:** line feed.
- i. **Inc:** Add one to the current value.
- j. **Dec:** Reduce the current value by one.
- k. **ASCII / UNICODE:** Set the text that needs to be input.

2.4 Public window function

The 'public window (screen)' can be seen as a template window referenced by other windows (screens). Corresponding to the concept of public window (screen) is "host window (screen)", which refers to the user window (screen) that references the public window (screen). In the same project, any user window (screen) can be designated as a public window (screen) of another user window (screen). All components in the public window (screen) can be inherited by the host window (screen) and displayed at the bottom level of the host window (screen).

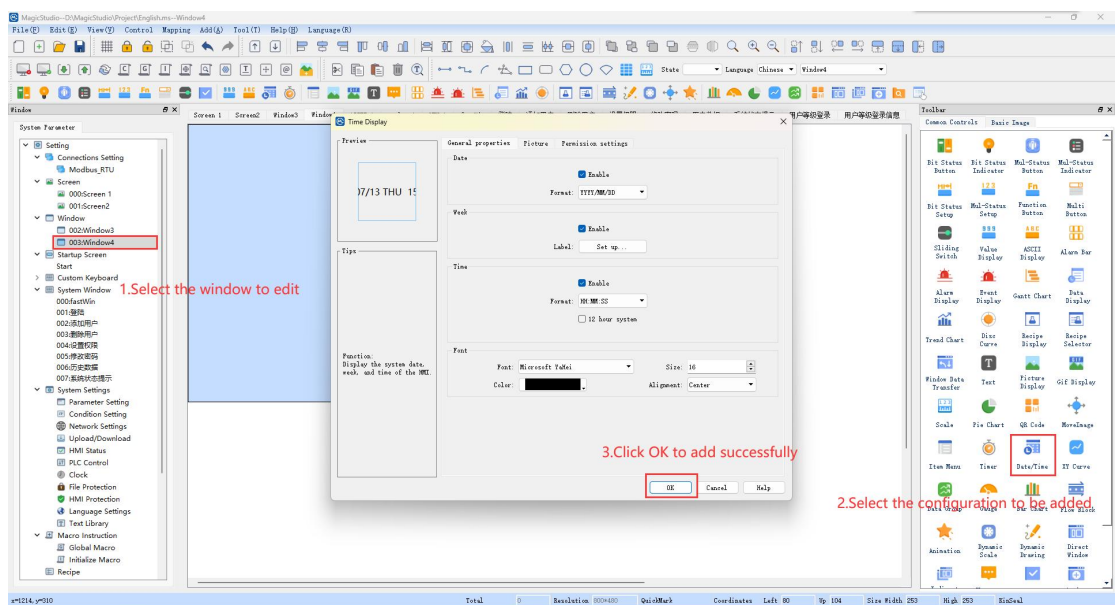
The operation steps are as follows (taking the window as an example):

① Run the configuration software and create two new user windows, as shown in Figure 2.4-1:



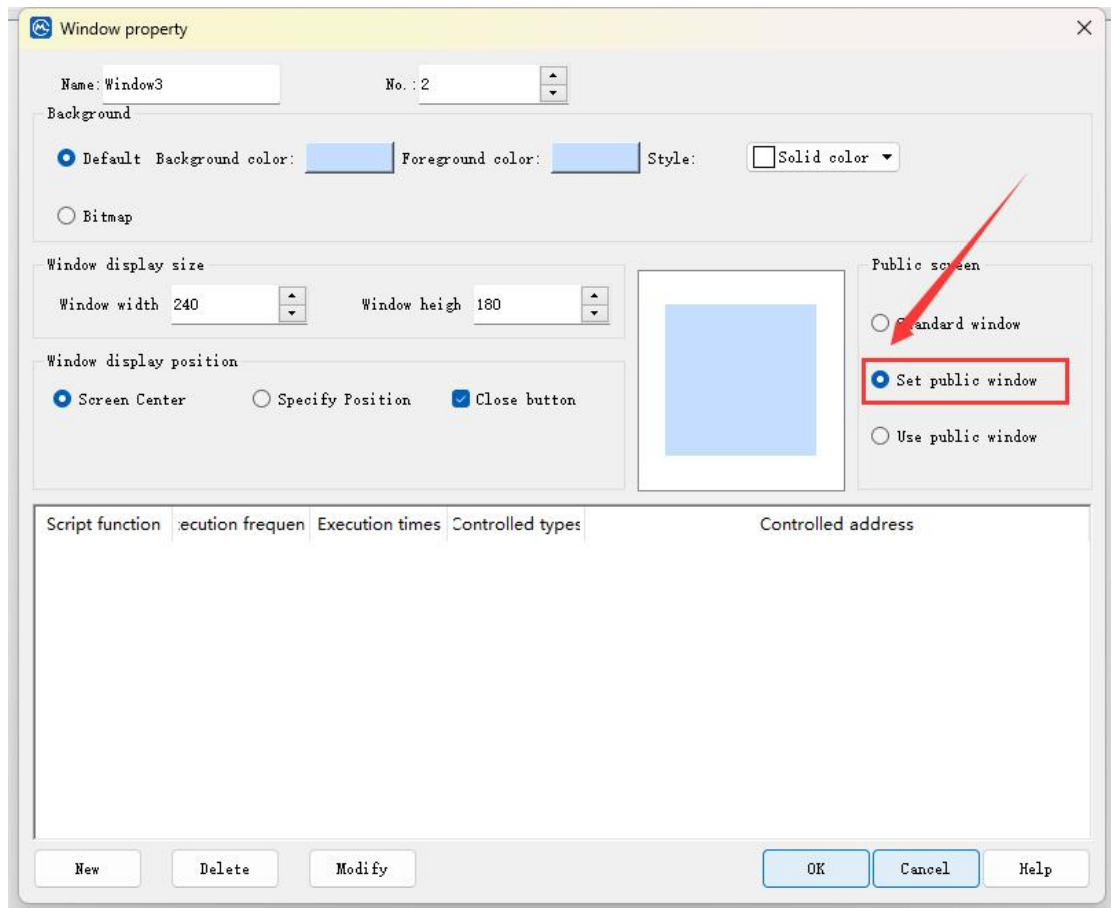
Chat 2.4-1

- ② We choose 'Window 4' as the host window and 'Window 3' as the public window. Double click on window 3 to enter the configuration screen of window 3;
- ③ Follow the steps shown in Figure 2.4-2 to add a "Time/Date" configuration in the "Window 3" screen, and save the project after adding it;



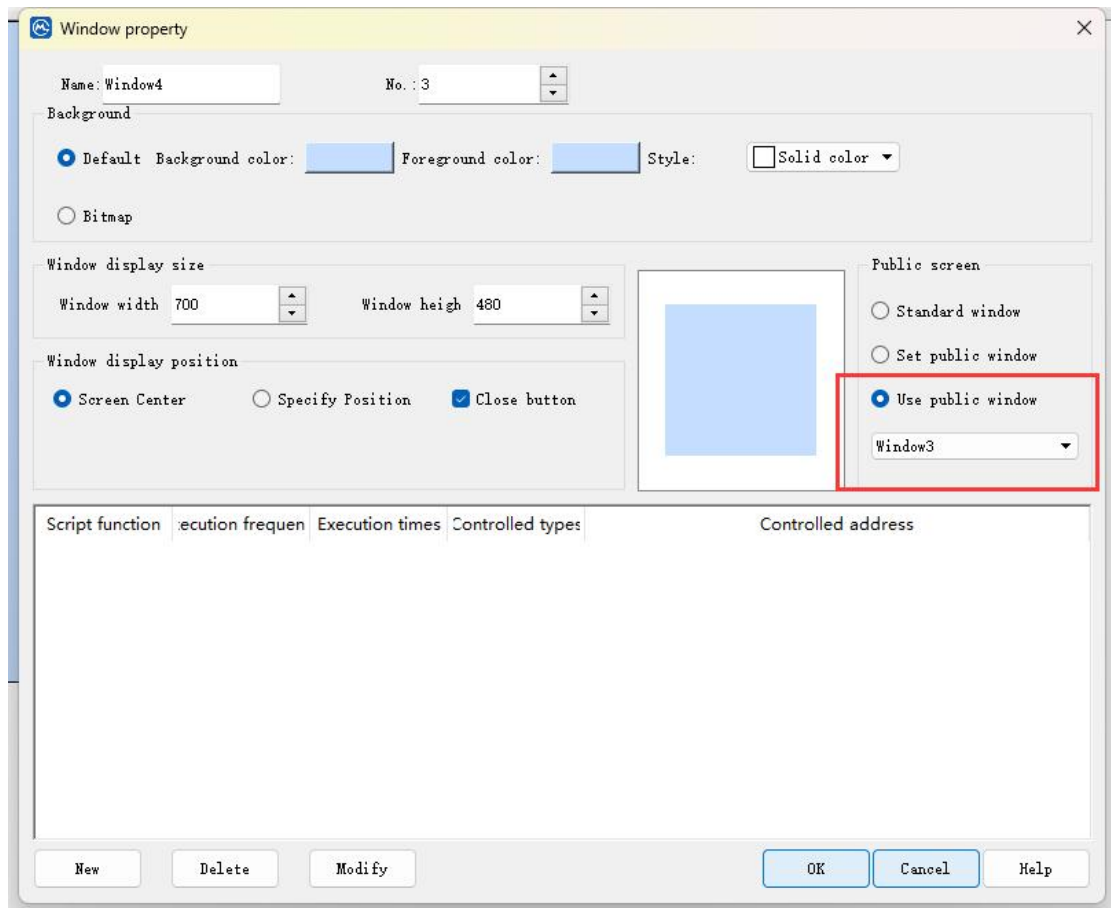
Chat 2.4-2

- ④ Right click on window 3, click on 'Properties' to open the attribute setting interface of window 3, check 'Set as Public Window ', as shown in Figure 2.4-3;



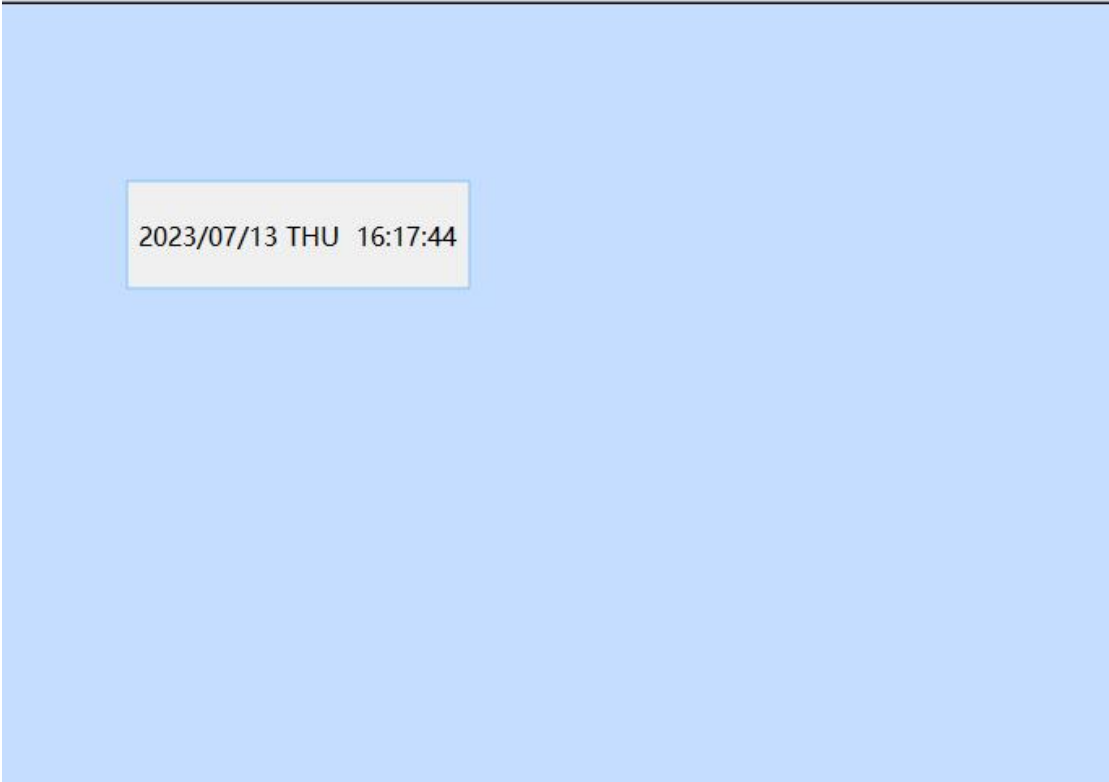
Chat 2.4-3

⑤ Right click on window 4, click on 'Properties' to open the attribute setting interface of window 4. Check 'Use Public Window 'and set the public window as window 3. As shown in Figures 2.4-4;



Chat 2.4-4

⑥ After completing the above steps, "Window 4" will display as shown in Figure 2.4-5. You can see that the screen of the host window "Window 4" displays the specified configuration of "time/date" in the public window "Window 3".



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Chat 2.4-5

Precautions for setting public windows (screens):

- Components and window scripts in public windows (screens) can be displayed or executed normally in the host window (screen);
- The components in the public window (screen) are displayed at the bottom of the host window (screen) and can only be edited in the public window (screen);
- The background color of the public window (screen) will not be displayed in the host window (screen);
- One common window (screen) can be referenced by multiple host windows (screens), but one host window (screen) can only reference one common window (screen).

Chapter3 Example of Animation Function Application

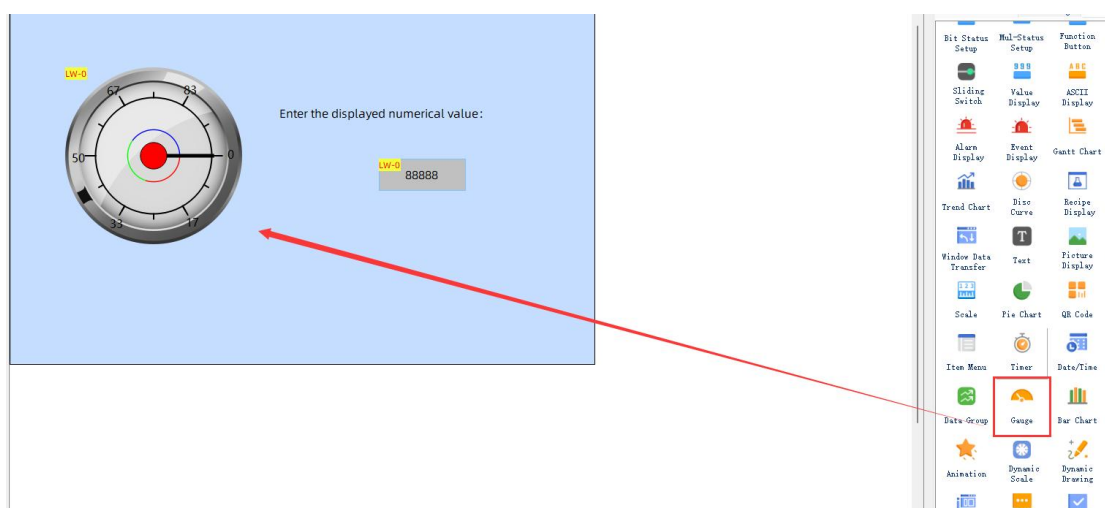
This chapter mainly introduces the usage methods and application examples of several simple and commonly used components, as well as the properties, method functions, and event functions of components or windows.

3.1 Analog instrument display

Function definition: Use the instrument to display numerical values within a word address.

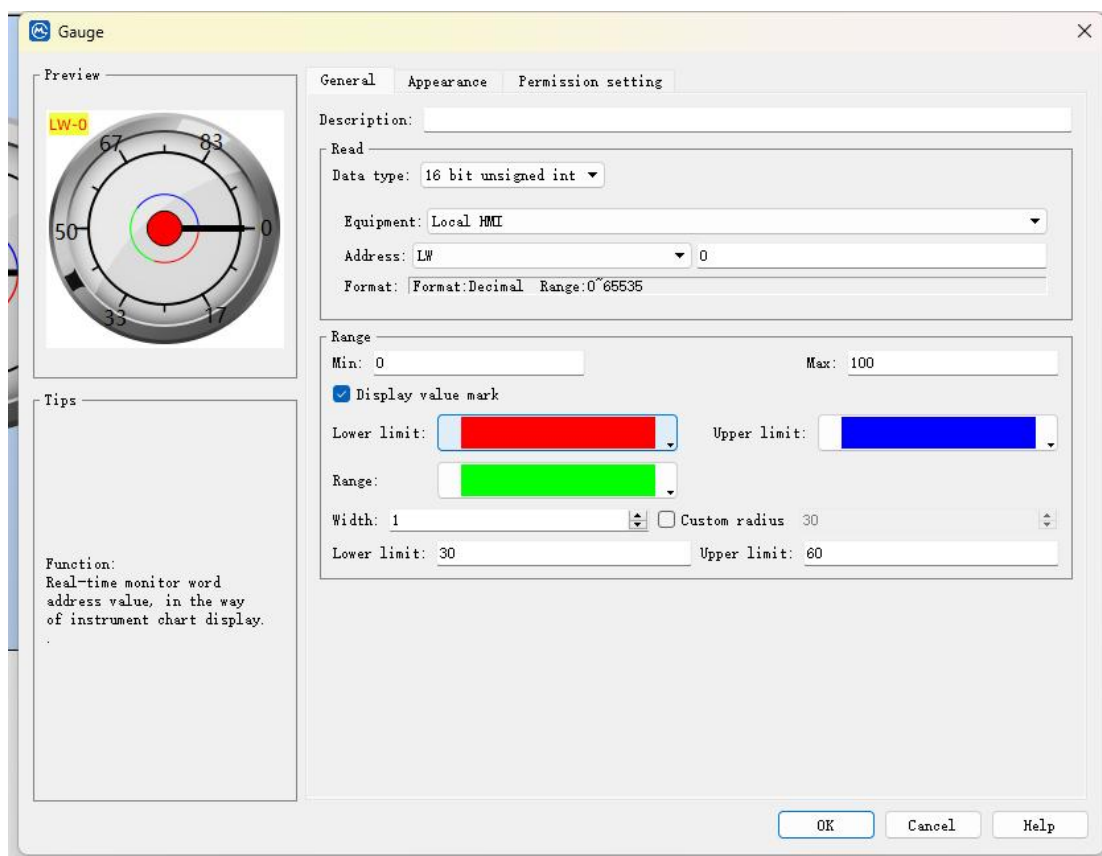
The rotating instrument component is a kind of animated figure simulating the rotating pointer instrument, which is used to display the values of the connected integer and Floating-point arithmetic variables. The pointer of the rotating instrument component constantly changes its position with the change of variable value, and the scale value pointed by the pointer is the current value of the connected variable.

① Click on the instrument component on the right toolbar and place it in the appropriate position and size on the screen. As shown in Figure 3.1-1;

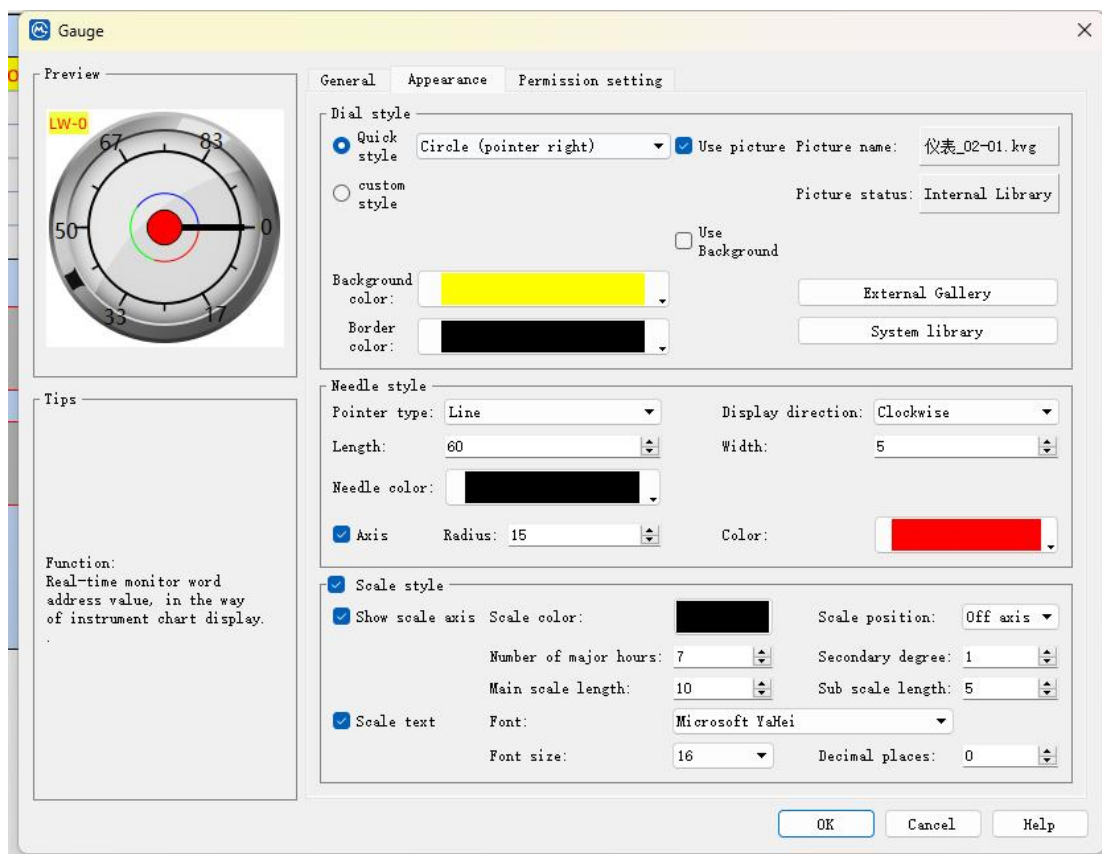


Chat 3.1-1

② Double click on the instrument component to pop up the 'Instrument Attribute Settings' interface, as shown in Figures 3.1-2 and 3.1-3;



Chat 3.1-2



Chat 3.1-3

Basic Attribute Configuration Information

1) General attributes

- a. Minimum value: Set the minimum value of the instrument;
- b. Maximum value: Set the maximum value of the instrument;
- c. Display numerical representation: After checking, you can set the color and value of the upper/lower limit;

2) Appearance Properties

A.Dial Style:

- a. Quick mode: Select the system style as needed. There are the following options: Circle: Set the performance as a circle, and the pointer can be up, down, left, or right; Three quarters of a circle: Set the dial to three quarters of a circle, and the pointer can be up, down, left, or right; Half circle: Set the dial to half circle, with options of left half circle, right half circle, upper half circle, and lower half circle; Quarter circle: Set the dial to quarter circle, and options include right, bottom right, left, top left, bottom left, bottom left, top right, and top right;
- b. Use image: Check this option to select system image or external image as the instrument panel;
- c. Custom style: Start angle - Set instrument start angle, End angle - Set instrument end angle;
- d. System Image Library: Click this button to select an image from the system as the background for the instrument;
- e. External image library: Click this button to select an image from the external (local to the computer) as the background for the instrument;

B. Watch Pin Style

- a. Use Background: Check this option to customize the background and border colors of the instrument;
- b. Background color: Set the instrument background color;
- c. Border color: Set the instrument border color;

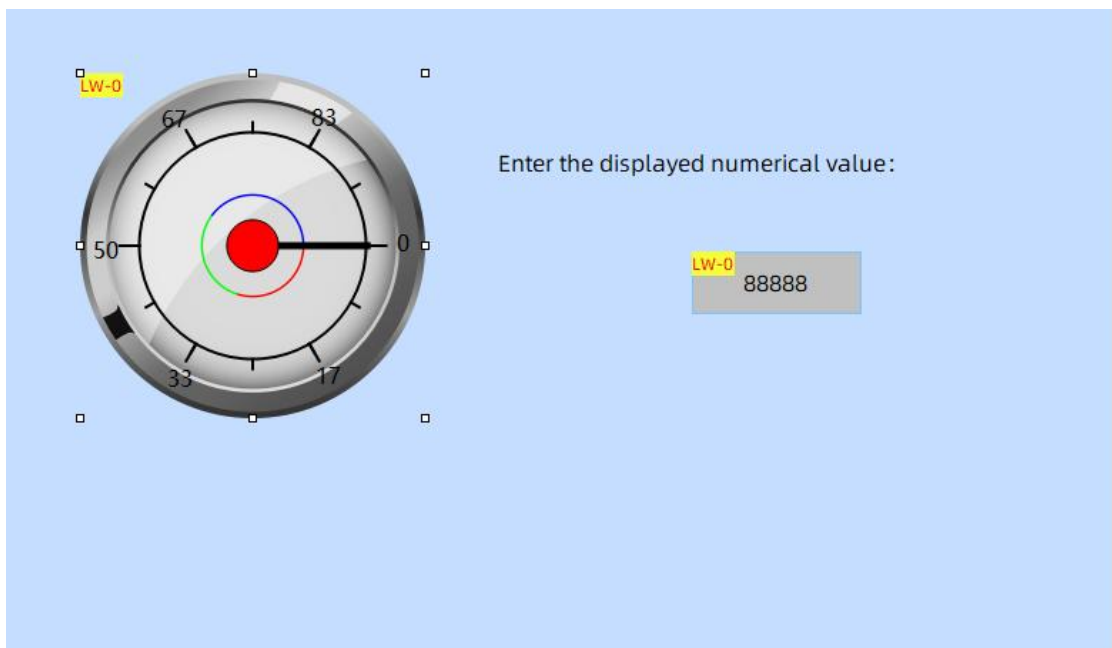
C. Scale Style (Check this option to set the instrument scale style, otherwise

the scale will not be displayed)

a. **Display Scale Axis:** Check this option to set the scale axis style. Scale color - Set the color of the instrument scale; Scale position - Set the scale to be located inside or outside the instrument scale axis; Number of main divisions - Set the number of main divisions on the dial; Number of sub divisions - Set the number of sub divisions on the dial; Main scale length - Set the main scale length of the dial; Sub scale length - Set the sub scale length of the dial;

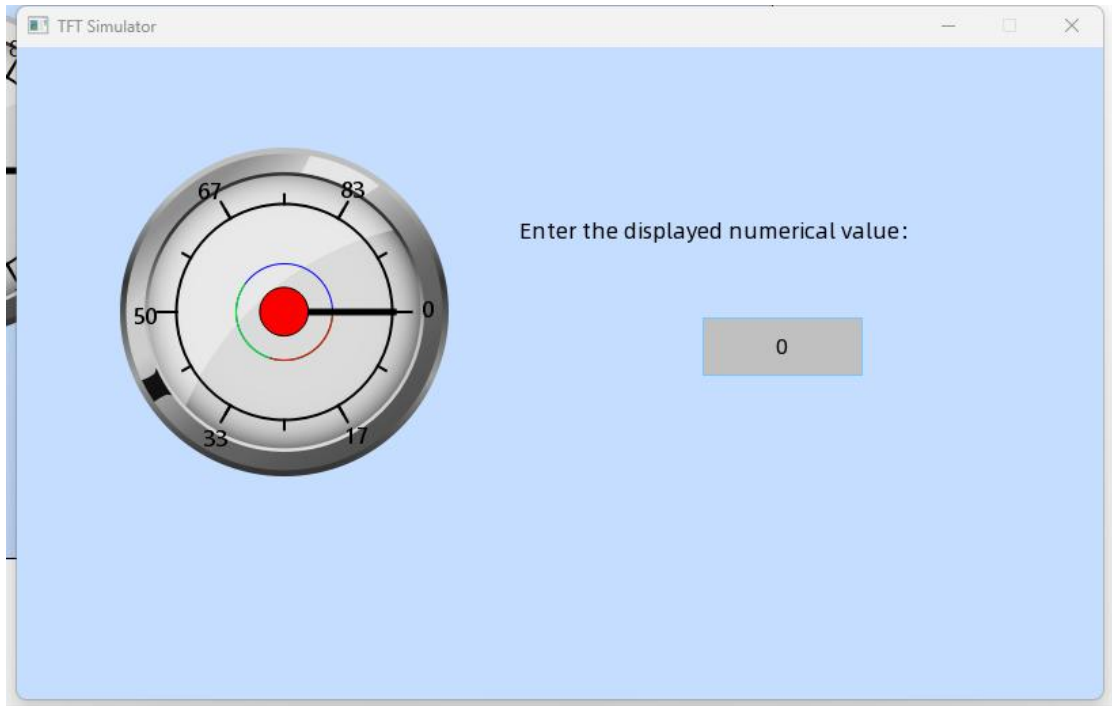
b. **Scale Text:** Check this option to set the scale font type and size, as well as the decimal places. Font - Set the scale font; Font size - Set the font size for the scale; Decimal Places - Set the scale decimal places.

③ To demonstrate the operational effectiveness of the instrument, we add a numerical display component that associates bit addresses with the instrument, as shown in Figures 3.1-4;



chat 3.1-4

④ After saving the project, download it and start running. Enter a value of 0-100 in the numerical display, and you can see the pointer pointing back to the corresponding position. As shown in Figures 3.1-5.



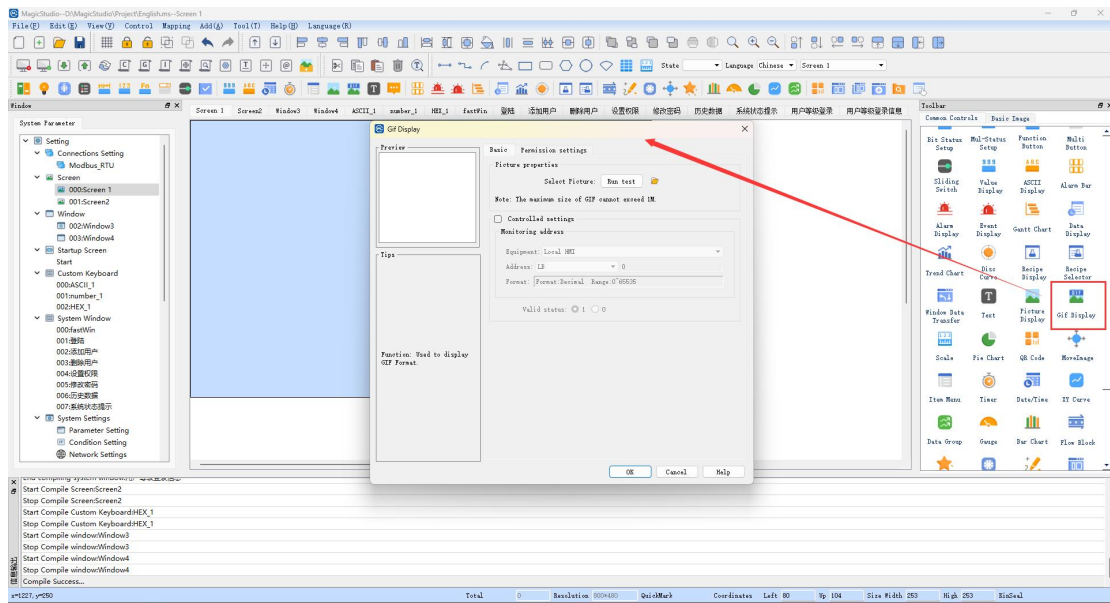
Chat 3.1-5

3.2 Animation function configuration

3.2.1 GIF

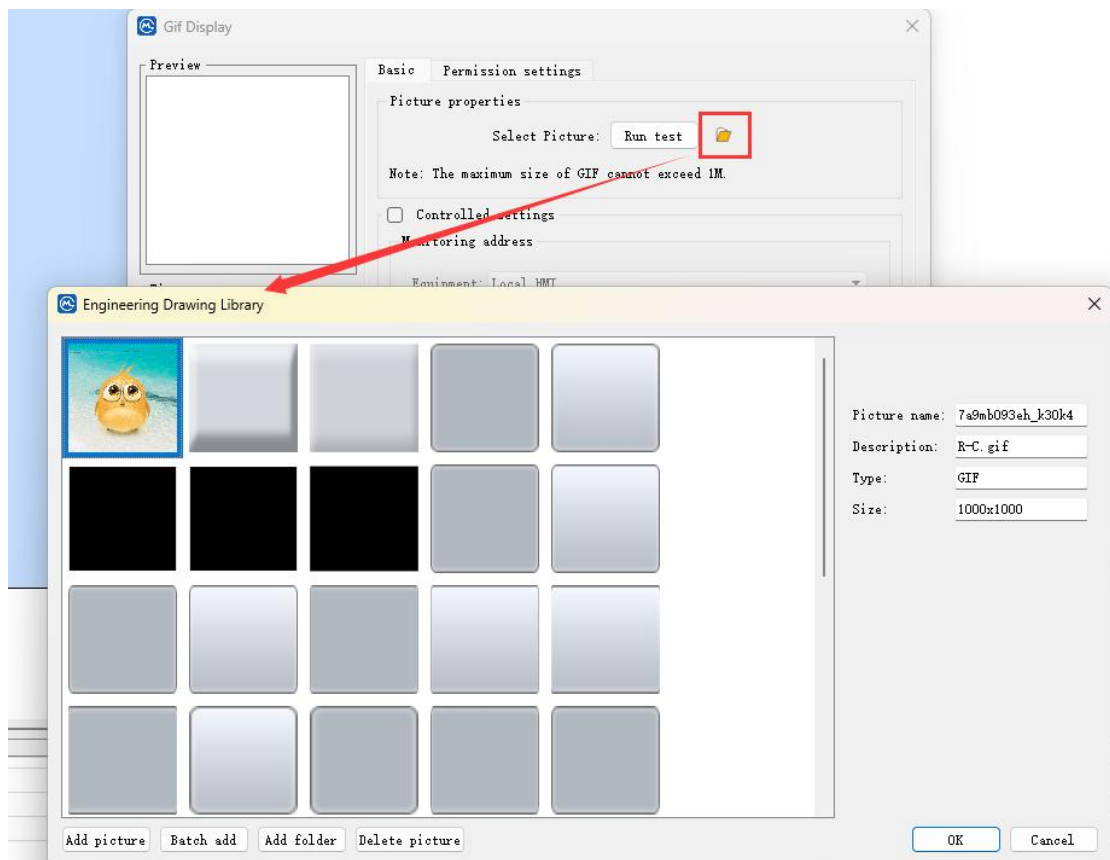
When users need to use an existing animation effect, they can use GIF components to load GIF animations, which can be displayed multiple times or looped during runtime. Let's take loading the following animation as an example to explain it to everyone.

① Click on the GIF display component on the right toolbar (or double-click on the GIF display component in the screen) to enter the GIF display component attribute setting interface, as shown in Figure 3.2-1;



Chat 3.2-1

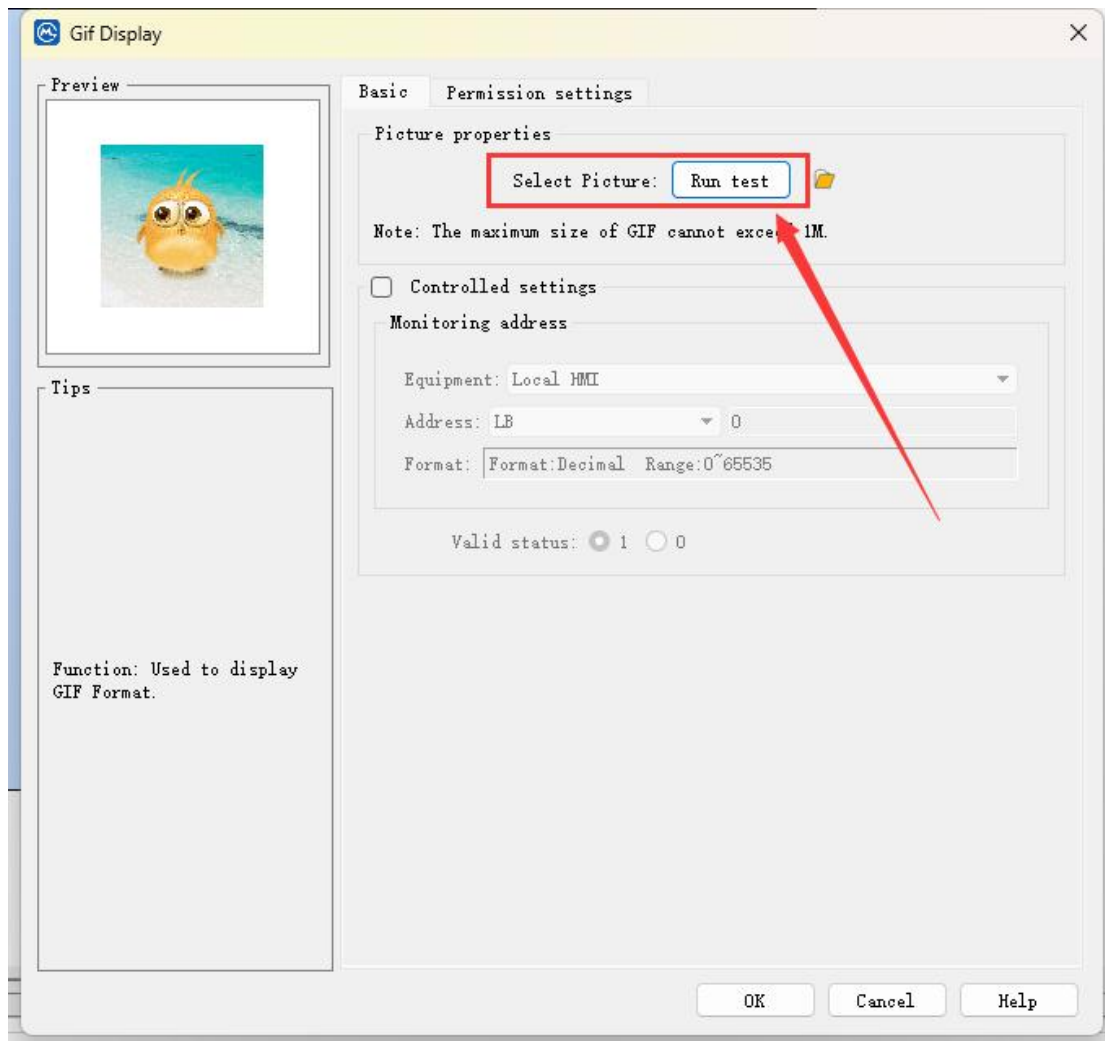
② Click on the select file icon next to 'Run Test' and select the GIF image path. Select the image and click the [OK] button; As shown in Figure 3.2-2;



Chat 3.2-2

③ After adding GIF animation, a preview of the image will appear on the property settings interface for users to view the effect. Click on 'Run Test' to preview, as shown

in Figure 3.2-3;



Chat 3.2-3

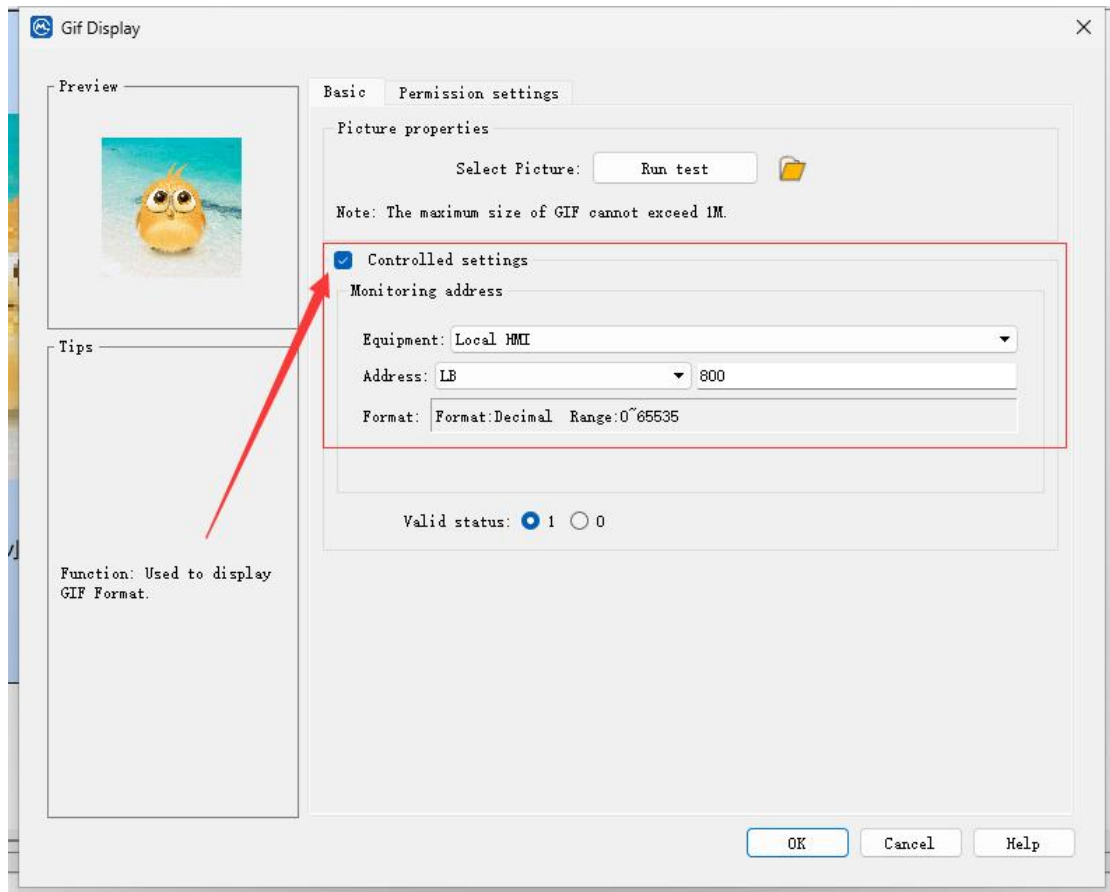
④ Add the GIF component to the appropriate position and size in the screen, as shown in Figures 3.2-4;



The size of GIF cannot exceed 1M

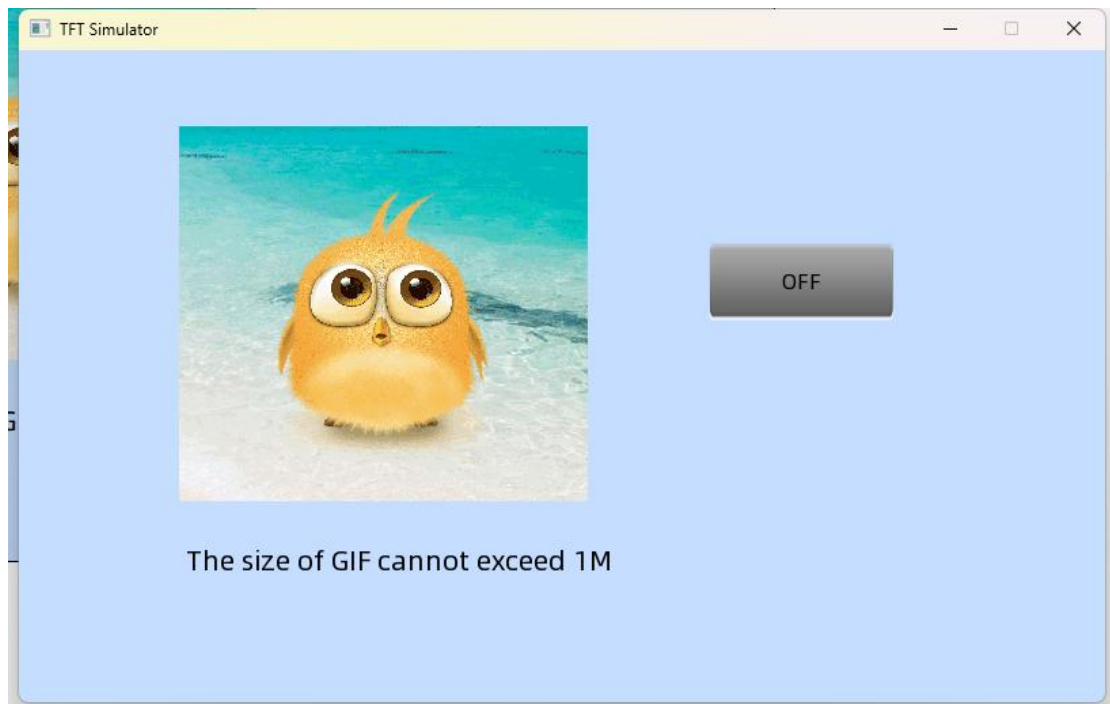
Chat 3.2-4

⑤ Set [Controlled Setting], When the positioning address is set to ON/OFF, the image will be dynamically displayed, and vice versa, a static action will be displayed. Set bit address: Refers to the control address of the location address, as shown in Figure 3.2-5;



Chat 3.2-5

⑥ After saving the project, download it and start running it, as shown in Figure 3.2-6;

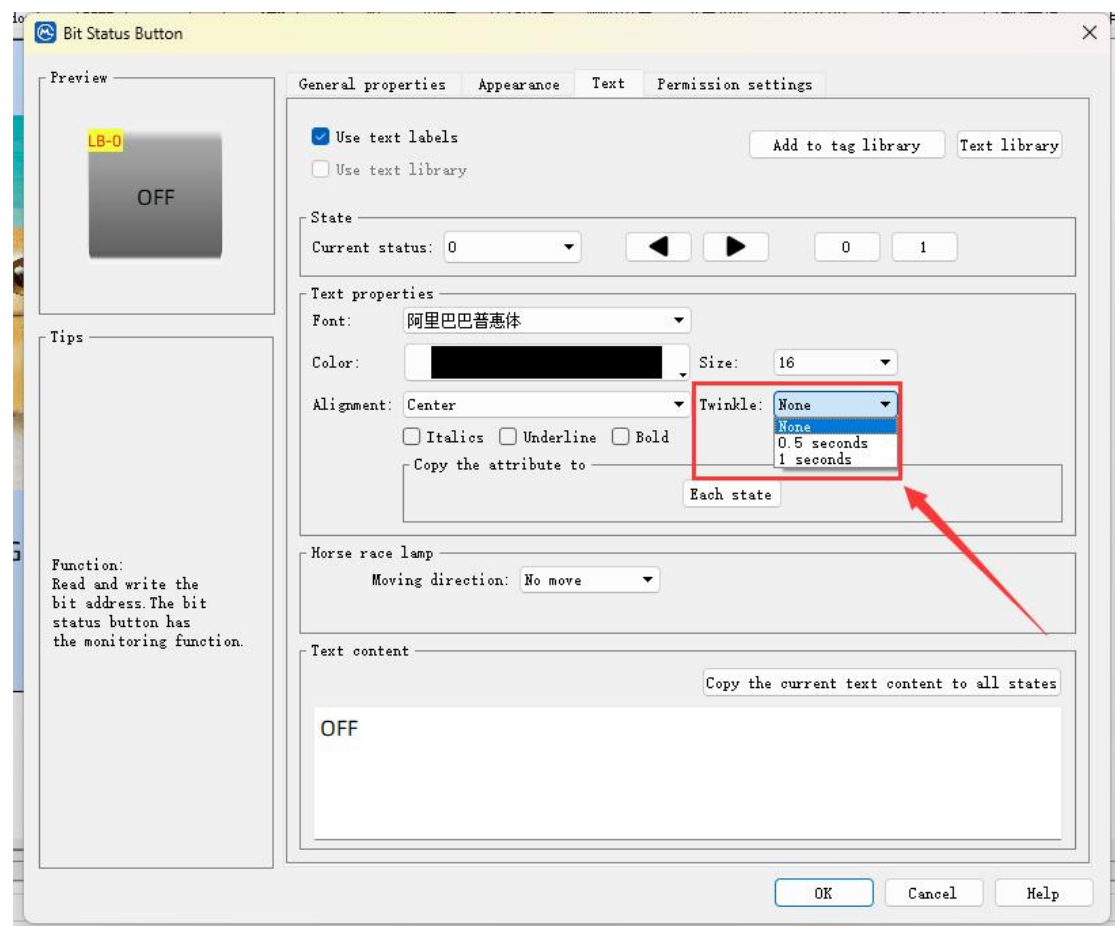


Chat 3.2-6

3.2.2 Twinkle

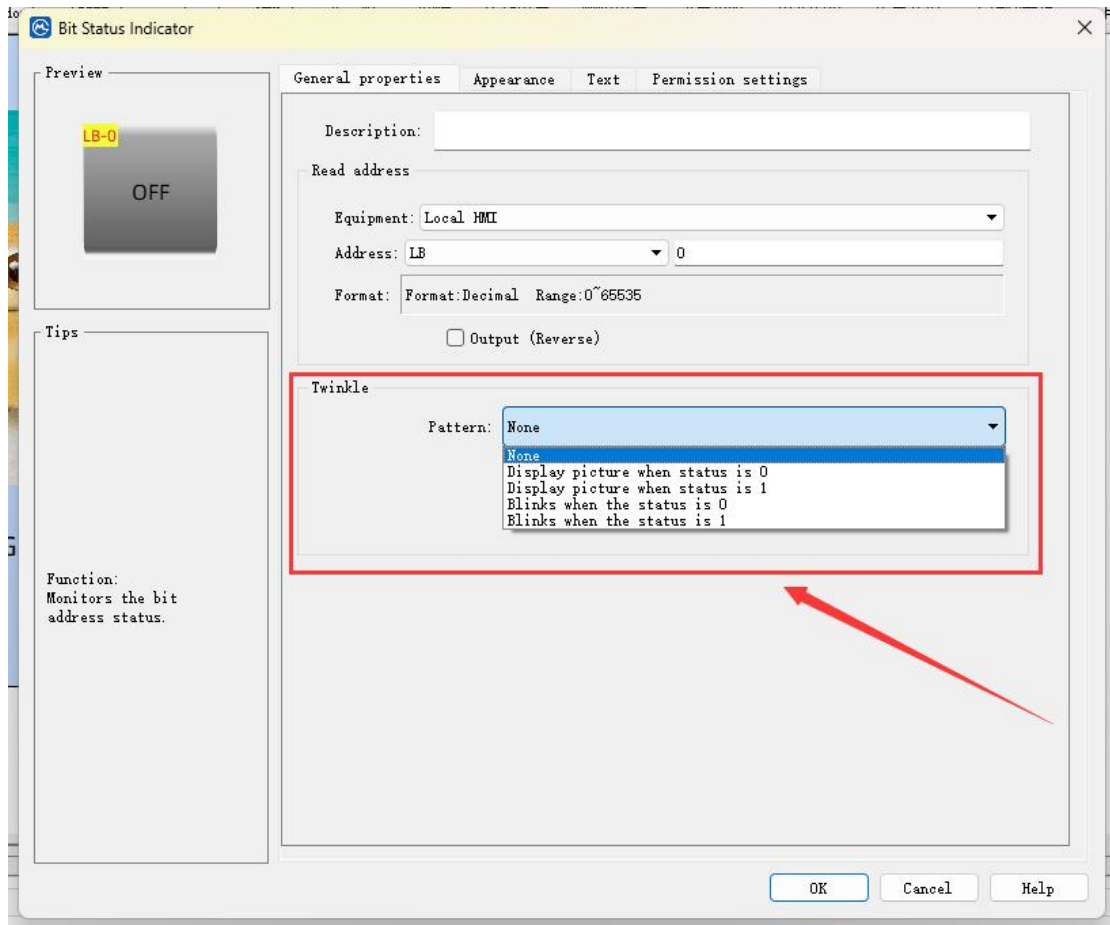
There are two types of twinkling effects, text flickering and control twinkling. Below are the usage and effects of these two twinkling methods.

① Text twinkling . Each control with text attribute settings can be set to text flashing with three frequencies (none, 0.5 seconds, 1 second). The setting method is as follows: a. Click (or double-click) the control to enter the attribute setting interface; b. Click [Text] to enter the text attribute setting interface; c. Set the flashing frequency, as shown in Figure 3.2-7;



chat 3.2-7

② The control flashes. Only the [Bit Status Indicator] control can be set to flash. The setting method is as follows: a. Click (or double-click) the bit status indicator button to enter the bit status button property setting interface; b. Set the flashing mode, as shown in Figure 3.2-8.



Chat 3.2-8

There are five twinkling modes:

Mode I : Normal display of 0 state and 1 state images;

Mode II: When the state is selected as 0, the images will be displayed alternately. When the address reading state is 1, the 0 state image and 1 state image will switch back and forth at the set fixed frequency. For example, if the frequency is set to 0.5S, the 0 state image will be displayed for 0.5S, and after 0.5, the 1 state image will be displayed. This cycle switches. If the address reading state is 0, the 0 state image will be displayed, and there will be no cycle switching images;

Mode III: When the state is 1, the images are displayed alternately. When the address reading state is 0, the 0 state image and 1 state image will switch back and forth at a set fixed frequency. For example, if the frequency is set to 0.5S, the 0 state will be displayed for 0.5S, and after 0.5, the 1 state image will be displayed. This

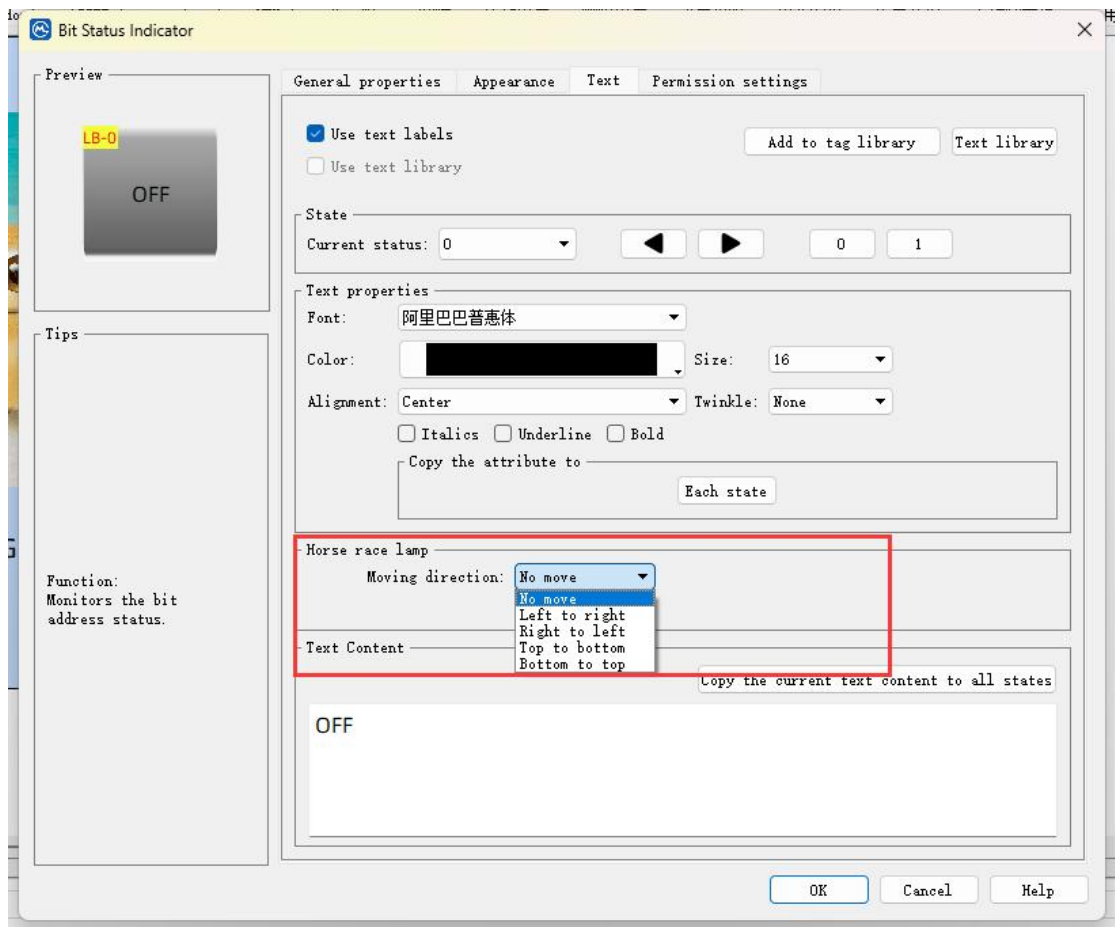
cycle of switching occurs. If the address reading state is 1, the 1 state image will be displayed, and there will be no cyclic switching of images;

Mode IV: Blinking when the state is 0. When the address reading state is 0, the 0 state image will be displayed and hidden at a fixed frequency. For example, if the frequency is set to 0.5S, the 0 state image will be displayed for 0.5S, and then the 0 state image will be hidden after 0.5. This cycle switches to flashing. If the address reading state is 1, the 1 state image will be displayed without flashing;

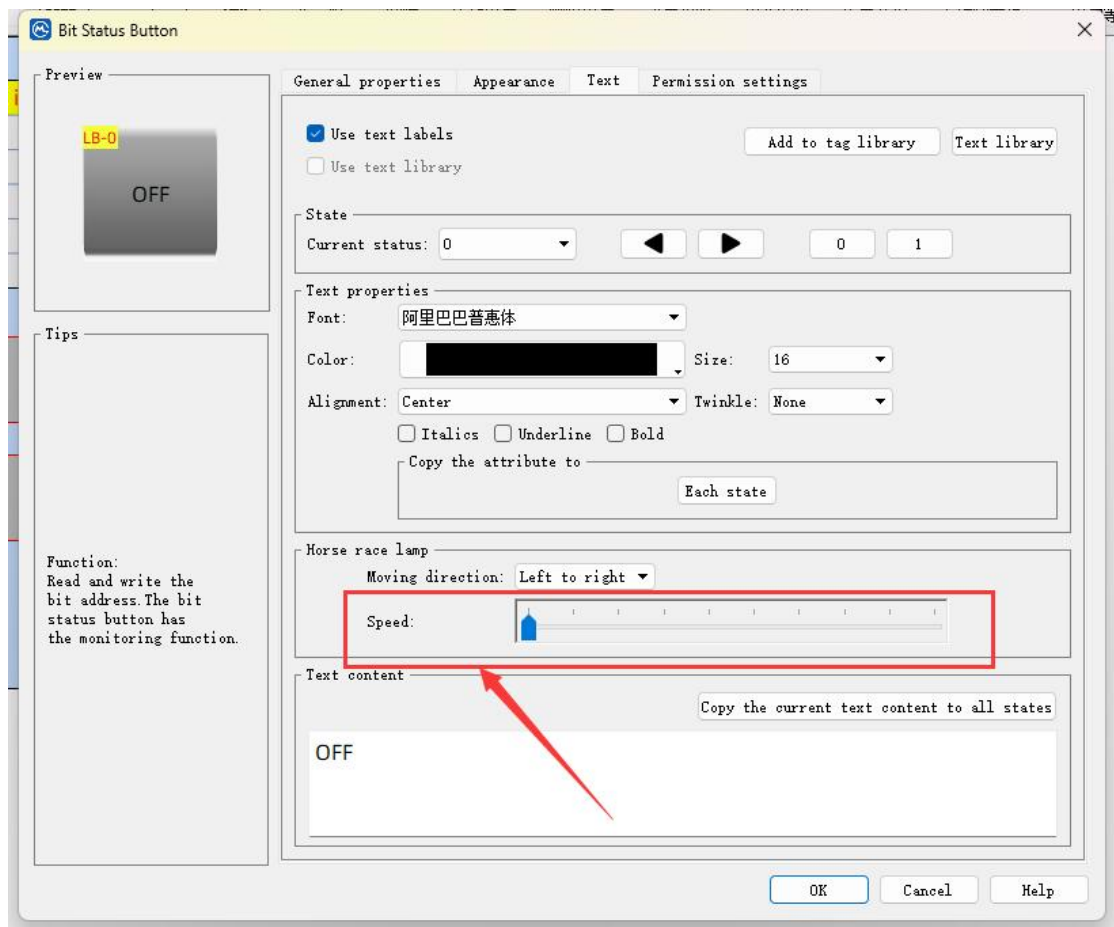
Mode V: Blinking when the state is selected as 1. When the read address state is 1, the 1 state image will be displayed and hidden at a fixed frequency. For example, if the frequency is set to 0.5S, the 1 state image will be displayed for 0.5S, and then the 1 state image will be hidden after 0.5. This cycle switches to flashing. If the read address state is 0, the 0 state image will be displayed without flashing;

3.2.3 horse race lamp

In order to make the prompt content more eye-catching, you can set a marquee effect on the text, which is a scrolling display of the prompt text. Every control with text attribute settings can be set with a running light. The setting method is as follows: click on the control to enter the text setting interface → set the text to be displayed → set the direction of the running light (as shown in Figure 3.2-14) → set the speed of the running light (as shown in Figure 3.2-15). If the moving direction is set to "not moving", there is no need to set the speed.



Chat 3.2-14



Chat 3.2-15

3.3 Multi state display

3.3.1 Multi state button

① Operation mode: divided into four modes: increasing, decreasing, increasing bypass, and decreasing bypass;

Increment: Each time the control is pressed, the value written to the address is incremented by 1, and the increment stops when it reaches its maximum state;

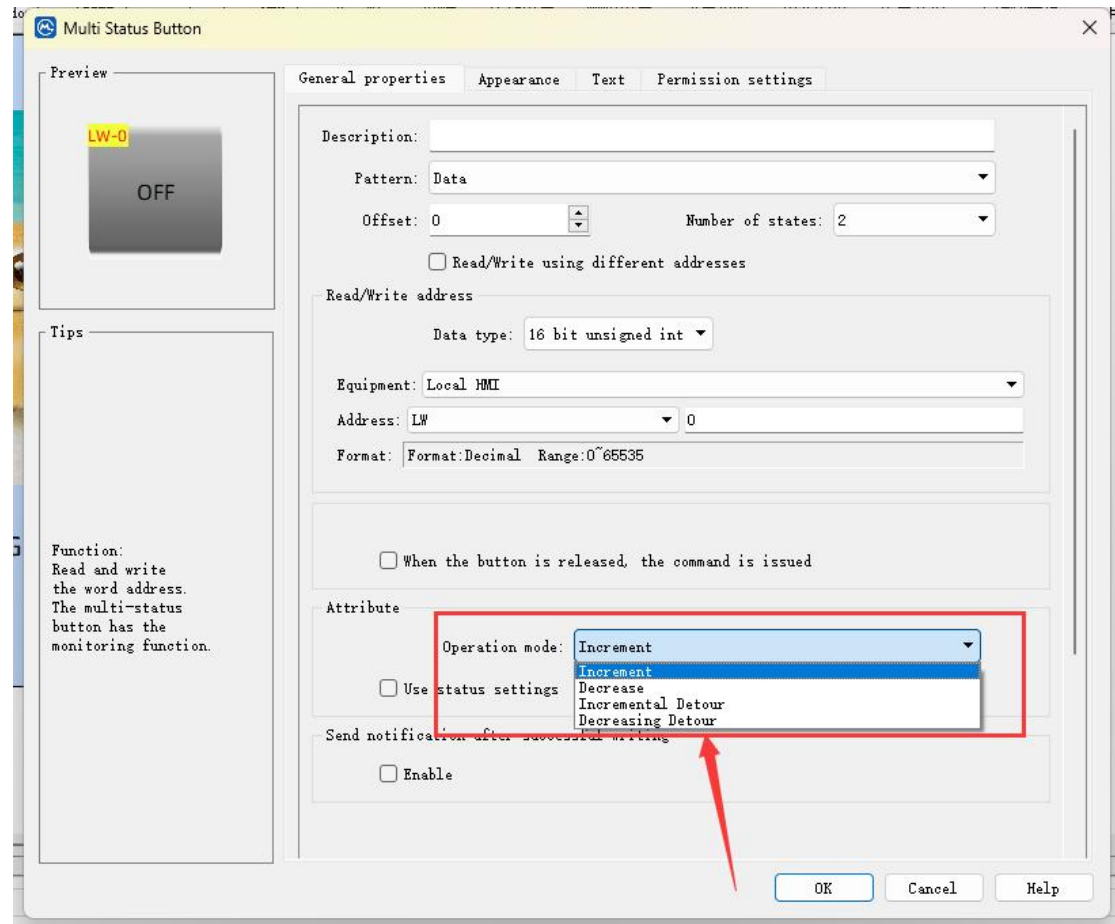
Decrement: Every time the control is pressed, the value written to the address is reduced by 1, and the decrease stops when it reaches the minimum state;

Incremental bypass: Each time the control is pressed, the value written to the address is incremented by 1. When it reaches the maximum state, it returns to the minimum state and continues to increment;

Decreasing and bypassing: Each time the control is pressed, the value written to the address is reduced by 1. When it decreases to the minimum state, it returns to the

maximum state and continues to decrease;

Use Status Settings: Check this option to define the values corresponding to each state, and click the Settings button to define the values for each state.



Chat 3.2-16

② **Mode:** divided into two types: data and LSB;

Data: Display image status or text content based on the numerical value of the read address.

LSB: Converts the read value to binary, with the lowest bit not 0 as the current displayed image state or text content.

3.3.2 Multi state settings

Action Type: Set the action type of the control;

Write Constant: Click this button to write the set value to the specified register address;

Write Constant (Press&Release): Click and release this button to write the set

value to the specified register address;

Incremental: Click this button to add the incremental value to the value in the specified register, but increase the value to [maximum value] to stop the incremental process;

Decrement: Click this button to subtract the decreasing value from the value in the specified register, but decrease the value to the minimum value to stop decreasing;

Press and hold the button while incrementing: When the button is clicked for more than [Delay Time], the value in the specified word address will be incremented by [Incremental Speed] and [Incremental Value], and incrementing will stop when it reaches [Maximum Value];

Decrement when pressing and holding the button: When the control is pressed for more than [hysteresis time], the numerical value within the specified word address will be subtracted from [decreasing value] at [increasing speed]. Decrement to [minimum value] will stop decreasing;

Cycle cycle (0 → maximum value → 0): According to the cycle set in [Frequency], add [Incremental value] to the value in the specified word address until the value equals [Maximum value], and then return to the 0 value to continue repeating the above action;

Automatic increment (increase to maximum value): According to the cycle set in [Frequency], add [Incremental Value] to the value within the specified word address, and stop incrementing when it reaches [Maximum Value];

Automatic increment (decrease to minimum value): Subtract the value within the specified word address from the cycle set in [Frequency] by [Decrement value], and decrease to [Minimum value] to stop decrement;

Cycle cycle (custom range): According to the cycle set in [Frequency], add [Incremental value] to the [Minimum value] set at the specified word address until the value equals [Maximum value], then subtract [Incremental value] from [Maximum value] until [Minimum value], and cycle back and forth;

Cycle increment (from low to high): According to the cycle set in [Frequency], add [Incremental Value] to the minimum value set for the specified word address until

the value equals [Maximum Value], and then return to the minimum value to continue repeating the above action;

Cycle increment (from high to low): According to the cycle set in [Frequency], subtract [Descending value] from the [Maximum value] set at the specified word address until the value equals [Minimum value], and then return to the maximum value to continue repeating the above action;

Set when the window is opened: When the interface where the control is located is opened, the set constant is automatically written to the specified word address;

Set when the window is closed: Automatically write the set constant to the specified word address when exiting the interface where the control is located;

Set when the backlight is turned on: When the backlight is turned on, the set constant is automatically written to the specified word address;

Set when the backlight is turned off: Automatically write the set constant to the specified word address when the backlight is turned off;

Recurrent addition: When pressing and releasing the control, add the value within the specified word address to the [Incremental Value], and increase it to the [Maximum Value] to return to the minimum value and repeat the above action;

Circular decrement: When pressing and releasing the control, subtract the value within the specified word address from the [decrement value], and reduce it to the [minimum value] to return to the maximum value and repeat the above action;

Cyclic addition while holding down the button: When the control is pressed and not released, the numerical value within the specified word address is automatically added to the [Incremental Value], and when it reaches the [Maximum Value], the minimum value is returned and the above action is repeated;

Cyclic decrement while holding down the button: When the control is pressed and not released, the value within the specified word address is automatically subtracted from the [decrement value]. If it is reduced to the [minimum value], the maximum value is returned and the above action is repeated;

Configuration information for basic attributes:

The appearance attribute settings are mainly used for the multi-state display of

components' appearance and text. Components can display the appearance and text of corresponding segmentation points based on the values of associated variables; Or when the conditions are met, automatically switch and display the appearance and text of each segmentation point according to the specified frequency, and dynamically switch and display multiple images and text to achieve specific animation effects.

The basic properties of the animation button are mainly used to increase or decrease the number of way points and set the corresponding appearance features for each waypoint. The basic properties page includes the appearance and text.

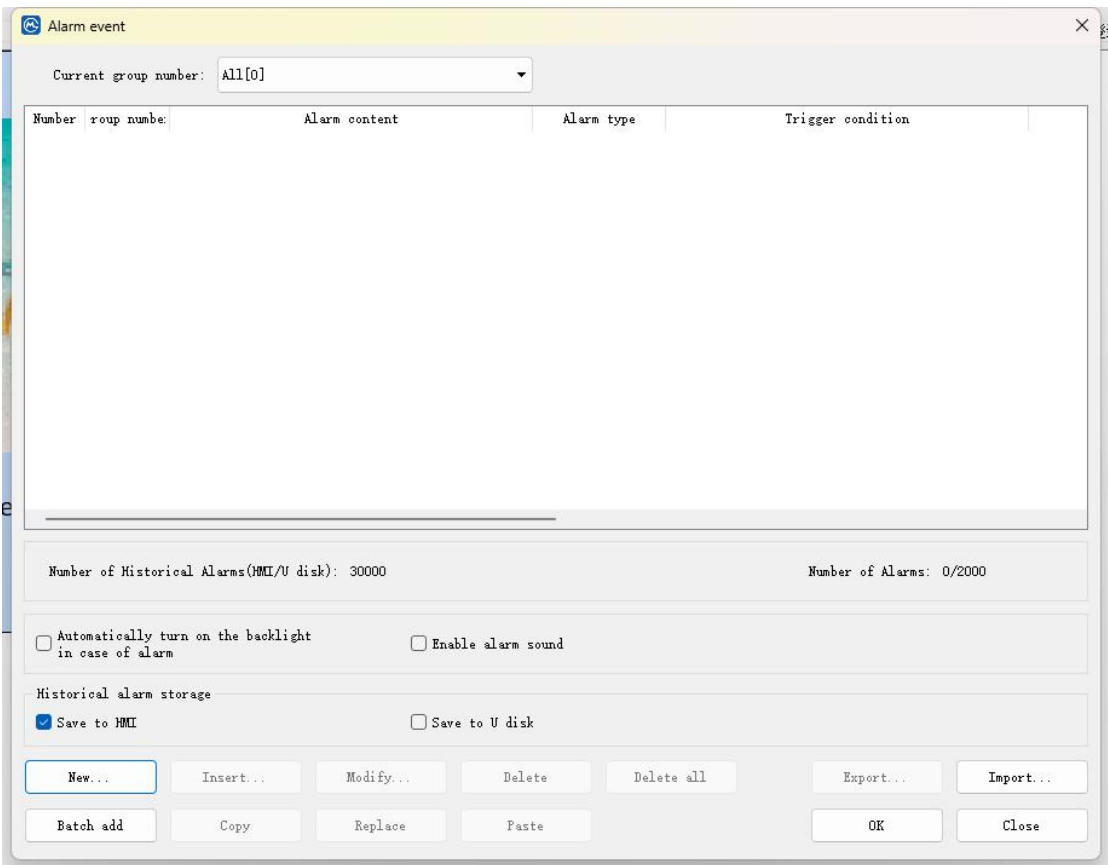
Chapter4 Application Examples of Alarm Function

The MGC configuration software provides real-time and historical alarm functions. By configuring the alarm function, users can better grasp the operation of on-site equipment and ensure product production safety.

4.1 Introduction to alarm functions

Add alarm event: define the trigger condition and alarm information of the alarm event. The HMI system will trigger the event according to the set trigger condition, and the alarm information will be displayed in [Alarm Bar], [Alarm Display], [Event Display] and [Gantt chart Chart].

The [Add Alarm Event] interface is shown in Figure 4.1-1.



chat 4.1-1

You can click the [Add] or [Batch Add] button to add alarm events. After adding, you can use the [Alarm Bar], [Alarm Display], [Event Display] and [Gantt chart Chart] controls and display the alarm information. The components that support alarm

display are shown in Figure 4.1-2.

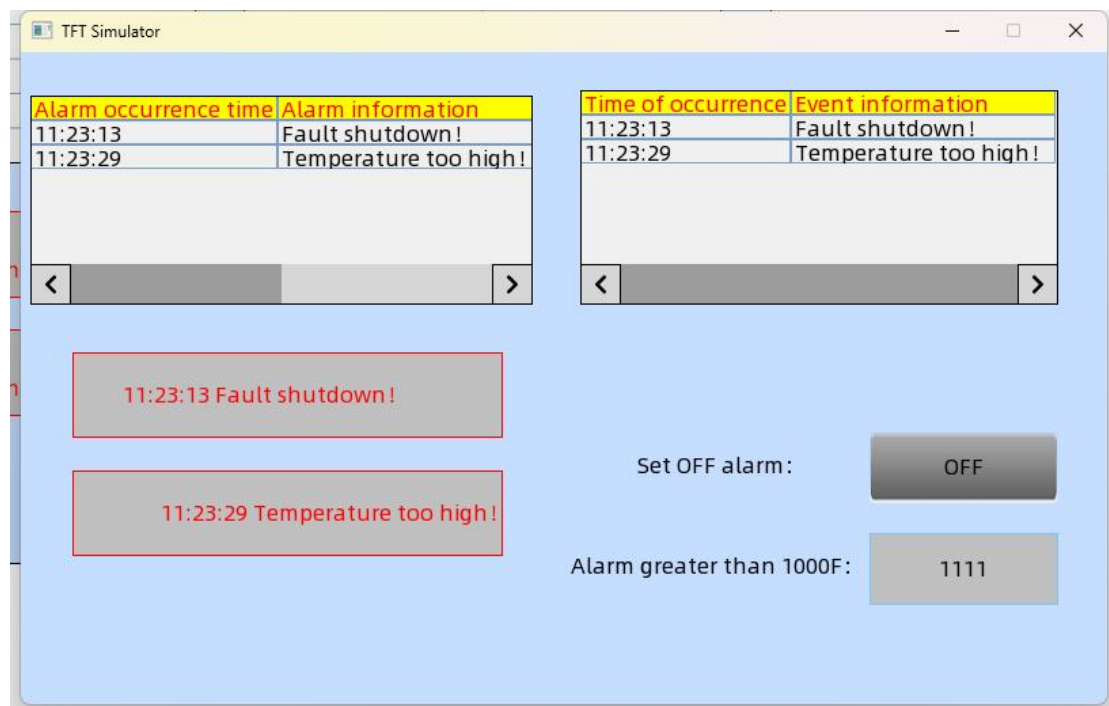


Chat 4.1-2

4.2 Real time alarm configuration

After restarting the touch screen, the real-time alarm information will be cleared. The real-time alarm configuration process is as follows:

On site users may need to monitor the data of the lower computer in real-time and display its alarm information. We will learn various forms of alarm through an example. Taking MGC070 as an example, Figure 4.1-3 shows the running effect of the example.



Chat 4.1-3

Four commonly used alarm forms:

- Bit alarm: Triggering an alarm by reading the status of a bit. When the status of the bit address LB-3800 is off, a fault will be prompted, and this alarm information will be scrolled and displayed on the screen through the "alarm bar" component;
- Word alarm (upper and lower limit alarm): Trigger the alarm by reading the

value of the word and using different triggering conditions. When the value of the word address LB-3810 is greater than 1000, it will prompt that the temperature is too high. This alarm message is scrolled and displayed on the screen through the "alarm bar" component;

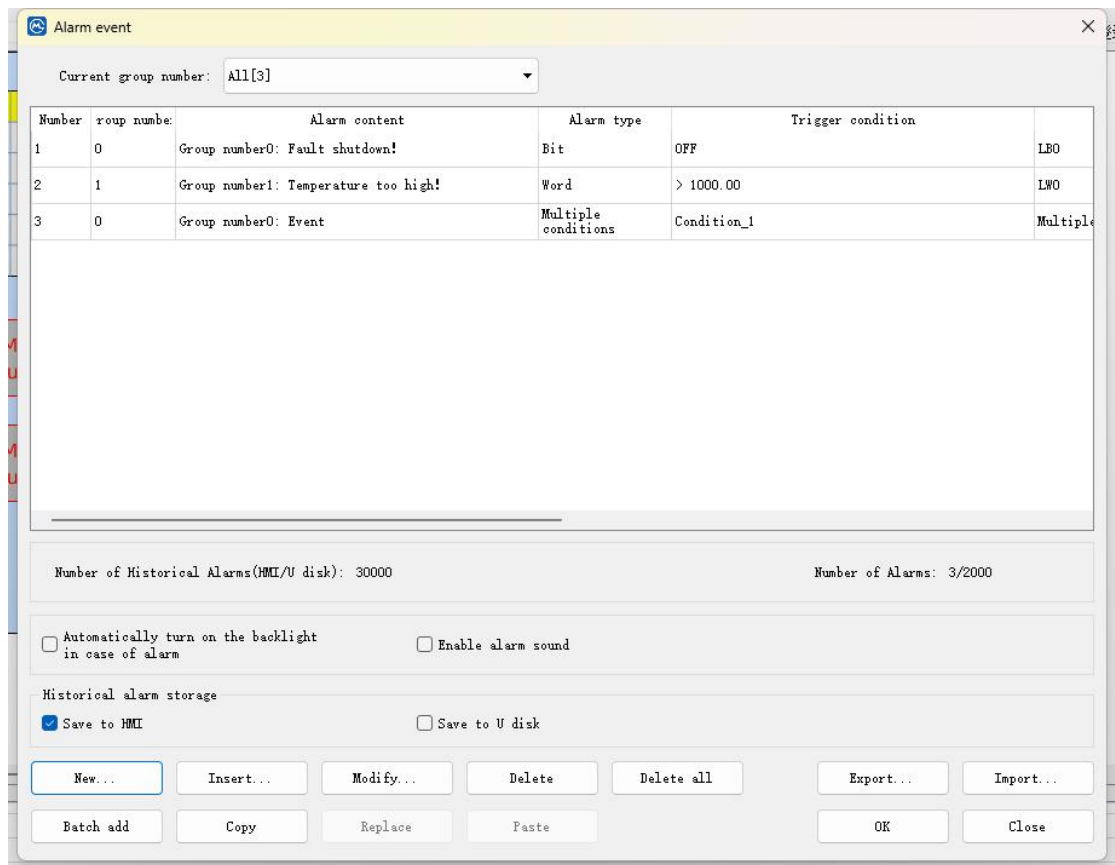
c. Multi condition alarm: By setting [Condition trigger], multiple conditions are set to trigger the alarm based on OR/AND logic. For multi condition alarms, the condition index must be set first. Once the condition set by the condition index is triggered, abnormal alarm information will be displayed on the screen.

4.2.1 Bit alarm configuration

When the status of the bit address LB-3800 is off, a fault will be prompted, and this alarm information will be scrolled and displayed on the screen through the "alarm bar" component.

Solution: The alarm content of address LB-3800 is fixed, and the alarm attributes of the corresponding variable are directly set, and then displayed in the user window using the "alarm bar" component (running light).

Add bit channel: In the parameter setting column on the left side of the software interface, double-click "Alarm Event" to enter the alarm event setting interface, as shown in Figure 4.2-4.



Chat 4.2-4

The method for adding alarm events using two buttons is as follows:

- a. New alarm event: Click on the [Alarm Event] button at the bottom of the alarm event interface → select the group number (range from 0 to 255) → set the level → set the alarm type to "bit alarm" → set the bit address of the bit alarm → set the triggering conditions (there are four types) → complete the setting and click "Confirm" to see that the device editing window has successfully added an alarm event;

Alarm Parameters

General properties Action Information Statistics

Group number: 0: Group number 0

Grade: Low

Delay time of monitoring events during HMI reset: 1Second

☒ Save as Historical Data

Alarm type

☒ Bit ☐ Word ☐ Multiple conditions

Read address

Equipment: Local HMI

Address: LB 0

Format: Format:Decimal Range:0~65535

Notice

☐ Enable

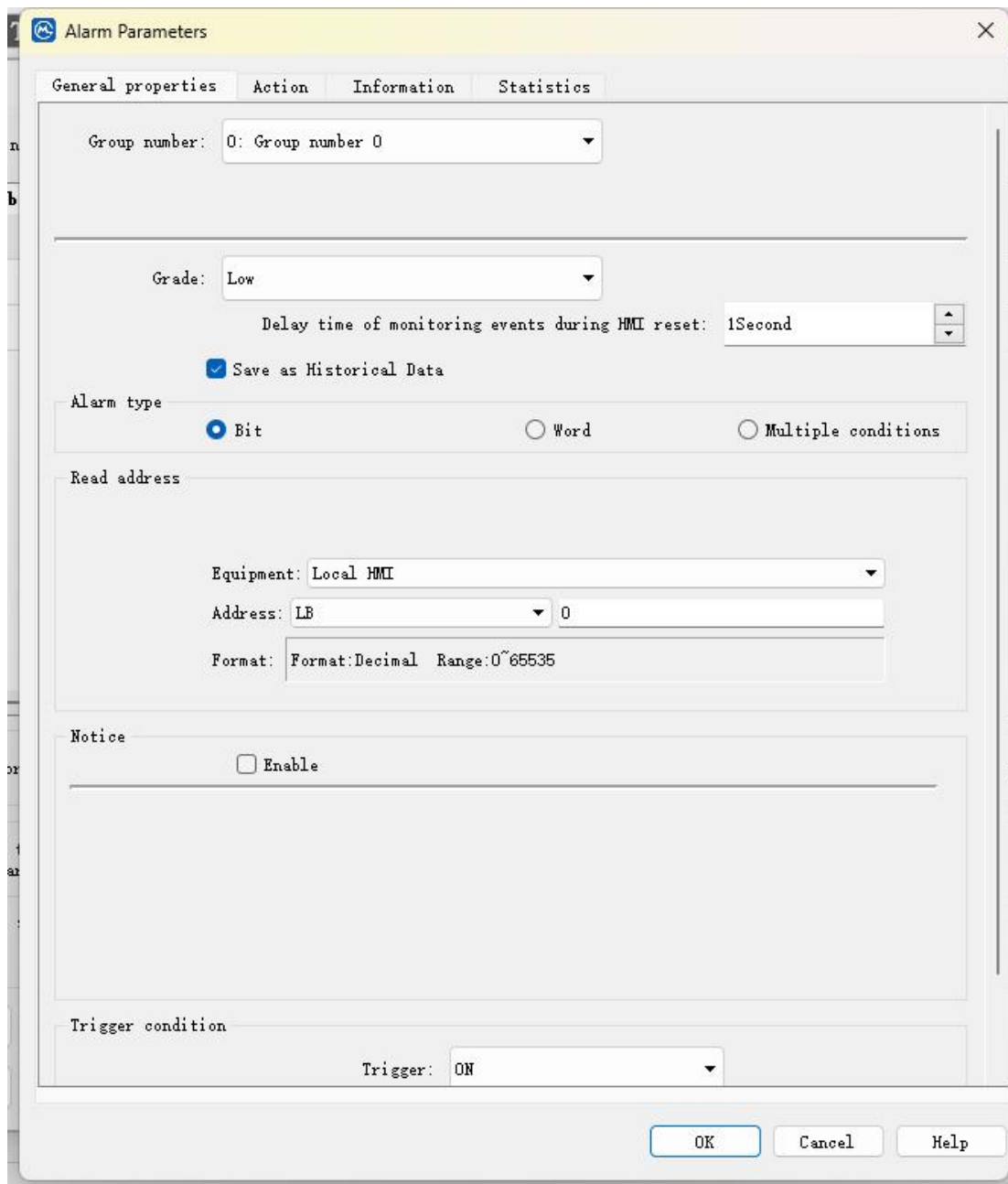
Trigger condition

Trigger: OFF

OK Cancel Help

Chat 4.2-5

b.Batch add alarm events: Click on the [Alarm Events] button at the bottom of the alarm event interface, select the group number (range from 0 to 255), set the batch creation quantity, read the interval address, set the level, set the alarm type to "bit alarm", set the bit address of the bit alarm, set the triggering conditions (there are four types), and click "Confirm" after setting, You can see that the device editing window has successfully added alarm events in batches.



Chat 4.2-6

Here are four triggering conditions for word alarms:

- ON trigger: If the current alarm event item is set to ON trigger, an alarm will be generated when the bit status of the alarm event item is read as ON;
- OFF trigger: If the current alarm event item is set to OFF trigger, an alarm will be generated when the bit status of the alarm event item is read as OFF. As shown in the following figure, if the alarm address of the alarm event item is set to M0 and OFF is triggered;

- ON →OFF: An alarm will only be generated when the bit address changes from ON to OFF state;
- OFF→ON: An alarm will only be generated when the bit address changes from OFF to ON state.

4.2.2 Word alarm configuration

When the value in bit address LB-3810 is greater than 1000, a fault will be prompted, and this alarm message will be scrolled on the screen through the "alarm bar" component.

Solution: The alarm content of address LB-3820 is fixed, and the alarm properties of the corresponding variable are directly set, and then displayed in the user window using the "alarm bar" component (running light).

① Add word channel: In the parameter setting bar on the left side of the software interface, double-click "Alarm Event" to enter the alarm event setting interface, as shown in Figure 4.2-4;

Alarm event

Current group number: All[3]

Number	Group number	Alarm content	Alarm type	Trigger condition	
1	0	Group number0: Fault shutdown!	Bit	OFF	LB0
2	1	Group number1: Temperature too high!	Word	> 1000.00	LW0
3	0	Group number0: Event	Multiple conditions	Condition_1	Multiple

Number of Historical Alarms(HMI/U disk): 30000

Number of Alarms: 3/2000

☐ Automatically turn on the backlight in case of alarm

☐ Enable alarm sound

Historical alarm storage

☒ Save to HMI

☐ Save to U disk

New... Insert... Modify... Delete Delete all Export... Import...

Batch add Copy Replace Paste OK Close

Chat 4.2-7

The method for adding alarm events using two buttons is as follows:

a. New alarm event: Click on the [Alarm Event] button at the bottom of the alarm event interface → select the group number (range from 0 to 255) → set the level → set the alarm type to "word alarm" → set the word address of the bit alarm → set the triggering conditions (there are six types) → complete the setting and click "Confirm" to see that the device editing window has successfully added an alarm event.

The screenshot shows the 'Alarm Parameters' dialog box with the following settings:

- General properties** tab is selected.
- Group number:** 1: Group number 1
- Grade:** Low
- Delay time of monitoring events during HMI reset:** 1Second
- ☒ **Save as Historical Data**
- Alarm type:** ☐ Bit, ☒ Word, ☐ Multiple conditions
- Read address:**
 - Data type:** 16 bit unsigned int
 - Equipment:** Local HMI
 - Address:** LW 0
 - Format:** Format:Decimal Range:0~65535
- Notice:** ☐ Enable
- Trigger condition:** (empty field)

Buttons at the bottom: OK, Cancel, Help.

Chat 4.2-8

b. Batch add alarm events: Click on the [Alarm Events] button at the bottom of the alarm event interface, select the group number (range from 0 to 255), set the batch creation quantity, read the interval address, set the level, set the alarm type to "bit alarm", set the bit address of the bit alarm, set the triggering conditions (there are six types), and click "Confirm" after setting, You can see that the device editing window has successfully added alarm events in batches;

Alarm Parameters

General properties Action Information Statistics

Group number: 0: Group number 0

Grade: Low

Delay time of monitoring events during HMI reset: 1Second

☒ Save as Historical Data

Alarm type

☐ Bit ☒ Word ☐ Multiple conditions

Read address

Data type: 16 bit unsigned int

Equipment: Local HMI

Address: LW 0

Format: Format:Decimal Range:0~65535

Notice

☐ Enable

Trigger condition

OK Cancel Help

Chat 4.2-9

Here are six triggering conditions for bit alarms:

- >If greater than trigger, if the current alarm event item is set to select a word, an alarm will be generated when the value of the word address of the alarm event item is read to be greater than the status value. If it is less than 10, the alarm will be cleared.
- <: less than trigger, if the current alarm event item is set to select a word, an alarm will be generated when the value of the word address of the alarm event item is read to be less than the status value, and the alarm will be released when it is greater than 20.
- ==If the current alarm event item is set to the selection word, an alarm will be generated when the value of the word address of the alarm event item is read to be equal to the status value. If it is not equal, the alarm will be cleared.
- <>: Not equal to triggering. If the current alarm event item is set to the selected word, an alarm will be generated when the value of the word address of the alarm event item is not equal to the status value. If it is equal, the alarm will be cleared.
- <=: Trigger if less than or equal to. If the current alarm event item is set to the selected word, an alarm will be generated when the value of the word address of the alarm event item is read to be less than or equal to the status value. If it is greater than or equal to, the alarm will be cleared.
- >=Triggered if greater than or equal to, if the current alarm event item is set to the selected word, an alarm will be generated when the value of the word address of the alarm event item is read to be greater than or equal to the status value, and the alarm will be cleared if it is less than or equal to.

4.2.3 Multi condition alarm configuration

① Add multi condition alarm channel: In the parameter setting bar on the left side of the software interface, double-click "Alarm Event" to enter the alarm event setting interface, as shown in Figure 4.2-4;

Current group number: All[3]

Number	Group number	Alarm content	Alarm type	Trigger condition	
1	0	Group number0: Fault shutdown!	Bit	OFF	LBO
2	1	Group number1: Temperature too high!	Word	> 1000.00	LW0
3	0	Group number0: Event	Multiple conditions	Condition_1	Multiple

Number of Historical Alarms(HMI/U disk): 30000 Number of Alarms: 3/2000

☐ Automatically turn on the backlight in case of alarm ☐ Enable alarm sound

Historical alarm storage

☒ Save to HMI ☐ Save to U disk

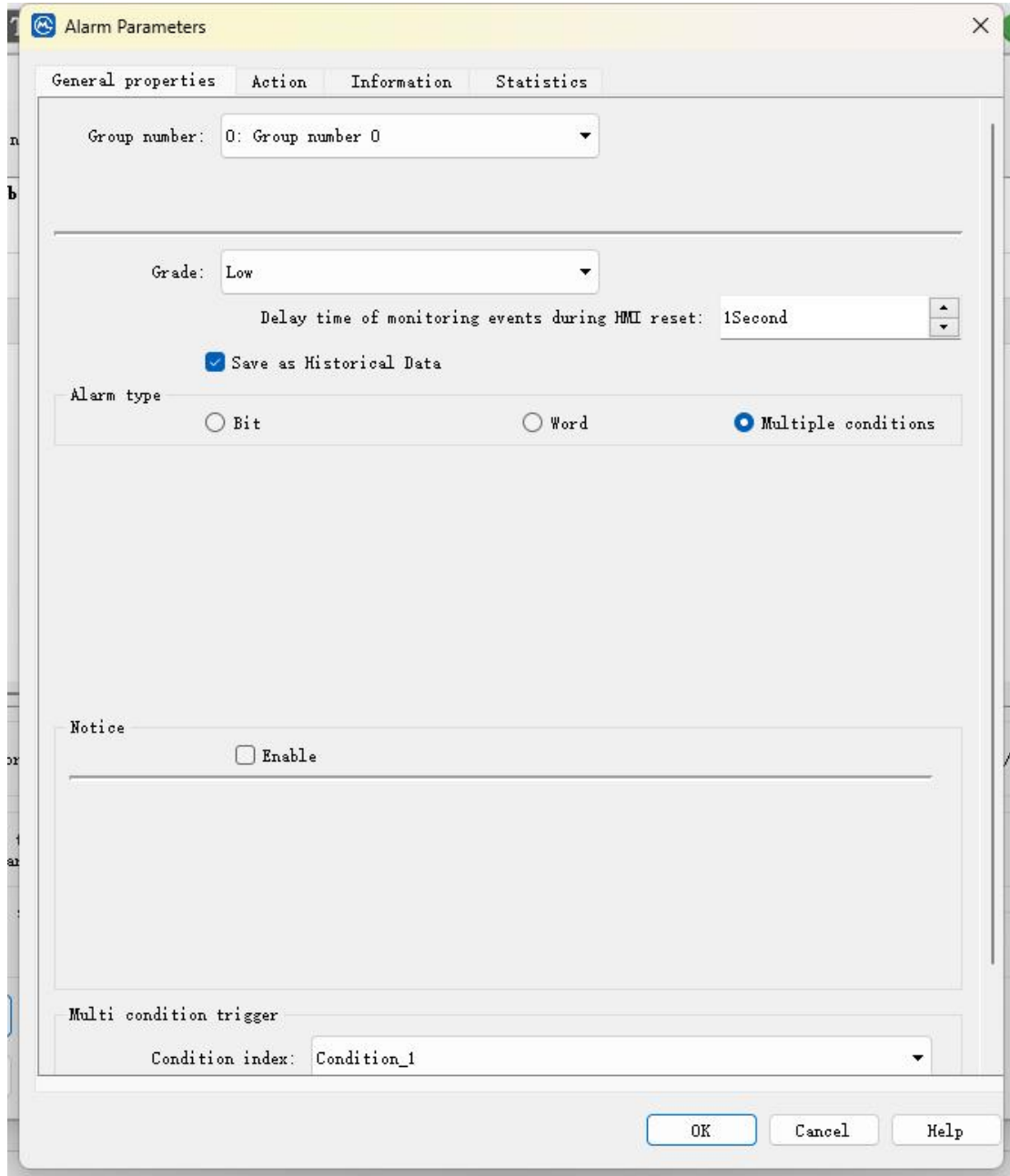
New... Insert... Modify... Delete Delete all Export... Import...

Batch add Copy Replace Paste OK Close

Chat 4.2-7

The method for adding alarm events using two buttons is as follows:

a.New alarm event: Click on the [Alarm Event] button at the bottom of the alarm event interface → select the group number (range from 0 to 255) → set the level → set the alarm type to "multi condition alarm" → set the condition index → select the condition index → complete the setting and click "Confirm" to see that the device editing window has successfully added an alarm event;



Chat 4.2-8

b.Batch add alarm events: Click on the [Alarm Events] button at the bottom of the alarm event interface → select the group number (range from 0 to 255) → set the level → set the level → set the alarm type to "multi condition alarm" → set the condition index → select the condition index → click "confirm" after setting, and you will see that the batch add alarm events are successful in the device editing window.

Alarm Parameters

General properties Action Information Statistics

Group number: 0: Group number 0

Grade: Low

Delay time of monitoring events during HMI reset: 1Second

☒ Save as Historical Data

Alarm type

☐ Bit ☐ Word ☒ Multiple conditions

Notice

☐ Enable

Multi condition trigger

Condition index:

OK Cancel Help

Chat 4.2-9

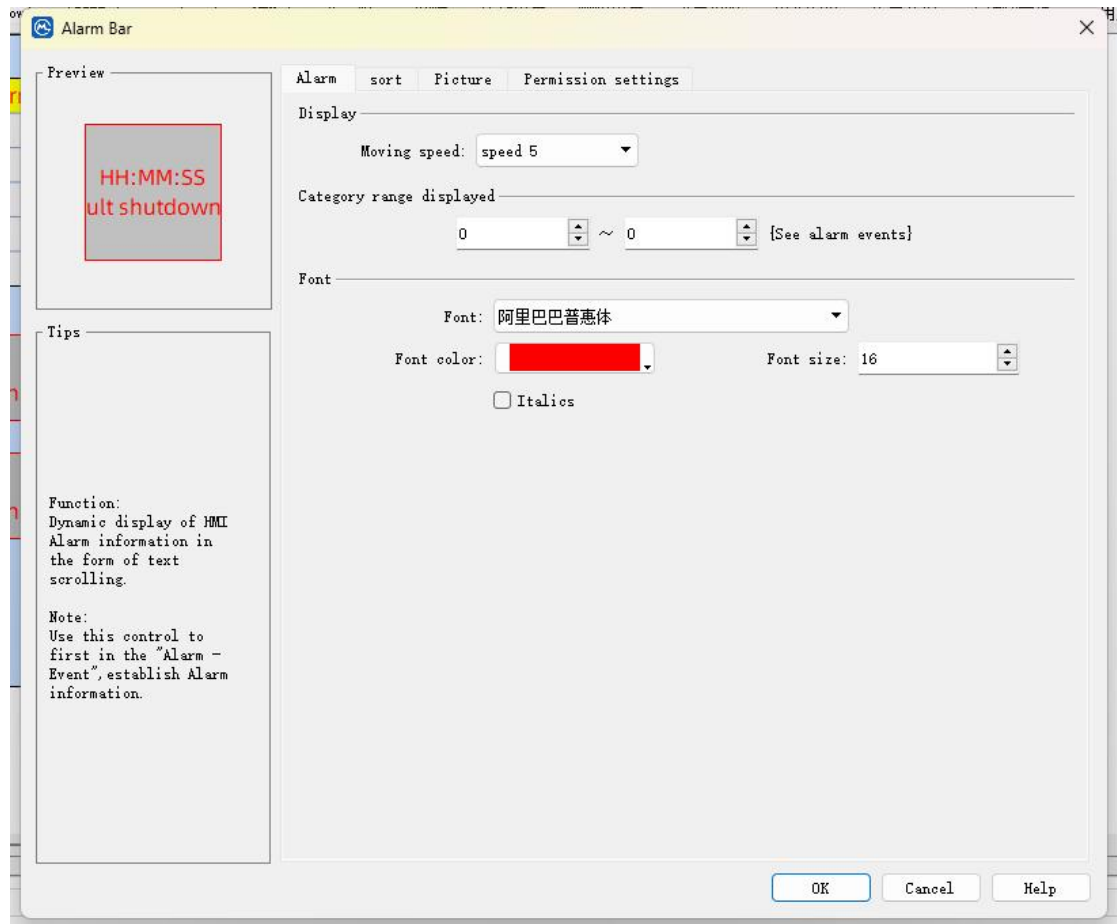
4.3 Alarm information display and operation

4.3.1 Alarm bar

When the current system meets the conditions for [Alarm Event], the alarm bar will display a single line of customized event information in the alarm event. Therefore, when using an alarm bar, an alarm must be established in the alarm event.

Note: To use this control, you must first establish alarm information in the "Alarm Event" section.

The attribute setting diagram for the alarm bar is shown in Figures 4.3-11.



Chat 4.3-11

The method to display alarm events using an alarm bar is as follows:

- ① Add an alarm event first, please refer to section 4.2 for specific methods;
- ② Click on the alarm bar control icon on the right toolbar to enter the alarm bar properties interface;
- ③ Set the range category to be displayed and the sorting and display order in Sort;

There are two types of sorting:

Time sequence: If time sequence is selected, when moving, the old alarm information will come first and the new alarm information will come later;

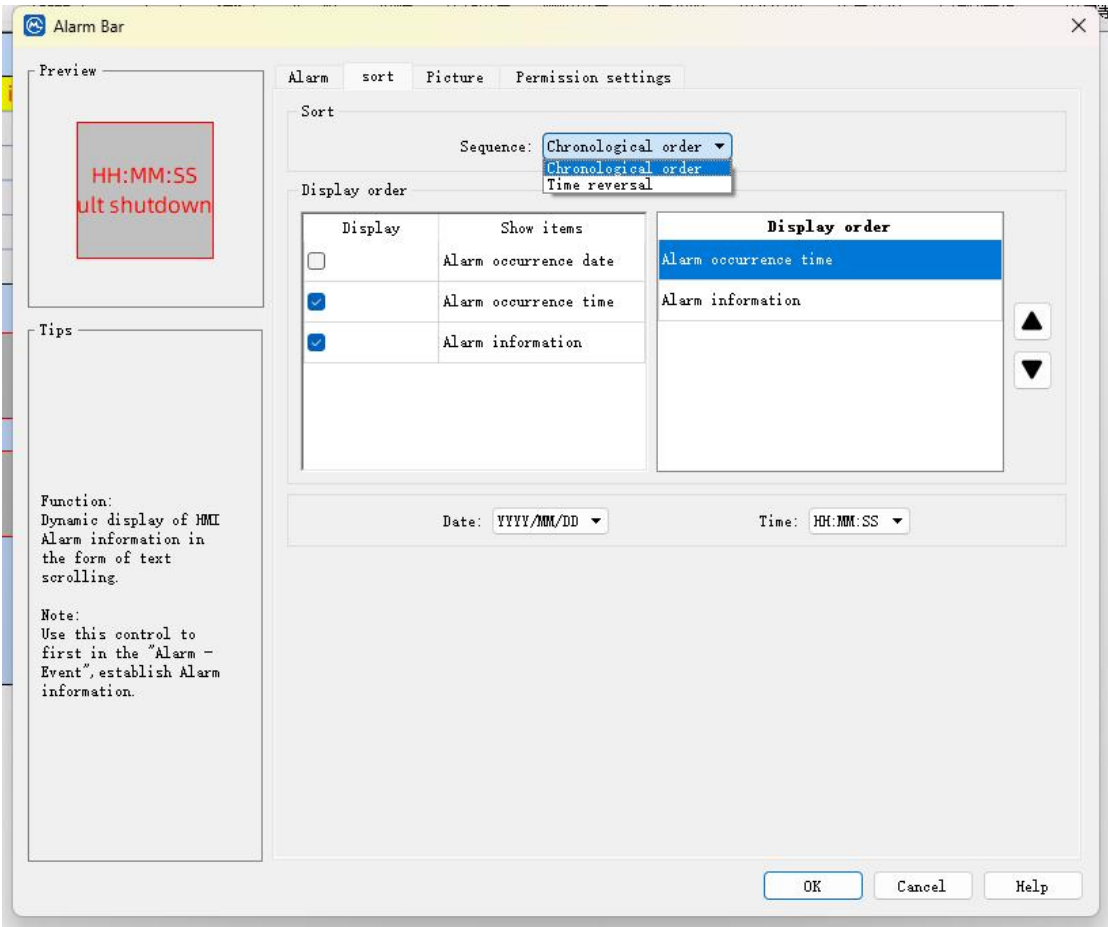
Time reversal: If time reversal is selected, when moving, the new alarm

information will come first and the old alarm information will come later;

Display order:

Display items: The selected display items will be displayed in the display order item bar, and after an alarm, the alarm bar will display the selected display items;

Display order: The display order of the items displayed in the alarm bar after the alarm is generated can be adjusted, as shown in the following figure. The display order is the date of the alarm occurrence, the time of the alarm occurrence, and the alarm information;

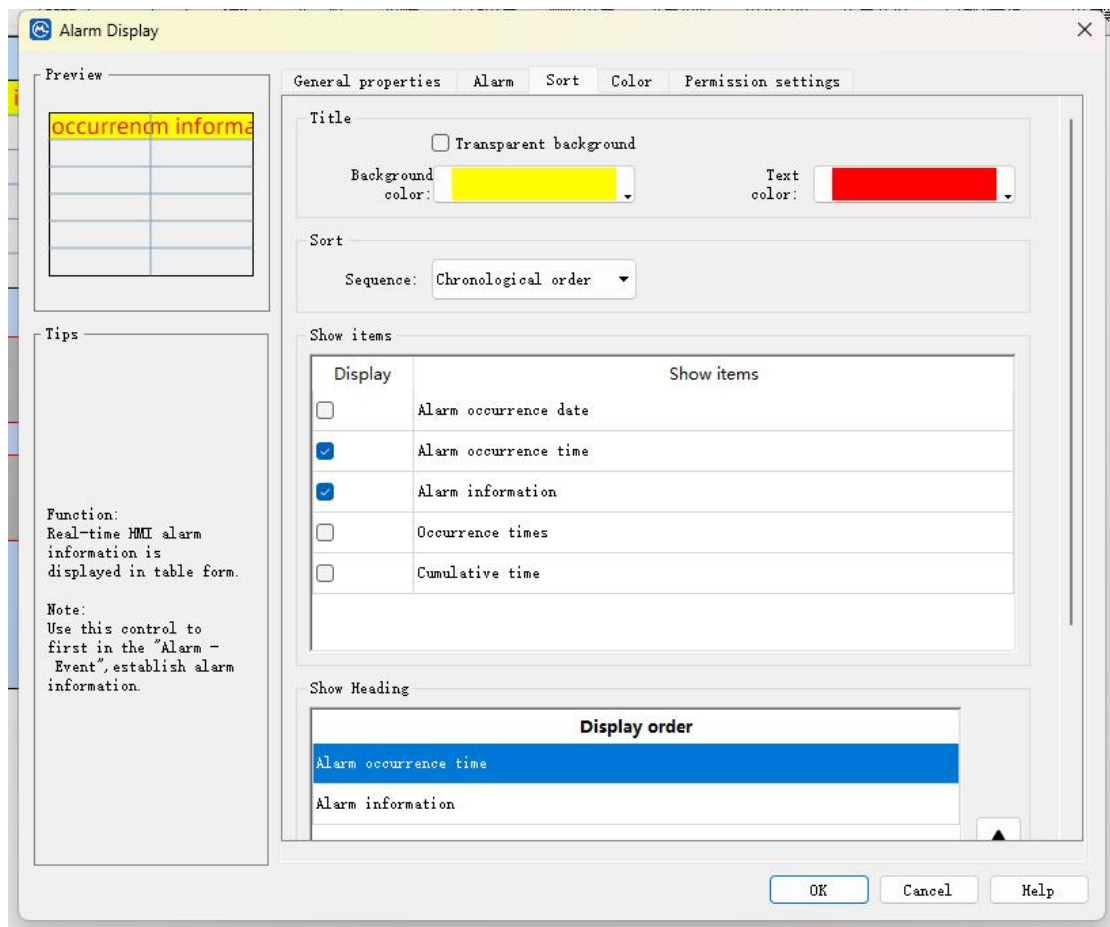


Chat 4.3-12

4.3.2 alarm display

Real time display of alarm information in the form of a table. Note: To use this control, you must first establish alarm information in the "Alarm Event" section.

The attribute setting diagram for [Alarm Display] is shown in Figures 4.3-11.



Chat 4.3-13

The method of using an alarm display to display alarm events is as follows:

- ① Add an alarm event first, please refer to section 4.2 for specific methods;
- ② Click on the alarm display control icon on the right toolbar to enter the alarm display properties interface;
- ③ Set the range category to be displayed and the sorting and display order in Sort;

There are two types of sorting:

- ① Time sequence: When sorting the alarm events that occur in chronological order, the earliest alarm event that occurred will be displayed at the top, and the subsequent alarm events will be sorted from the bottom in chronological order;
- ② Reverse sorting: When sorting alarm events in reverse chronological order, the last alarm event that occurred will be displayed at the top, and the previous alarm events will be sorted from the bottom in reverse chronological order;

Display order:

Alarm occurrence date: Display the alarm occurrence date, in a certain year, time, month;

Alarm occurrence time: Display the alarm occurrence time, in hours, minutes, seconds, and months;

Alarm information: Display the alarm content that needs to be displayed when setting an alarm in the alarm event project;

Alarm count: displays the cumulative number of occurrences of the same alarm event;

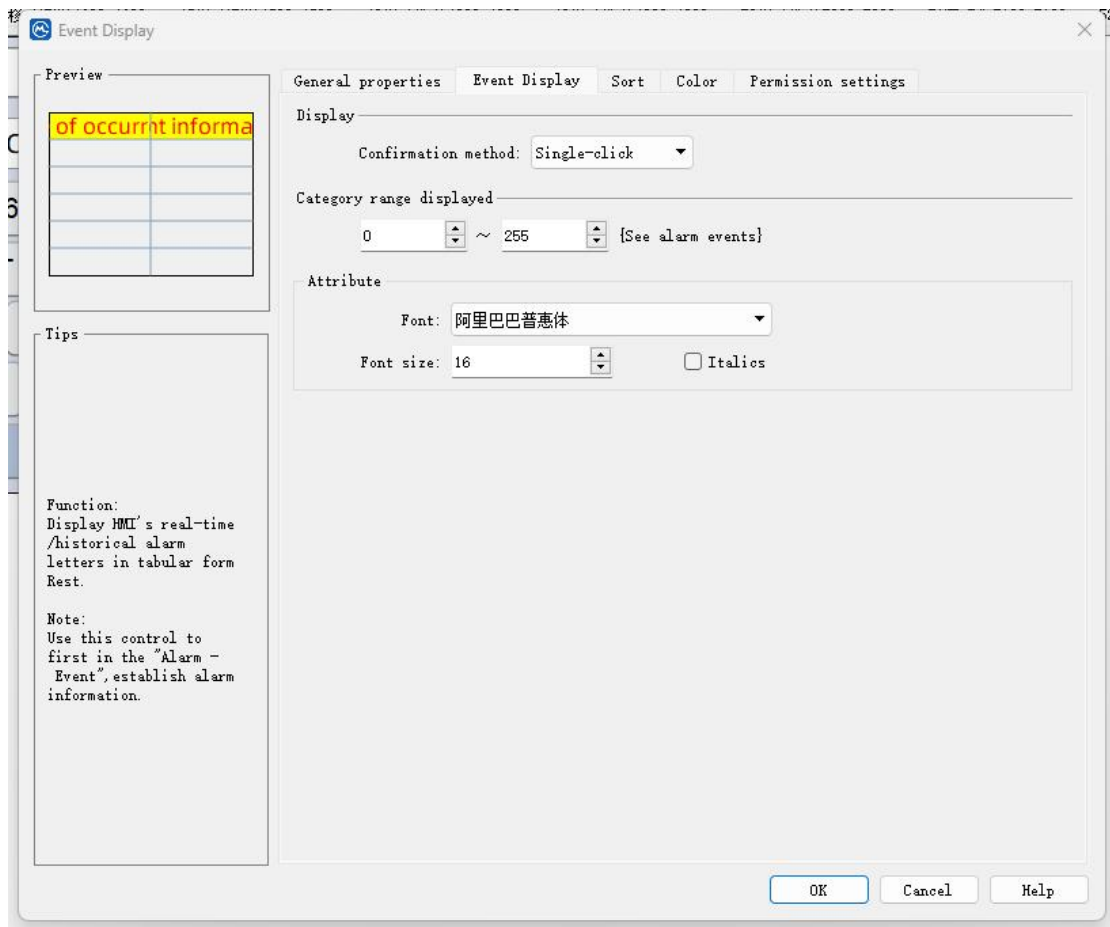
Accumulated time: displays the accumulated time of the alarm when the same alarm event item is triggered. When the alarm is cleared, it will no longer accumulate, but the accumulated time will not automatically reset. When the event is triggered again, it will continue to accumulate and display on the previous accumulated time;

Display items: After checking the relevant items, the corresponding item information will be displayed in the alarm display, and the display order can be adjusted;

4.3.3 Event display

Real time/historical display of alarm information in tabular form. Note: To use this control, you must first establish alarm information in the "Alarm Event" section.

The attribute setting diagram for Event Display is shown in the figure.



Chat 4.3-14

The method of using event display controls to display alarm events is as follows:

- ① Add an alarm event first, please refer to section 4.2 for specific methods;
- ② Click on the event display control icon on the right toolbar to enter the event display properties interface;
- ③ Set the range category to be displayed and the sorting and display order in Sort;

There are two modes for event display:

Instant: Display the current alarm event after HMI startup. When an alarm event occurs, the color of the message text can be changed by acknowledging the alarm event. The HMI system will also write the confirmation value set in advance in the event to the confirmation address during the alarm event;

History: You need to first check 'Save as Historical Alarm' in the alarm event to view the alarm start time and alarm end time period in all historical alarm event items based on the time settings, and view the alarms within this time period;

There are two types of sorting:

- ① **Time sequence:** When sorting the alarm events that occur in chronological order, the earliest alarm event that occurred will be displayed at the top, and the subsequent alarm events will be sorted from the bottom in chronological order;
- ② **Reverse sorting:** When sorting the alarm events that occurred in reverse chronological order, the last alarm event that occurred will be displayed at the top, and the previous alarm times will be sorted in reverse chronological order from the bottom;

The property settings are as follows:

- Sequence number: Sort the alarms that occur by sequence number;
- Alarm occurrence date: Display the alarm occurrence date, in a certain year, time, month;
- Alarm occurrence time: Display the alarm occurrence time, in hours, minutes, seconds, and months;
- Event information: Display the alarm content that needs to be displayed when setting an alarm in the alarm event project;
- Confirmation event: can display the time of confirming the alarm event item after the alarm occurs;
- Restore normal time: can display the time to restore normal after the alarm is cleared;
- Number of occurrences: displays the cumulative number of occurrences of the same alarm event;
- Accumulated time: Display the accumulated time of the alarm when the same alarm event item is triggered. When the alarm is cleared, it will no longer accumulate, but the accumulated time will not automatically reset. When the event is triggered again, it will be displayed in the previous accumulated time.

Chapter5 Trend Curve and Data Processing

An important application of touch screens is to display real-time trends and historical trend curves, as well as to process received PLC data. This chapter's tutorial mainly explains the trend curve display and data processing functions of the configuration software.

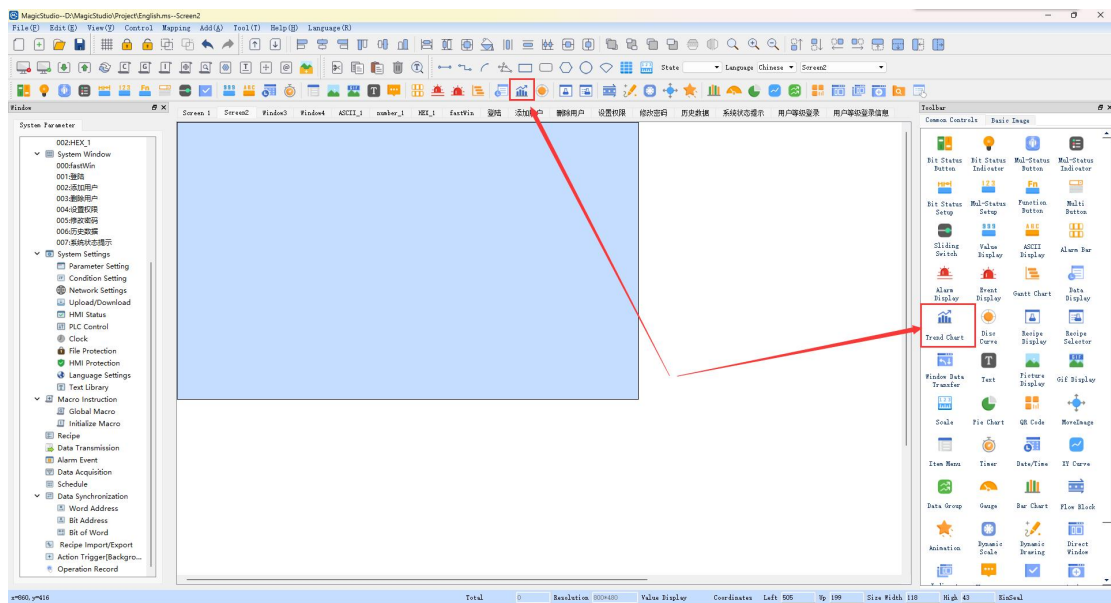
Function: Display sampling data collected in a continuous line segment manner.

Note: To use this control, you must first set the collection address in "Data Collection".

5.1 Real time trend curve

By providing real-time curve components through configuration software, it is possible to display real-time trends of specified variables during project operation, and to add curve components through configuration software tools, as shown in Figure 5.1-1.

Real time collection: If this option is selected, the data obtained by calling this data collection control does not support power-off saving.



Chat 5.1-1

This tutorial will explain the 2 trend curve types supported by real-time curve components:

- **Absolute clock trend curve:** The Y-axis represents the value of the target variable, while the X-axis represents the system time. It displays the change curve of the variable relative to time and is the most commonly used type of real-time curve.
- **Relative clock trend curve:** The Y-axis represents the value of the target variable, while the X-axis represents other variables, displaying the change curve of one variable relative to another variable. The relative clock trend curve can be achieved through the "XY curve component".

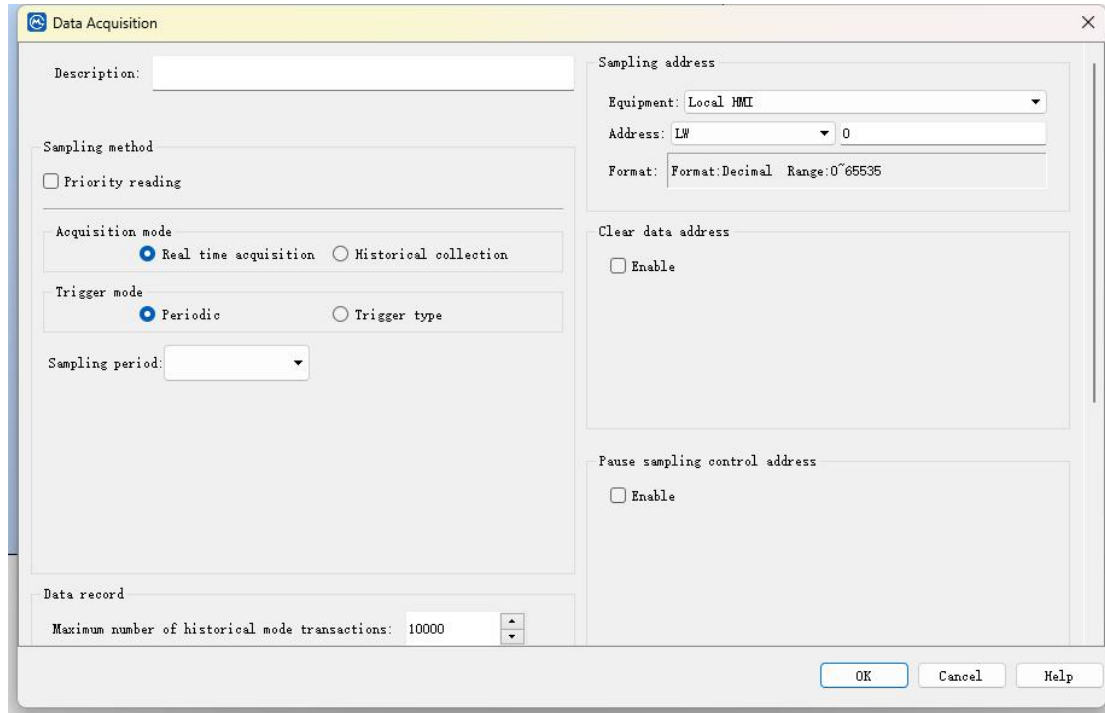
The following is an introduction to the absolute clock trend curve:

Display the trend curve of the analog device channel address variable "temperature" through the real-time curve component, requiring the Y-axis of the curve to be the "temperature" value and the X-axis to be the system time. The curve in the real-time curve component can be cleared through buttons. We learn real-time trend curves by configuring an example.

Real time trend curve configuration:

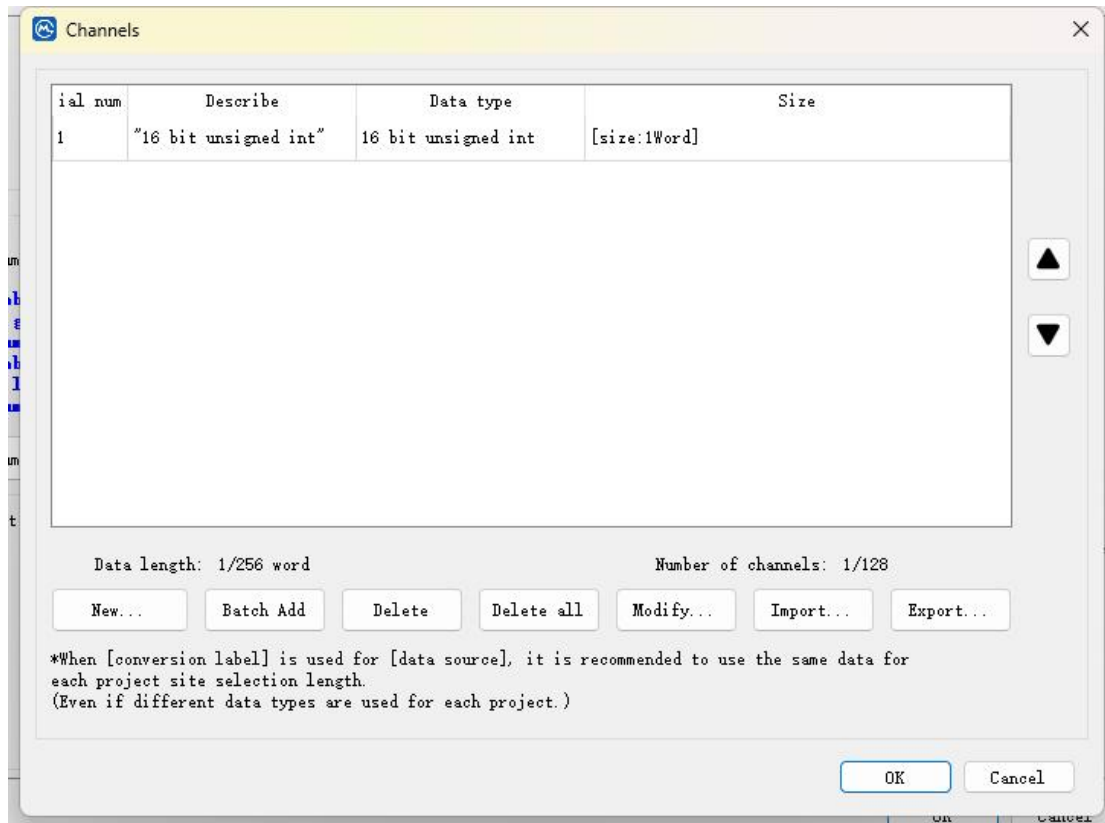
The steps for setting up data collection are as follows:

- ① Double click on 'Data Collection' in the left system parameter selection bar, as shown in Figure 5.1-2; Double click to enter the data collection add delete modify query interface, as shown in Figure 5.1-3 (three samples have been added in the figure);



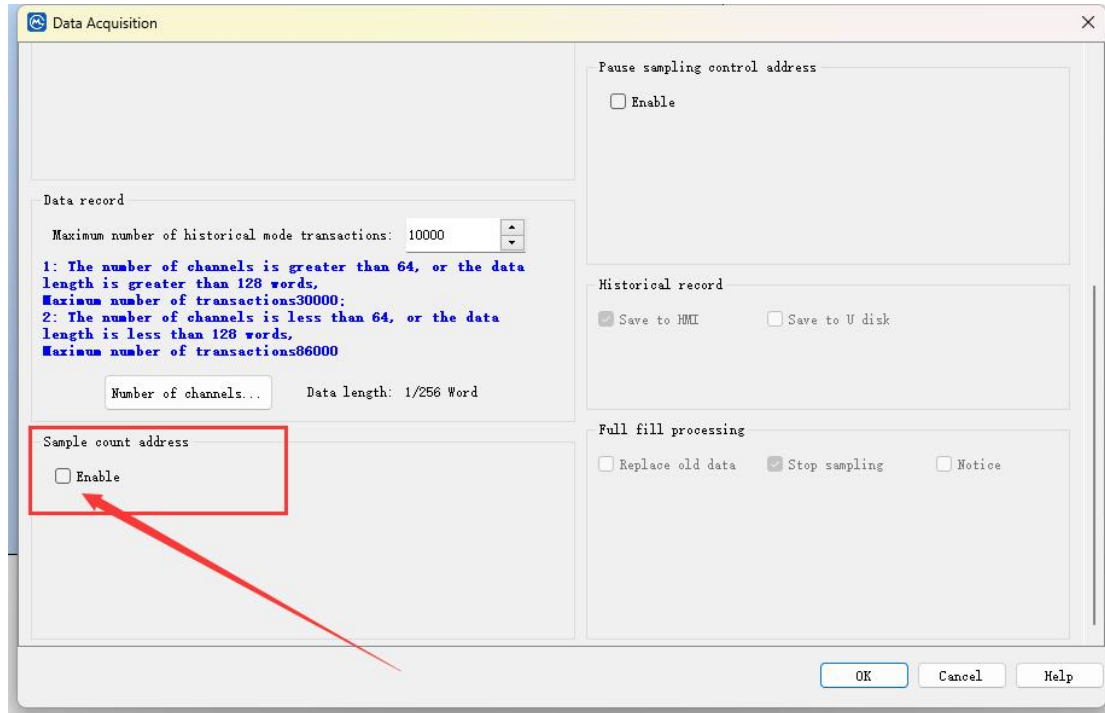
Chat 5.1-4

- ③ Select the collection mode as real-time collection, and there are two triggering modes. The introduction of two triggering modes follows the steps.
- ④ Click on [Number of Channels...] to enter the interface for adding new channels, as shown in Figure 5.1-5;



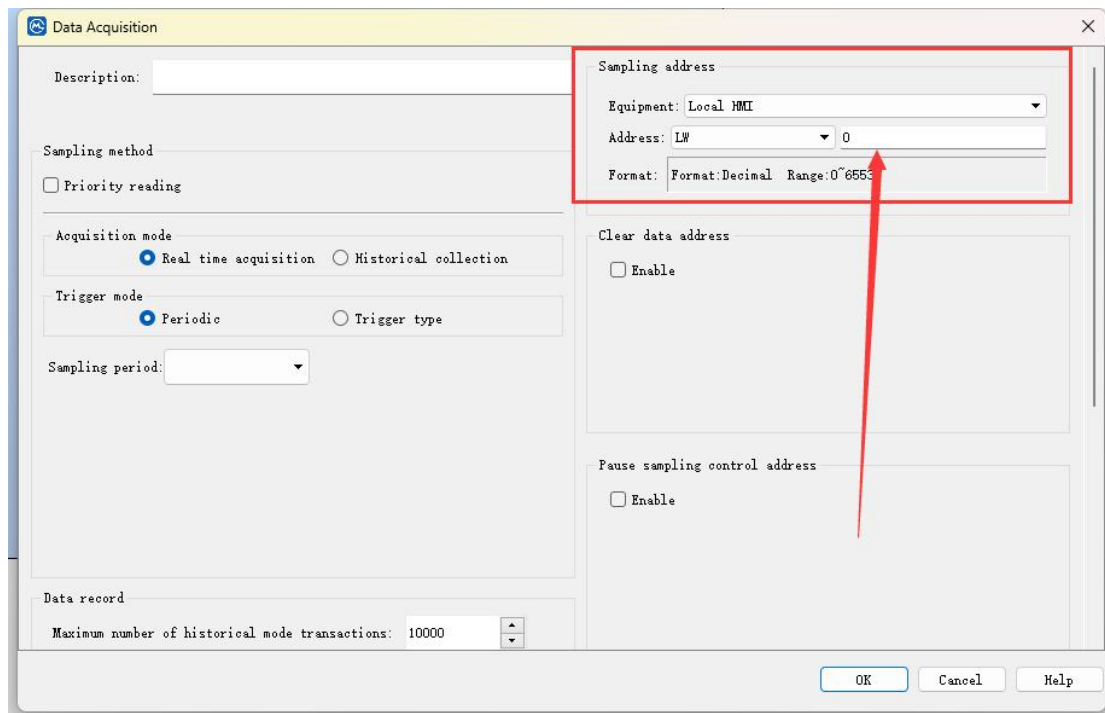
Chat 5.1-5

- ⑤ Click 'Add' or 'Batch Add' to add channels, and click 'OK' button to successfully add channels;
- ⑥ Set the sampling technology address (specify a word register to record the current total number of samples), check the enable sampling count address, as shown in Figure 5.1-6;



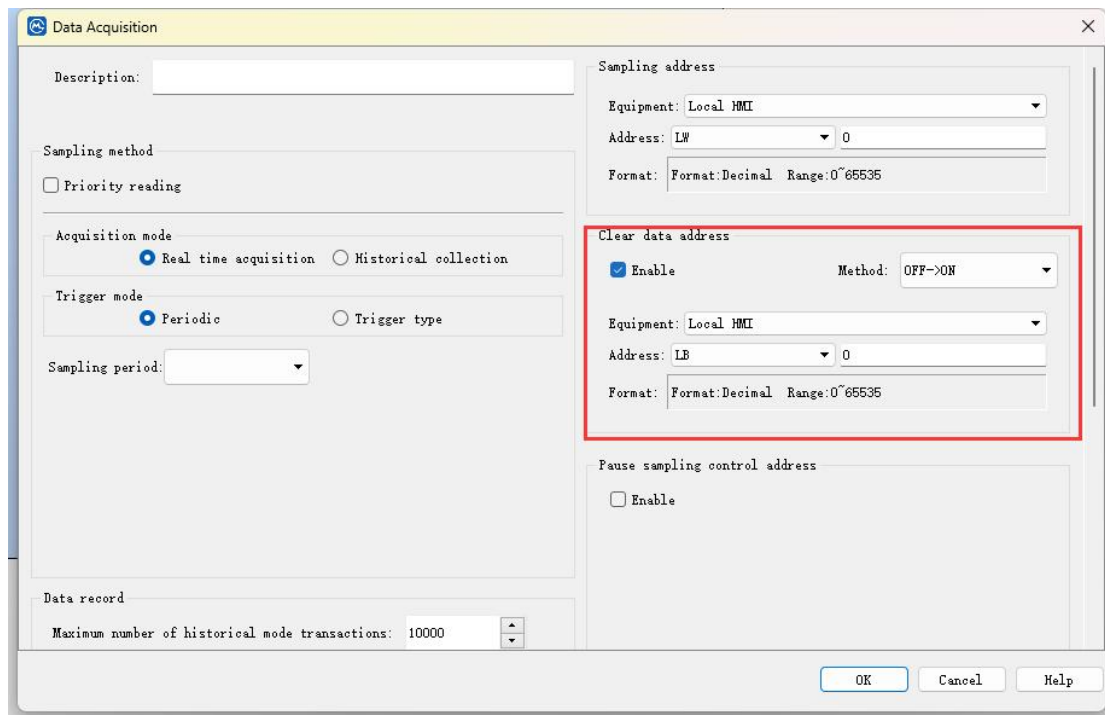
Chat 5.1-6

⑦ Set the sampling address (set the designated word address as the starting address for this data collection), as shown in Figure 5.1-7, where the sampling address starts from LW-0;



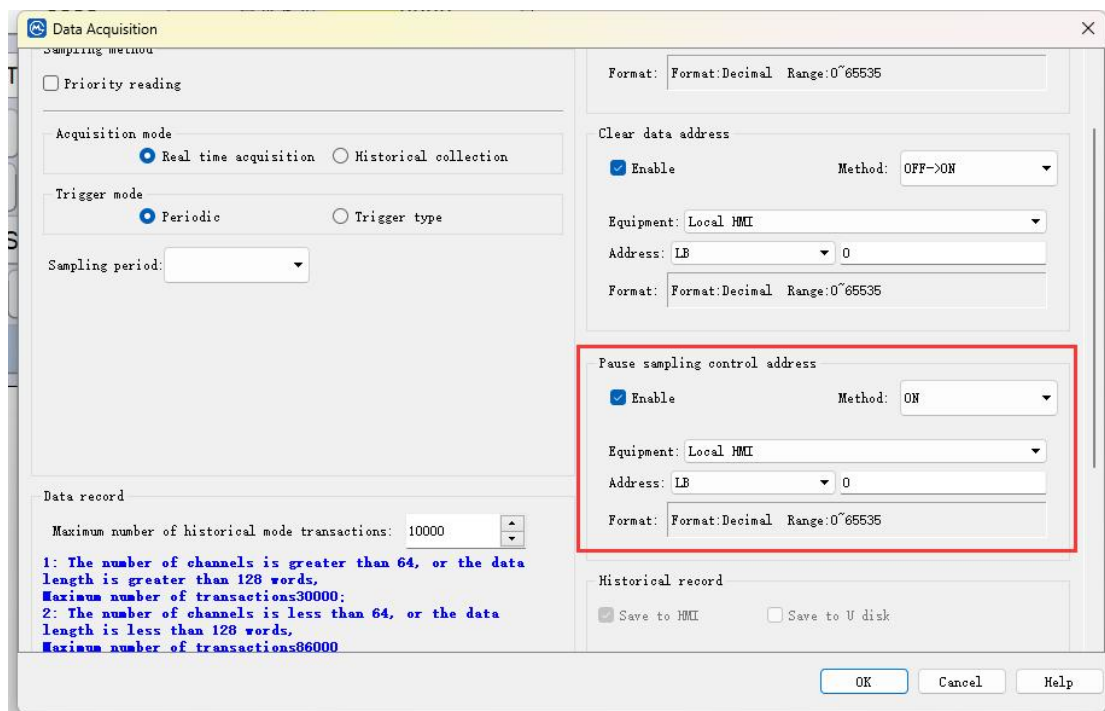
Chat 5.1-7

⑧ Set the clear data address (set the ON/OFF status of the specified location address to clear real-time data), check the enable clear data address, as shown in Figure 5.1-8;



Chat 5.1-8

⑨ Set the pause sampling address (set the ON/OFF status of the positioning address to pause data collection), check the enable pause sampling address, as shown in Figure 5.1-9;



Chat 5.1-9

Two triggering modes:

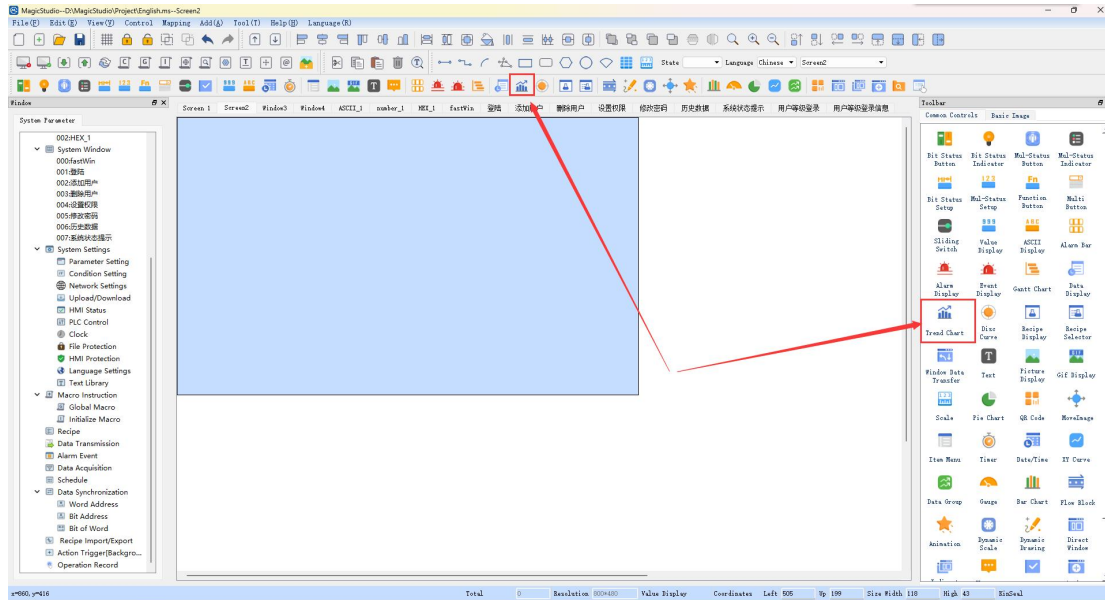
Periodic: If this mode is selected, the data collection will be based on the set sampling cycle time. Collect one piece of data in one second.

Trigger mode: If this mode is selected, the data collection will be based on the specified [bit address] status, such as when LB0 address is OFF → ON, a piece of data will be collected.

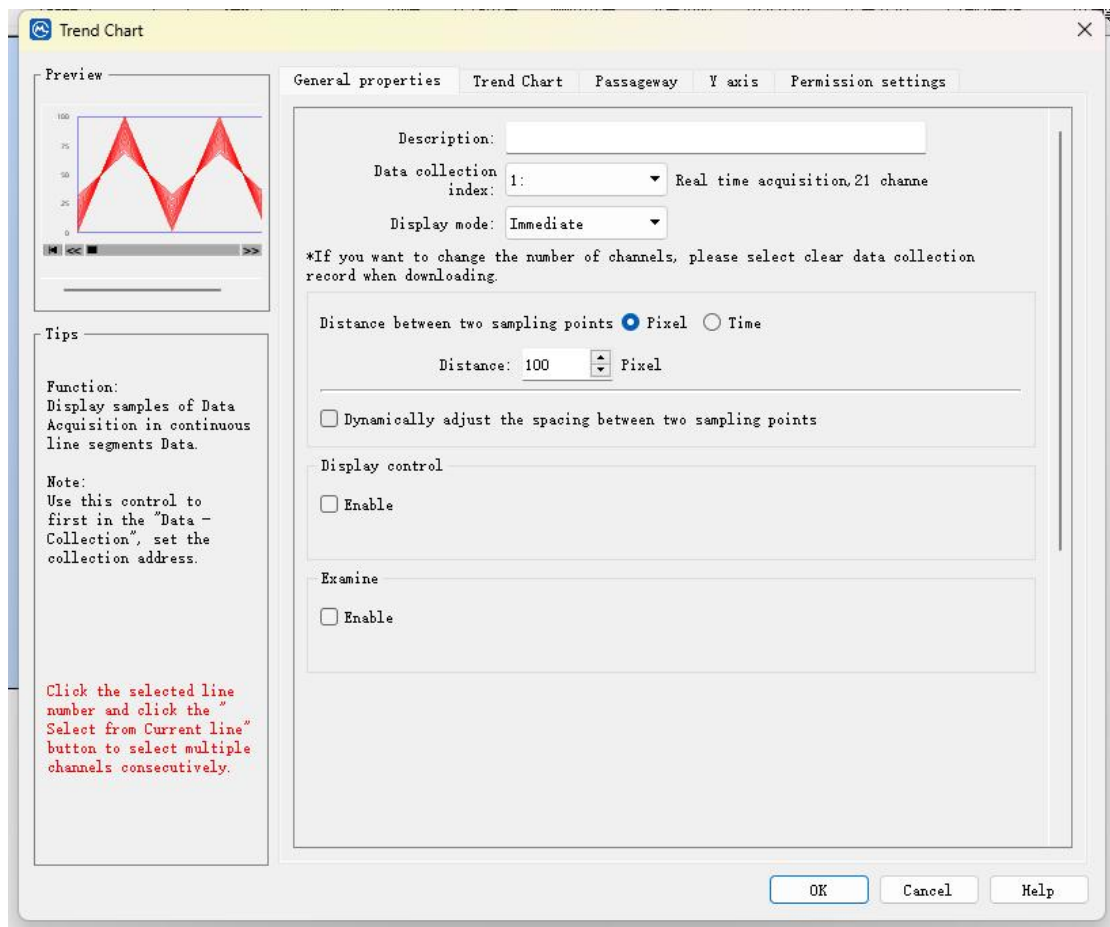
Note: In step 7, the sampling address set is the starting address for data collection, while other sampling addresses are incremented according to the set channel data type.

The steps to use real-time trend curve configuration are as follows:

- ① Click the Run chart control on the toolbar, as shown in Figure 5.1-10. Enter the Run chart attribute setting interface, as shown in Figure 5.1-11;

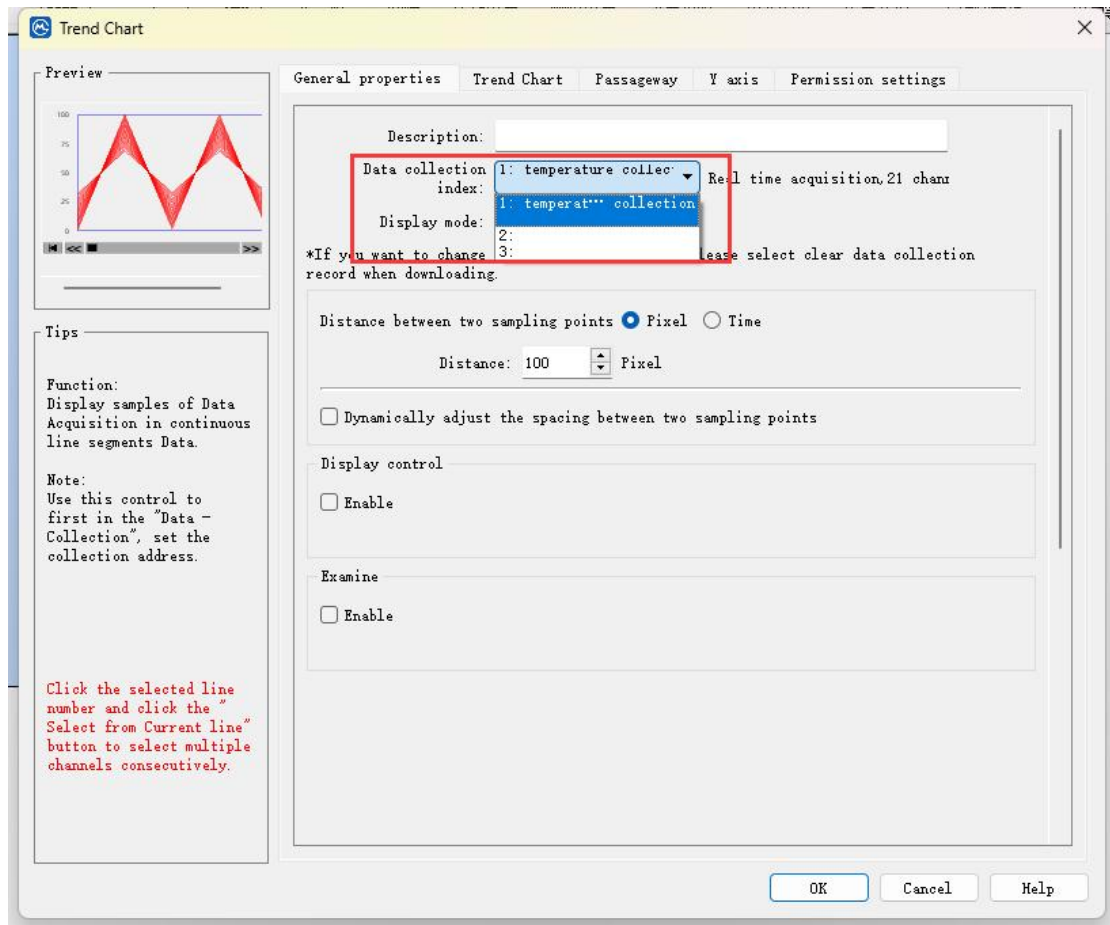


Chat 5.1-10



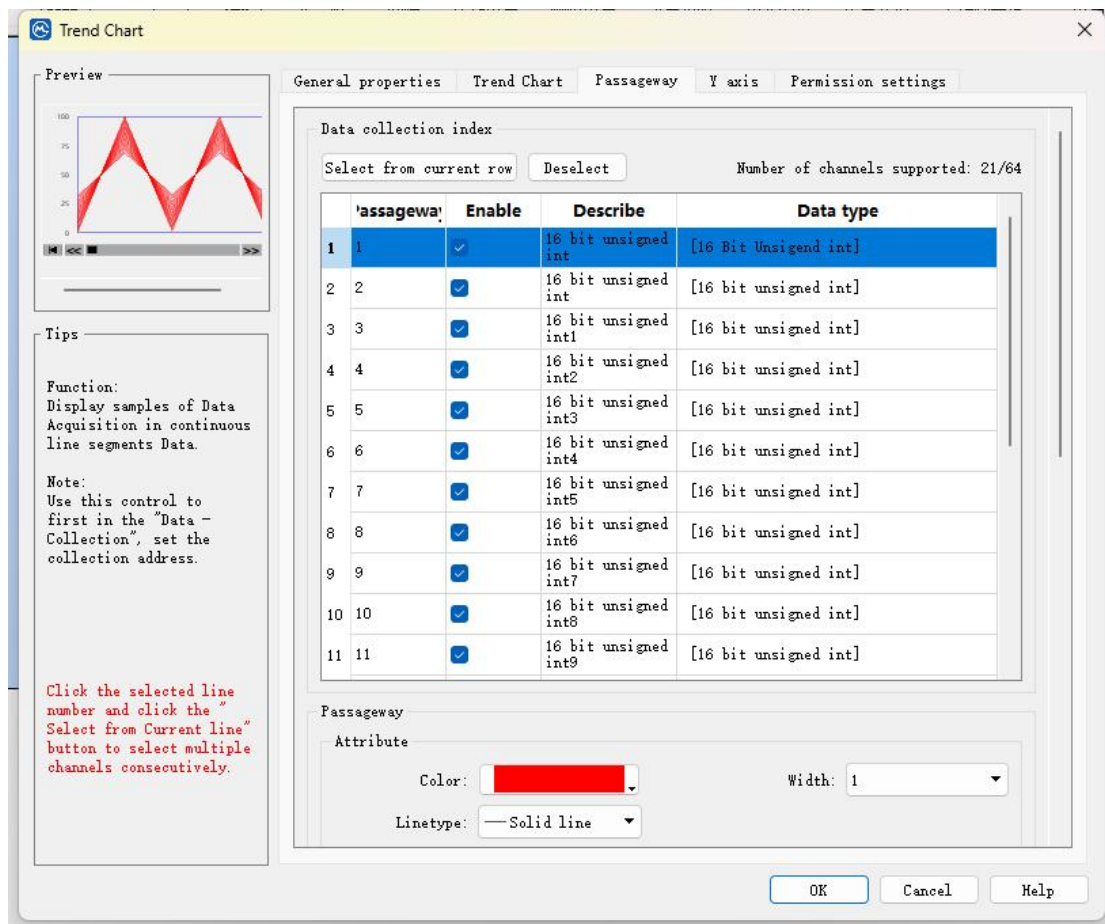
Chat 5.1-11

- ② Set the data collection index and select index 1: temperature collection from the drop-down box, as shown in Figure 5.1-12;



Chat 5.1-12

- ③ Set the display mode to "Real time" (Display mode: select according to the collection mode selected in "Data Collection", real-time "Real time Collection"/historical "Historical Collection" mode);
- ④ Select channels: Click [Select from Current Line] or manually select. If you click [Select from Current Line], a maximum of 64 channels will be selected in sequence. As shown in Figures 5.1-13;



Chat 5.1-13

General Property Settings:

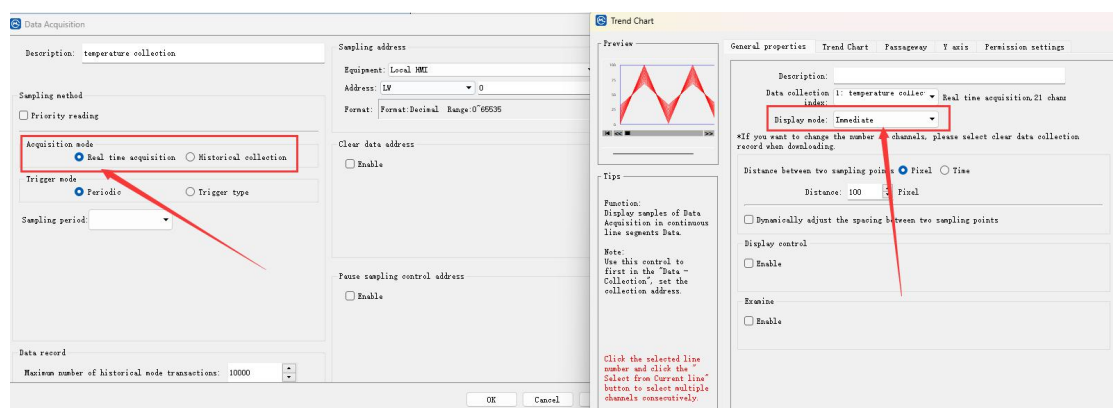
- a. **Automatically update data:** If this option is checked, the historical data display will automatically update and display on the historical data display after collecting data. If it is not checked, the historical data display will not automatically update after collecting data, and will only be updated once when switching to the interface where the control is located;
- b. If the data in the back stroke is too long, do not draw a line to connect: Check this option. When the time is adjusted and the current data is continuously sampled, no line will be drawn between the data at both ends to connect the distance between the two sampling points. Select this option to set the line drawing distance between the two sampling points;

- c. The X-axis represents the time range: select this option to set the line drawing distance between two sampling points within the set N seconds;
- d. Dynamically adjust the X-axis time range: Set the value of the specified word address to control the X-axis time range;
- e. Display control: Set the positioning status to control the display of the curve;
- f. View: Set the specified word address to display the numerical value of the selected point;

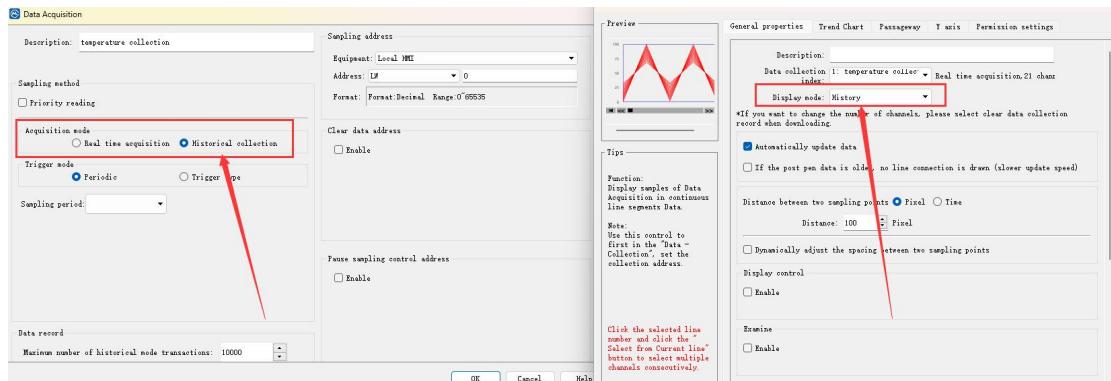
Channel attribute settings:

- a. Minimum value: Set the minimum value that can be displayed on the Y-axis of the curve;
- b. Maximum value: Set the maximum value that can be displayed on the Y-axis of the curve;
- c. Take from register: set the value of the specified word address as the minimum and maximum value of the Y axis of the Run chart;
- d. Channel display control: Set the bits of the specified word address to control the display/non display of the channel.

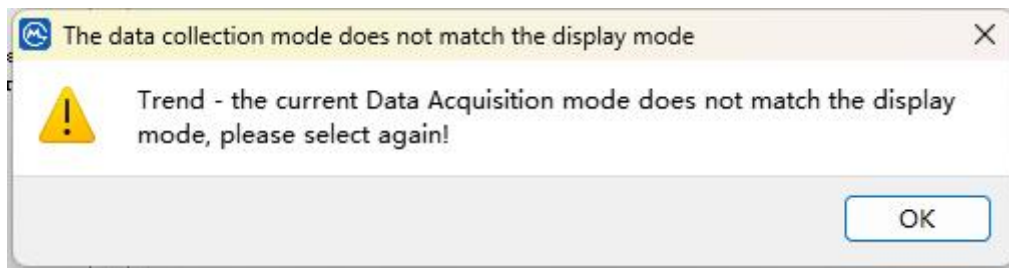
Note: The acquisition mode in the data acquisition and the display mode in the Run chart must correspond one by one, that is, the [Data Display] determines whether to save after power-off according to the selection of the acquisition mode, and the display mode of the [Run chart] is selected according to the data acquisition called, as shown in Figure 5.1-13-14. Otherwise, a window as shown in Figure 5.1-15 will pop up;



Chat 5.1-13



Chat 5.1-14



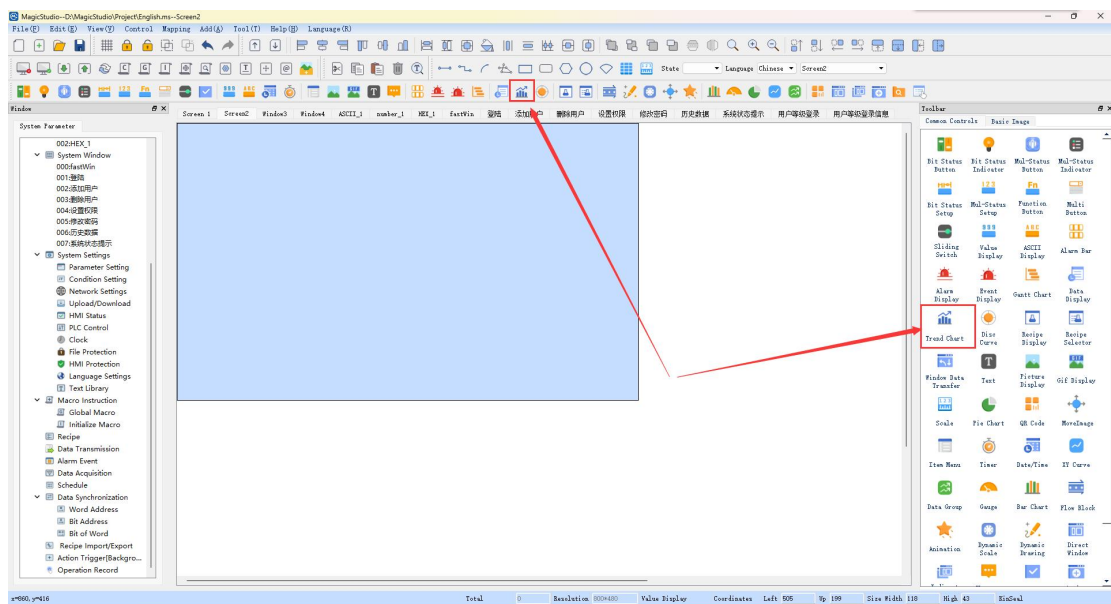
Chat 5.1-15

5.2 Historical data function

This tutorial mainly introduces the storage, display, and operation of historical data.

History collection: If this option is selected, the data obtained by calling this data collection control supports power-off saving.

By using the historical curve components provided by the configuration software, real-time trends of specified variables can be displayed during project operation, and curve components can be added through the configuration software tool, as shown in Figure 5.1-1.

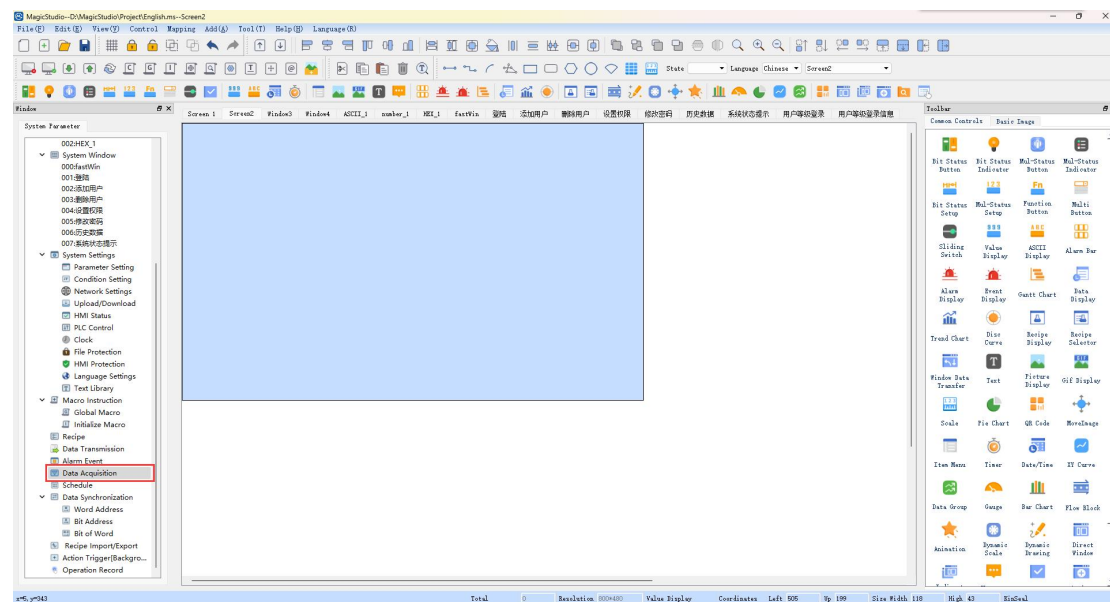


Chat 5.2-1

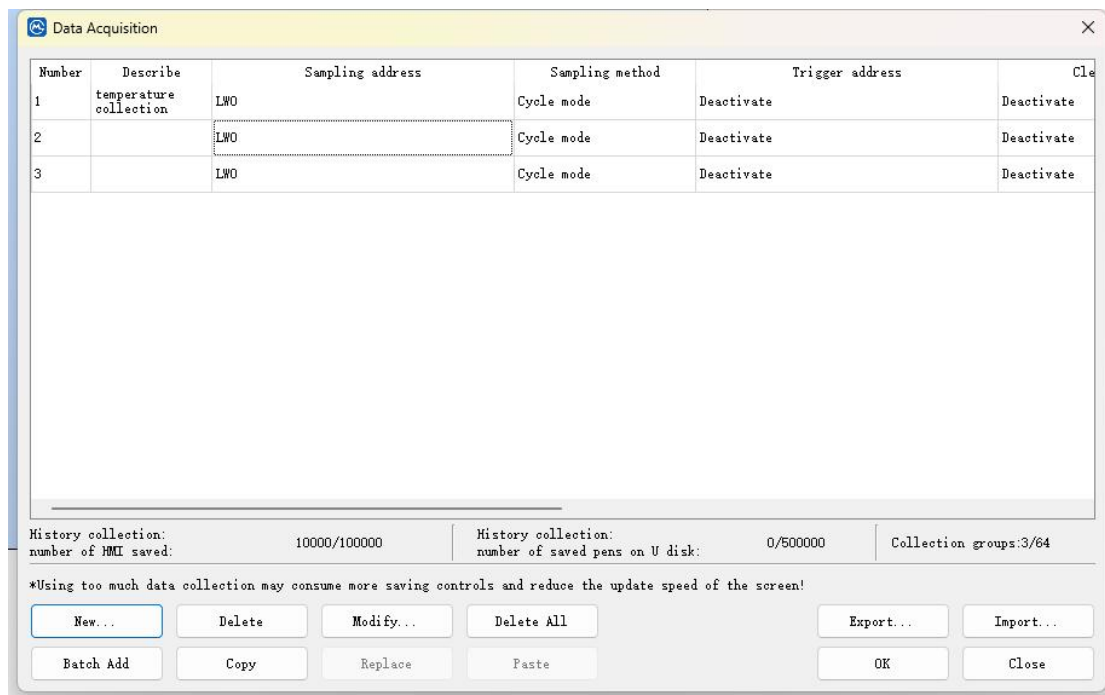
Historical trend curve configuration:

The steps for setting up data collection are as follows

① Double click on [Data Collection] in the left system parameter selection bar, as shown in Figure 5.2-2; Double click to enter the data collection add delete modify query interface, as shown in Figure 5.2-3 (three samples have been added in the figure);

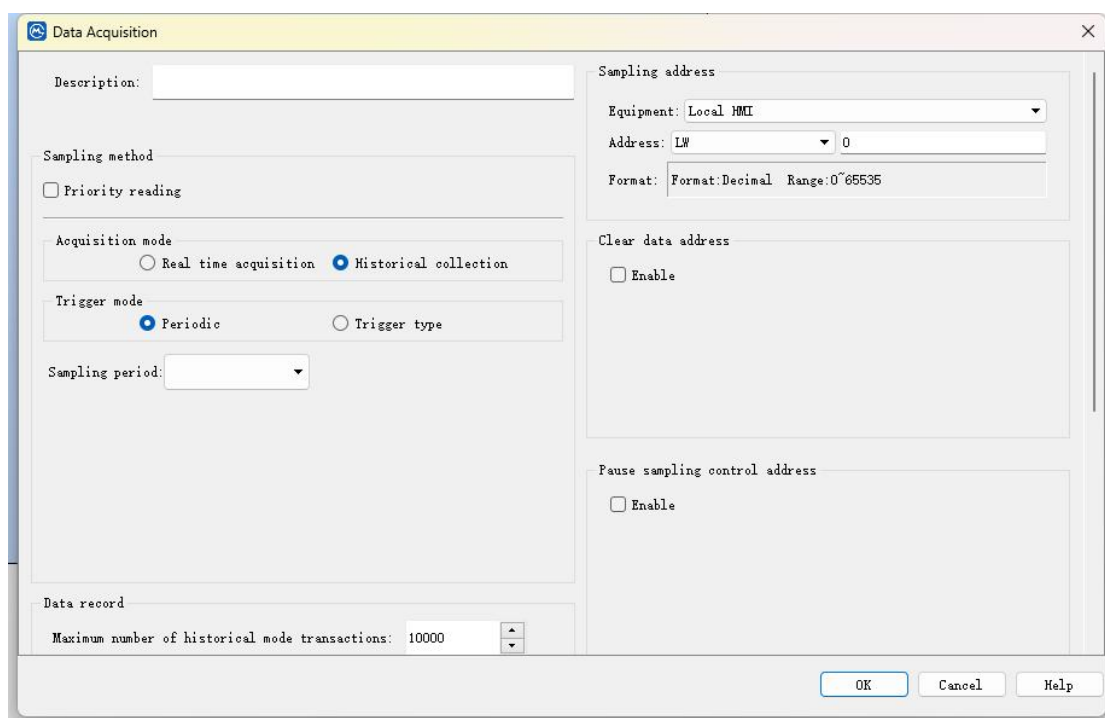


Chat 5.2-2



Chat 5.2-3

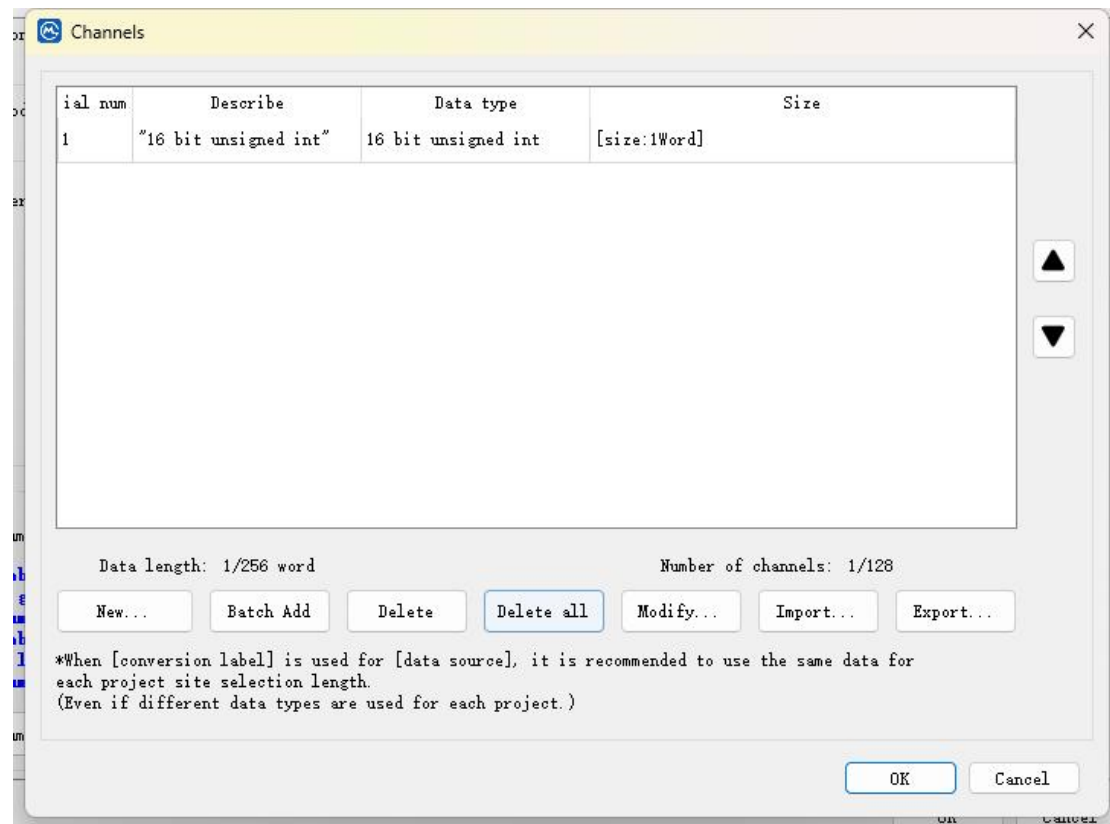
② Click the [Add] or [Batch Add] button to add data collection and enter the interface for adding data collection, as shown in Figure 5.2-4;



Chat 5.2-4

③ Select the collection mode as historical collection, and there are two triggering modes;

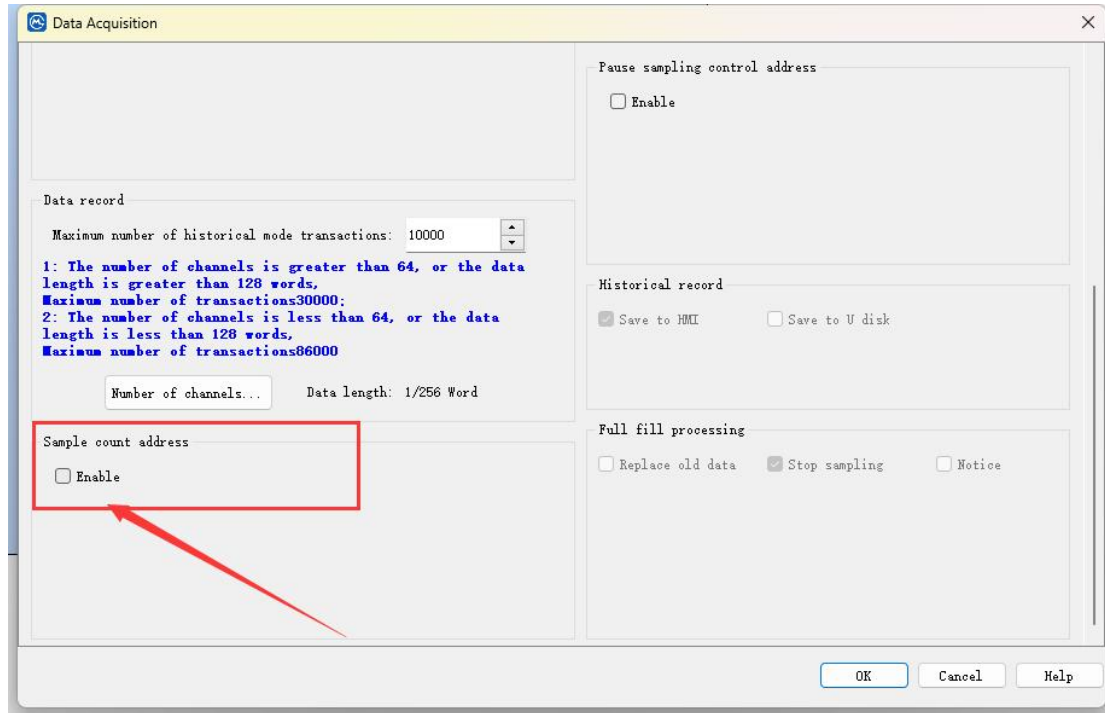
④ Click on [Number of Channels...] to enter the interface for adding new channels, as shown in Figure 5.2-5;



Chat 5.2-5

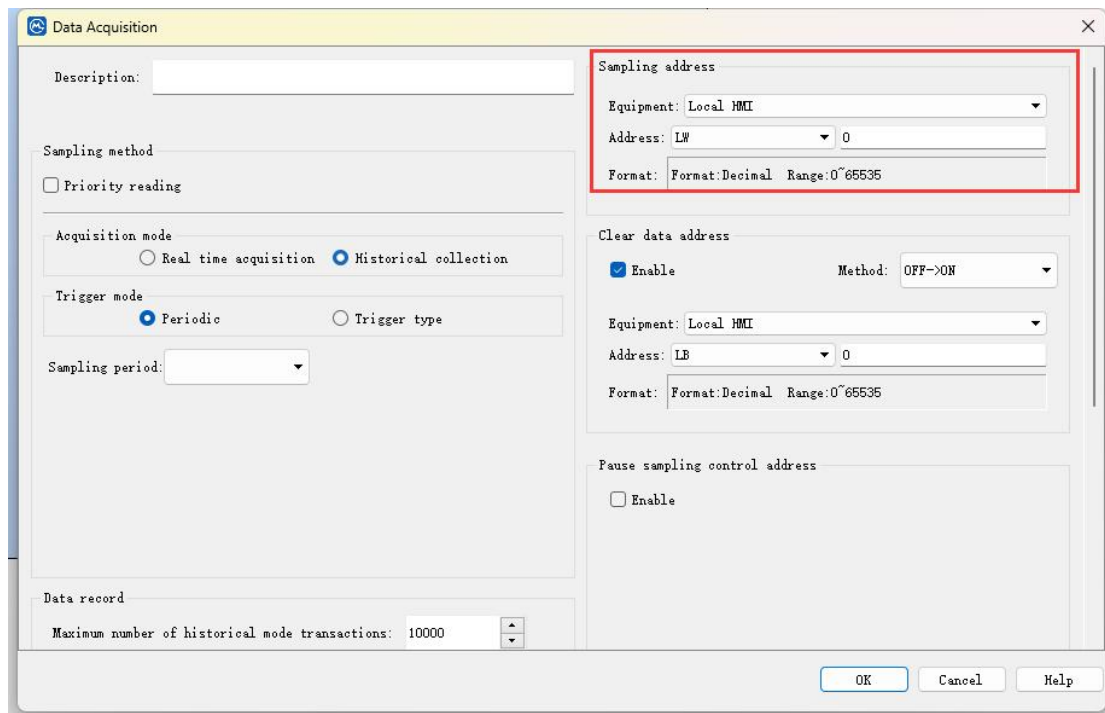
⑤ Click 'Add' or 'Batch Add' to add channels, and click 'OK' button to successfully add channels;

⑥ Set the sampling technology address (specify a word register to record the current total number of samples), check the enable sampling count address, as shown in Figure 5.2-6;



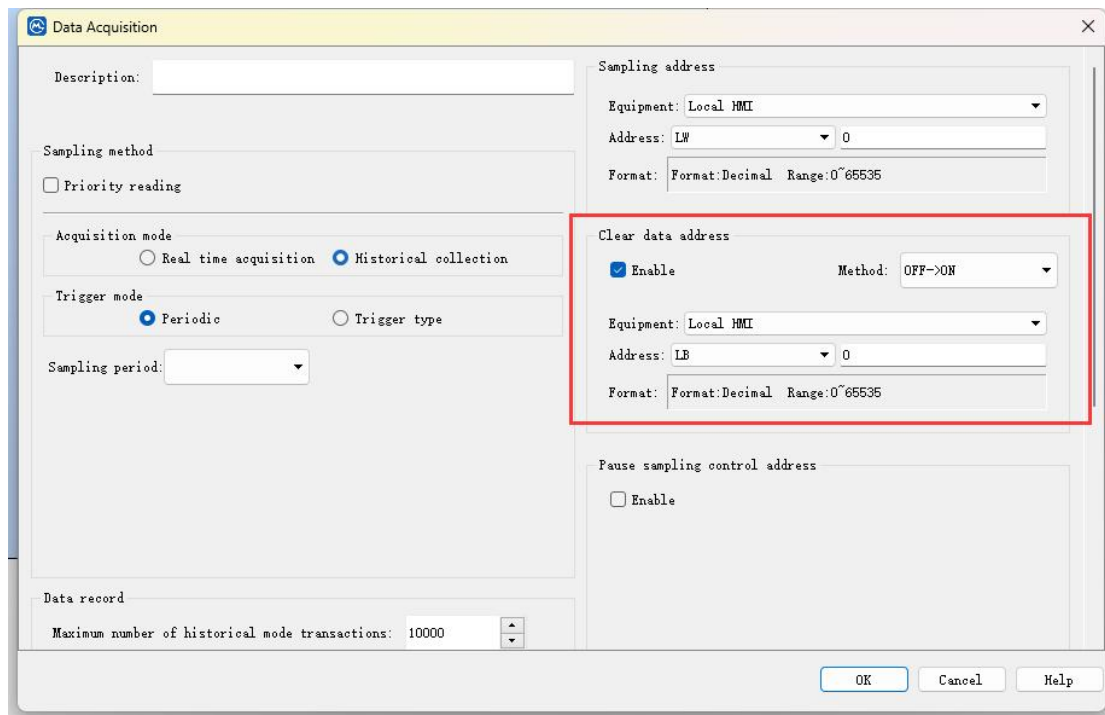
Chat 5.2-6

⑦ Set the sampling address (set the designated word address as the starting address for this data collection), as shown in Figure 5.2-7. The sampling address starts from LW-5700;



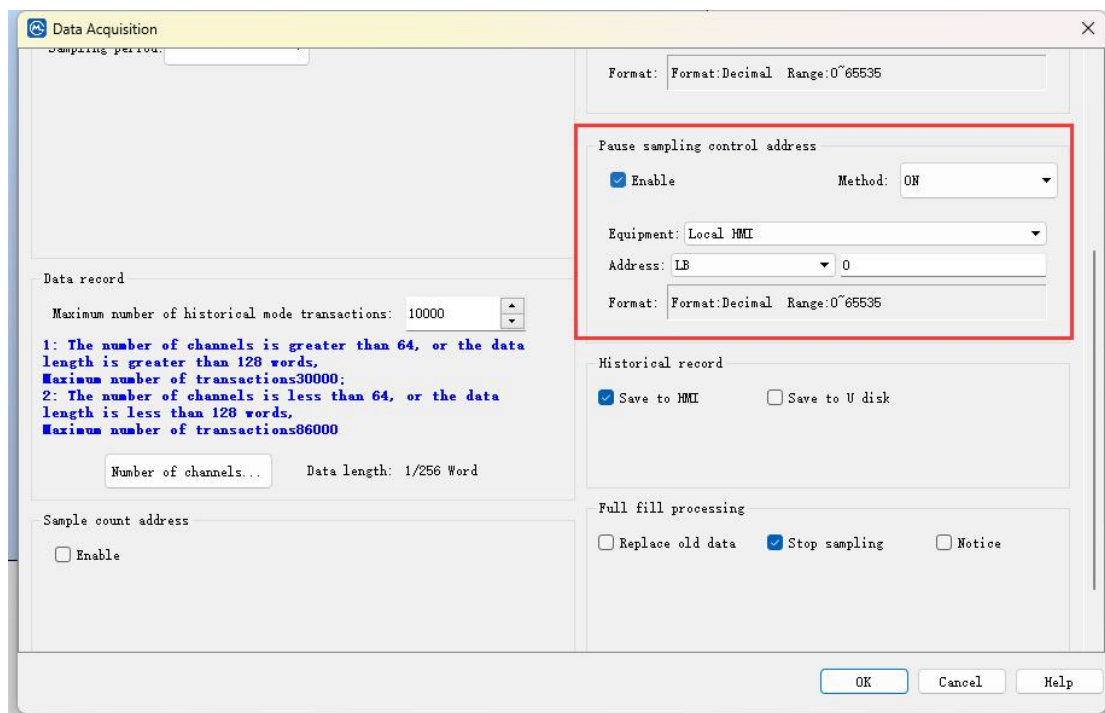
Chat 5.2-7

⑧ Set the clear data address (set the ON/OFF status of the specified location address to clear real-time data), check the enable clear data address, as shown in Figure 5.2-8;



Chat 5.2-8

⑨ Set the pause sampling address (set the ON/OFF status of the positioning address to pause data collection), check the enable pause sampling address, as shown in Figure 5.2-9;



Chat 5.2-9

Two triggering modes:

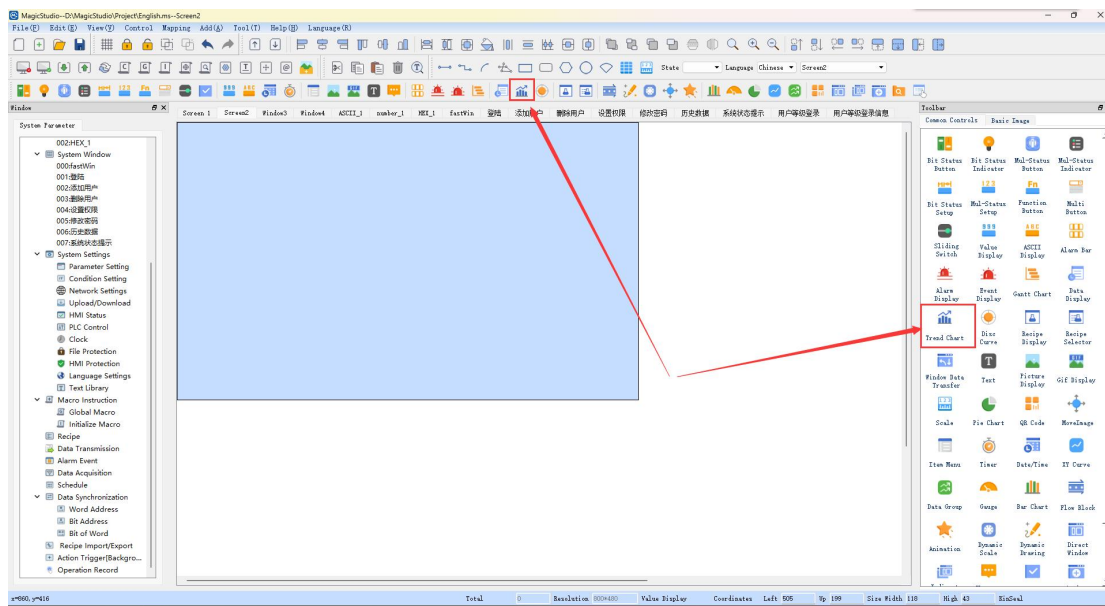
Periodic: If this mode is selected, the data collection will be based on the set sampling cycle time. Collect one piece of data in one second.

Trigger mode: If this mode is selected, the data collection will be based on the specified [bit address] status, such as when LB0 address is OFF → ON, a piece of data will be collected.

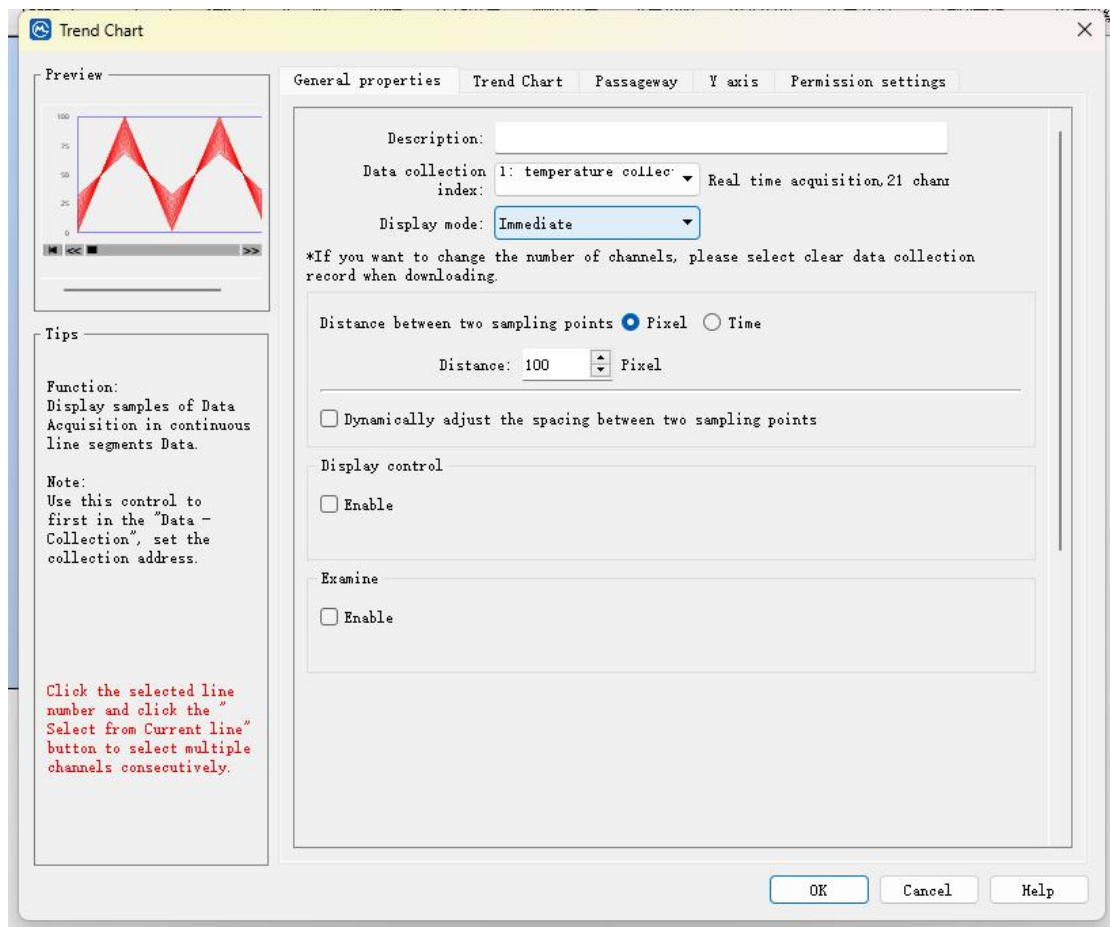
Note: The sampling address set in step 7 is the starting address for data collection, while other sampling addresses are incremented according to the set channel data type.

The steps to configure using historical trend curves are as follows:

- ① Click the Run chart control on the toolbar, as shown in Figure 5.2-10. Enter the Run chart attribute setting interface, as shown in Figure 5.2-11;

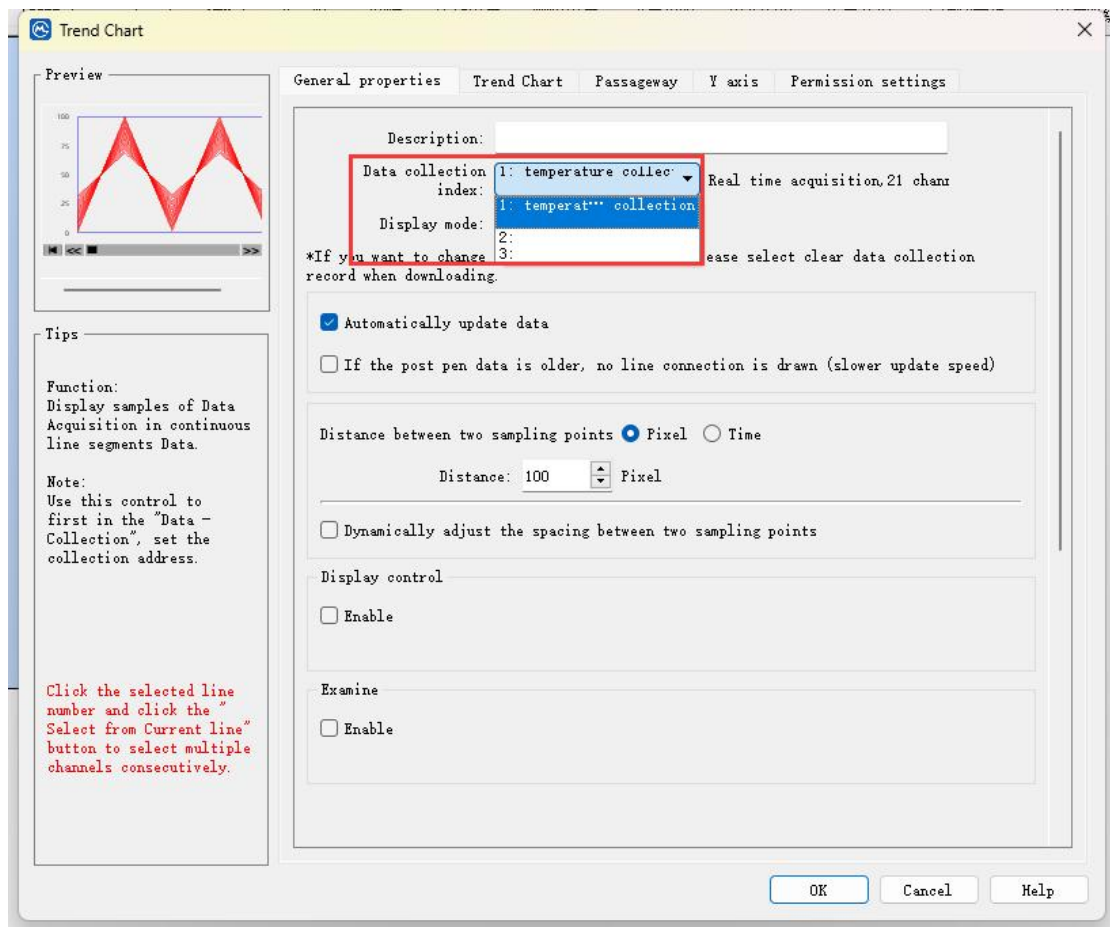


Chat 5.2-10



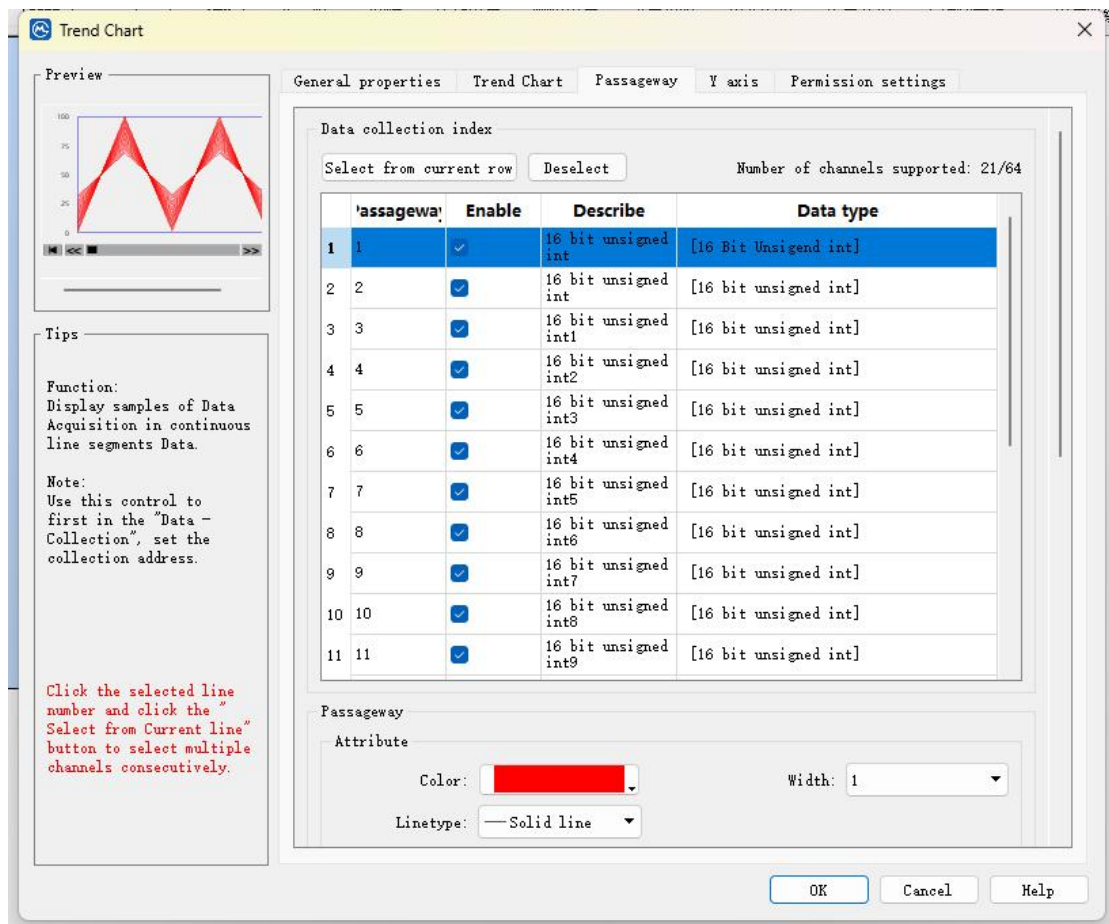
Chat 5.2-11

- ② Set the data collection index and select index 1: temperature collection from the drop-down box, as shown in Figure 5.1-12;



Chat 5.2-12

- ③ Set the display mode to "Real time" (Display mode: select according to the collection mode selected in "Data Collection", real-time "Real time Collection"/historical "Historical Collection" mode);
- ④ Select channels: Click [Select from Current Line] or manually select. If you click [Select from Current Line], a maximum of 64 channels will be selected in sequence. As shown in Figures 5.2-13;



Chat 5.2-13

Chapter6 Application Cases of Multiple Repetitive Values

In the process of configuring the screen, it is often necessary to quickly create a batch of animation components with different addresses (variables) of the same quality, and in this case, multiple copy functions can be used.

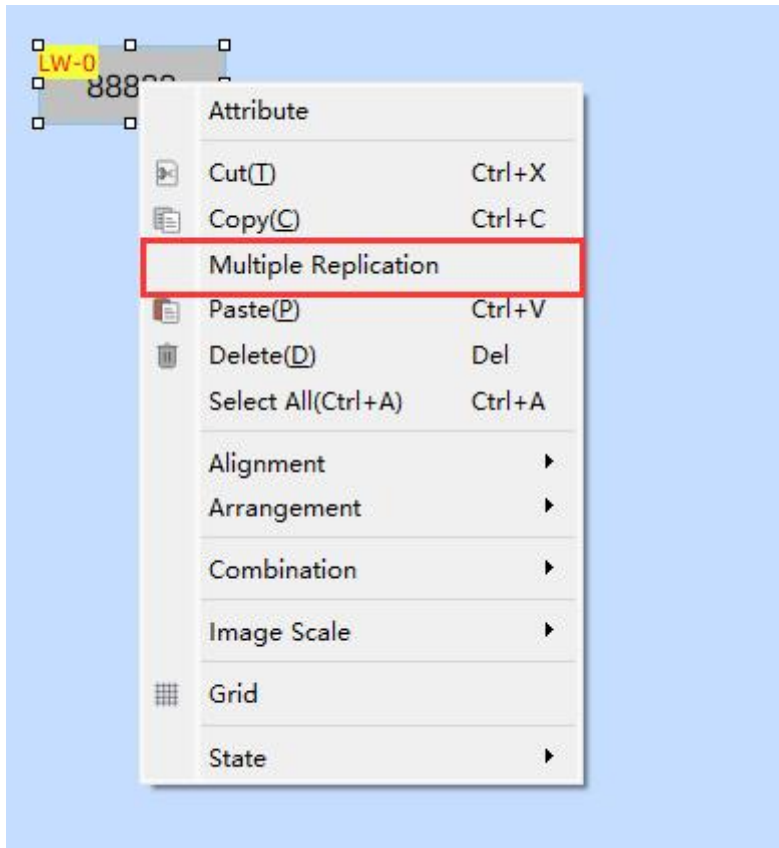
Multiple replication components can be configured with items such as plain text, multilingual text, variable names, and expressions.

- **Multilingual text:** Attribute values use multilingual item content, automatically creating or associating corresponding multilingual item content. Not using multilingual content, still not using multilingual content;
- **Variable name:** Automatically create corresponding variables in the real-time database when the variable name does not exist;
- **Expression:** Automatically create corresponding variables in the real-time database when there are unknown variables in the expression.

The multiple replication function only distributes content changes to items that have been checked in the configuration of the changed item. Other unchecked items remain consistent with the basic component content.

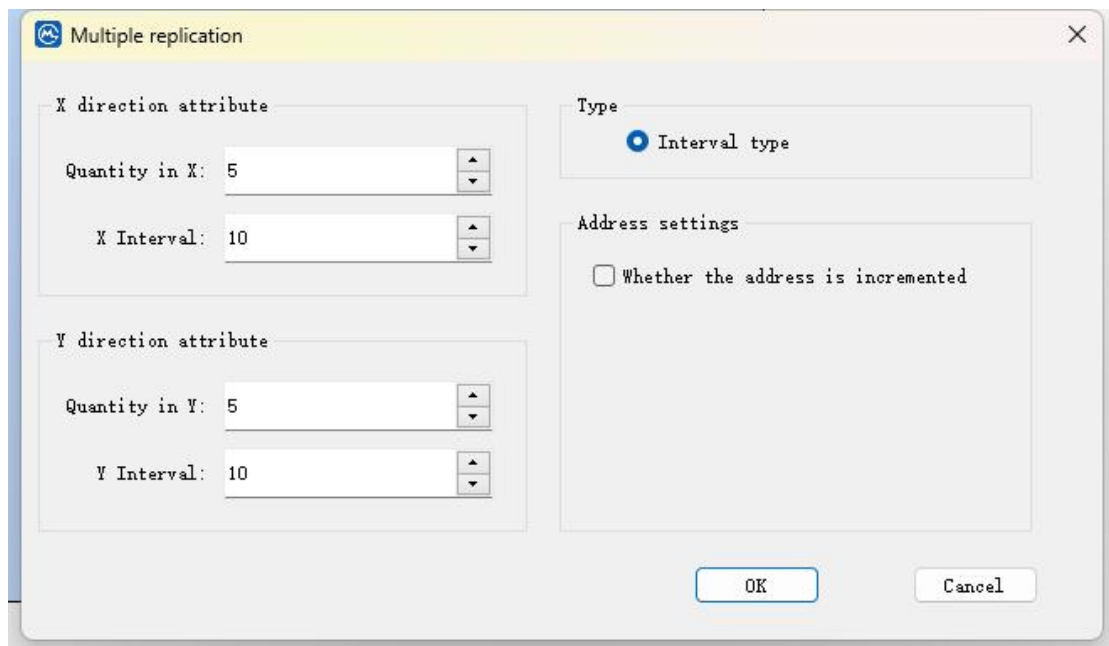
Here are the steps to use multiple copies of a single control:

- ① Drag a 'tag' component to the appropriate position and size in the screen. Double click on the component to open the attribute setting interface. On the Attribute Setting function page, set the attributes of the control such as Format, Image, and Font. Click OK to save the settings and close the setting interface. Drag the control to the upper left of the screen, leaving enough space for the next multiple repeated values, as shown in the numerical display control added in Figure 6-1;



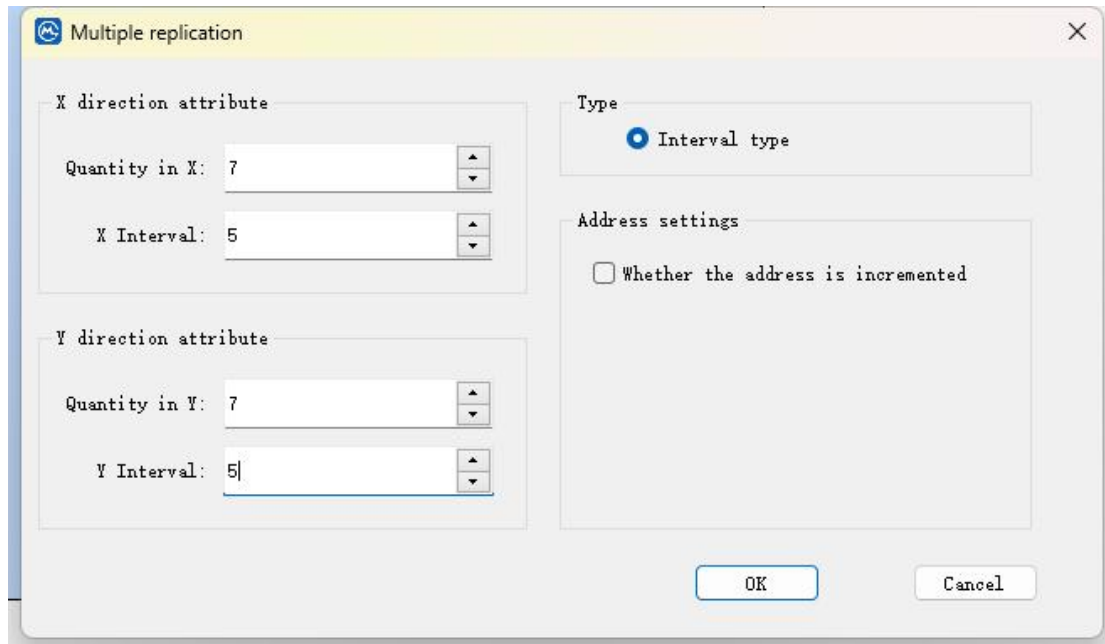
Chat 6-1

② Right click on this control and select 'Multi Copy' to open the multi copy attribute setting interface, as shown in Figure 6-2;



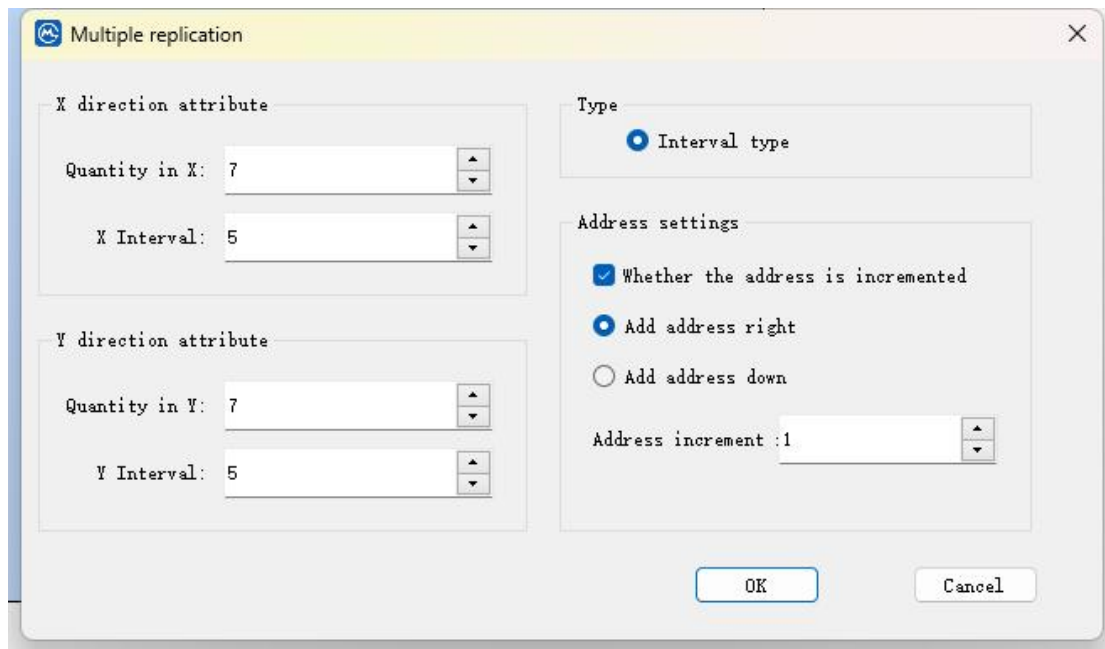
Chat 6-2

③ Set the x/y direction attributes, for example, in Figure 6-3, set the number of copies in the x direction to 8, the number in the y direction to 5, the interval in the x direction to 5, and the interval in the y direction to 10;



Chat 6-3

④ Set whether the address is incremented, which is not checked by default. However, in engineering applications, address incrementation is generally checked. Set whether the address is incremented to the right (priority horizontal growth address) or downwards (priority vertical growth address), as shown in Figure 6-4. Set the address to the right and set the address increment interval to 1;



Chat 6-4

⑤ The rendering is shown in Figures 6-5.



Chat 6-5

Multiple replication configuration information

- Number of components in the horizontal direction: the number of components in the matrix in the horizontal direction, which cannot exceed the size of the image;
- Number of vertical components: The number of components in the vertical direction of the component matrix, which cannot exceed the size of the image;

- c. Horizontal interval pixels: The interval pixels of the component matrix in the horizontal direction, which cannot exceed the length of the image;
- d. Vertical spacing pixels: The spacing pixels of the component matrix in the vertical direction cannot exceed the width of the image;
- e. Select the increasing order: address right increasing (priority horizontal allocation), address down increasing (priority vertical allocation).

Chapter7 Application Examples of Pointer Function

The function of address offset is to collect the offset PLC address value through the device driver's address offset, which is associated with the device channel's [connection variable]. The read/write address can be specified by offsetting the address.

The formula for calculating the offset address is: actual address=read/write address+offset address value (actual address=LW [read/write address+offset address value]). The offset address value is based on LW-0 offset, and the offset address value can only be a positive number.

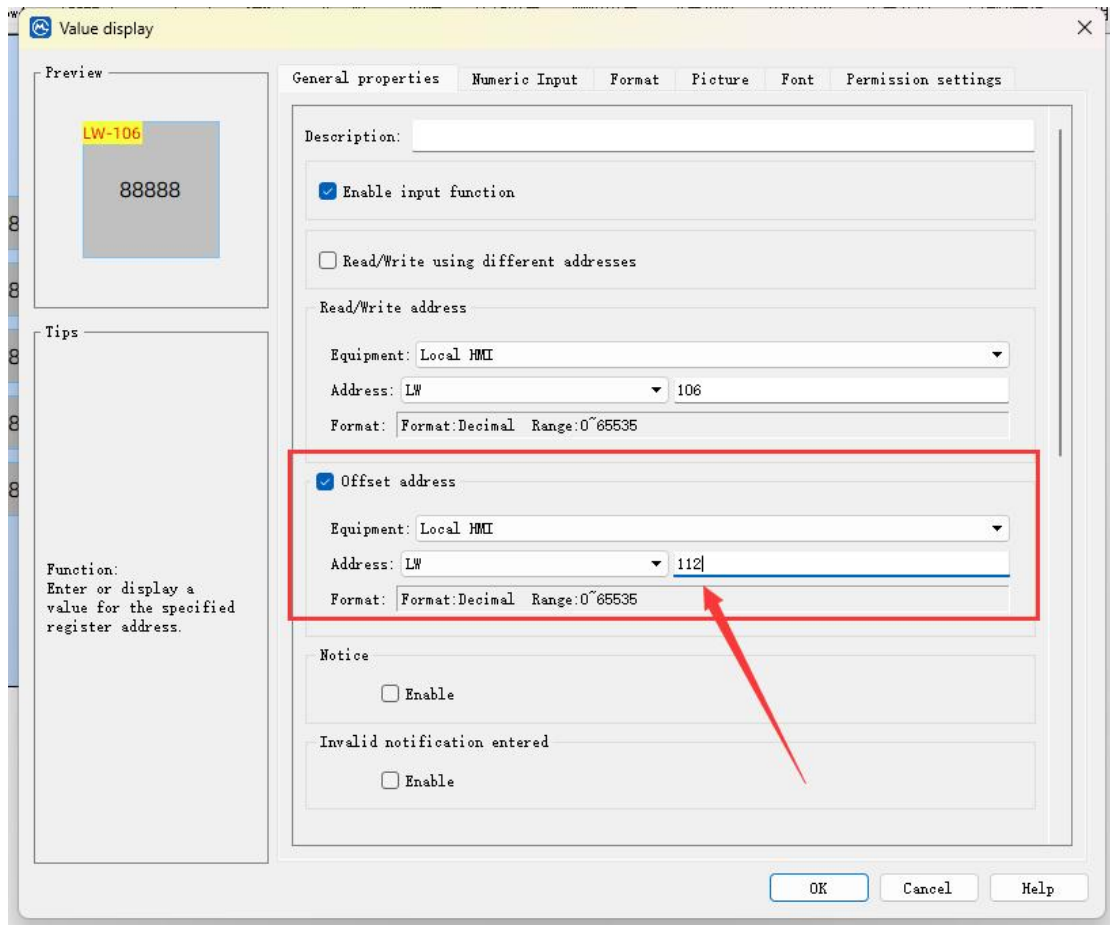
The offset address setting method is as follows:

① Drag and drop a component to set an offset address to the appropriate position and size in the screen. Taking the numerical display component as an example, in order to better demonstrate it, we will use the control introduced in Chapter 6 to replicate multiple addresses consecutively. As shown in Figure 7.1-1;



Chat 7.1-1

② Double click on the component to pop up the attribute setting interface. Select to check the offset address setting in the LW-106 attribute setting interface, where LW-106 is the read write address and the offset address is set to LW-112. Click [OK] as shown in Figure 7.1-2;



Chat 7.1-2

③ The effect image after offline simulation is shown in Figure 7.1-3. The read/write address LW-106 and the offset address LW-100 are transformed together. For example, if 10 is input in address LW-100, the value in address LW-106 is synchronously transformed to 10;

The screenshot shows a TFT Simulator window with a light blue background. At the top, there is a 5x6 grid of components. Each component is a grey rectangle with a yellow label at the top and the text '88888' below it. The labels are as follows:

LW-100	LW-101	LW-102	LW-103	LW-104	LW-105
LW-106, LW-112	LW-107	LW-108	LW-109	LW-110	LW-111
LW-112	LW-113	LW-114	LW-115	LW-116	LW-117
LW-118	LW-119	LW-120	LW-121	LW-122	LW-123
LW-124	LW-125	LW-126	LW-127	LW-128	LW-129

Below this grid is another 5x6 grid of grey rectangles, each containing the number '0'. At the bottom of the window, there is a red text instruction:

Enter the value of the offset address as 100,
meaning that LW-100 and LW-106 have the same
value

Chat 7.1-3

Chapter8 Example of Formula Function Application

In the manufacturing field, formulas are used to describe the proportional relationship between different ingredients used in the production of a product, and are a set of parameter settings corresponding to some variables in the production process. For example, when a bakery produces bread, there is an ingredient formula. This recipe lists all the ingredients to be used to produce bread (such as water, flour, sugar, salt, honey, etc.), and different flavors of bread will have different dosage of ingredients. For example, sweet bread uses more sugar, while low sugar bread uses less sugar. In the configuration software, the dosage information of each flavor of bread ingredient is called a formula, and all bread formulas combined are called formula groups. You can imagine a formula group as a table, where each column represents a type of ingredient, each row represents a formula, and the data in the cells represents the specific dosage of each ingredient.

The formula function of the configuration software series products can be achieved through the formula selection dialog box, formula editing dialog box, and various script operations to add, delete, modify, and query formula data. Below is an explanation of the terms involved in recipe configuration:

- **Formula group:** A formula group is a collection of similar formulas that have the same formula components. The difference is that the number of formula components is different. In a formula group, formula names can be used to distinguish these different formulas. The above table is a formula group as a whole.
- **Formula item:** The formula item refers to the formula components of the formula, such as sugar, salt, etc., as shown in Figure 8-1. Each column in the above table represents a formula item.
- **Recipe:** The data members in the recipe group have the same recipe ingredients but different quantities. Each row in the above table represents a formula.

- Variable Name: The name of the variable associated with the recipe item.
- Column Title: The recipe item is used to display the title text of (recipe components, recipe editing), supporting multilingual settings; When importing and exporting formulas, it serves as a matching basis and distinguishes between languages, that is, formulas that cannot be imported or exported in Chinese in English. The first row of the table above is the column title.

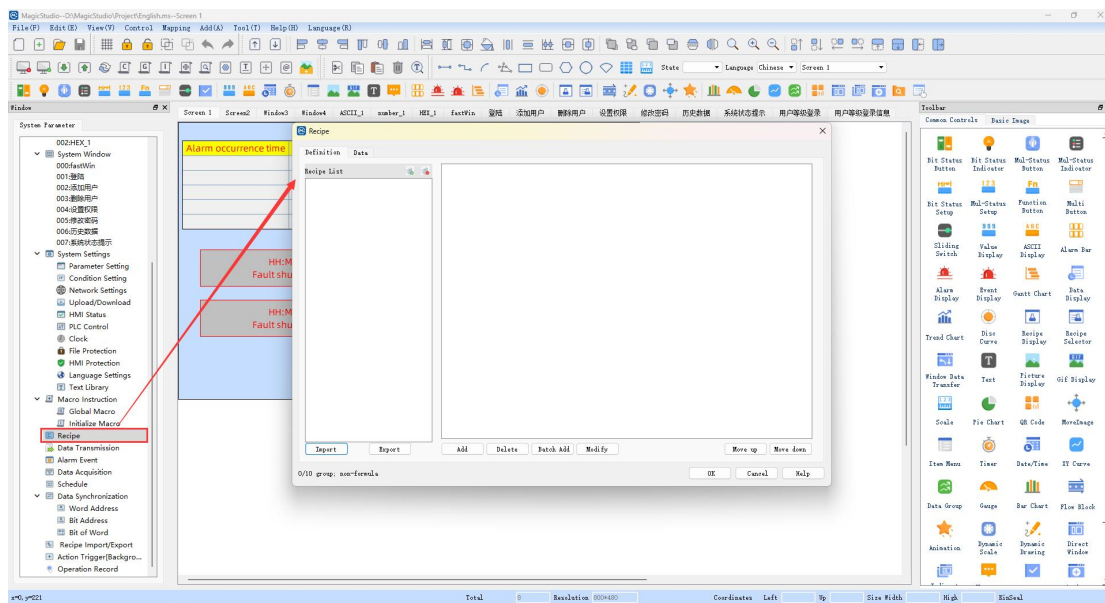
8.1 Configuration Recipe Group

To use the recipe function, it is necessary to first complete the configuration design of the recipe group before using the recipe components or recipe functions to display and edit the recipe.

- Configure a bread recipe group using the recipe function of McgsPro, which includes three recipes: sweet bread recipe, low sugar bread recipe, and sugar free bread recipe. Each recipe has 5 recipe items: sugar, salt, flour, water, and honey.

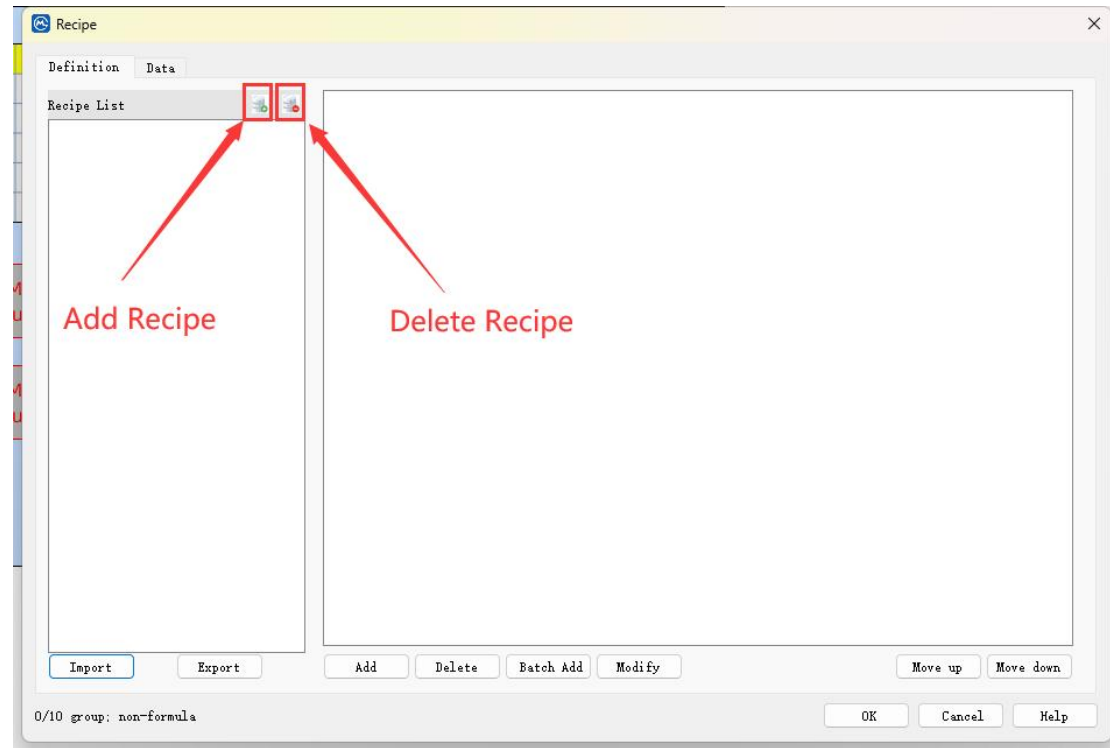
The steps to create a recipe group are as follows:

- ① Find [Recipe] on the left side, double-click to enter the recipe adding interface, as shown in Figure 8.1-1;



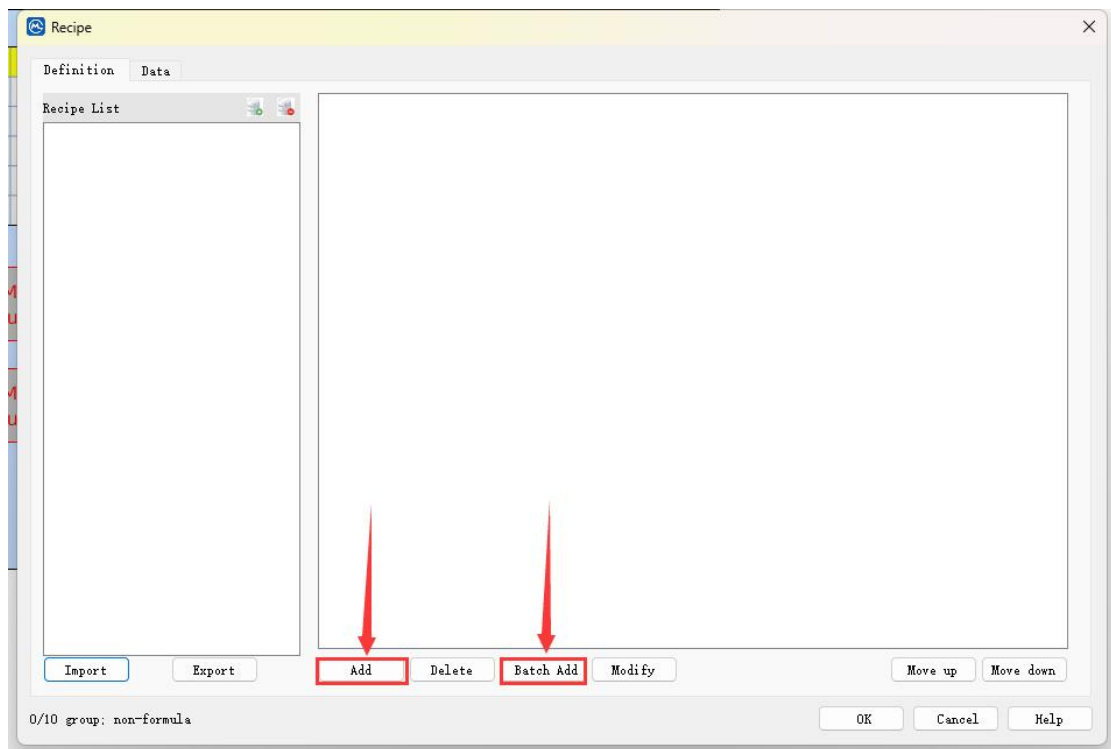
Chat 8.1-1

② Add the recipe to the recipe list, add three recipes according to the example and change their names, representing sweet bread recipe, low sugar bread recipe, and sugar free bread recipe, as shown in Figure 8.1-2;



Chat 8.1-2

③ Click the [Add] or [Batch Add] button to add formula items, add 5 formula items according to the sample and change their names, representing sugar, salt, flour, water, and honey, as shown in Figure 8.1-3;



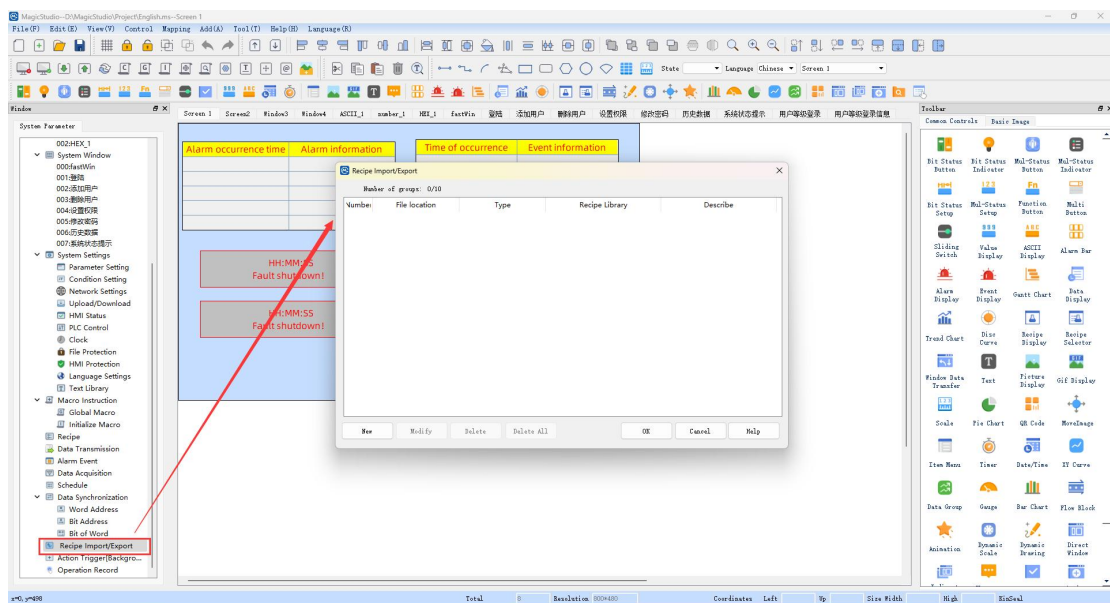
Chat 8.1-3

④ Click [OK] to create a new formula and complete it.

- Recipe import/export: Recipe import/export can export existing recipes to a USB drive or import recipes from a USB drive to a recipe database.

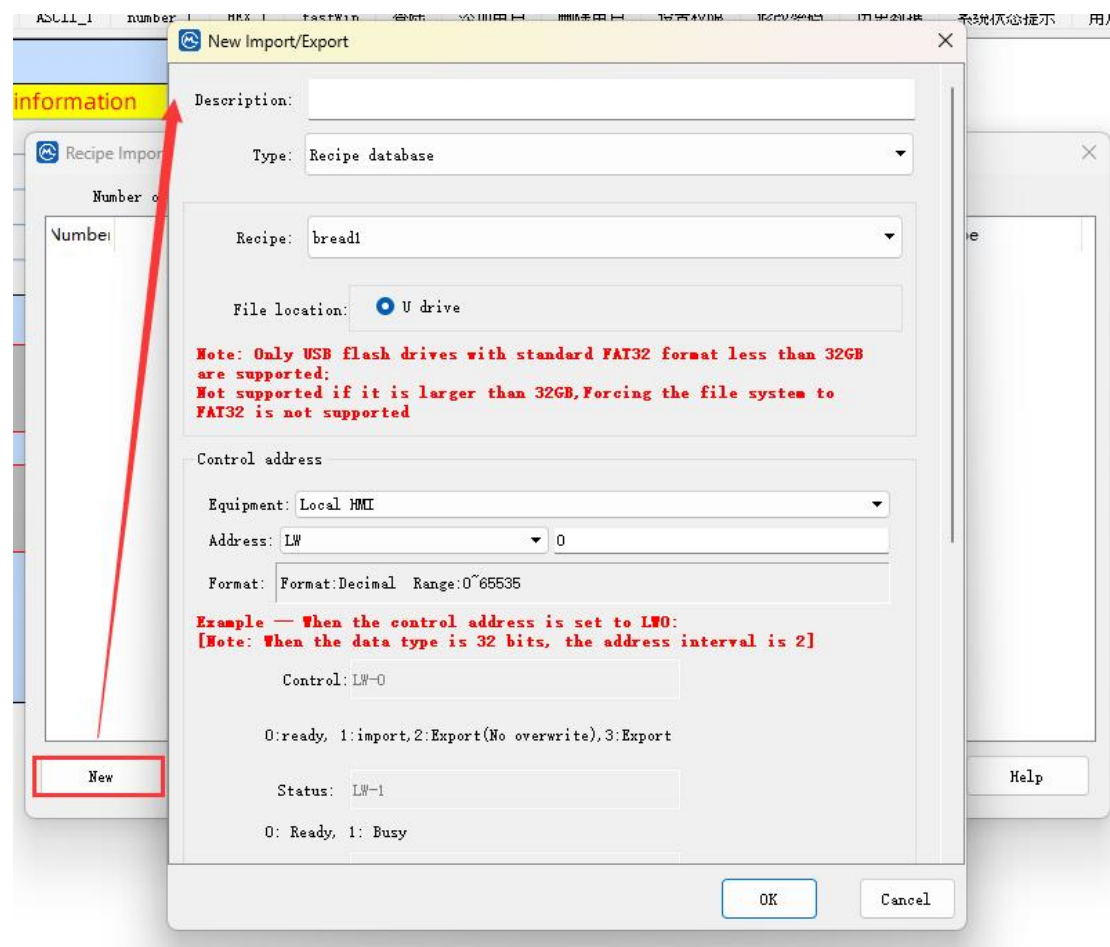
The steps for creating a new recipe import/export are as follows:

① Find [Recipe Import/Export] on the left side, double-click to enter the Recipe Import/Export Add interface, as shown in Figure 8.1-4;



Chat 8.1-4

② Click [New] to enter the interface for importing/exporting new formulas, as shown in Figure 8.1-5;



Chat 8.1-5

③ Select the recipe to import/export and set the control address, as shown in Figure 8.1-6;

New Import/Export

Description:

Type: Recipe database

Recipe: bread1
bread1
bread2
bread3

**Note: Only USB flash drives with standard FAT32 format less than 32GB are supported;
Not supported if it is larger than 32GB, Forcing the file system to FAT32 is not supported**

Control address

Equipment: Local HMI

Address: LW 0

Format: Format:Decimal Range:0~65535

**Example — When the control address is set to LW0:
[Note: When the data type is 32 bits, the address interval is 2]**

Control: LW-0

0:ready, 1:import, 2:Export(No overwrite), 3:Export

Status: LW-1

0: Ready, 1: Busy

OK Cancel

Chat 8.1-6

- ④ Set the file name and address, input the file name using an ASCII display, as shown in Figure 8.1-7;

New Import/Export

Format: Format:Decimal Range:0~65535

Example — When the control address is set to LW0:
[Note: When the data type is 32 bits, the address interval is 2]

Control: LW-0

0: ready, 1: import, 2: Export (No overwrite), 3: Export

Status: LW-1

0: Ready, 1: Busy

result: LW-2

1: Success, 4 or other: Failure [Error code...](#)

File name address

☐ Include folder path

Equipment: Local HMI

Address: LW 0

Format: Format:Decimal Range:0~65535

Folder path address

Equipment: Local HMI

Address: LW 0

Format: Format:Decimal Range:0~65535

OK Cancel

Chat 8.1-7

- ⑤ The practical application is to insert a USB flash drive on the touch screen and enter the name of the folder already in the USB flash drive.

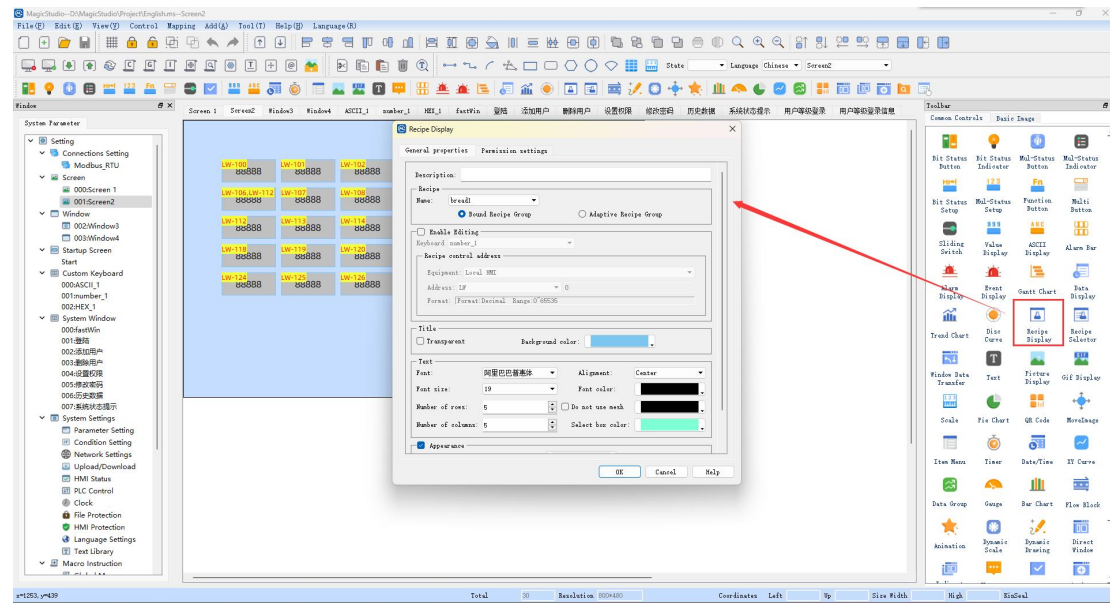
8.2 Recipe Group Components

After the creation of the recipe group, it is also necessary to display and edit the recipe group. This section introduces the configuration process of using the [Recipe] component to control the bread production process.

8.2.1 Recipe display components

The steps to set up the configuration recipe display components are as follows:

- ① Click on the [Recipe Display] component from the toolbar to enter the recipe display attribute setting interface, as shown in Figure 8.2-1;



Chat 8.2-1

- ② Select the recipe name, that is, set the source of recipe data to be displayed, set the text and appearance properties of the recipe display, click OK after setting, and the effect image is shown in Figure 8.2-2;

bread1	suger	salt	flour	water	honey
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Chat 8.2-2

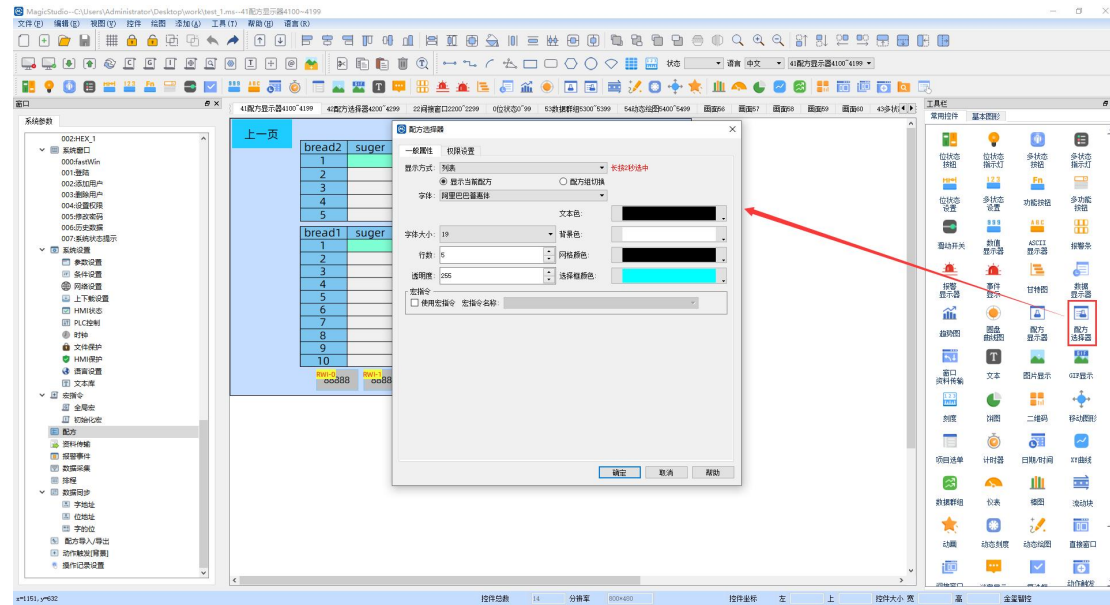
Basic Attribute Configuration Information:

- Name: Set the source of recipe data to be displayed;
- Enable: After enabling, the sorting method of recipe content can be set;
- Order: Recipe data will be displayed in sequential order;
- Reverse order: Formula data will be displayed in reverse order;
- Transparent: When enabled, the title of the recipe display will be transparent without background color;
- Font: Set the font for the recipe display;
- Font size: Set the font size of the recipe display;
- Number of lines: Set the number of lines of formula content in the formula display;
- Number of columns: Set the number of formula content rows in the formula display;
- Alignment: Set the alignment of the recipe content in the recipe display;
- Font color: Set the font color for the recipe content of the recipe display;
- Do not use grid: When checked, cancel the grid of the recipe display;
- Selection box color: Set the selection box color for the recipe display.

8.2.2 Recipe selector component

The steps to set up the configuration recipe selector component are as follows:

- ① Click on the 'Recipe Chooser' component from the toolbar to enter the recipe selector attribute setting interface, as shown in Figure 8.2-3;



Chat 8.2-3

- ② Set the display method to list or drop-down list, select to display the current recipe or recipe group switch, and the effect is shown in Figure 8.2-4;



Chat 8.2-4

Basic Attribute Configuration Information:

Display current formula: used to select the formula group in the current formula, as shown in the following figure. The background color of the current formula group in the selected formula display is light green. When formula 1 in report0 switches to formula 2, the selected formula 2 will have a light green background color;

Recipe Group Switching: Used for switching between recipe groups, it is necessary to select an adaptive recipe group in the [Recipe Display] control. As shown in the following figure, select two formula groups.

Using macro instructions: If checked, the recipe selector will execute the macro once every time it is selected, as shown in the following figure. If the recipe is selected from Repece0 to Repece1, the macro instruction will be executed once.

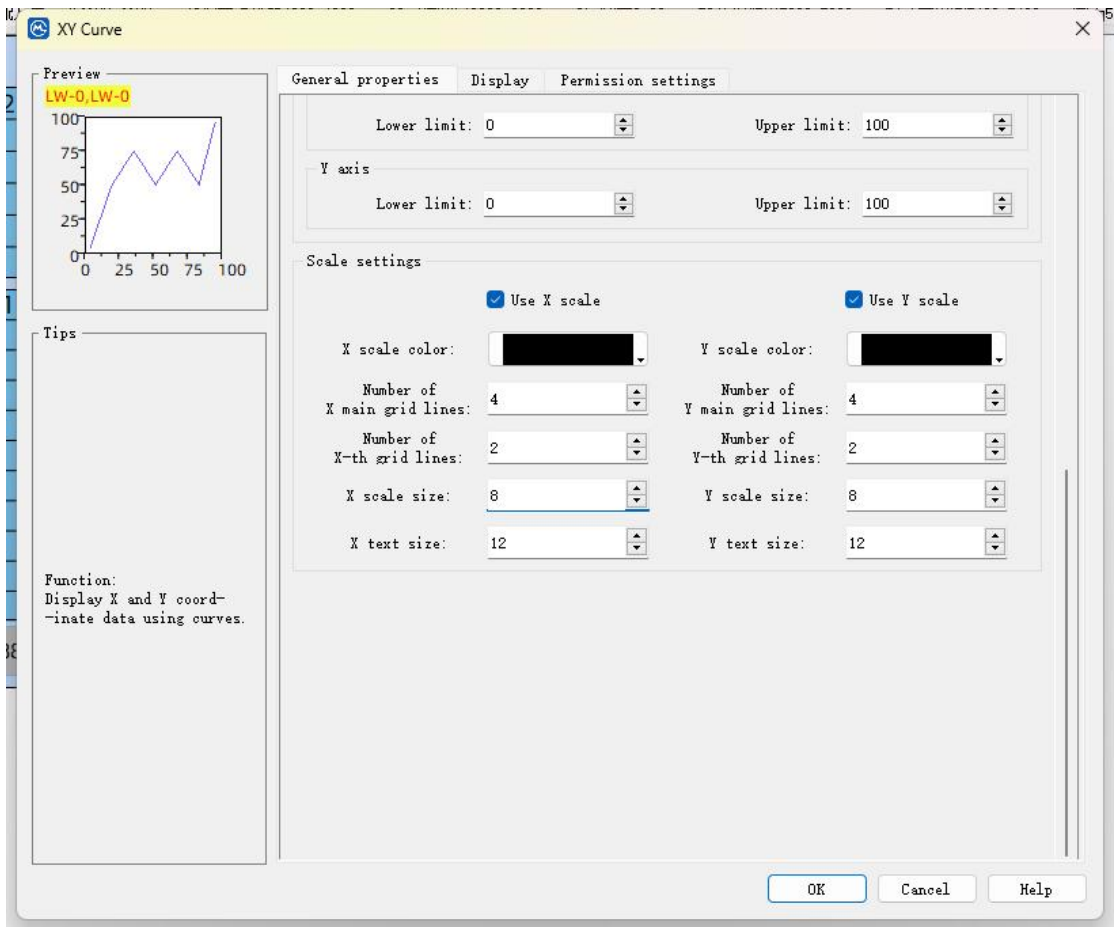
Chapter9 Production Process Preview Application

Example

If users need to preview the trajectory, graphics, and other curves before the formal production of the product, in order to reduce the cost of actual production trial and error, they can use the XY curve component function provided by the configuration software.

9.1 Basic and Annotation Properties of XY Curve

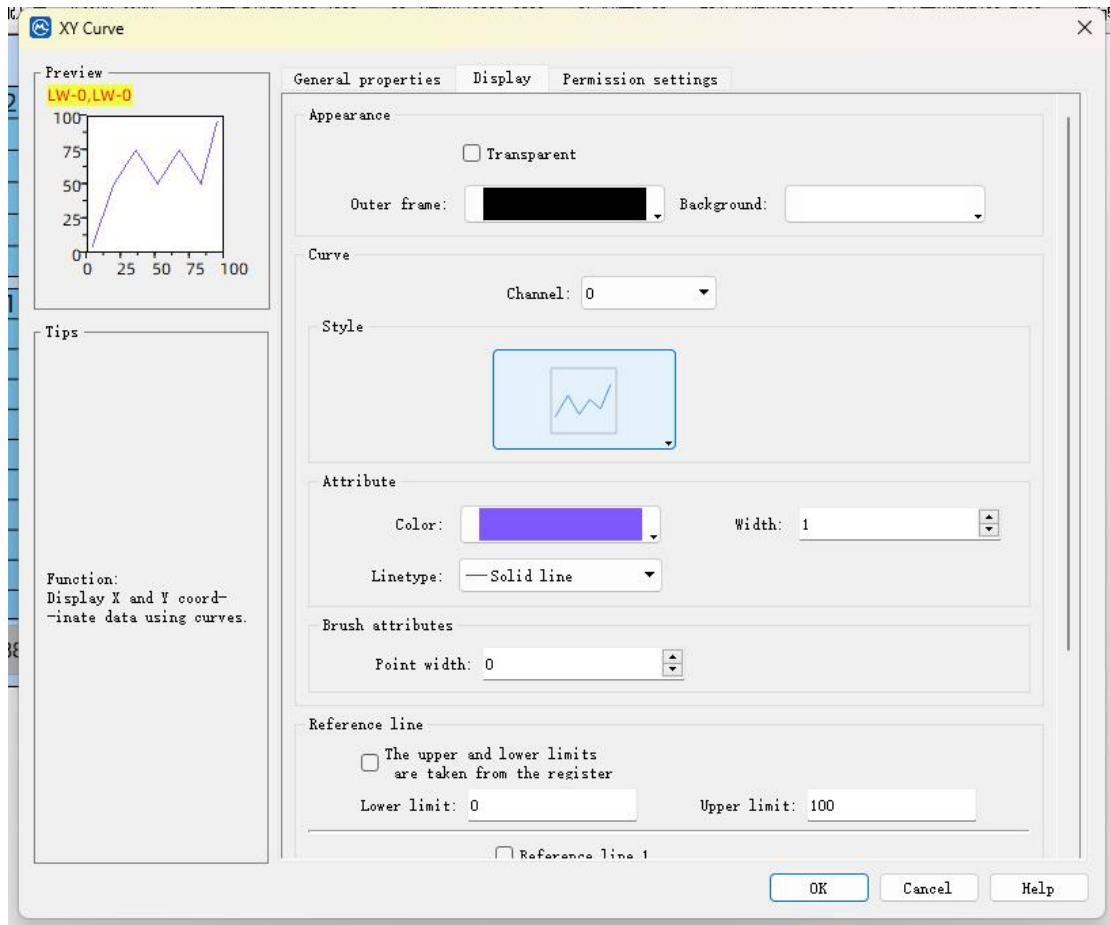
- Firstly, the attribute setting function of the XY curve component is introduced, and its basic attribute settings are shown in Figure 9.1-1;



Chat 9.1-1

Basic Display Configuration Information:

- a. Number of main grid lines on the X-axis: The number of main grid lines on the X-axis can be set, with a value range of [1, 8];
 - b. Number of sub grid lines on the X-axis: The number of sub grid lines on the X-axis can be set, with a value range of [1, 10];
 - c. Number of Y-axis main grid lines: The number of Y-axis main grid lines can be set, with a value range of [1, 8];
 - d. Number of sub grid lines on the Y-axis: The number of sub grid lines on the Y-axis can be set, with a value range of [1, 10];
 - e. Scale size of X-axis: The length of the scale line on the X-axis can be set, with a value range of [1, 12];
 - f. Y-axis scale size: The length of the Y-axis scale line can be set, with a value range of [1, 12];
 - g. X-axis text size: The numerical text size of the X-axis can be set, with a value range of [1, 16];
 - h. Y-axis text size: The numerical text size of the Y-axis can be set, with a value range of [1, 16].
- The annotation attribute settings for XY curve construction are shown in Figure 9.1-2:



Chat 9.1-2

Annotation attribute configuration information:

Transparent: If checked, the control has no background color or outline;

Outer frame: If transparency is not checked, the outer frame color of the control can be set, as shown in the following figure. The outer frame color is red;

Background: If transparency is not checked, the color of the control's outer frame can be set, as shown in the following figure. The background color is yellow;

Color: The color of the lines in the style, the color of the tracing points, and the fill color of the enclosed area in the enclosed area style can be set;

Width: Set the thickness of the connecting lines during drawing;

Line type: The style of the line when setting the line style, including solid lines, dashed lines, dashes, dotted lines, and other styles;

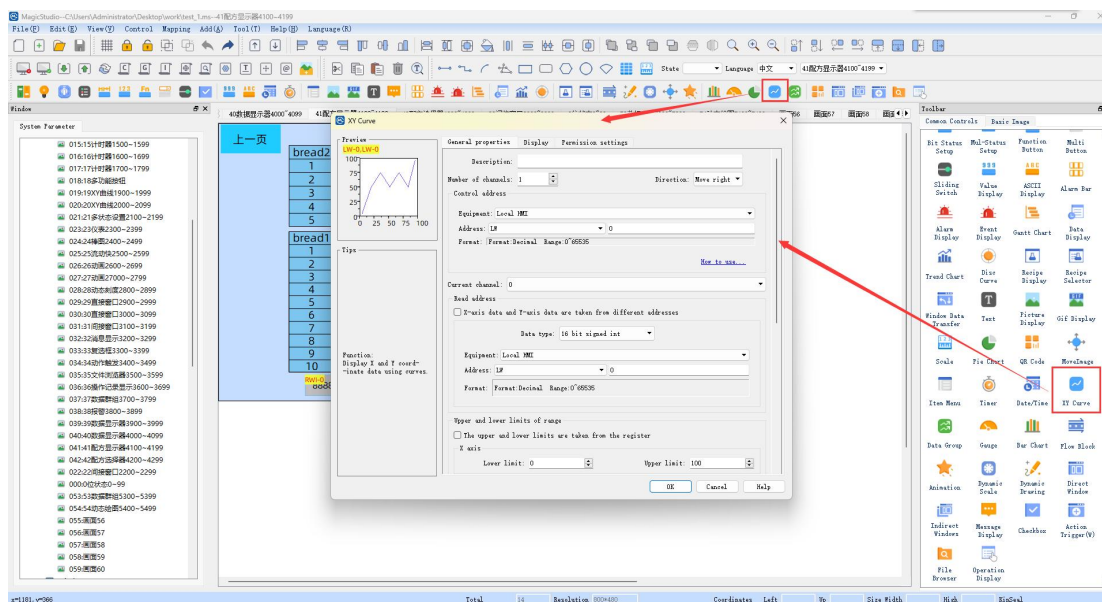
Brush attribute: can set the width of the points to be displayed in the drawing;

9.2 Curve attributes of XY curve

The x/y curve component has two functions: firstly, it is used to draw two-dimensional coordinate data $\langle x, y \rangle$, making it easy to visually observe the changes of y with x ; secondly, the X-axis increases by a positive integer, reflecting the trend of a set of data changes. Curve data source: Set the reading address of the x/y data, and then read it through the bit address; Supports simultaneous drawing of 16 curves (channels).

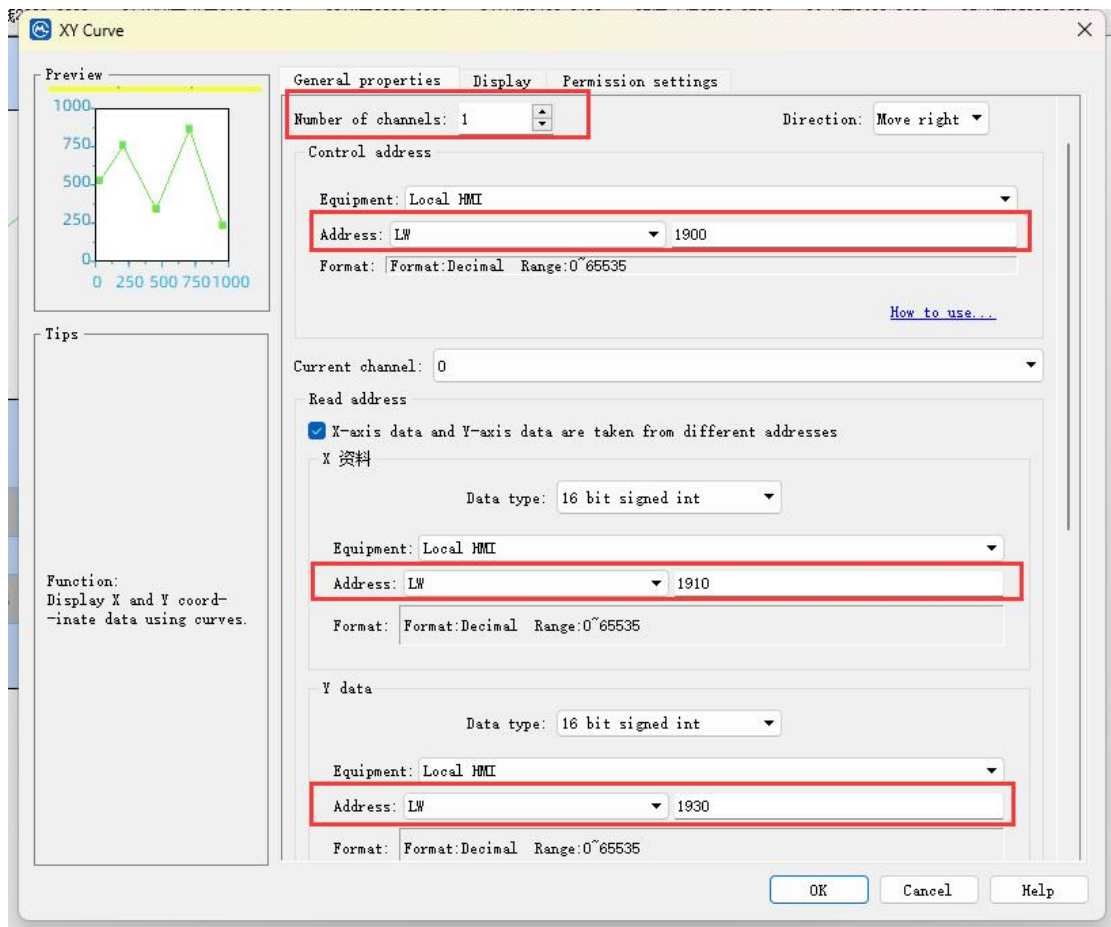
The steps to use the x/y curve are as follows:

- ① Click on the 'x/y curve' component from the toolbar to enter the recipe selector attribute setting interface, as shown in Figure 9.2-3;



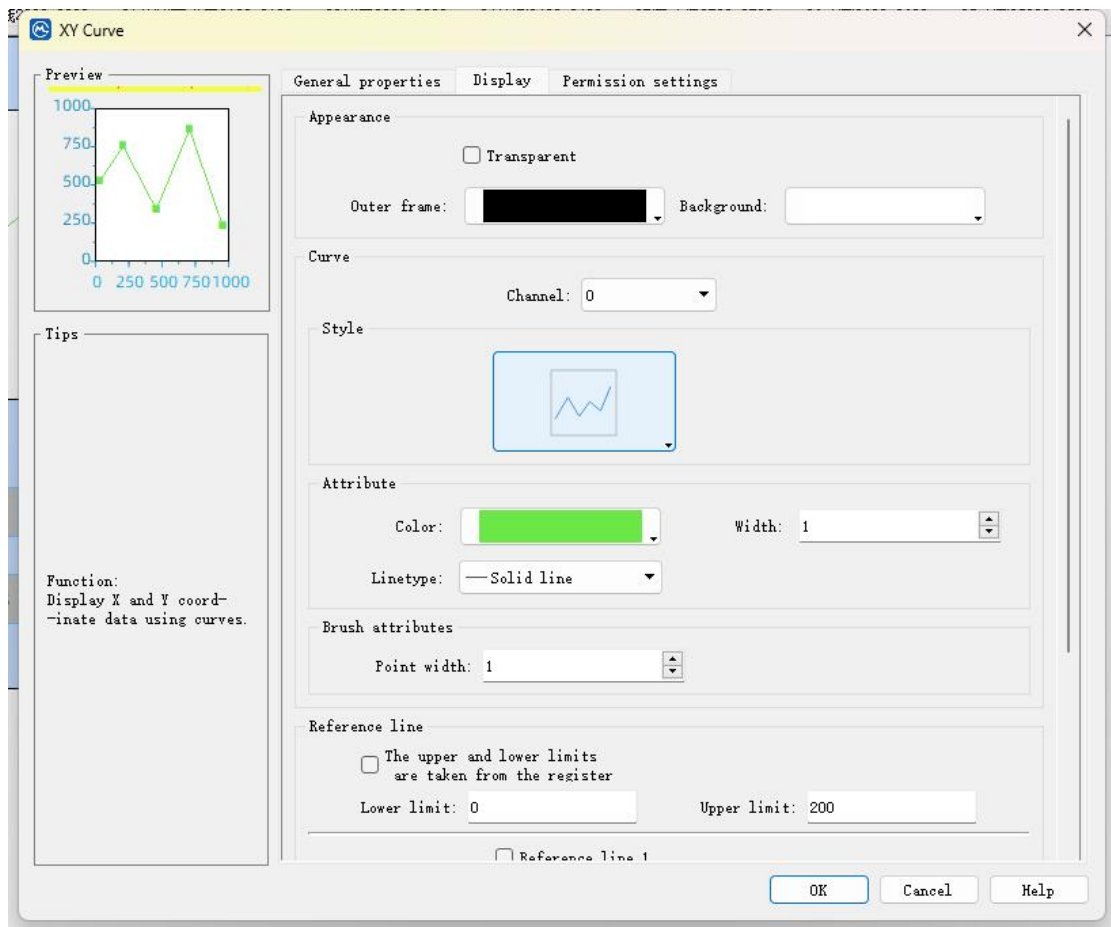
Chat 9.2-3

- ② Set the number of channels (up to 16 channels can be set), set the address: including control address, x data address, and y data address (detailed instructions are attached at the end of the steps), as shown in Figure 9.2-4;



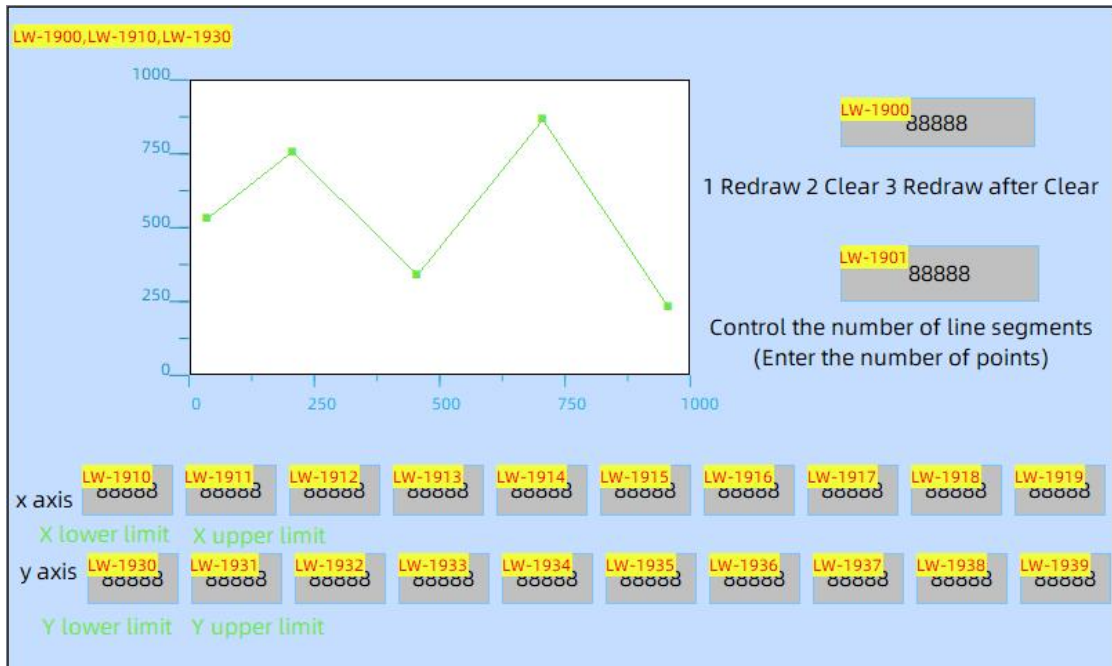
Chat 9.2-4

③ Set the display area, including appearance, curve settings for each channel, and reference lines, as shown in Figure 9.2-5;



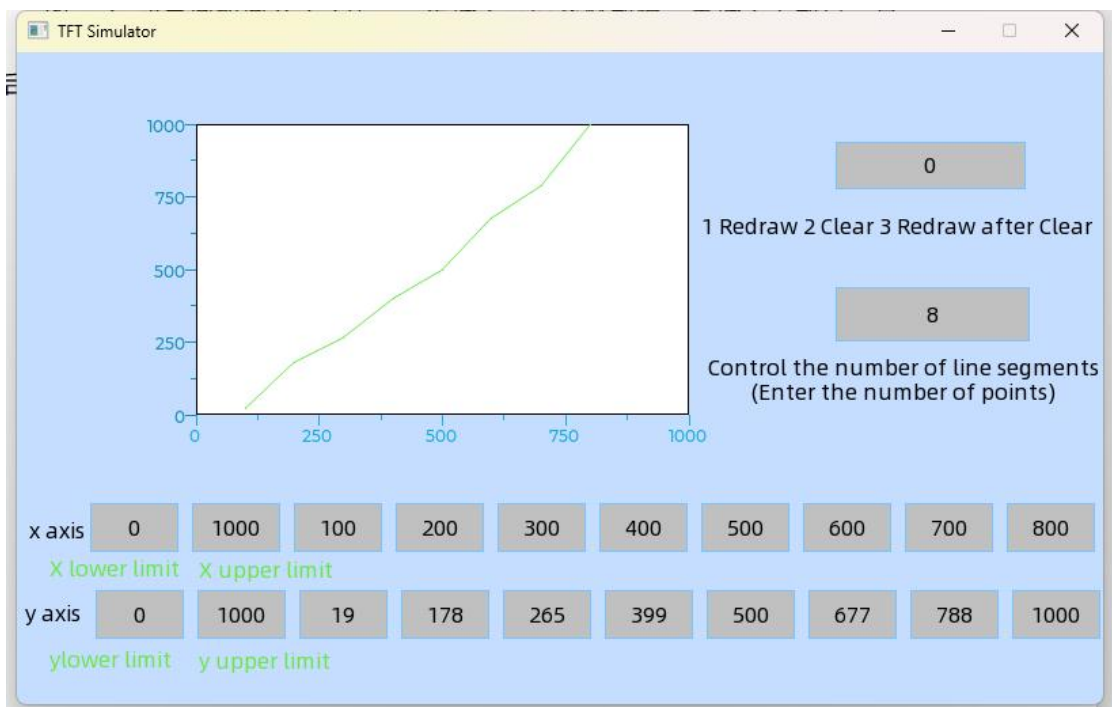
Chat 9.2-5

④ Add a numerical display with the corresponding address, taking Figure 9.2-6 as an example, there is a channel where the control address is set to LW-1900, that is, the command address is LW-1900, and the number of control line segments (that is, the number of input points) address is LW-1901. Check [X axis data and Y axis data are taken from different addresses] and [upper and lower limits are taken from registers], set the starting address of X data to LW-1910, set the starting address of Y data to LW-1930, and set the data type to 16 bit integers, that is, LW-1910 is the lower limit address of X axis, LW-1911 is the upper limit address of X axis, LW-1930 is the lower limit address of Y axis, LW-1931 is the upper limit address of Y axis, and LW-1912-LW-1929 is the input address of X axis data, LW-1932-LW-1949 as input address for Y-axis data;



Chat 9.2-6

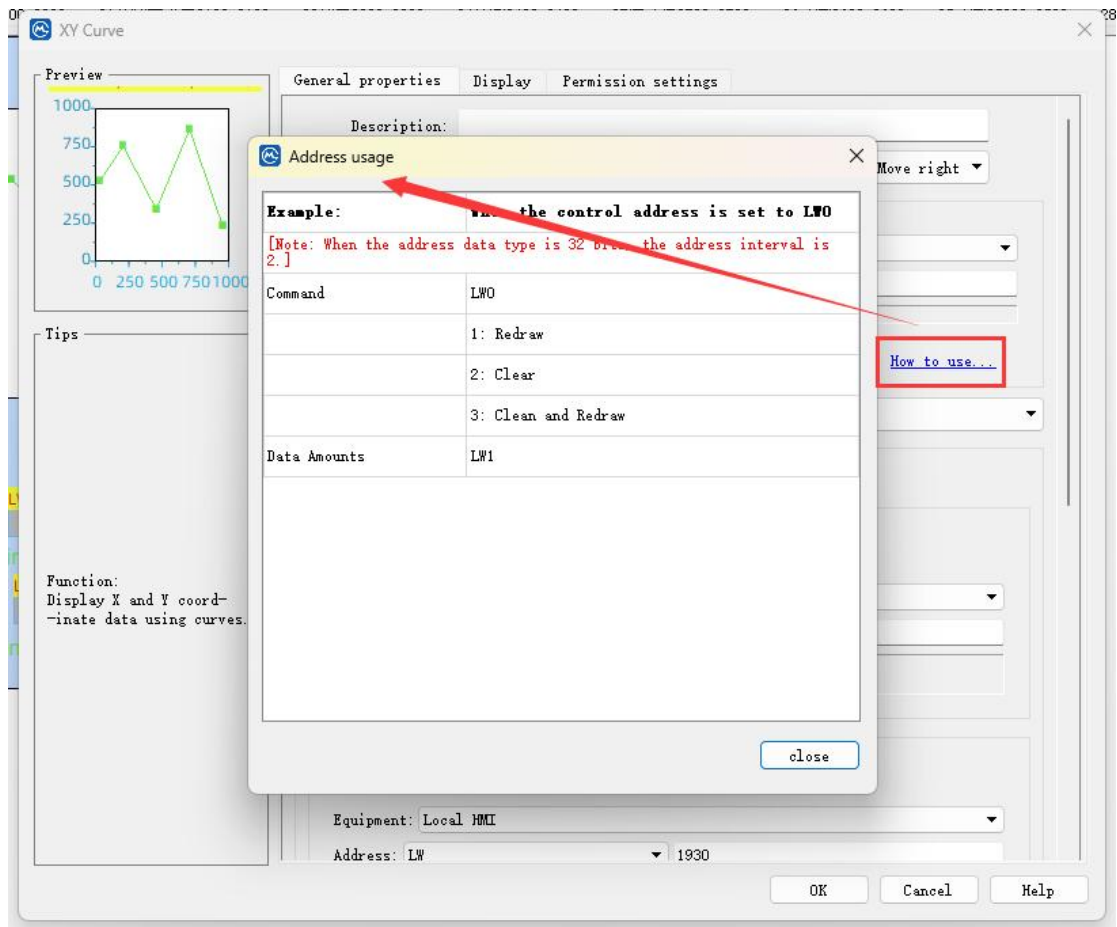
⑤ The operation effect diagram is shown in Figure 9.2-7. First, enter the x/y data, then enter the number of points, and finally enter a dash at the command address;



Chat 9.2-7

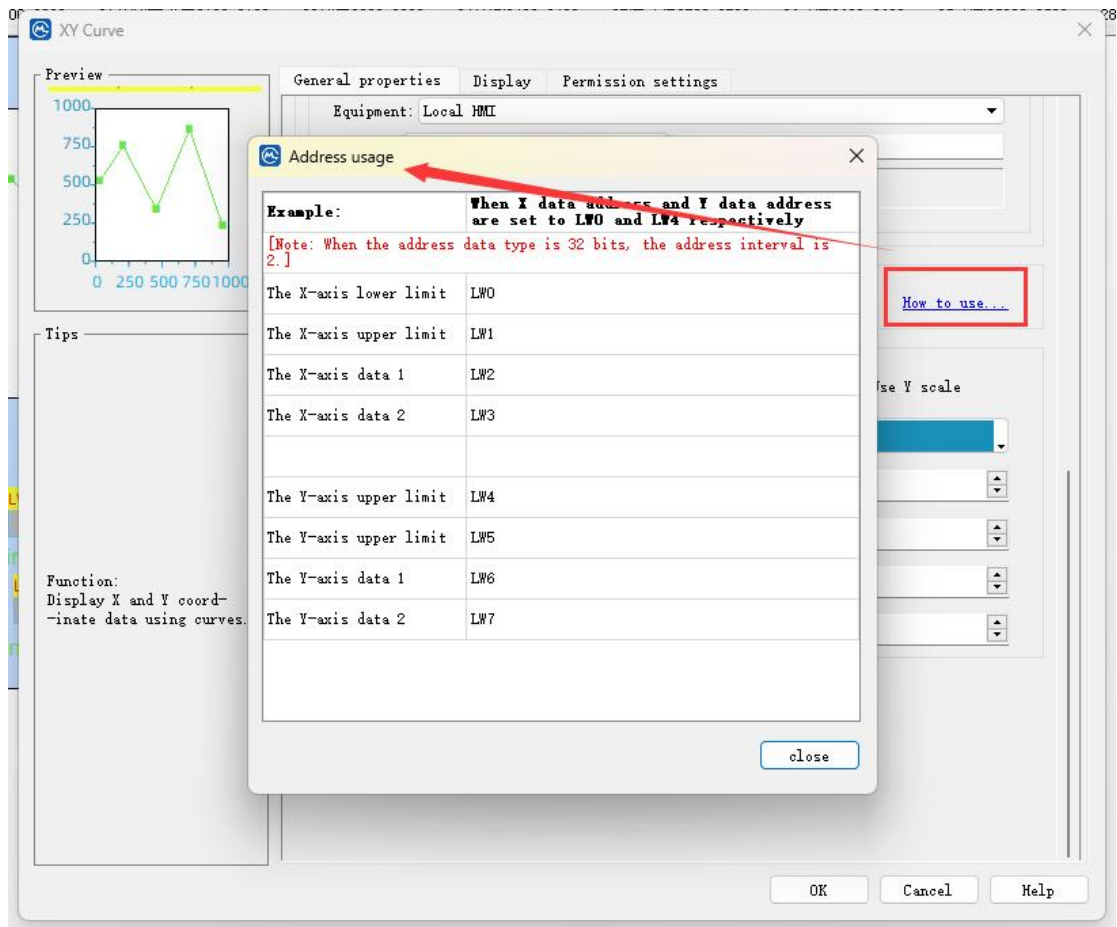
Illustrate:

- 1) The usage method of the control address can be accessed by clicking on [How to use...], as shown in Figure 9.2-8;



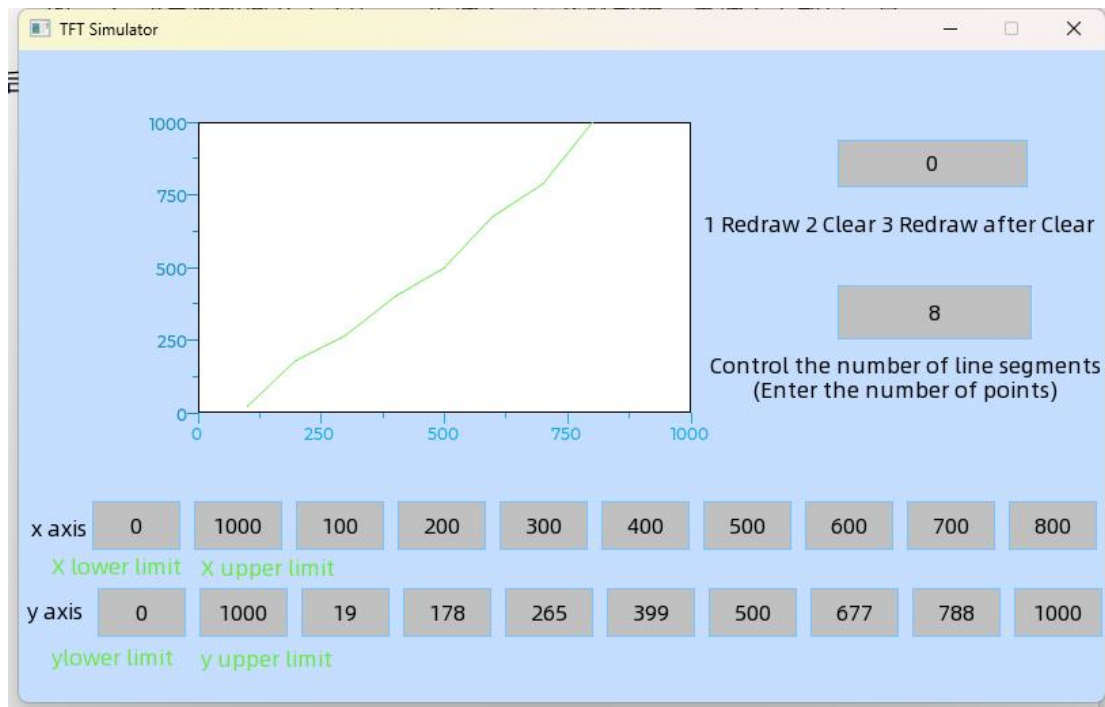
Chat 9.2-8

- 2) The usage method of the upper and lower limit register addresses can be accessed by clicking on [Usage...], as shown in Figure 9.2-9;



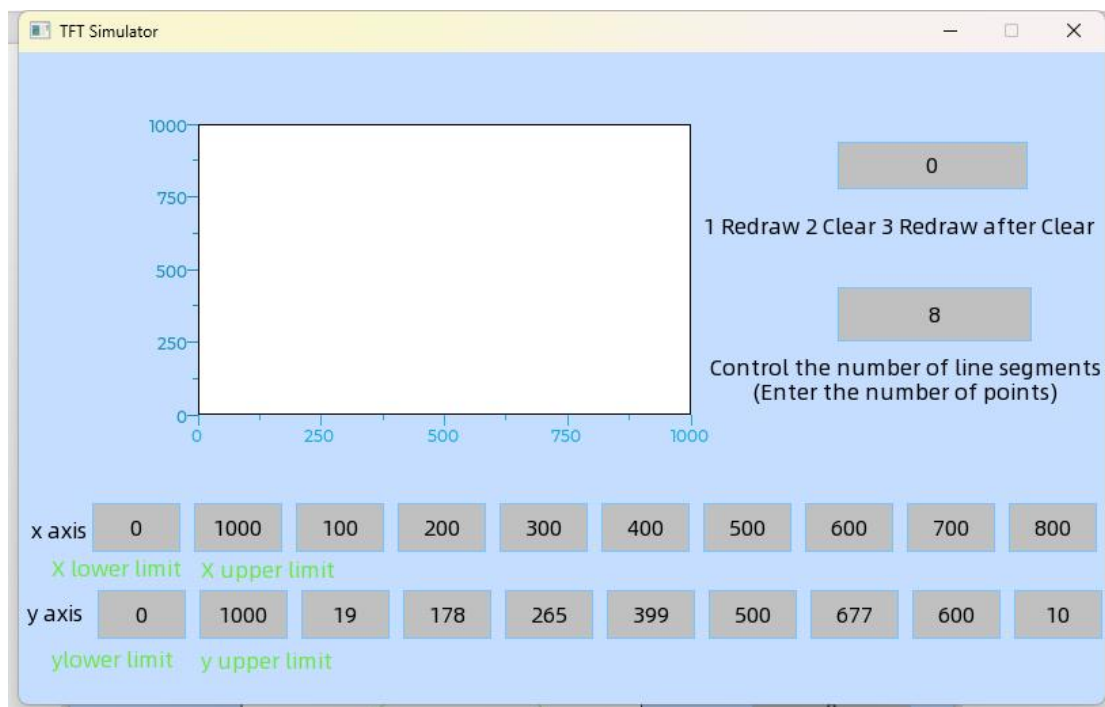
Chat 9.2-9

- 3) Control address: The control word address to be occupied during curve drawing can be set. By writing a specific value in the corresponding word address, the corresponding command can be triggered. After the operation is completed, the value of the control address will automatically reset to zero. Three values can be entered for the control address:
 - a. When the value is set to 1, draw a curve, as shown in Figure 9.2-10. LW-1900 is the control address, LW-1901 is the number of data displayed, and X and Y data are read from 8 sets of data. When the data of X and Y are the following 8 sets of data, input 1 in LW-1900 to plot and automatically reset, and the current plot will not clear the previous plot;



Chat 9.2-10

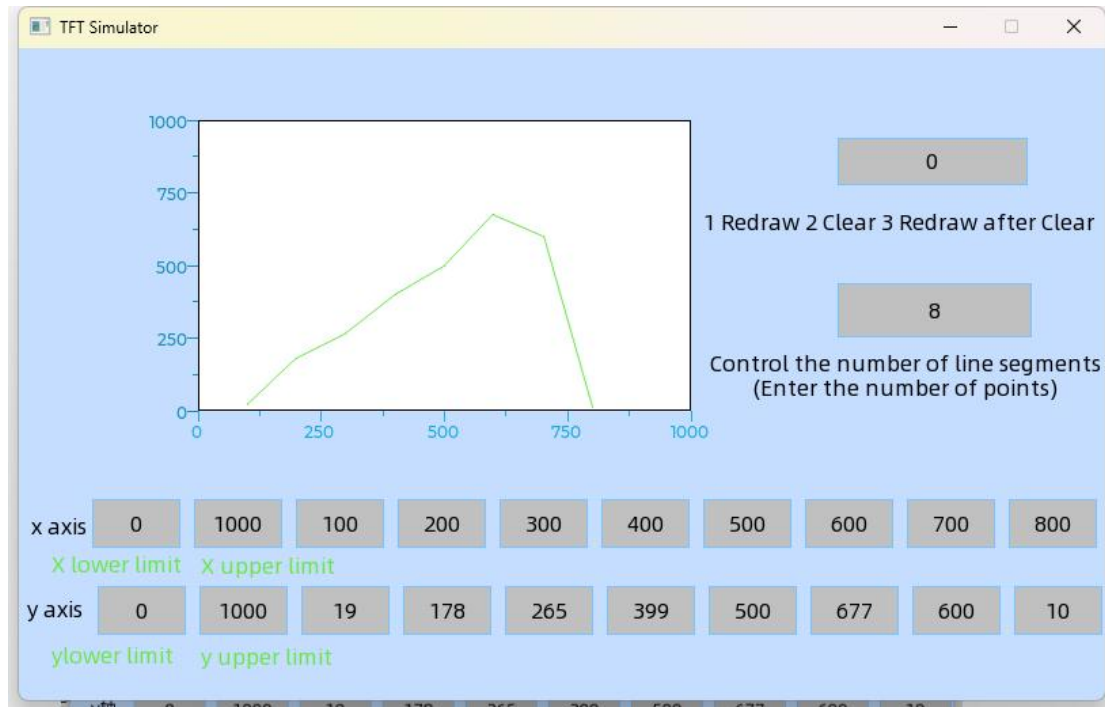
- b. When the value is set to 2, clear the graph, as shown in Figure 9.2-11. LW-1900 is the control address, LW-1901 is the number of data displayed, and X and Y data are read from 8 sets of data addresses. After drawing, entering 2 in LW-1900 will clear all drawings and LW-1900 will automatically reset to zero;



Chat 9.2-11

- c. When the value is set to 3, clear it first and then plot the curve, as shown in

Figure 9.2-12. LW-1900 is the control address, LW-1901 is the number of data displayed, and X and Y data are read from 8 sets of data. After drawing, enter 3 in LW-1900 to clear the drawing of the previous XY address data, and then draw the current XY address.



Chat 9.2-12

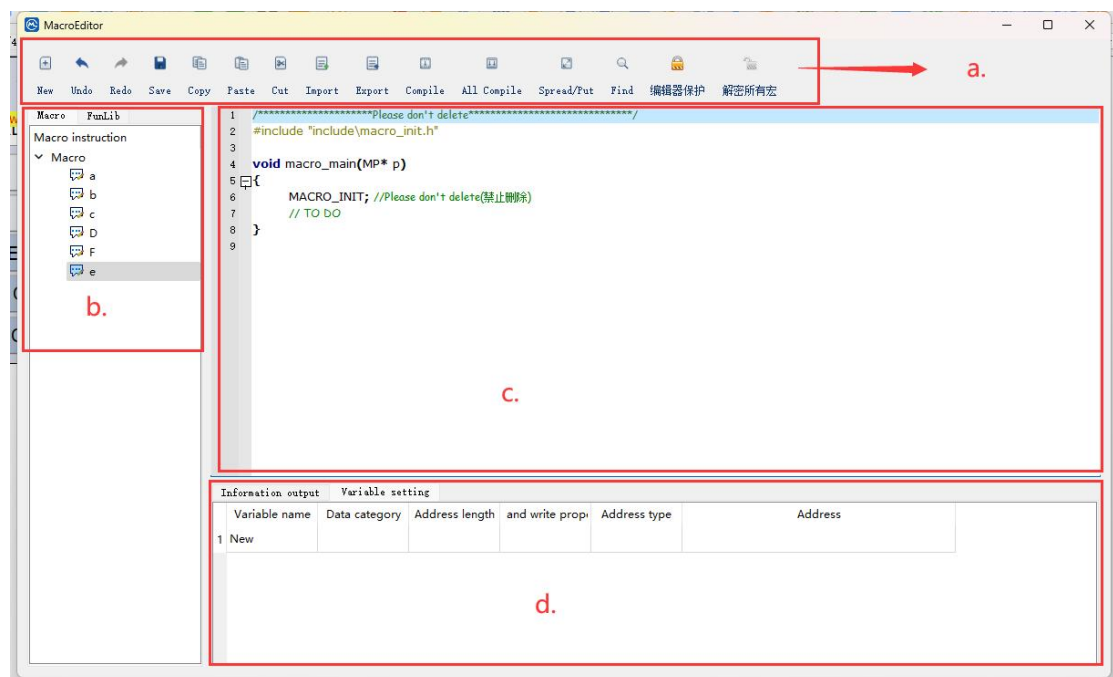
Chapter10 Introduction to Macro Command Functions

10.1 Summary of Macro Instruction Knowledge

Macro instructions are an advanced touch screen control method that makes the touch screen more powerful. By programming macro instructions, the touch screen can have the same logic and arithmetic operation functions as PLC. Flexible use of macro commands can achieve many powerful functions that conventional controls cannot achieve, making your human-machine interface more perfect.

10.1.1 Introduction to Macro Instruction Editor

The macro instruction editor is the most important place for users to write scripts, and the operation interface is divided into the following parts:



Chat 10.1-1

- a. Toolbar: There are operations such as creating new macro instructions and compiling macro instructions, as detailed in the "Toolbar Description" section below;
- b. Macro instruction drop-down box: optional macro instruction for editing;

- c. **Script editing box:** The script editing box is the most important place for users to write scripts, and all script content is displayed here. The script editing box supports automatic completion function. The auto complete function is mainly used to automatically prompt the user to enter relevant content when entering content, to help the user complete the input quickly;
- d. **Information output and variable setting:** This window outputs the status information of the program during compilation and connection. Users can debug and modify the program based on this information prompt.

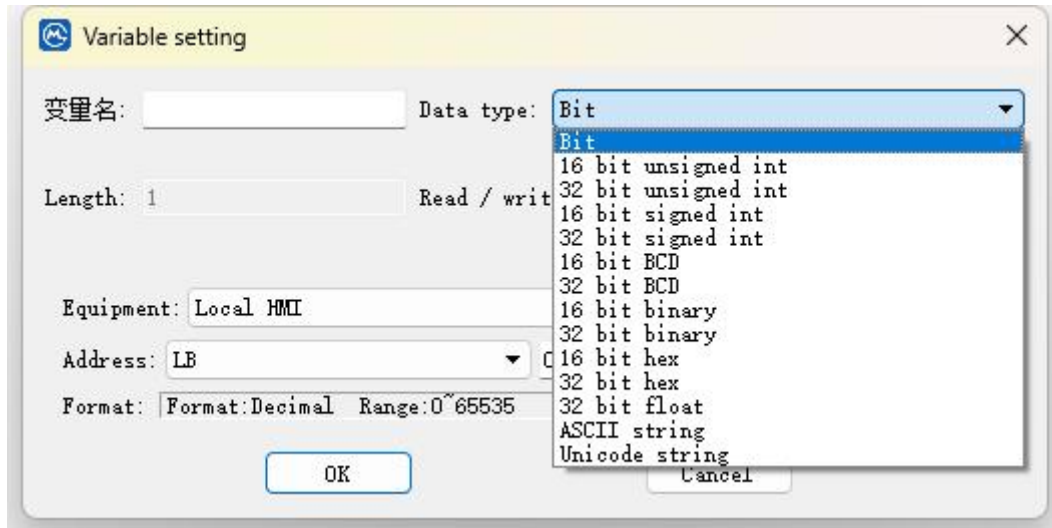
Toolbar Description:

- **New:** Create a new macro instruction;
- **Revoke:** Revoke the current operation;
- **Restore:** Restore the revoked operation;
- **Save:** Save the edited macro instruction;
- **Copy:** Click to select a macro instruction, then click "Copy" to copy the content of the selected macro instruction;
- **Paste:** Pastes the copied content;
- **Cut:** Cut the selected macro instruction content;
- **Import/Export:** Import and Export of Macro Instructions;
- **Compile:** compile the source code of the current macro instruction and check Syntax error;
- **Compile All:** compile all macro instruction source codes and check Syntax error;
- **Expand/collapse:** The information output box can be expanded and collapsed as needed;
- **Find:** Find the corresponding address or variable name in a macro instruction.

10.1.2 Introduction to Language Elements

① variable

- **Data object:** equivalent to Global variable, shared by all program segments. It can be defined by creating a new variable setting under the macro instruction compiler, as shown in Figure 10.1-2. In script editing, the name of the data object can be used to read and write the value of the data object, and the properties of the data object can also be manipulated, supporting multiple data types.



Chat 10.1-2

- **Local variable:** supports four data types: integer, Floating-point arithmetic, string, and byte. It can only be used in the current macro instruction. You can directly enter script statements to declare Local variable. It should be noted that declaration statements cannot be nested within any other statement. As shown in Figure 10.1-3;

```

1  /*****Please don't delete*****/
2  #include "include\macro_init.h"
3
4  void macro_main(MP* p)
5  {
6      MACRO_INIT; //Please don't delete(禁止删除)
7      // TO DO
8      int data_int = 0; // Define an integer variable
9      data_int = 0; // Assignment of integer variables
10     float data_float; // Define a floating point variable
11     char data_char; // Define a character type variable
12     char data_str[100]; // Define an integer string variable
13 }

```

Chat 10.1-3

- **Local array variable:** supports four data types: integer array, Floating-point arithmetic array, string array and byte array, which can only be used in the

current script. The declaration method is the same as [Local variable]. The maximum length of an array variable is 65535, and the way it accesses elements is array [index], where "array" is the array variable and "index" is the position of the access element (starting from 0), as shown in Figure 10.1-3.

```

1  /*****Please don't delete*****/
2  #include "include\macro_init.h"
3
4  void macro_main(MP* p)
5  {
6      MACRO_INIT; //Please don't delete(禁止删除)
7      // TO DO
8      int array_int[2];
9      array_int[0] = 10;
10     array_int[1] = 100;
11     float array_float[5];
12 }

```

Chat 10.1-3

② constant

- Integer constant: an integer similar to 123;
- Hexadecimal integer constant: a hexadecimal integer similar to 0x123;
- Floating-point arithmetic constant: value with Decimal separator, such as 12.45;
- String constant: A string within double quotation marks, such as "OK" or "normal";
- The following escapes are supported within string constants:

“\n”: Represent Wrap

“\r”: Need to be used together with ' \n' (' \r\n') to represent line breaks in

Microsoft environments

“\"”:Represent double quotation marks

“\t”:Represent Tabs

“\\”:Represent the backslash itself

Other characters starting with \" will be treated as illegal strings.

③ expression

The operation formula composed of variables, parentheses, and various operators is called an expression, and the calculation result of the expression is called the value of the expression. For example: `a=b+c`; `str="aa"+"bb"`.

④ operator

● Arithmetic operators

operator	name	describe
+	addition	Add two operands
-	subtraction	Subtract the second operand from the first operand
*	multiplication	Multiplying two operands
/	division	Divide numerator by denominator
%	remainder	Modulo operator, remainder after integer division
++	auto-increment	increasing integer value by 1
--	Self decrement	integer value reduced by 1

● Logical connective

operator	name	describe
&&	Logical AND	If both operands are non zero, then the condition is true
	Logical or	If either of the two operands is non-zero, then the condition is true
!	Logical not	If the condition is true, the Negation operator will make it false

● Comparison operator

operator	name	describe
==	equal to	If the values of two operands are equal, then the condition is true
!=	Not equal to	If the values of two operands are not equal, then the condition is true

>	greater than	If the value of the left operand is greater than the value of the right operand, then the condition is true
<	less than	If the value of the left operand is less than the value of the right operand, then the condition is true
>=	greater than or equal	If the value of the left operand is greater than or equal to the value of the right operand, then the condition is true
<=	less than or equal	If the value of the left operand is less than or equal to the value of the right operand, then the condition is true

⑤ Precedence

priority	operator
high  low () ++ -- * / % + - < > <= >= = != && !	

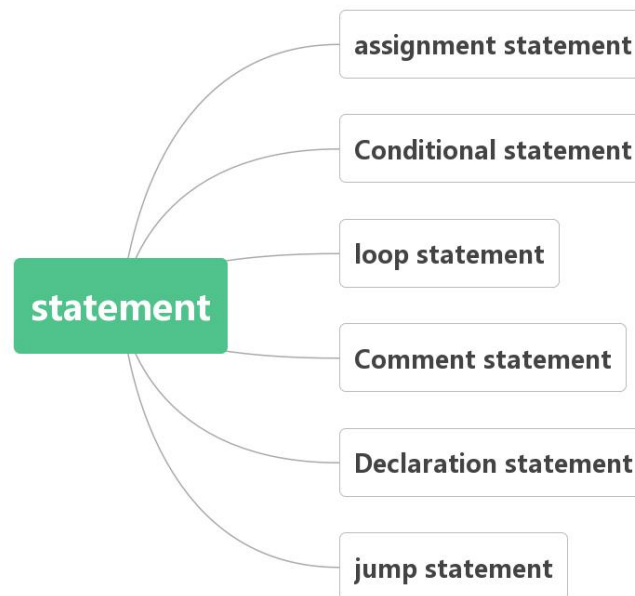
⑥ note

- All object names that can be used in scripts (such as windows, variables, policies) cannot be named with the following keywords:
if, then, else, endif, while, break, endwhile, and, or, xor, not, exit, break, byte, integer, single, float, string;
- Cannot start with a number;
- Cannot contain special characters other than the underscore (_), and cannot have only the underscore;
- Cannot be empty.

10.2 Basic sentence rules and applications

Script programs are designed to control processes and handle object operations, including the following statements:

Assignment statement, conditional statement, loop statement, exit statement, comment statement, declaration statement, jump out statement, as shown in Figure 10.2-1.



Chat 10.2-1

① assignment statement

A simple assignment operator that assigns the value of the right operand to the left operand.

The format of the assignment statement is: data object=expression.

The left side of the assignment sign (equal sign) must be a data object that can be read and written.

The right side of the assignment number is an expression, and the data type of the expression must match the type of the value of the left data object, otherwise the system will prompt an error message of "type mismatch".

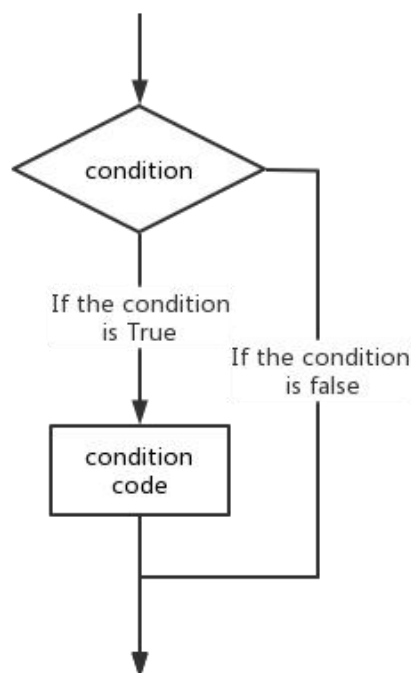
The application examples of assignment statements are as follows:

Assuming an integer variable A, two floating point variables B and C, and a character variable D have been declared. Then assign values to A, B, C, and D as follows:

assignment statement	illustrate
A = 1	Assign the integer constant 1 to A
B = 3.14	Assign floating-point constant 3.14 to B
B = C = 2.5	Assign floating-point constant 2.5 to B and C
D= 'F'	Assign the character constant F to D

② Conditional statement

The general form of judging structure is as follows:



Chat 10.2-1

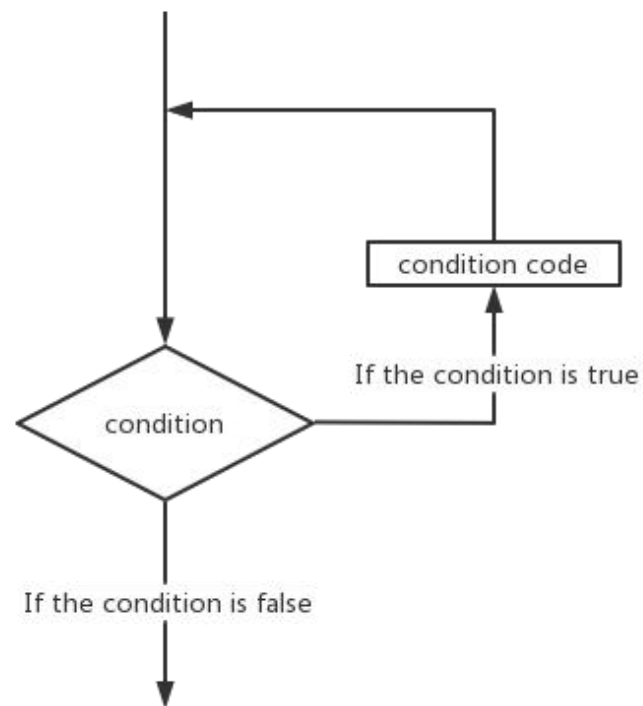
The C language provides the following types of judgment statements:

- Judgment statement 1: if statement (an if statement consists of a Boolean expression followed by one or more statements);
- Judgment statement 2: if Else statement (an if statement can be followed by an optional else statement, which is executed when the Boolean expression is false;
- Judgment statement 3: nested if statement: using another if or else if statement within an if or else if statement.

Conditional statements allow multiple levels of nesting, meaning that they can contain new conditional statements.

③ loop statement

The flowchart of the loop statement is as follows:



Chat 10.2-2

The C language provides the following types of loops:

- Loop type 1: While loop (repeats a statement or group of statements when the given condition is true. It tests the condition before executing the loop body);
- Loop type 2: for loop (executes a sequence of statements multiple times to simplify the code for managing loop variables);
- Loop type 3: do While loop (similar to a while statement, except that it tests the condition at the end of the loop body);
- Loop type 4: nested loop (using one or more loops within a while, for, or do.. While loop).

④ jump statement

In C language, also known as loop control statements, loop control statements change the execution order of your code. Through it, you can achieve code jumping.

The C language provides the following loop control statements:

- Loop control statement one: break statement (terminates the loop or switch statement, and the program flow will continue to execute the next statement following the loop or switch);
- Loop control statement 2: continue statement (telling a loop body to immediately stop the current loop iteration and restart the next loop iteration);
- Loop control statement 3: goto statement (transfers control to the marked statement. However, it is not recommended to use goto statements in the program).

⑤ Comment statement

The green text in Figures 10.2-11 is the comment statement, which is not executed during script execution and only serves as an explanation. It can be achieved by entering a double slash "/" before the statement or placing the text to be annotated in the middle of "/*... */".

```
1  /*****Please don't delete*****/
2  #include "include\macro_init.h"
3
4  void macro_main(MP* p)
5  {
6      MACRO_INIT; //Please don't delete(禁止删除)
7      // TO DO
8      int data_int = 0; // Define an integer variable
9      data_int = 0; // Assignment of integer variables
10     float data_float; // Define a floating point variable
11     char data_char; // Define a character type variable
12     char data_str[100]; // Define an integer string variable
13 }
14
```

Chat 10.2-11

⑥ Declaration statement

Variable declaration ensures to the compiler that a variable exists with the specified type and name, and there are two situations when declaring a variable:

1、 One is to establish storage space. For example, int a already established storage space when declared;

2、 Another method is to declare a variable name without defining it by using the extern keyword without establishing storage space. For example, extern int a where variable a can be defined in other files.

Unless there is an extern keyword, it is the definition of a variable.

```
1  /*****Please don't delete*****/
2  #include "include\macro_init.h"
3
4  void macro_main(MP* p)
5  {
6      MACRO_INIT; //Please don't delete(禁止删除)
7      // TO DO
8      extern int i;    // Declaration, not definition
9      int j;           // Declaration is also a definition
10 }
11
```

Chat 10.2-12

10.3 Script error checking

After completing the macro instruction writing, you can click the 'Compile' icon in the toolbar above to compile the program code to confirm whether the script program is written correctly. During the inspection process, if an error is found in the script program, corresponding information will be returned to indicate the possible cause of the error and help users find and troubleshoot the error.

```
1  /*****Please don't delete*****/
2  #include "include\macro_init.h"
3
4  void macro_main(MP* p)
5  {
6      MACRO_INIT; //Please don't delete(禁止删除)
7      // TO DO
8      extern int i; // Declaration, not definition
9      int j         // Declaration is also a definition
10 }
11
```

Information output Variable setting

```
e.o: In function 'macro_main':
e.o:10:1: error: expected '=', ',', ';', 'asm' or '__attribute__' before '}' token
    }
    ^
[08:48:19] failed to compile scripte
```

Chat 10.2-13

Common prompts include:

- Unrecognized identifier: This identifier is not a Local variable or a globally accessible object;
- Unrecognized type: variable declaration did not input the correct type;
- No parameters filled in: Function call (requires parameters) No parameters filled in;
- A logical value is required: the value of the expression in conditional judgment in conditional statements and circular statements must be byte type, integer, Floating-point arithmetic, not string and array;
- Reference parameter required: The current parameter type of the function is a reference;
- Need a data object: the current parameter type of the function is a data object;
- Local variable declaration error: Local variable declaration format error;
- Local array variable declaration error: The format of the local array variable declaration is incorrect;
- Illegal length of local array variable declaration: The initial length of the local array declaration is incorrect and must be between 0 and 65535;

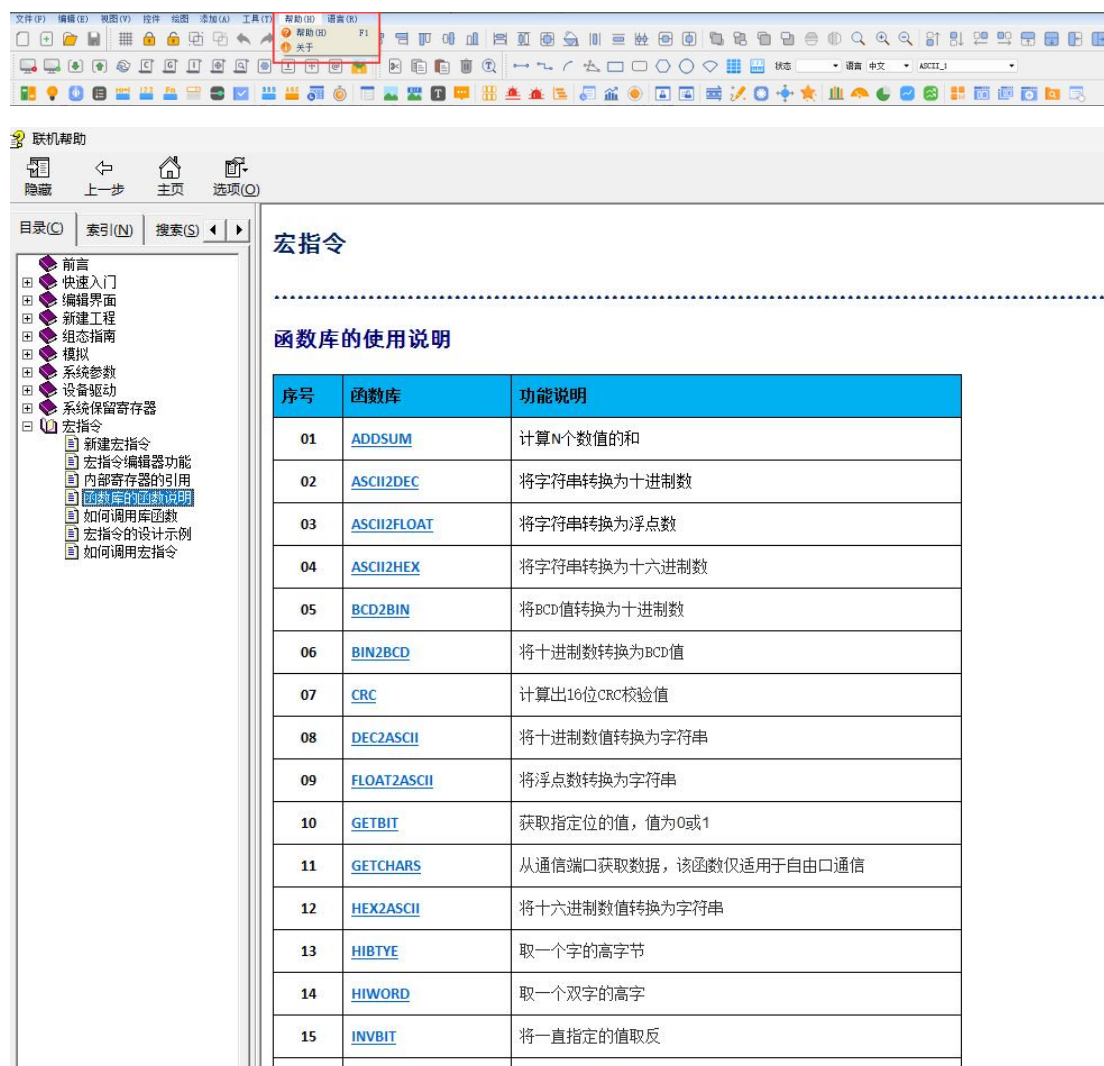
- Index access type mismatch: When accessing elements of an array, the index type is incorrect; Must be a byte/integer, preferably an integer;
- Expressions without side effects: In addition to function calls, general expressions require an assignment statement to use the result of the expression;
- Type mismatch: Generally, the operation type of the expression does not match, such as “integer+string”;
- Number of parameters mismatch: The number of parameters of the function does not match;
- Parameter type mismatch: The parameter types of the function do not match.

Chapter11 Application Examples of Library Functions

This chapter mainly introduces the functional functions and application examples of configuration software.

11.1 Using Help to Guide

For a detailed introduction and usage instructions of script functions, please refer to the configuration software help. Taking macro instruction functions as an example, click [Help] on the toolbar to find library functions, where you can view the meanings, parameters, return values, instances, and other descriptions of each function.



The screenshot shows the configuration software interface. The top toolbar has a red box highlighting the 'Help' (帮助) button. Below the toolbar, the '联机帮助' (Online Help) window is open. The left sidebar shows a tree view with '宏指令' (Macro Instructions) selected. The main content area displays the '宏指令' (Macro Instructions) section, which includes a table of library functions.

宏指令

函数库的使用说明

序号	函数库	功能说明
01	ADDSUM	计算N个数值的和
02	ASCII2DEC	将字符串转换为十进制数
03	ASCII2FLOAT	将字符串转换为浮点数
04	ASCII2HEX	将字符串转换为十六进制数
05	BCD2BIN	将BCD值转换为十进制数
06	BIN2BCD	将十进制数转换为BCD值
07	CRC	计算出16位CRC校验值
08	DEC2ASCII	将十进制数值转换为字符串
09	FLOAT2ASCII	将浮点数转换为字符串
10	GETBIT	获取指定位的值，值为0或1
11	GETCHARS	从通信端口获取数据，该函数仅适用于自由口通信
12	HEX2ASCII	将十六进制数值转换为字符串
13	HIBYTE	取一个字的高字节
14	HIWORD	取一个双字的高字
15	INVBIT	将一直指定的值取反



Chat 11.1-1(注：英文帮助出来后，以上两张图要改成英文帮助)

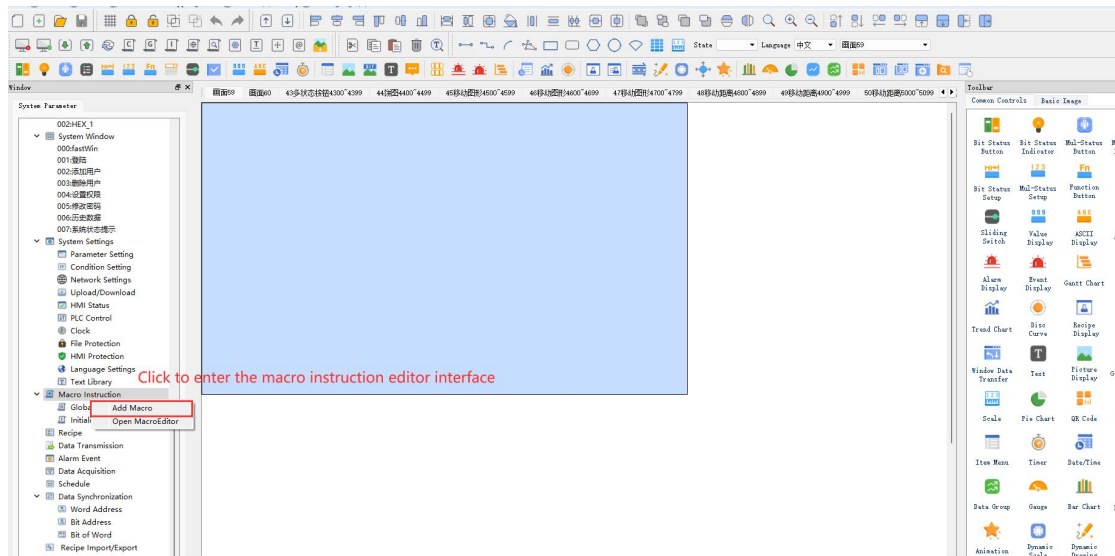
11.2 function library

The method for inserting library functions is as follows:

① There are several methods to enter the macro instruction compiler interface, as follows:

Method 1:

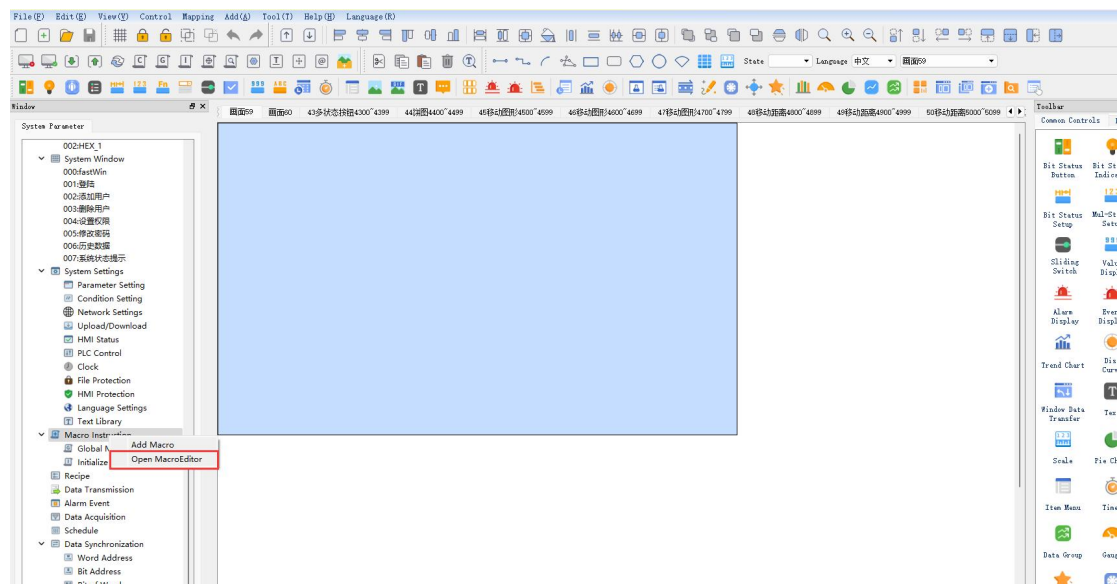
Right click on the left [Macro Command] and click on [Add Macro Command], as shown in Figure 11.2-1;



Chat 11.2-1

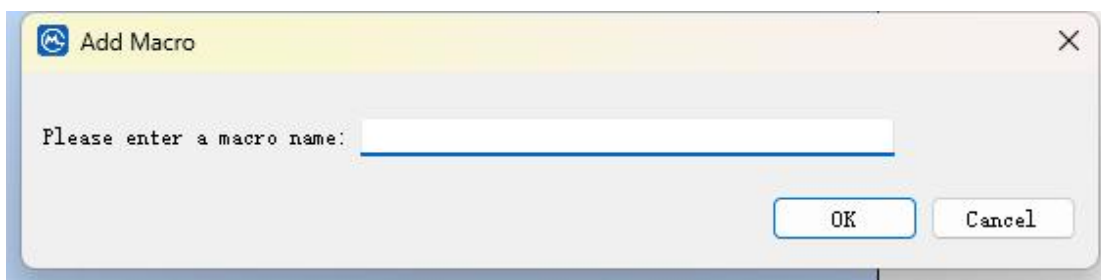
Method 2:

Right click on the left [Macro Instruction] and click [Open Macro Instruction Editor], as shown in Figure 11.2-2.



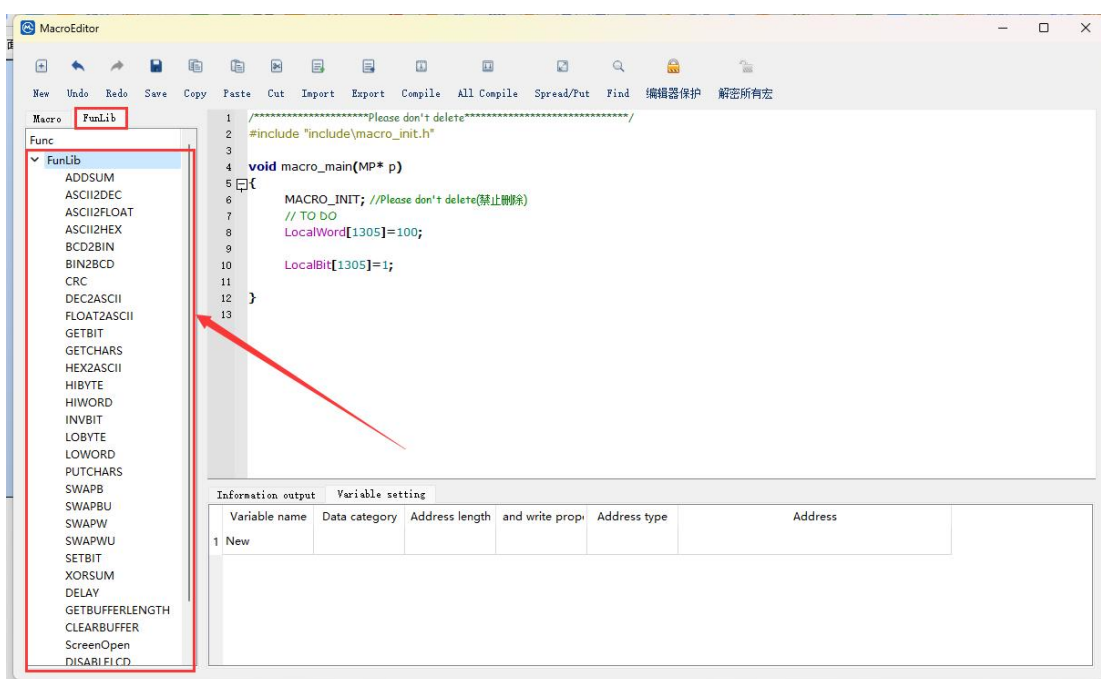
Chat 11.2-2

② Enter the macro command name in the pop-up box, click [OK] to enter the macro command editor, as shown in Figure 11.1-2;



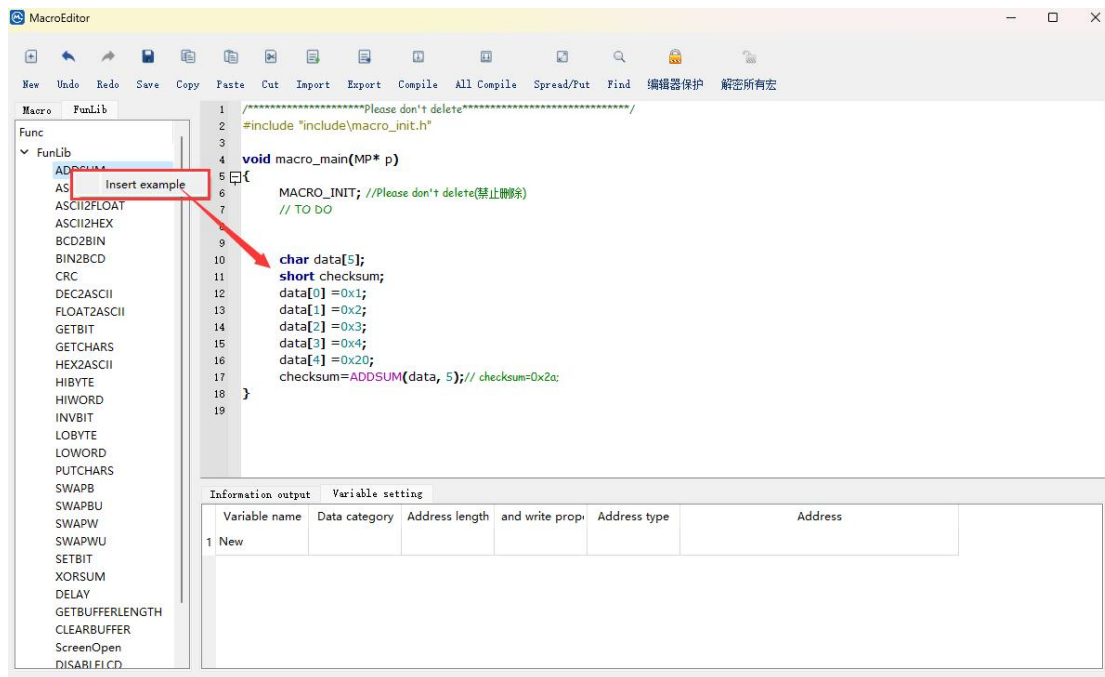
Chat 11.2-2

③ Click on [Function Library] to open the function library folding basket. You can select the corresponding library function in the function name list box, as shown in Figure 11.2-3;



Chat 11.2-3

④ Click the right button to have the option to insert an example. After clicking, the function will automatically be inserted at the current cursor position in the editing window, as shown in Figure 11.2-4;



Chat 11.2-4

Introduction to Library Function Summary:

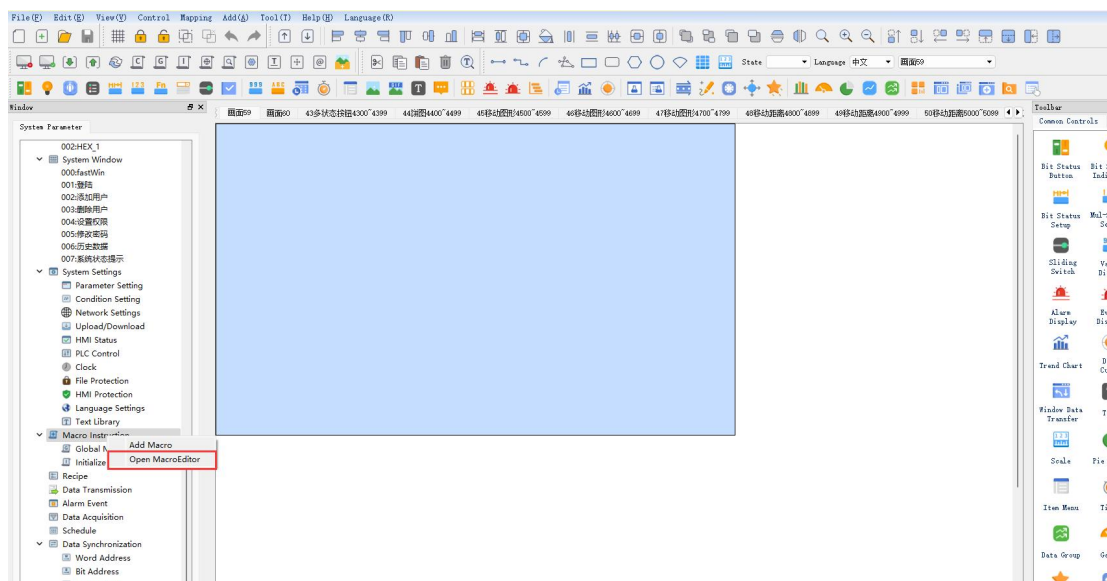
1. **ADDSUM:** Calculate the sum of N numerical values;
2. **ASCII2DEC:** Converts a string to a Decimal number;
3. **ASCII2FLOAT:** Converts a string to a Decimal number;
4. **ASCII2HEX:** Convert string to hexadecimal number;
5. **BCD2BIN:** Convert BCD value to Decimal number;
6. **BIN2BCD:** Convert Decimal number to BCD value;
7. **CRC:** Calculate the 16 bit CRC check value;
8. **DEC2ASCII:** Converts a Decimal number to a string;
9. **FLOAT2ASCII:** Converts a Floating-point arithmetic number to a string;
10. **GETBIT:** Gets the value of the pointer, with a value of 0 or 1;
11. **GETCHARS:** Obtaining data from the communication port, PortID - serial port, COM1=0, COM2=1, successful operation returns the number of data, failure returns -1 (this function is only applicable to free port communication);
12. **HEX2ASCII:** Converts a hexadecimal number to a string;
13. **HIBYTE:** Take the high byte of a word;
14. **HIWORD:** Take a double character high character;
15. **INVBIT:** Invert the consistently specified value;
16. **LOBYTE:** Take the low byte of a word;

17. **LOWORD:** Take the lower 16 bits of a doubleword word;
18. **PUTCHARS:** Send data to the communication port, PortID - serial port, COM1=0, COM2=1. If the operation is successful, the number of data will be returned. If the operation fails, the number of data will be returned. This function is only applicable to free port communication;
19. **SWAPB:** Swap the high and low bits of a word;
20. **SWAPW:** Swap a double word high and low word;
21. **SETBIT:** Set the positioning value as the set value;
22. **XORSUM:** XOR value used to calculate N numerical values;
23. **DELAY:** Set delay time;
24. **GETBUFFERLENGTH:** The communication port obtains the buffer data length. PortID - serial port, COM1=0, COM2=1, successful operation returns buffer data length, failure returns -1 (this function is only applicable to free port communication);
25. **CLEARBUFFER:** Clear the buffer data of the communication port. PortID - serial port, COM1=0, COM2=1, operation success returns 1, failure returns 0 (this function is only applicable to free port communication);
26. **ScreenOpe:** Jump to screen, PageID=0: screen, PageID=1: window;
27. **DISABLELCD:** Illuminate the LCD display screen;
28. **ENABLELCD:** Turn off the LCD display screen;
29. **SWAPBU:** Swap the high and low bytes of a word with an integer data type;
30. **SWAPWU:** Swap the high and low words of a doubleword with an integer data type.

11.3 graphics library

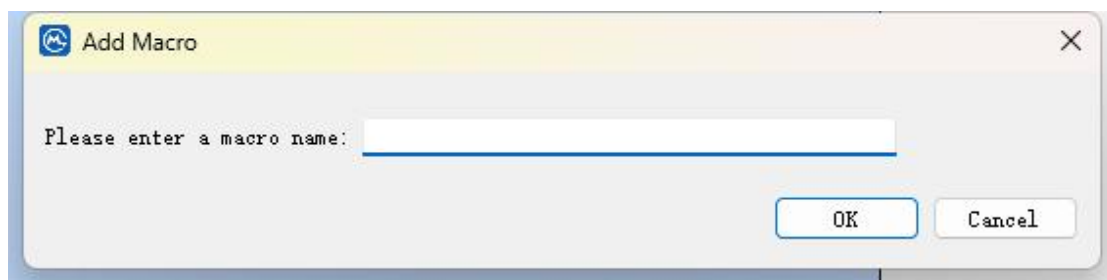
The method of inserting Graphics library is as follows:

- ① Right click on the left [Macro Command] and click on [Add Macro Command], as shown in Figure 11.3-1;



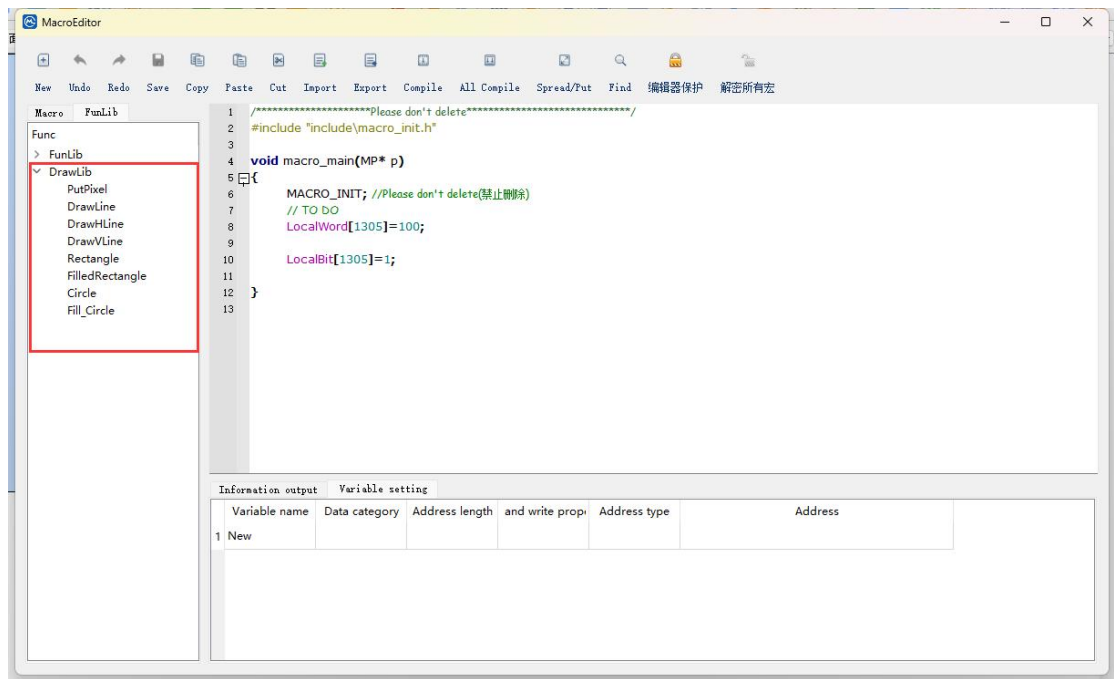
Chat 11.3-1

② Enter the macro command name in the pop-up box, click [OK] to enter the macro command editor, as shown in Figure 11.1-3;



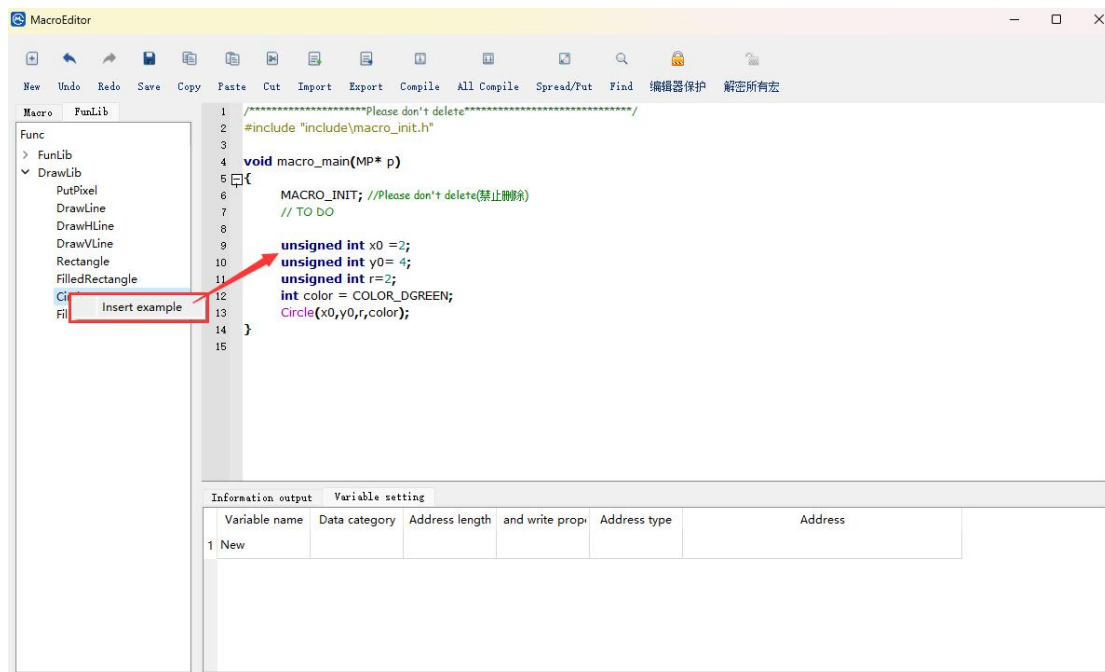
Chat 11.3-2

③ Click [Function Library] to open the folding basket of the Graphics library, and select the corresponding library function in the graphic name list box, as shown in Figure 11.3-3;



Chat 11.3-3

④ Click the right button to have the option to insert an example. After clicking, the function will automatically be inserted at the current cursor position in the editing window, as shown in Figure 11.3-4;



Chat 11.3-4

Introduction to Graph Function Summary:

PutPixel: Draw pixel points;

DrawLine: Draw line segments;

DrawHLine: Draw a horizontal line;

DrawVLine: Draw vertical lines;

Rectangle: Draw a rectangle;

FilledRectangle: Draw a filled rectangle;

Circle: Draw a circle;

Fill_Circle: Draw a filled circle.

Chapter12 Examples of Multilingual Function Application

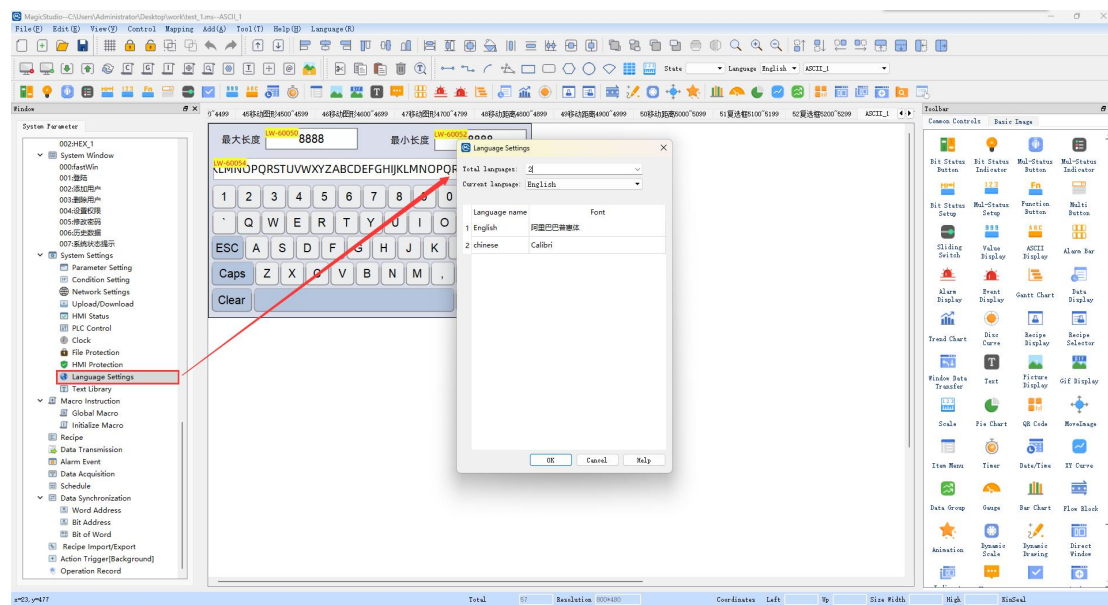
When users need to use the same project in multiple countries or provide the project to personnel in different languages in the factory for operation, the project can use the multilingual function of the configuration software.

12.1 Multi language settings

When multiple languages are needed, language types can be added to the language settings and used in conjunction with the text library.

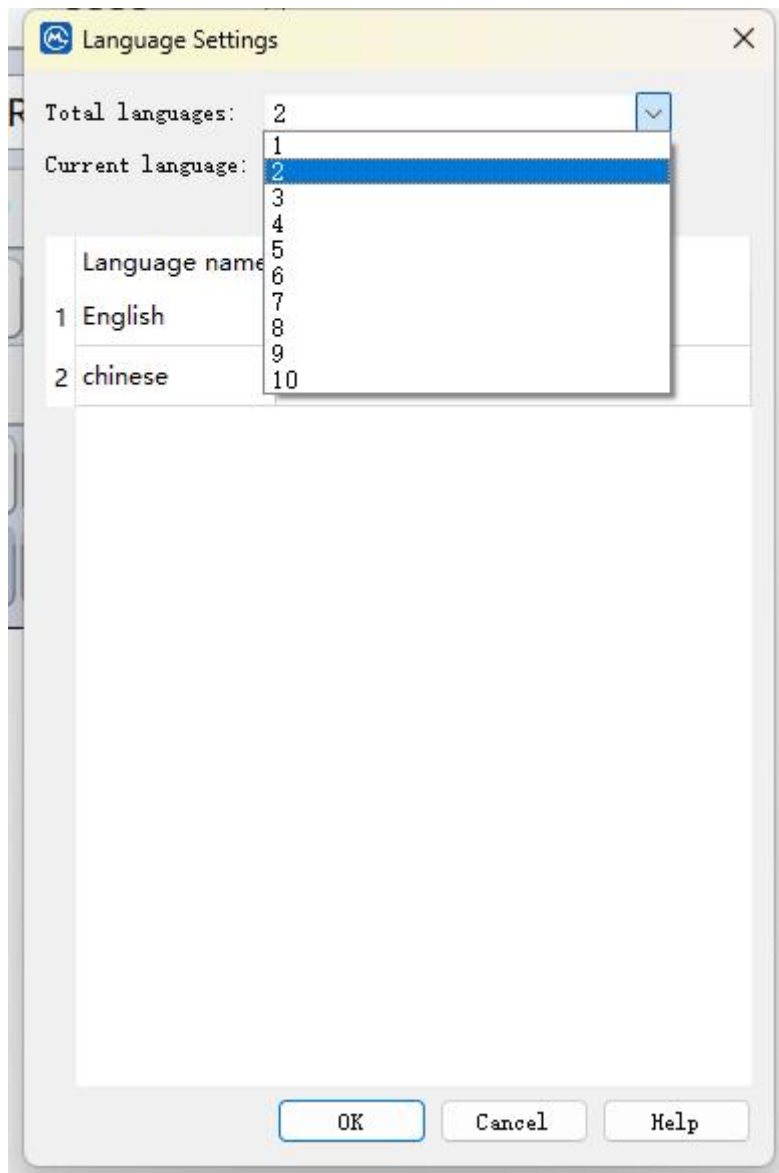
The method for setting language is as follows:

- ① Find [Language Settings] in the left column, double-click to enter the language settings interface, as shown in Figure 12.1-1;



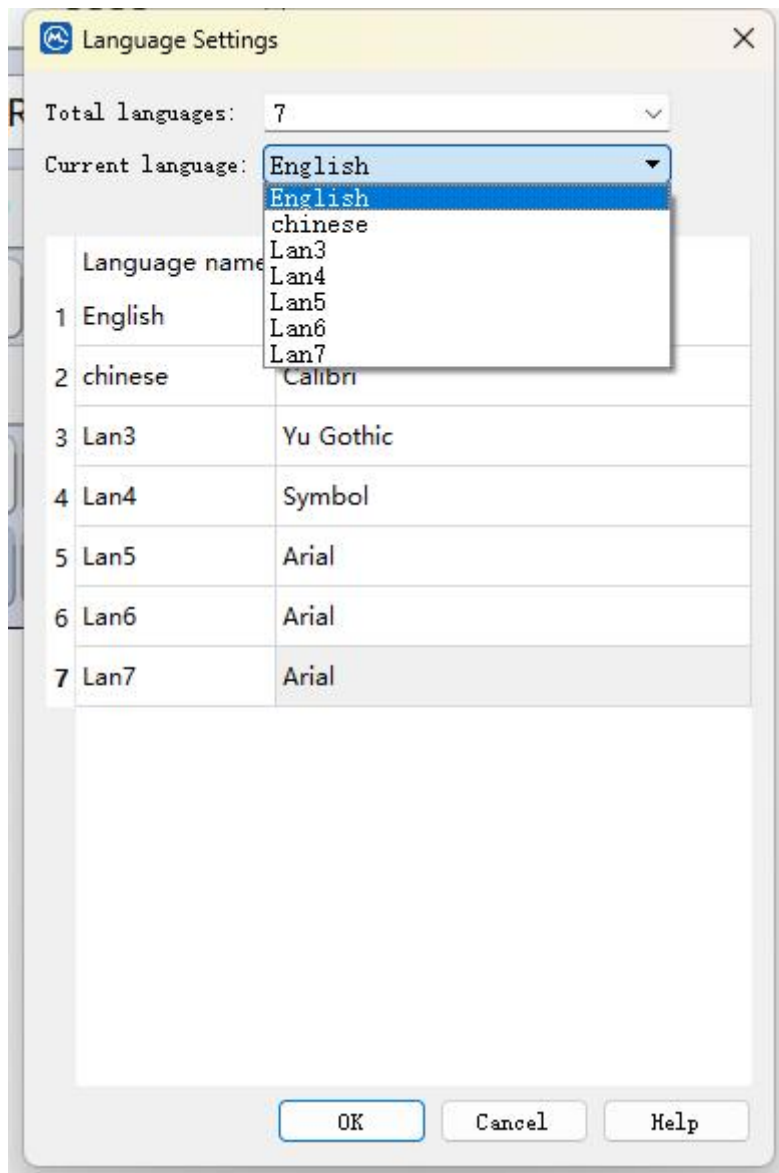
Chat 12.1-1

- ② Set the 'total number of languages', with a maximum of 10 languages, taking 6 as examples, as shown in Figure 12.1-2;



Chat 12.1-2

③ Set the 'Current Language', which is the language currently displayed by the system. Set "Language Name" and select "Font" as shown in Figure 12.1-3.



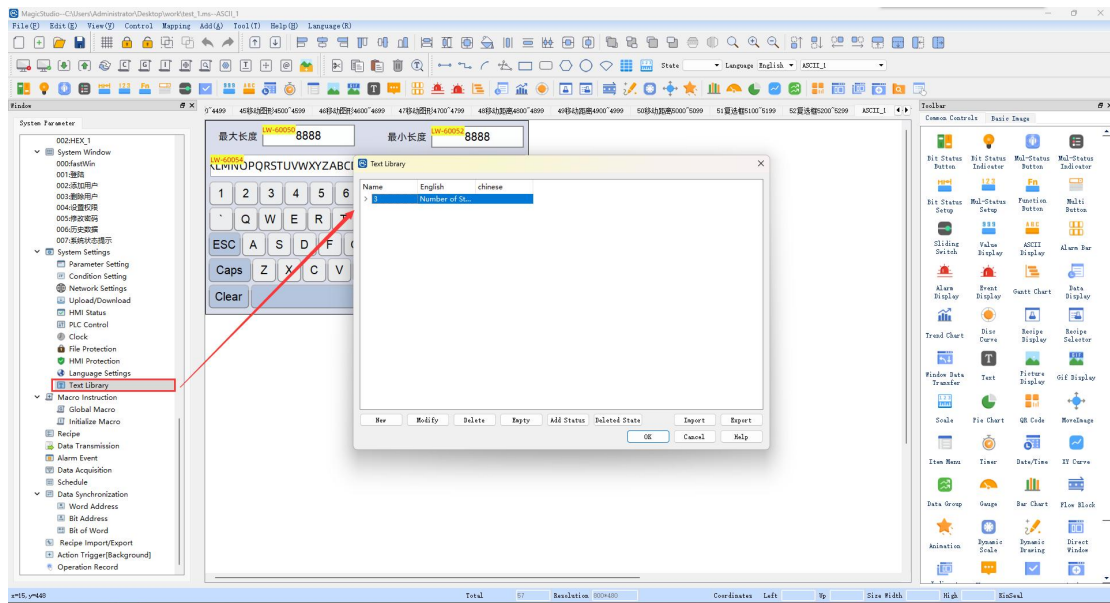
Chat 12.1-3

12.2 Text Library

When the control needs to use labels in the Text Library, you can add labels and set corresponding states and text in different languages in the Text Library. To add a new language, add it in the Language Settings section.

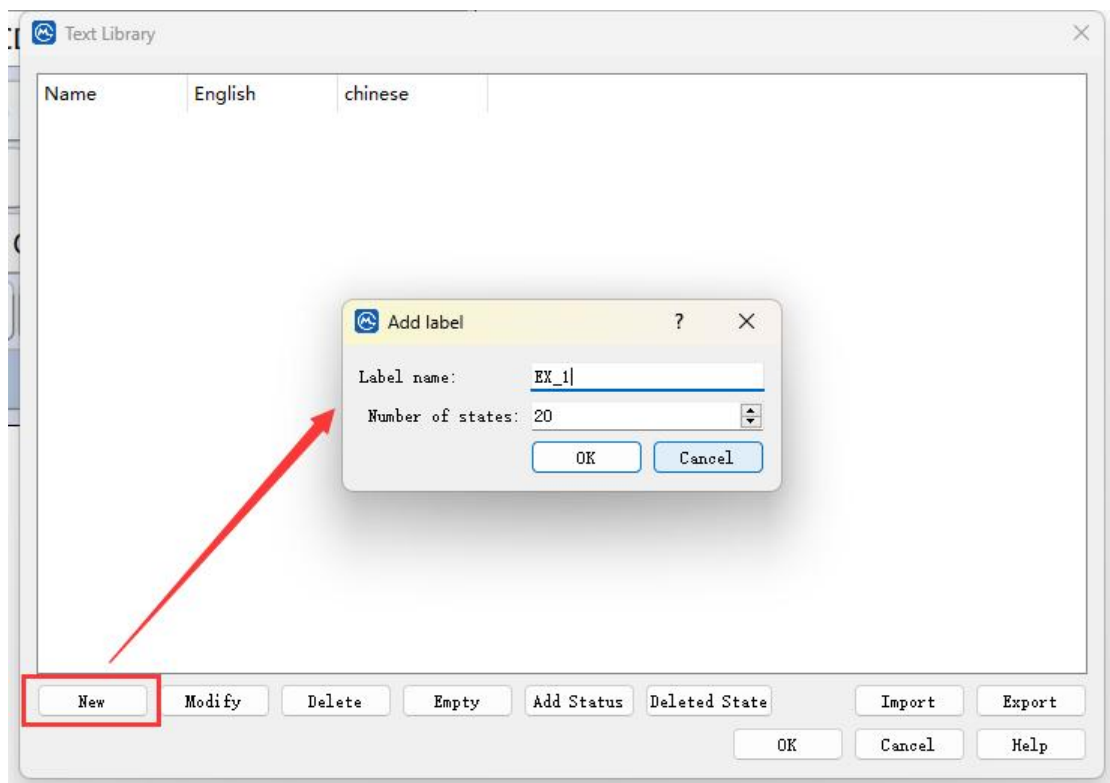
The method for setting up a text library is as follows:

- ① Find [Text Library] in the left column, double-click to enter the text library setting interface, as shown in Figure 12.2-1;



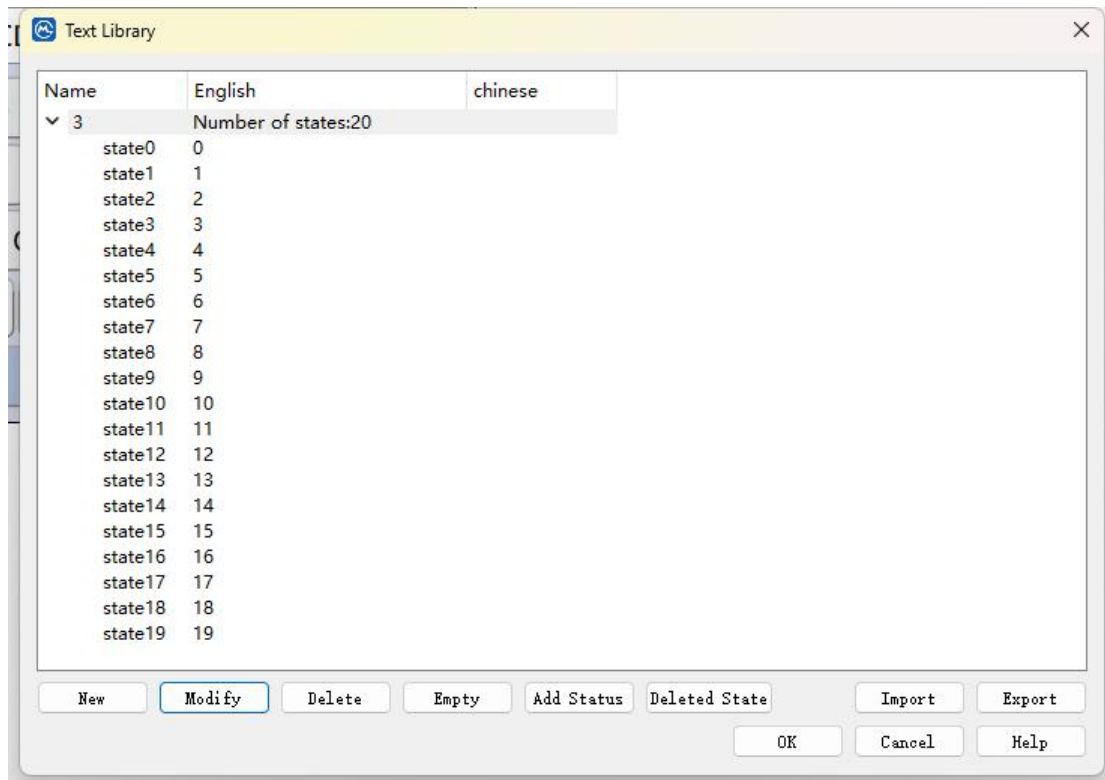
Chat 12.2-1

② Click on [Add Tag] below, set the "Tag Name" and "Number of States", and set the tag name to EX_ 1. The number of states is 20, click [OK], as shown in Figure 12.2-2;



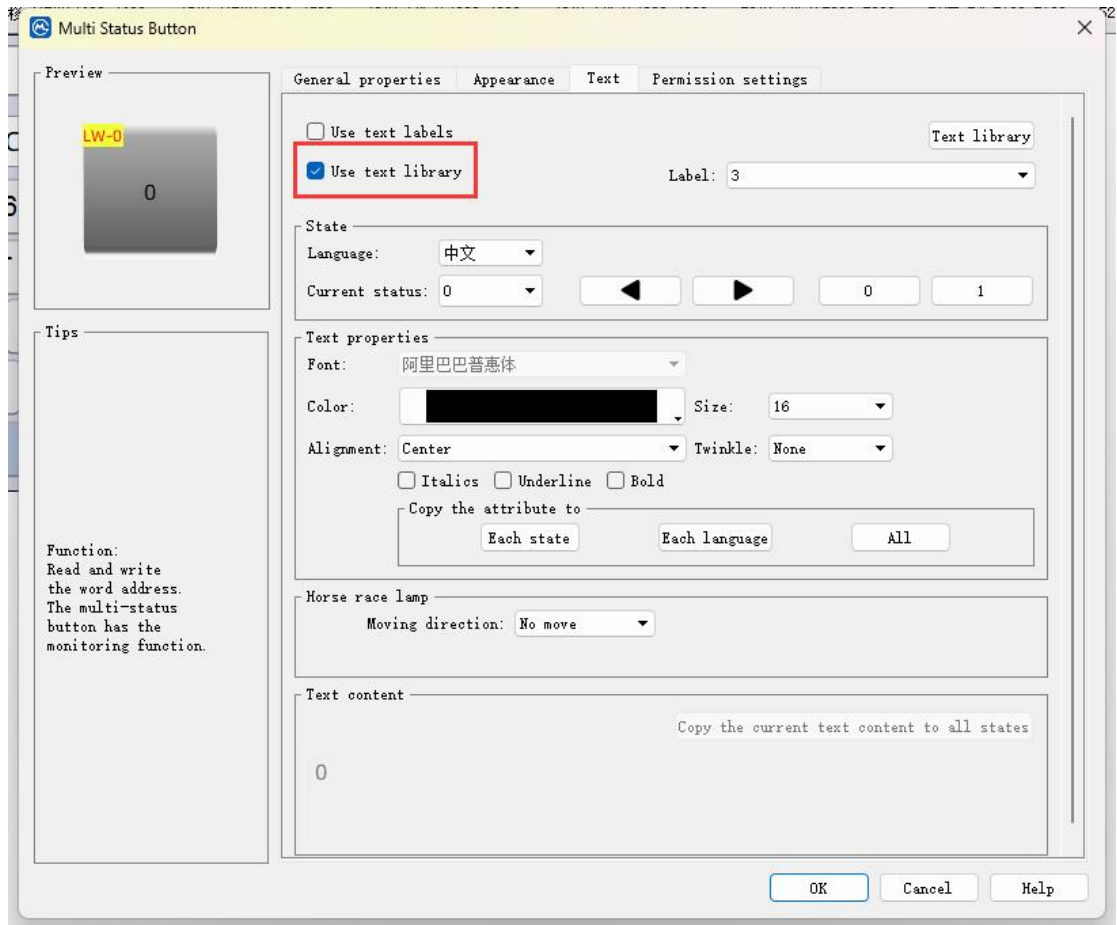
Chat 12.2-2

③ The rendering is shown in Figures 12.2-3;



Chat 12.2-3

④ Use a text library in other controls, such as in the text settings of a multi-state button control with 20 states, check Use Text Library, as shown in Figure 12.2-4.



Chat 12.2-4