



Dtools Pro

User Manual

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Preface

About this manual

This manual is written mainly for the use and design of Altus DToolsPro configuration editing software (later referred to as "DTP"). The manual is available in electronic versions. The electronic version is included in the Altus DToolsPro installation package and can be opened in the software 'Help' menu or through the 'Help' button in the component properties after the software is installed; Alternatively, it can be downloaded for free from the official Altus website.

Scope of use

This manual provides operating instructions for Altus DToolsPro to accompany the development of related products.

Symbols and terminology

- Safety symbols and terminology



Danger

Indicates that serious personal injury or even death will result if appropriate care is not taken.



Warning

Indicates that serious personal injury or even death will result if appropriate care is not taken.



Caution

Indicates that minor personal injury may result if appropriate care is not taken.



Attention

Indicates that an undesired result or state may occur if the corresponding prompt is not heeded.



Prohibition

Indicates relevant commands, processes or disassembly actions that are prohibited to ensure proper use of the product.

- General information symbols and terminology



Provides tips or additional information on the proper use of the product.



Indicates the links to related information in other manuals.



Indicates the items with explanatory, descriptive, footnotes.



Indicates suggestive content.



Indicates the links to related information in this manual.

● Terminology

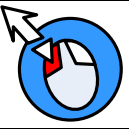
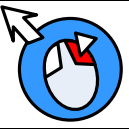
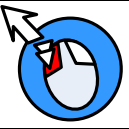
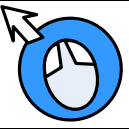
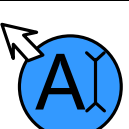
The terms used in this manual have the following meanings:

Terminology in this manual	Meaning
Altus DToolsPro	Indicates the tool software for the F2 \G2 \GL2 Series: Altus DToolsPro configuration editing software.
HMI	Indicates Green Series and Future Series products
PLC	Programmable Logic Controller
PC	Personal Computer
External Storage Device	Indicates the standard USB memory device or SD card supported by the Green Series and Future Series products.

➤ The following terms are distinct from formal trade names and trademarks:

Terminology in this manual	Formal trade names/trademarks:
Windows 7	Microsoft® Windows® 7 Operating System
Windows 8	Microsoft® Windows® 8 Operating System
Windows 10	Microsoft® Windows® 10 Operating System
Windows Server 2003	Microsoft® Windows Server® 2003 Operating System
Windows11	Microsoft® Windows® 11 Operating System

➤ The following terms are used when describing basic mouse operations

Terminology	Procedure	Illustrations
Left Click	Without moving the mouse, press the left mouse button and release.	
Right Click	Without moving the mouse, press the right mouse button and release.	
Double Click	Without moving the mouse, quickly press the mouse twice. This operation is valid only for the left mouse button.	
Dragging	Move the mouse while holding down the left button and release the left button at the target position.	
Hovering	Move the mouse to the specified position and pause.	
Input	Press the left mouse button in the input box, release it, and after the cursor blinks, type the text content from the keyboard.	
Operation	Click, right-click or double-click on a blank space with the mouse	

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1 Overview

This chapter introduces the installation and uninstallation of Altus DToolsPro configuration editing software.

1.1 Software Overview

Altus DToolsPro configuration editing software (hereinafter referred to as "DTP") is a special HMI configuration editing for the F2, G2, GL2 Series. The software provides a powerful integrated development environment for users. The products are widely used in various fields such as medical, chemical, electric power, printing, textile, food, national defense and engineering machinery, smart home, high-speed railroad, etc.

1.2 Software Installation

1.2.1 Installation of Altus DToolsPro

Take the simplified Chinese installation interface process as an example, the steps are as follows:

Double-click the "Altus DToolsPro.exe" file to run the installer.

- ❶ Go to the welcome screen
- ❷ Select the language of the installation interface.
- ❸ Select the installation directory, the software is installed to the root directory of "C:\\" by default, and the folder is automatically created in the directory. If you want to customize the installation directory, click [Browse] to change the installation directory.
- ❹ Confirm installation
The software will give you an indication of Altus DToolsPro's installation status, click [Install] to enter the software installation process.
- ❺ Successful installation
If the software is successfully installed, it will give a prompt that the installation is complete. Click [Finish] and the software installation is complete.

After the installation is complete, Altus DToolsPro will create a complete startup directory in the [Start] menu, and Altus DToolsPro (integrated environment) will be created on the operating system desktop.

During the above installation process, users can click [Cancel] to exit the installation. Please close your computer's firewall and anti-virus software before installation to avoid unsuccessful installation or subsequent use of the software features have defects.

1.2.2 Uninstallation of Altus DToolsPro

Please exit the Altus DToolsPro software before performing the uninstall.

- ❶ Launch the uninstaller

Method 1: Uninstall from the [Start] menu.

【Start】 → 【All Programs】 → 【Altus】 → 【Altus DToolsPro】 → 【Uninstall】

Method 2 : 【Control Panel】 → Uninstall from 【Add or Remove programs】

② Uninstallation process

Check "Remove", click [Next] to enter the uninstallation process. Among them:

Modification	Advanced users, customize new function to be added or select installed function to be removed. Select this option to perform maintenance on the software.
Restoration	Reinstall the Altus DToolsPro program. Select this option for software maintenance and updates.
Remove	Uninstall the Altus DToolsPro program.

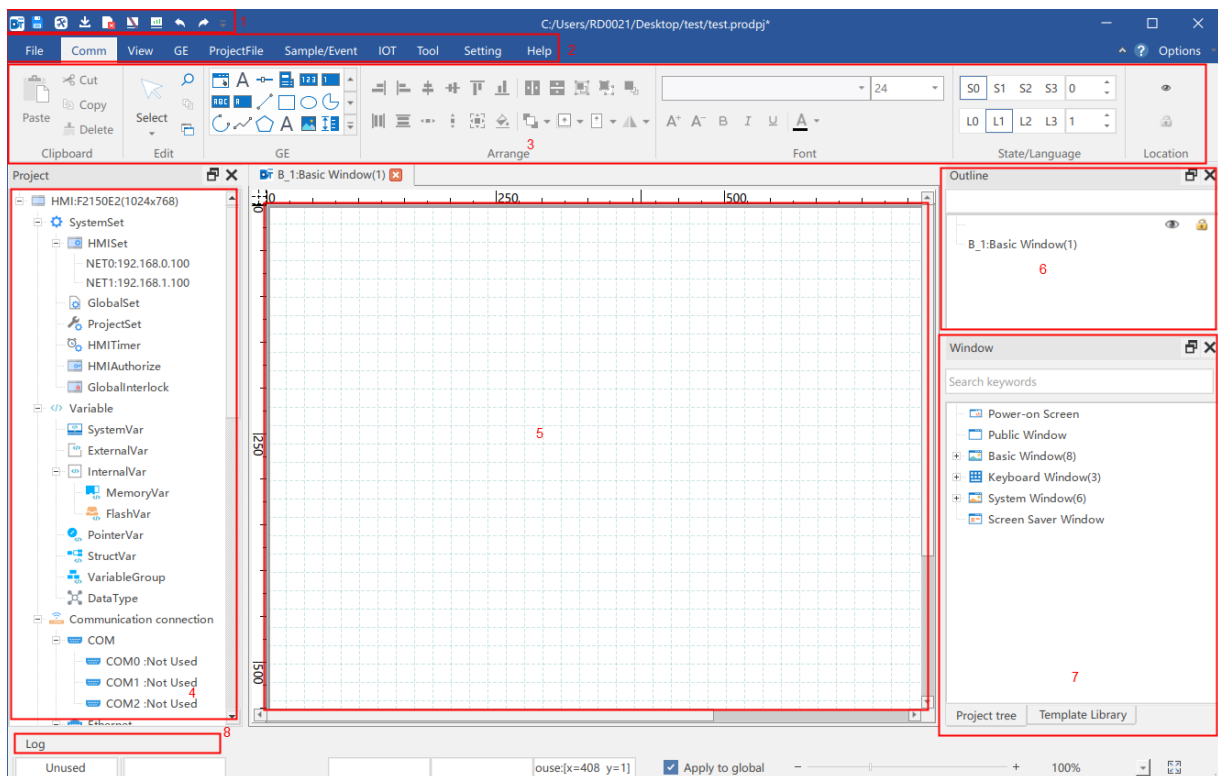
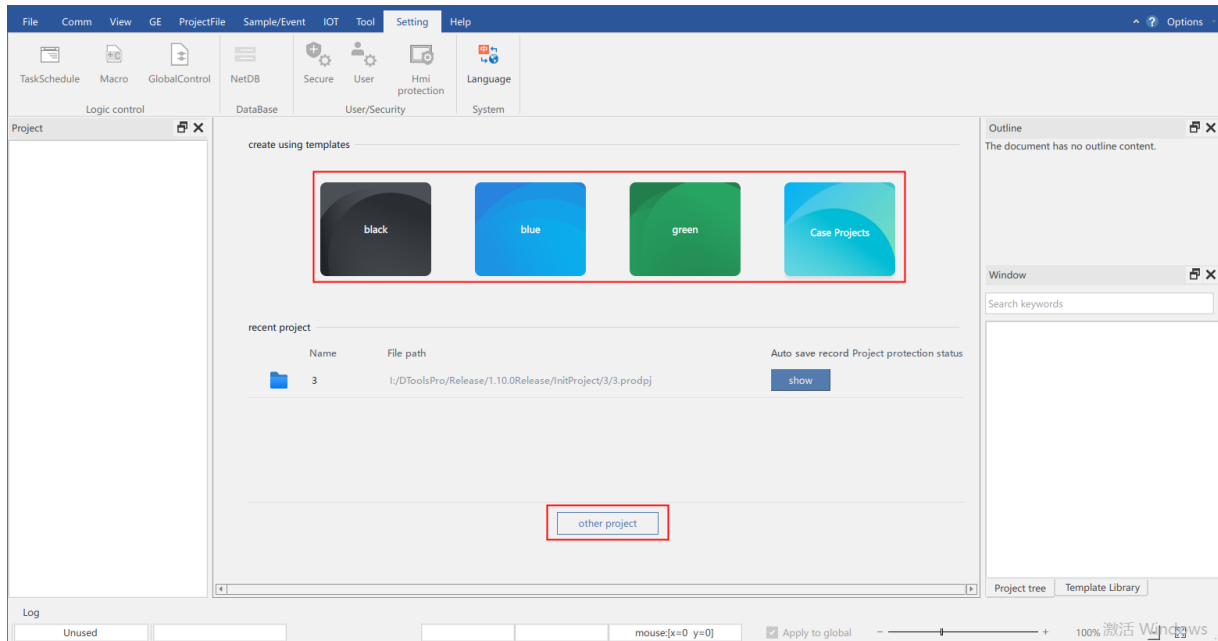


If there are additional files or folders in the Altus DToolsPro installation directory, please delete them manually after the software has been uninstalled

2 Getting Started

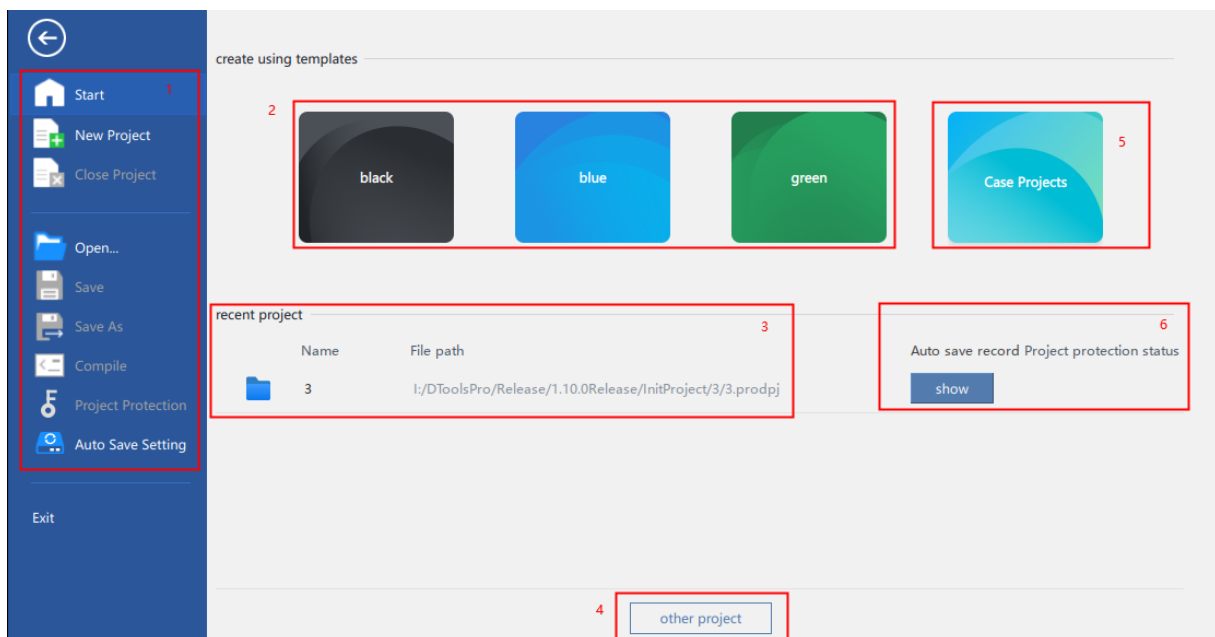
2.1 Interface layout

Double click to run into DTP software, users can see "Create using templates" \ "Case Projects" \ "Open project", click "New" will pop up the new project dialog box, you can follow the instructions to enter the DTP interface.

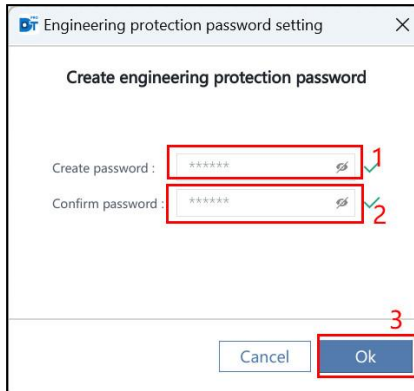
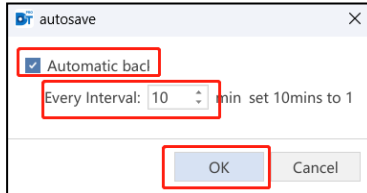


Interface layout description		
1)	Shortcut toolbar	To customize shortcut tools: 'New', 'Open', 'Save', 'Compile', 'Download' etc.
2)	Menu bar	Common, View, GE, Tool etc.
3)	Toolbar	Switch the detailed toolbar according to the actual menu selection.
4)	Project Tree	Functional organization tree of the project including communication、alarm、recipe、Macro、 variable etc.
5)	Screen editing area	Editing screen
6)	Window Details	Display detailed space information of the current page.
7)	Project tree	Display all current windows, create new windows, rename and delete windows.
	Template Library	Display template library window
8)	Output information	Display output project compilation details

Click "File" in the menu bar to enter the file management interface;



Document Management Interface Layout Description		
1) Left toolbar		New, open, close, save, save as, compile all projects, etc.
	Project Protection	You can set the password to open the project, and you need to input the set password when you open the project next time; Note: the project will not be opened if the password is forgotten.

		 Enter the creation password and the confirmation password, both passwords need to be consistent, click on OK Steps to change the project password are the same as above, enter the old password to enter the password change interface
	Auto save	 The auto save function is disabled by default. You need to double-click the function on the screen and select it to enable it. On the Settings screen, you can set the time for triggering automatic saving. The minimum time can be set to 10 minutes, and the maximum time can be set to 100 minutes. You can directly enter the time using the keyboard. The up and down arrow on the right can add or subtract one minute to the setting time; After the Settings are complete, click OK to take effect. Warning: After the auto save function is enabled, the auto save function will be triggered only after you manually save a project each time you open it. The saved time record is based on the record generated by manual saving.
2) Template style	New projects can choose from 3 color template styles	
3)Recent project list	Displays the project paths of the 10 most recently opened projects, making it easy for users to quickly open projects.	
4)Other projects	For opening projects in other paths	
5)Case projects	Case projects can be selected by filtering criteria	

	Template Selection Industry: Unrestricted Series: Unrestricted Function: Unrestricted Traditional Industry F2 G2 GL2 SZ alarm IO multimedia MQTT Emerging Industry user security recipe opt log sample file transfer browse file instalment draw database For more templates, please visit the official download site Demo_F2156E2 Unrestricted F2 alarm IO user security recipe opt log Demo_F2100E2 Unrestricted F2 user security alarm recipe opt log Demo_G2121E2 Unrestricted G2 recipe alarm user security IO opt log Demo_F2070E2 Unrestricted F2 user security alarm opt log recipe Demo_GL2070HE-LX Unrestricted GL2 alarm user security recipe opt log sample Demo_GL2043HE Unrestricted GL2 alarm user security recipe opt log Demo_F2100HE2-PK Unrestricted F2 alarm sample user security Function Cases_IO Components Unrestricted F2 IO Function Cases_Data Sampling Unrestricted F2 sample Function Cases_FTP&PDF Unrestricted G2 file transfer browse file Function Cases_User Management Unrestricted G2 user security file transfer Function Cases_Electronic Signature Unrestricted F2 user security Case projects can be filtered from three dimensions, with multiple selections between different dimensions and multiple selections between the same dimensions For more templates, please visit the official download site. The following displays project cards that meet the filtering criteria. Hovering over a card reveals an "Open Current Project" button After modifying the case project, always perform "Save As" first when carrying out any save-related operations. <tr><td>6)Backup and restore</td><td> autosave record Auto save reocrd history 111_20240924_094711 restore 111_20240924_095000 restore 111_20240924_095240 restore 111_20240924_100241 restore 111_20240924_101240 restore </td></tr>	6)Backup and restore	autosave record Auto save reocrd history 111_20240924_094711 restore 111_20240924_095000 restore 111_20240924_095240 restore 111_20240924_100241 restore 111_20240924_101240 restore
6)Backup and restore	autosave record Auto save reocrd history 111_20240924_094711 restore 111_20240924_095000 restore 111_20240924_095240 restore 111_20240924_100241 restore 111_20240924_101240 restore		

After the automatic saving function is enabled, a maximum of five backup records can be generated based on the specified interval.

Click "Restore" in the corresponding time period, and a confirmation window will pop up. After confirmation, you can restore the corresponding backup records to the current project.

The original project file will generate a backup file whose suffix is the current time in the corresponding path. You can restore the original project in the path.

When the original project is being operated and the operation time reaches the set saving interval, you can restore the previous data by recording it if you fail to save it under special circumstances (software crash).

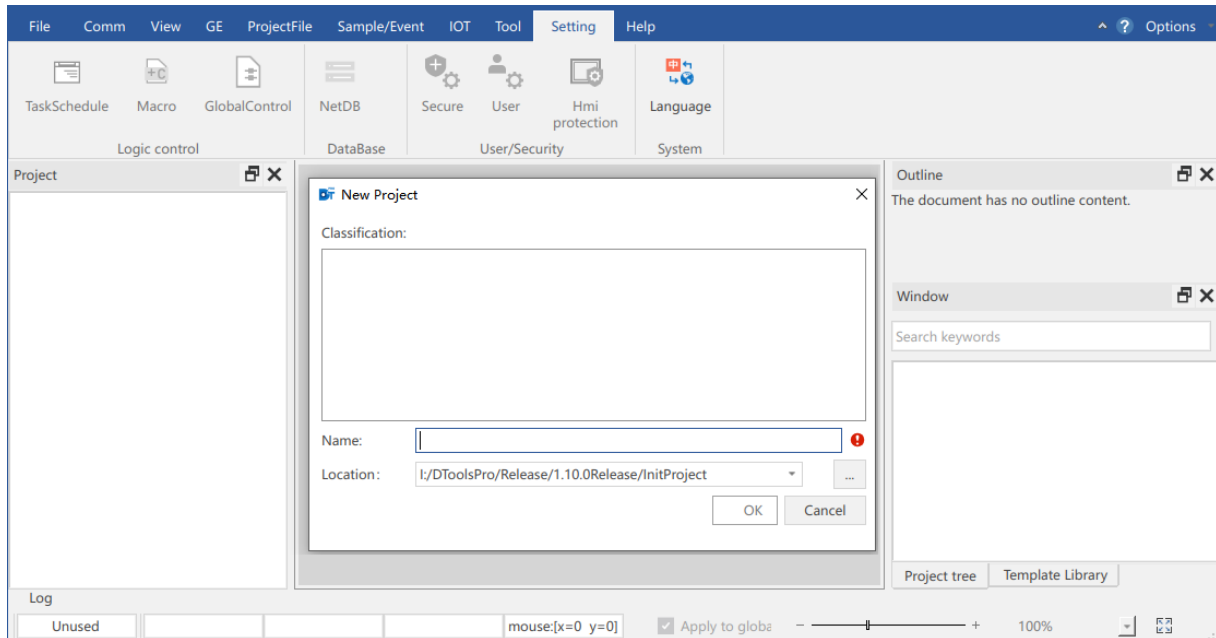
The backup records of the original project are not imported into the saved as files or backup files.

2.2 Project Configuration

Here we will briefly introduce the steps of the configuration project by creating the "button self-addition" example.

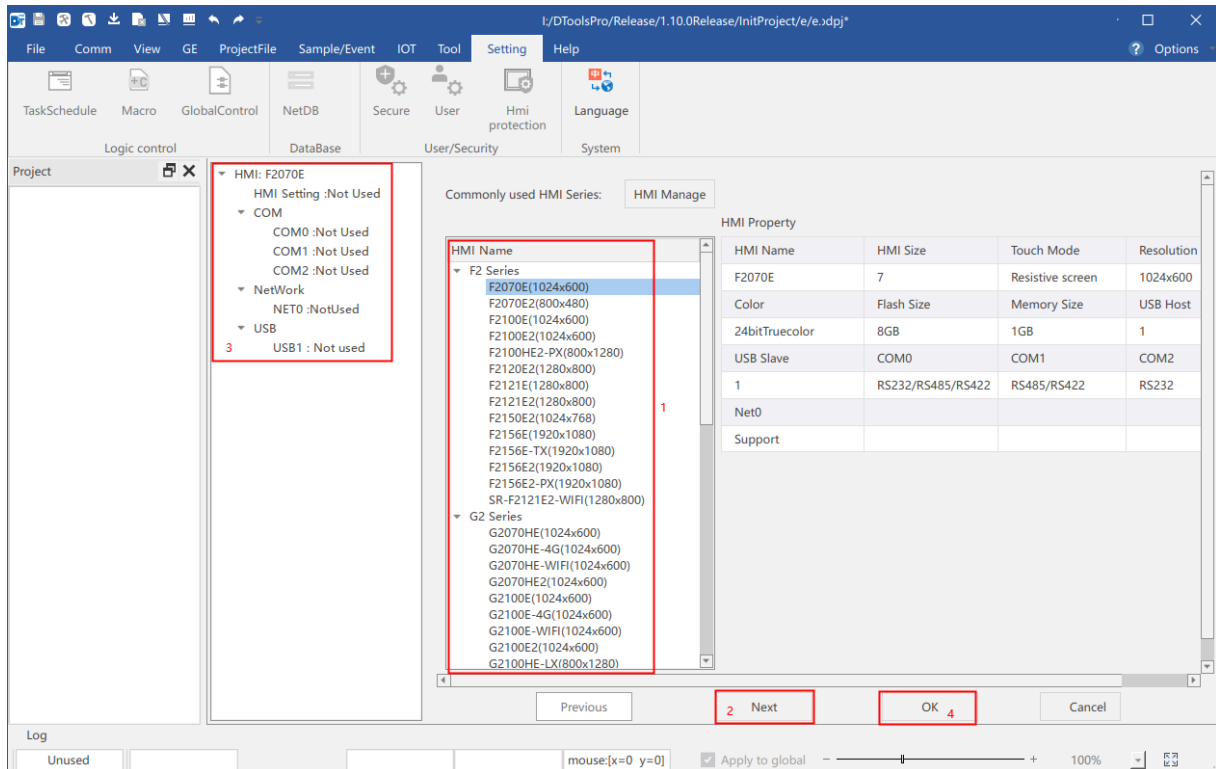
2.2.1 Create Project

Double-click the DToolsPro software icon on the desktop, Click "New project", as follows:



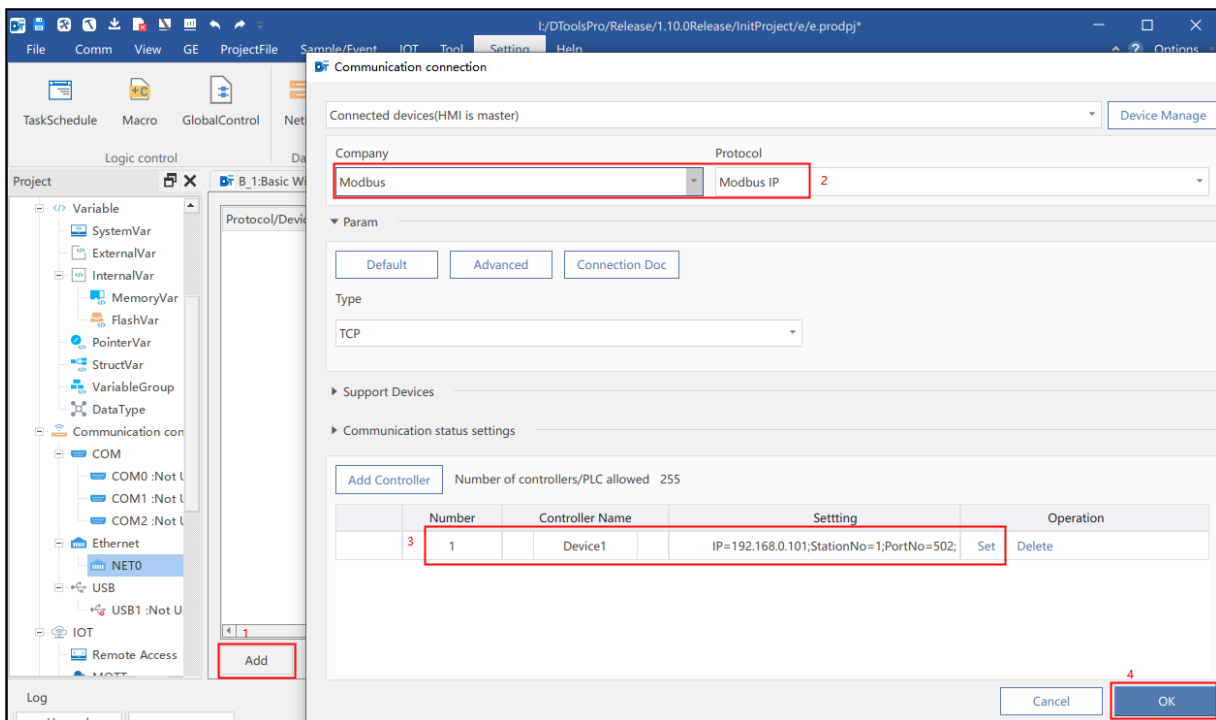
Enter the project name and select the project storage path, the default path is the software root directory "InitProject" folder, click confirm to enter the project configuration.

- (1) Select the HMI model.
- (2) Click "Next" to configure according to the navigation.
- (3) You can choose COM, network port, USB for configuration directly without clicking next.
- (4) Click "Confirm" to enter the project editing screen when the configuration is finished.
- (5) After selecting the correct HMI model, you can also click "Confirm" directly, the COM and network port can be set in the project, this time to connect the "Modbus TCP" slave.



2.2.2 Connect external controllers

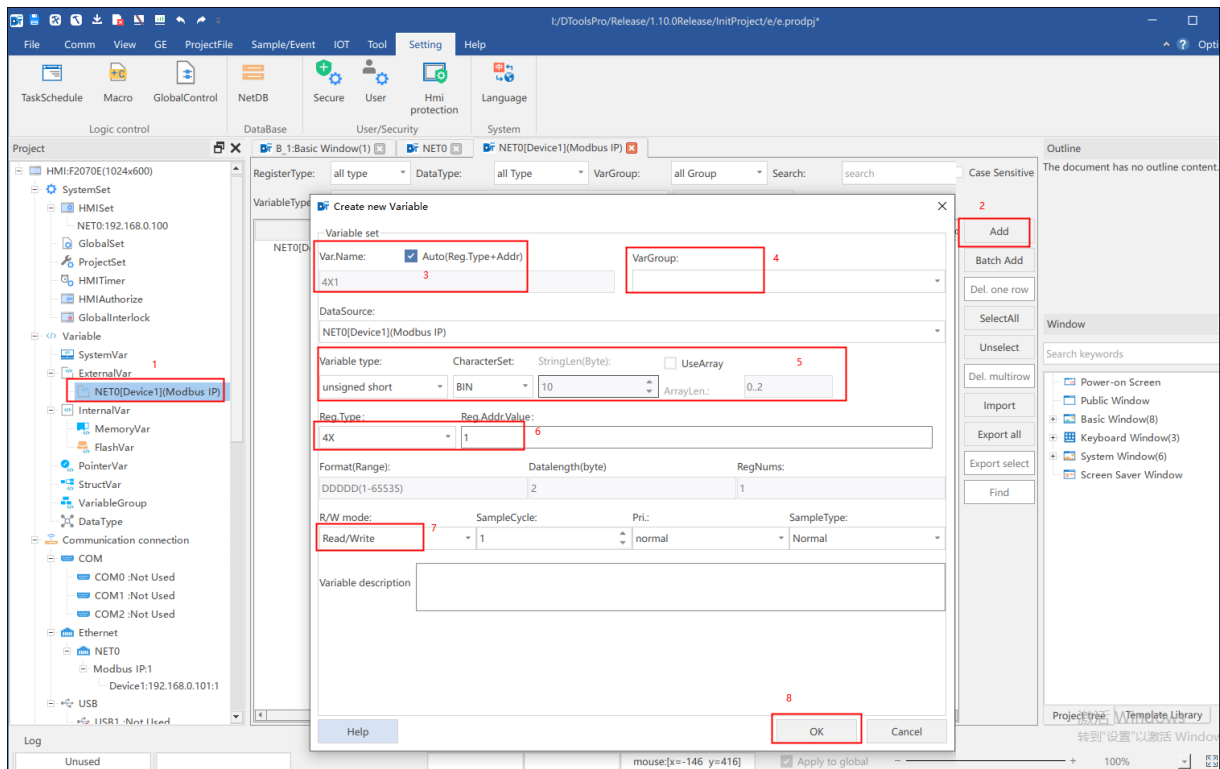
1. Project tree, select "Ethernet" - "Net 0", click "Add", select "Modbus IP "driver. Set the IP address and port number of the device, and then click "OK".



2.2.3 Create new variable

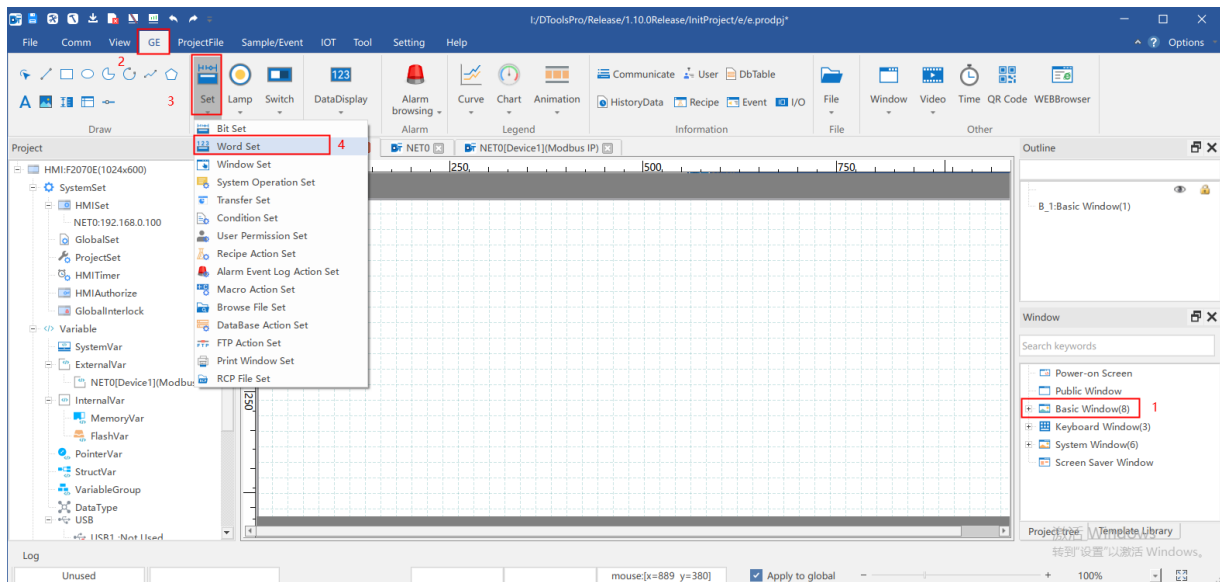
1. Click "External Variables", double-click "Device 1", select "Add", automatically generate variables by default,

set variable group name (can be skipped), select data type, set data address, confirm it is correct, then click "OK".



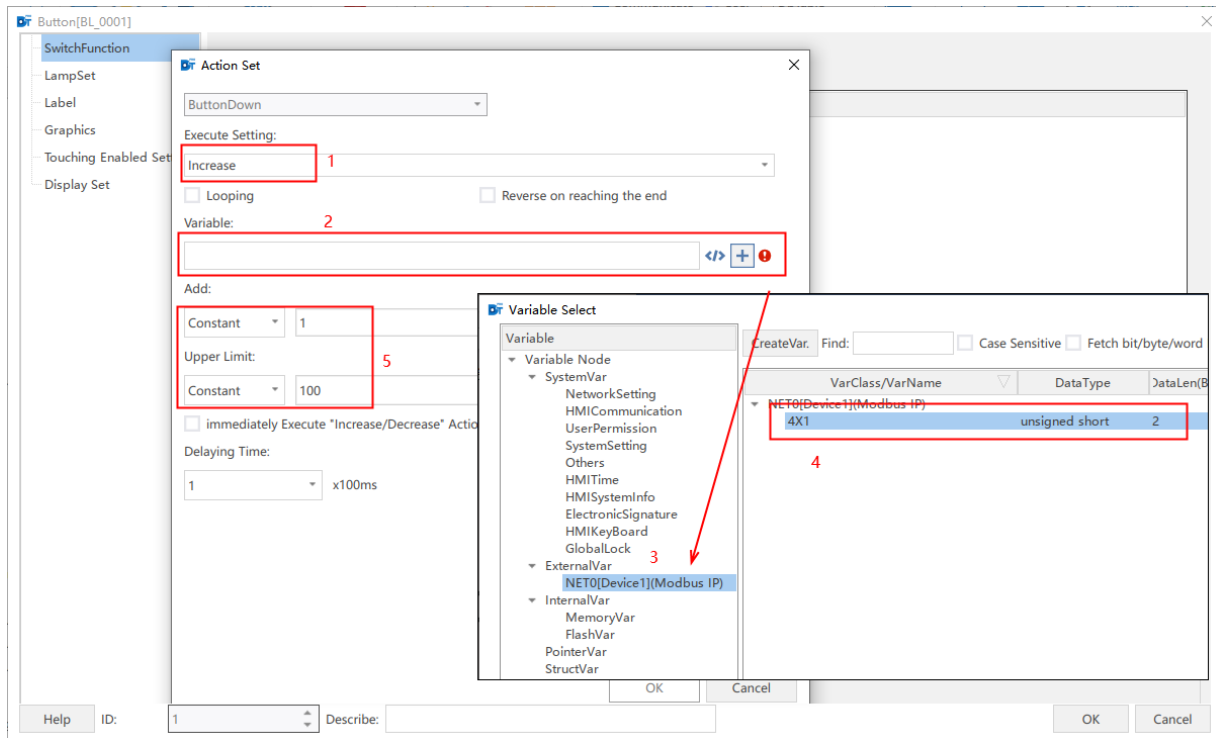
2.2.4 Configuration screen

1. Double click "Basic Window 1", the following screen will be displayed, click "GE" in the menu bar, select "Set" and then choose "Word set".



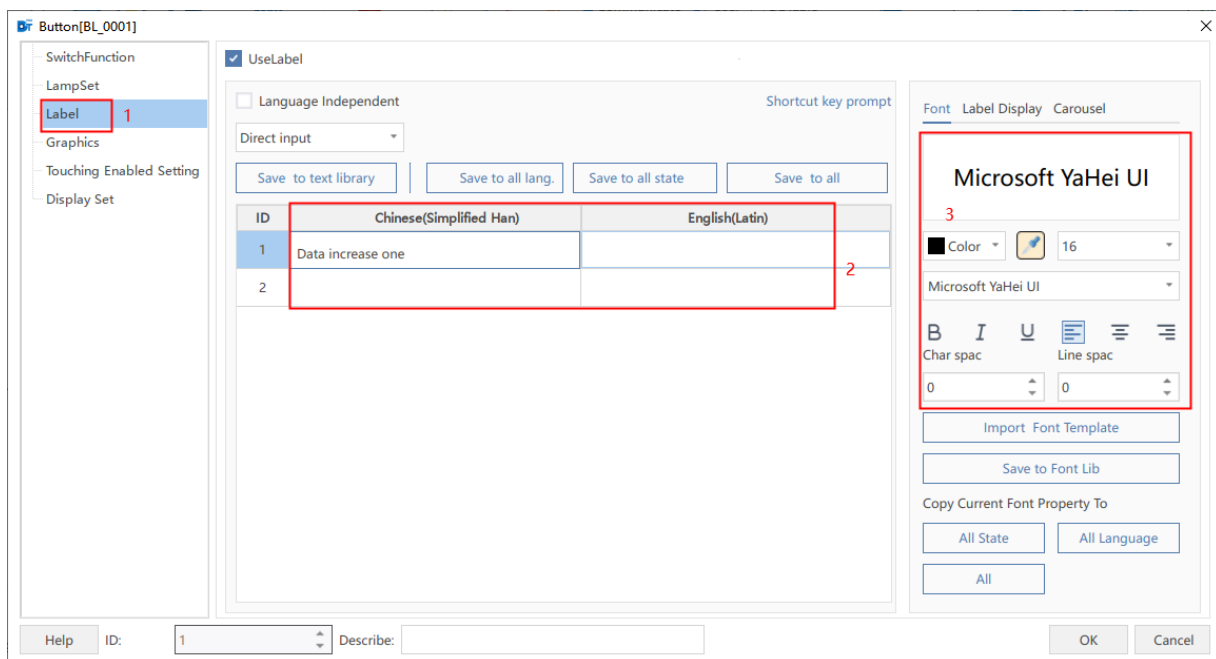
2. Set the data to be self-increasing, as follows :

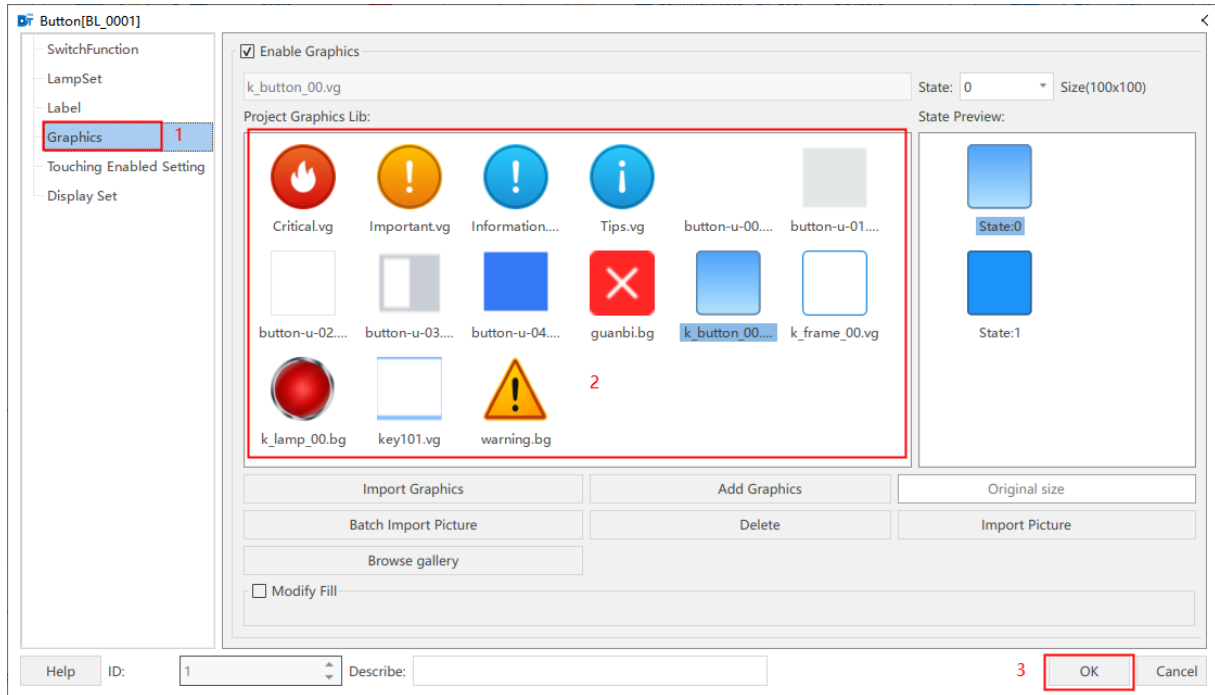
First, execute the setting to select the recurrence, select the variable (the variable selection window will pop up), select the external variable in order - Device 1 - confirm the variable to be bound (double click to confirm). Finally, set the additive value and the upper limit value, and click "OK".



3. Set the button labels and graphics as shown in the following figure:

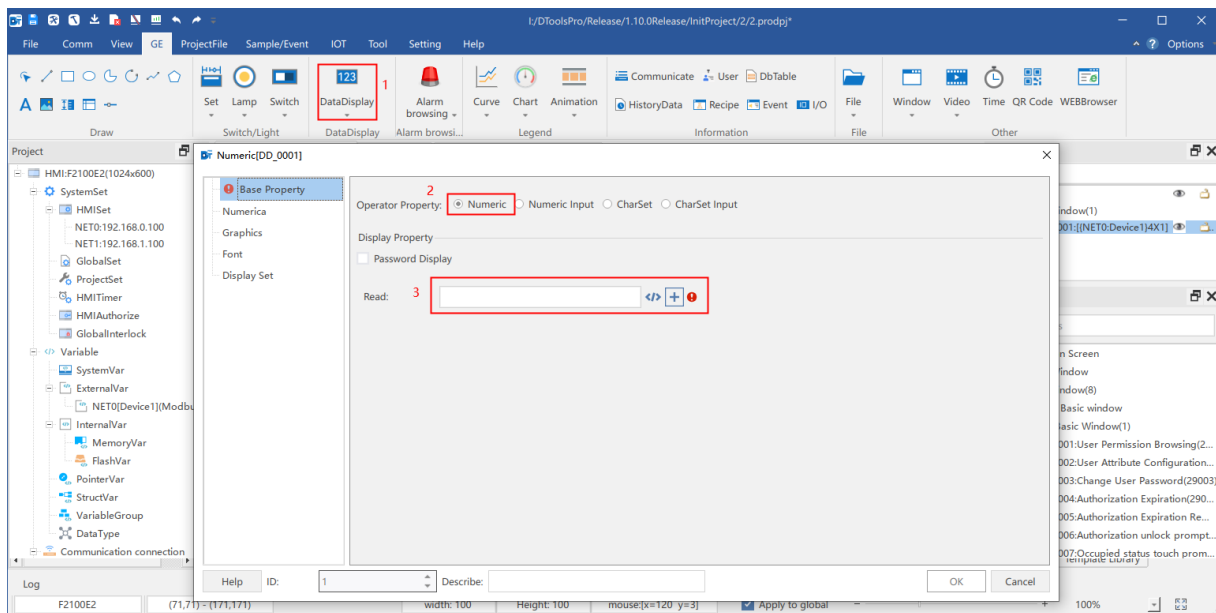
Click on the label, set the name to "Data increase 1", save content to All State, and finally set the font and font size. Click on the "Graphics", select the graph, and click "OK".



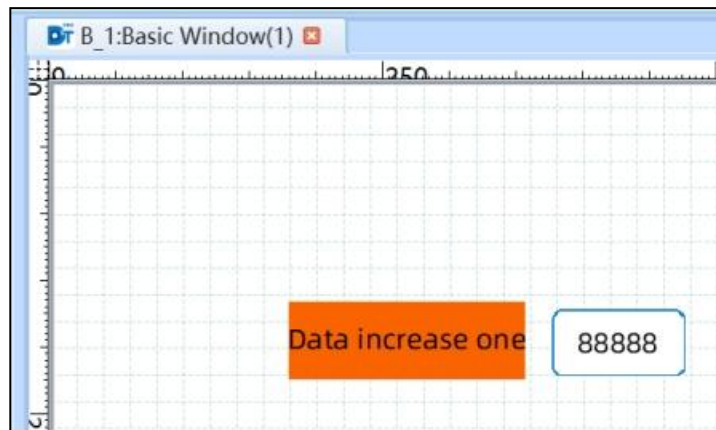


4. Set the data display

Select Toolbar “Data Display”, set the “Numeric”, and the variables to be displayed.

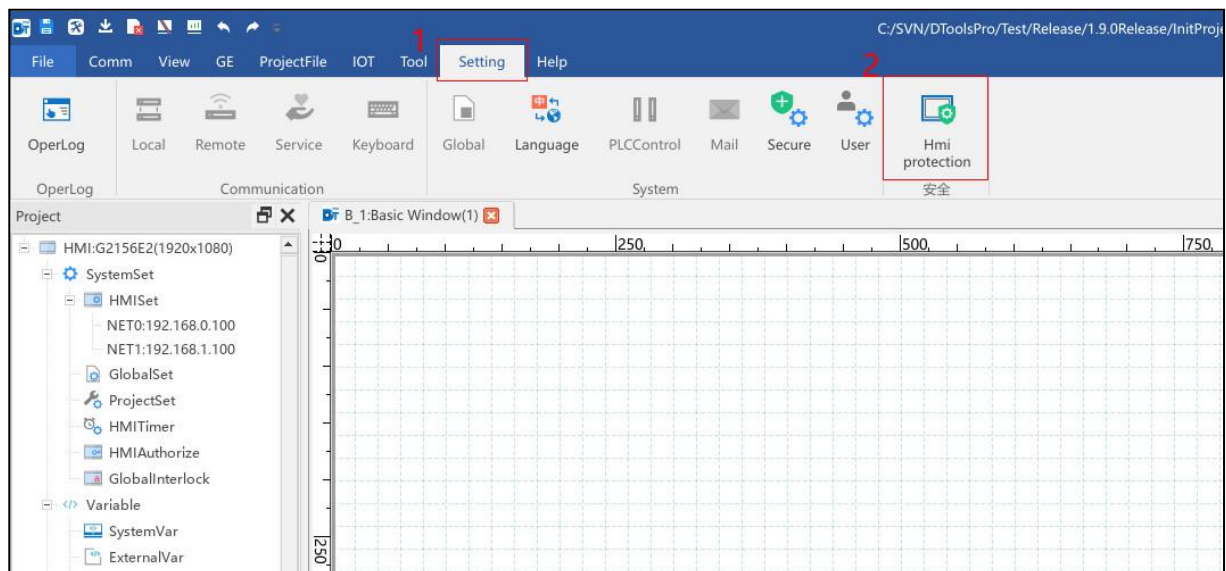


5. The screen after configuration



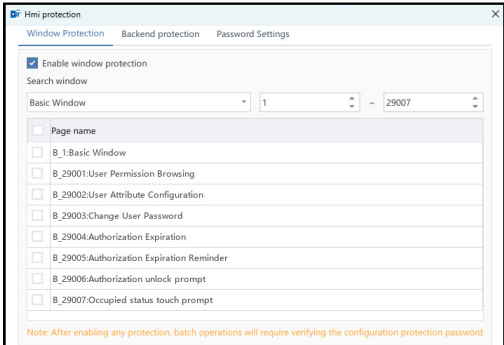
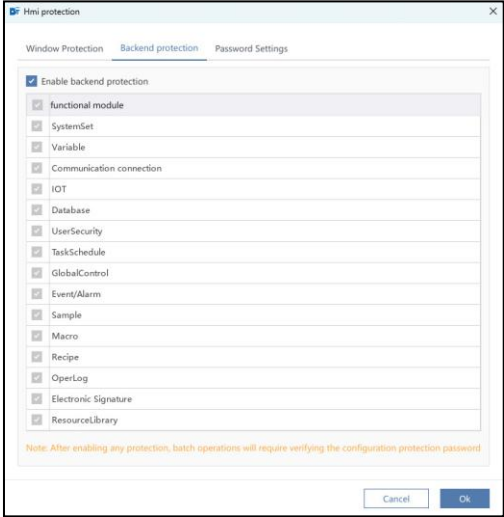
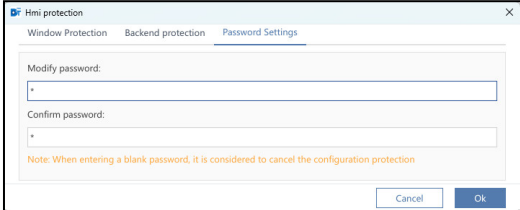
2.2.5 Configuration Protection

1. Click 'Settings' on the menu bar and select 'HMI Protection'.



2. You can set the password for the current project configuration editing, the next time you open this project to modify the editing need to enter the set password, enter the creation password and confirm the password, both passwords need to be consistent, click OK.



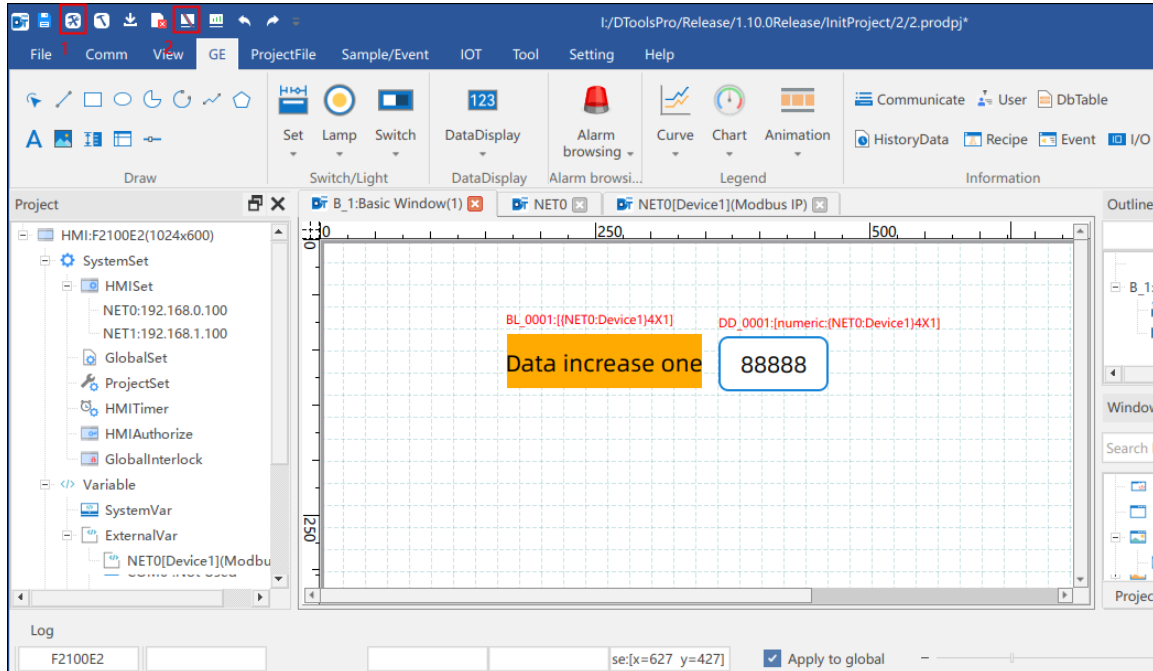
Configuration protection setting Descriptions		
Window protection 	Enable window protection	Ticked to configure the windows to be protected (only basic windows need to be protected, other types of windows can be configured normally).
	Search window	Window number search, enter the search number range, can display the search results within the search number range
	Window list	Possibility to tick windows to be protected
	Windows restriction	When window protection is enabled, operations such as opening windows, deleting windows, window properties, copying windows, renaming, etc. require password verification.
Backend protection 	Enable backend protection	When background protection is enabled, all background settings are ticked and users are prohibited from unchecking them.
	Backend restriction	After the configuration protection is set, double-click the engineering background to set the function module, password verification is required (component property shortcut entry into the background tab page, password verification is required)
Password protection 	Password change	If the project has enabled 'Configuration protection', you need to enter the password for verification, enter the correct password and click on the confirmation, you can change the password again (enter the password is empty, it is regarded as cancellation of the configuration protection).



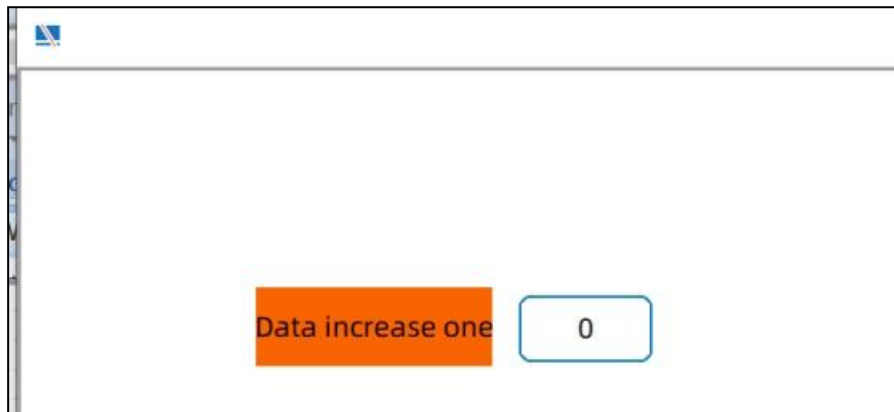
1. After opening the project, the password verification only needs to be entered once, and then if other protection is triggered, there is no need to repeat the password, and the normal operation will be carried out directly until the project is closed and then opened again to re-check.
2. After turning on any protection, batch operation requires password verification.
3. After setting the configuration protection password, please make sure to remember the password, otherwise you will not be able to modify and edit the project screen and background data.

2.3 Offline Simulation

1. Click "Compile" in the shortcut toolbar, and after successful compilation, click "Offline" and "OK", as shown in the following figure:



2. Offline screen

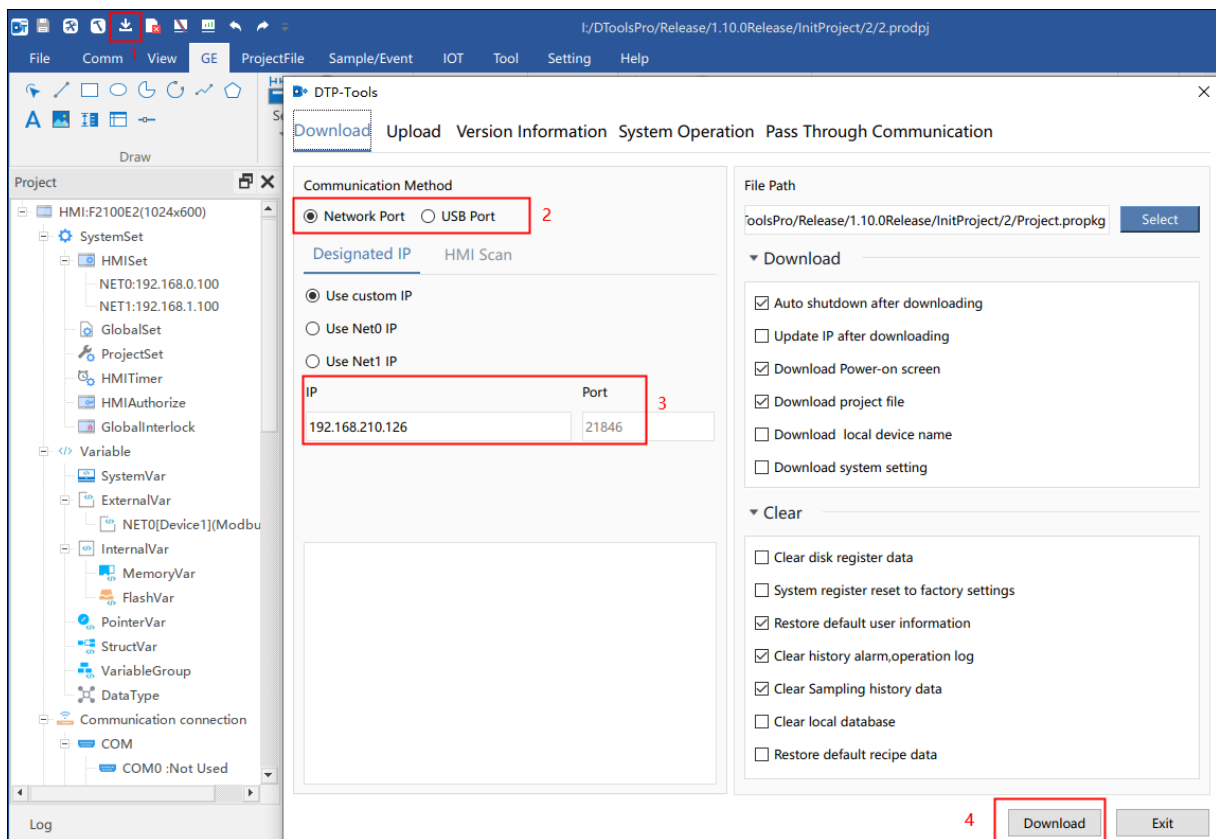


2.4 Download the project

2.4.1 Download project using computer

Select "Download" in the shortcut toolbar, select the network port in the pop-up window, then set the HMI device IP and port, and finally click "Download".

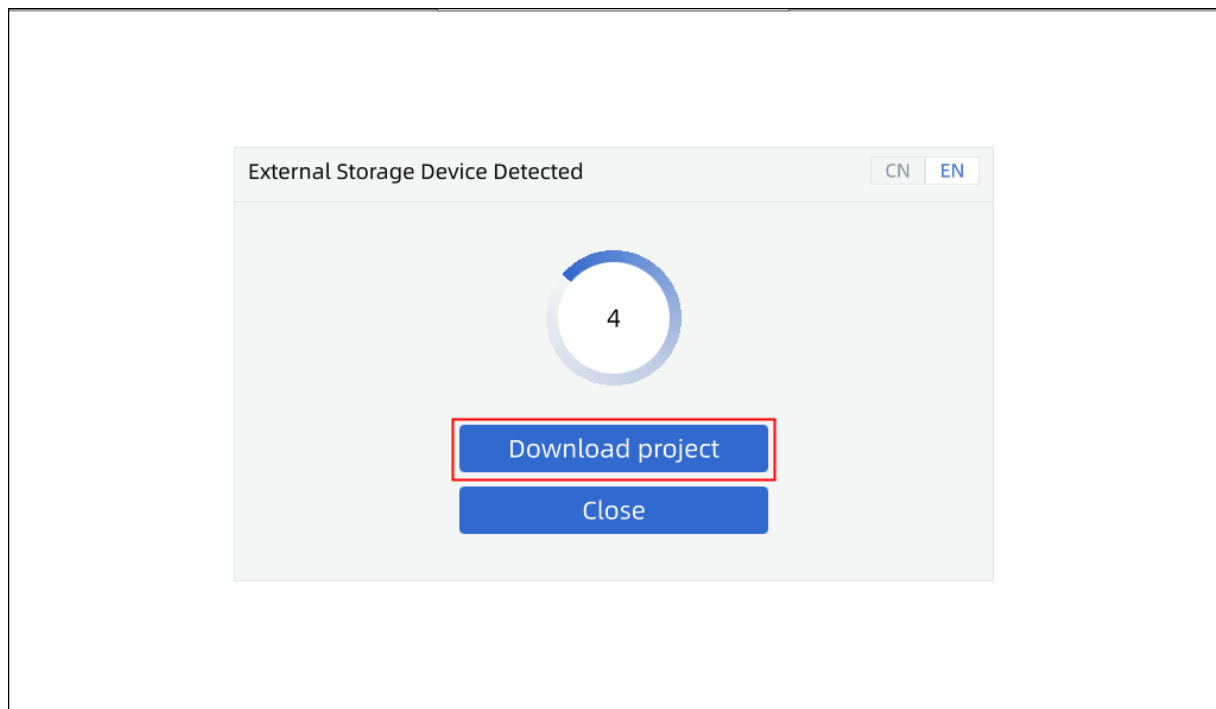
Note: The default IP address of HMI is: 192.168.0.253.



2.4.2 Download project using USB flash drive

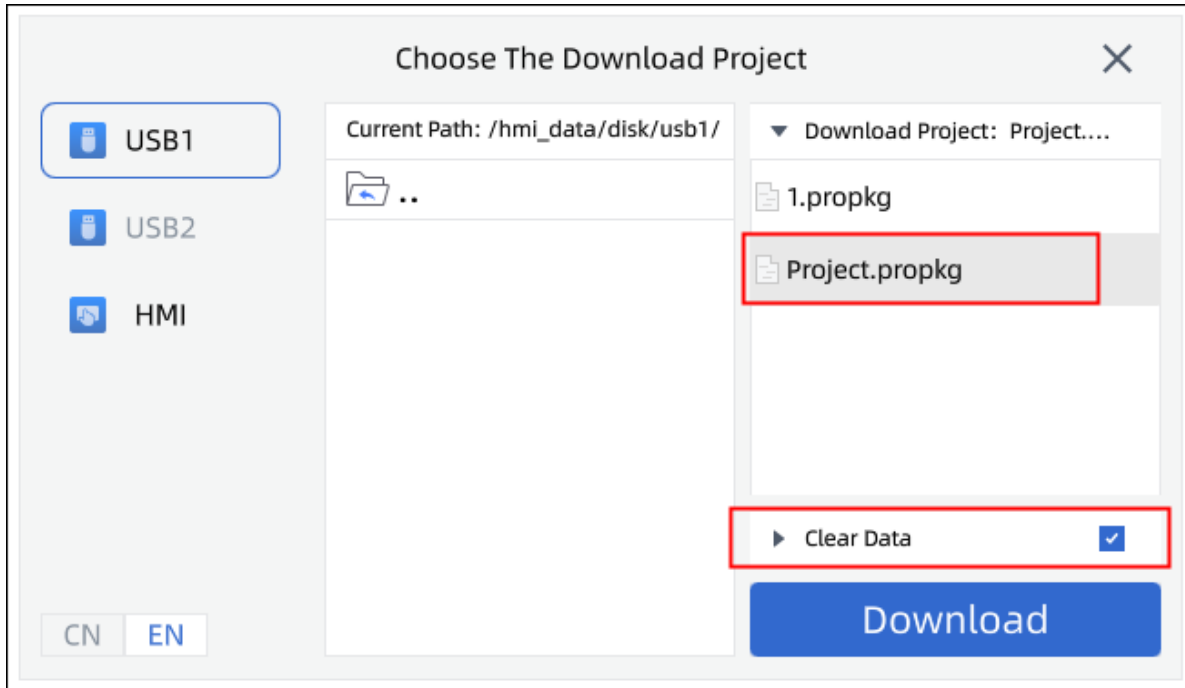
Supported versions for USB download: servo version ≥ 5277 , gui version ≥ 5405

After inserting the USB flash drive for 5 seconds, the following pop-up window will pop up.



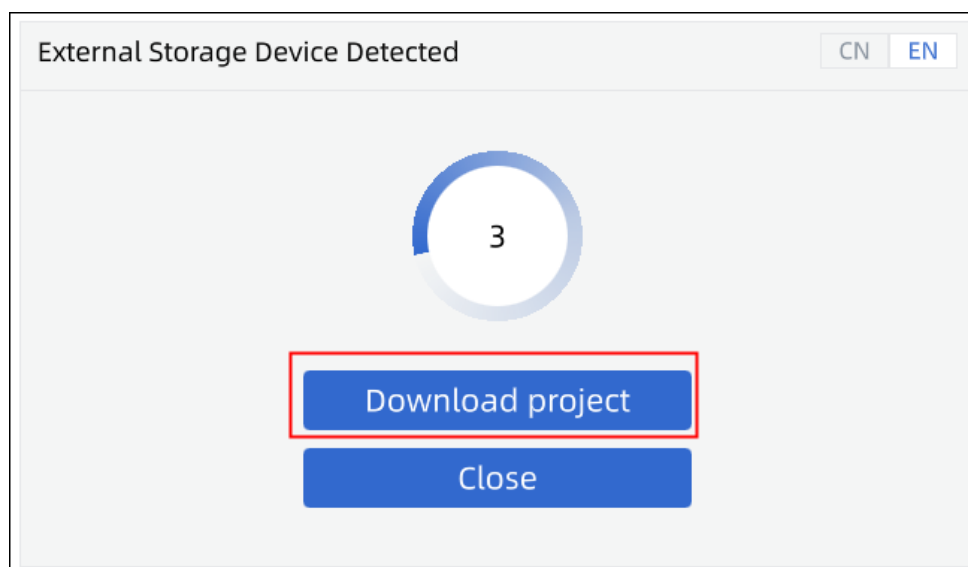
Click "download project". When there are multiple .propkg files in the root directory of the USB disk, and more than one file is different from the HMI, project selection interface will pop up. After selecting the .propkg file to be

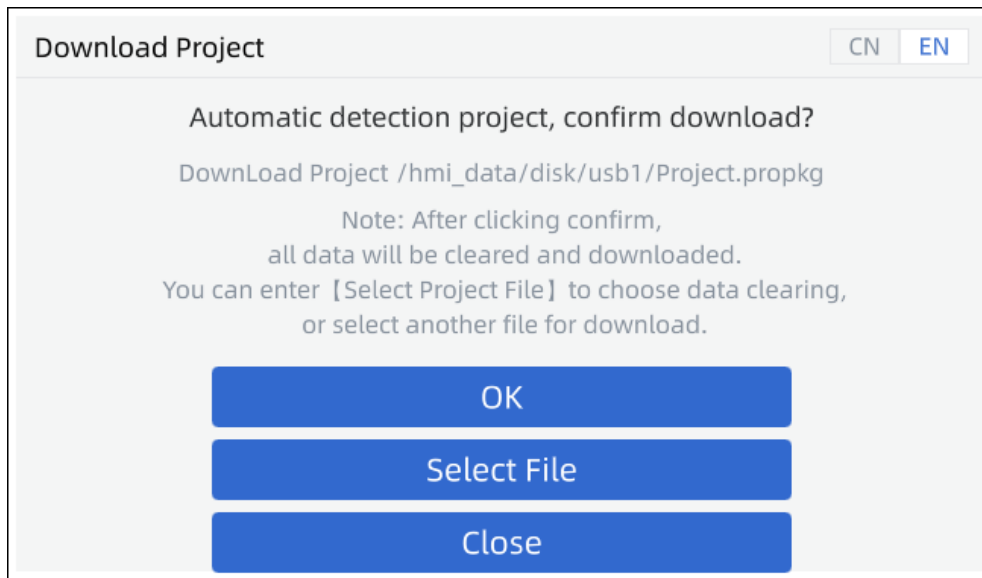
downloaded, the "Clear data" item is default all checked, you can click to expand the setting check options. After setting, click to download.



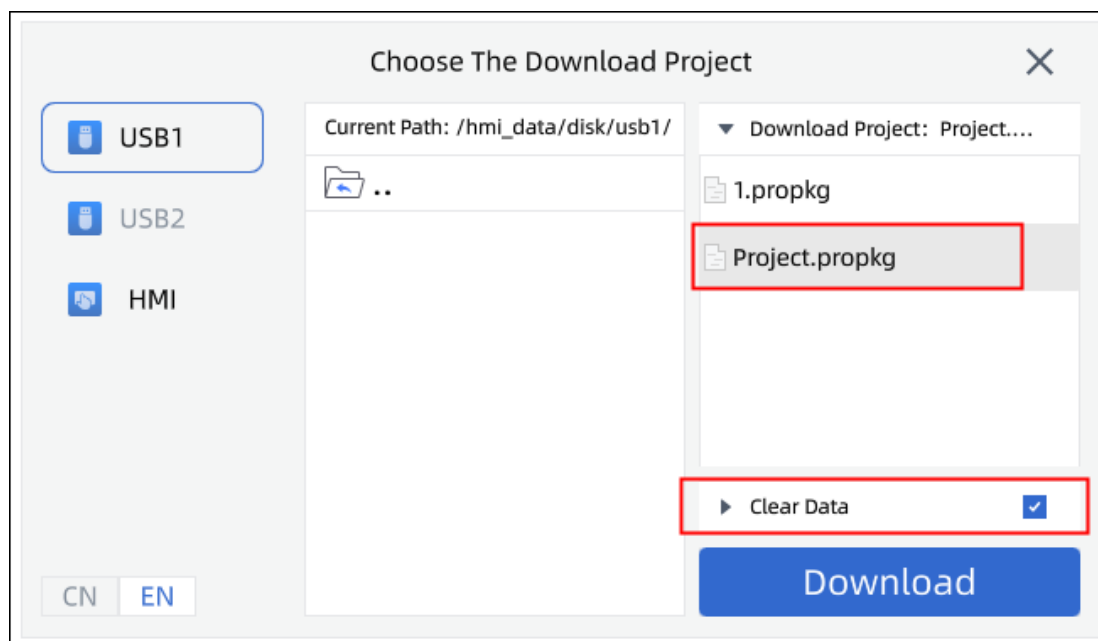
Note :

1. When the U disk is inserted to power up the screen/the computer downloads the project to the screen, the U disk download prompt box will not pop up. You need to manually remove and insert the USB flash to pop up the download prompt window.
2. When there is only one .propkg file is different from the project file in the HMI, after clicking " Download project", a prompt will appear saying "Automatically detect the project, confirm downloading/xxxx. Propkg". Click "OK" to automatically download the project. Click "Select File" to enter the project file selection interface



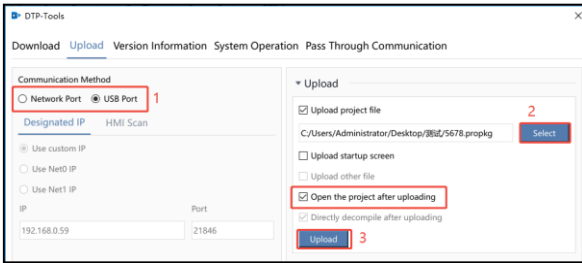
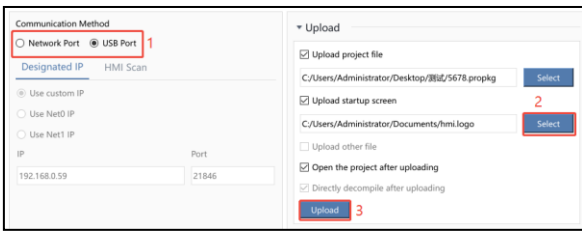


3. When the screen is the factory screen (after firmware update), insert a USB flash drive. If there is only one propkg file under the USB flash drive, the project file will be automatically downloaded directly. If there are multiple propkg files in the root directory of the USB flash drive, the download project selection interface will pop up.



2.5 Upload

Upload project files, startup screens, and other files in the HMI to the PC for easy access and to provide decompiled files for decompilation operations.

Upload Setup Descriptions		
Upload project file		1. Select upload method: network port or US
		2. Click "Select" to set the project name for the uploaded project (no project name suffix is allowed).
		3. You can choose whether to check "decompile directly after uploading" or not, please refer to 2.6 Decompile for detailed operation of decompile.
		4. You can choose whether to check "Open project after uploading". If checked, decompile directly after uploading. The check will be grayed out. After uploading the project, the uploaded project will be decompiled and opened directly.
		5. The upload operation will be executed only when the project is allowed to be uploaded and the password is entered correctly, the default password of the project: 888888
Upload startup screen		1. Select upload method: network port or US
		2. Manually check the box when uploading the startup screen (this box is unchecked by default)
		3. Click "Select" to set the file name for the uploaded startup screen (no file name suffix is allowed).

2.6 Decompile

The configuration screen edited by Altus DToolsPro is saved in the file format of .prodpj, and then compiled to generate the .propkg file required to run on the HMI and downloaded to the HMI, so the project file uploaded by the user from the HMI is a .propkg file, and if you want to open the editing of the project on the HMI by Altus DToolsPro, you need to decompile the .propkg file to generate a project folder through the decompilation process, and the project folder contains files such as .prodpj, and then finally use Altus DToolsPro to decompile a project folder containing .prodpj. If you want to use Altus DToolsPro to open and edit the project on the HMI, you need to decompile the .propkg file to generate a project folder, and the project folder contains .prodpj and other files, and then use Altus DToolsPro to open the .prodpj file for editing.

DTP-Tools

Download Upload Version Information System Operation Pass Through Communication

Communication Method

☐ Network Port ☒ USB Port

Designated IP HMI Scan

☒ Use custom IP

☐ Use Net0 IP

☐ Use Net1 IP

IP: 192.168.0.59 Port: 21846

Upload

☒ Upload project file

C:/Users/Administrator/Desktop, 5678.propkg

☒ Upload startup screen

C:/Users/Administrator/Documents/hmi.logo

☐ Upload other file

☒ Open the project after uploading

☒ Directly decompile after uploading

Decompile

Decompile

e:/1.10.0Release/InitProject/ /Project.propkg 1

☒ Open the project after decompiling

Save path

z:/1.10.0Release/InitProject/ '123/123.prodpg 2

3 ☐ Save to decompile folder

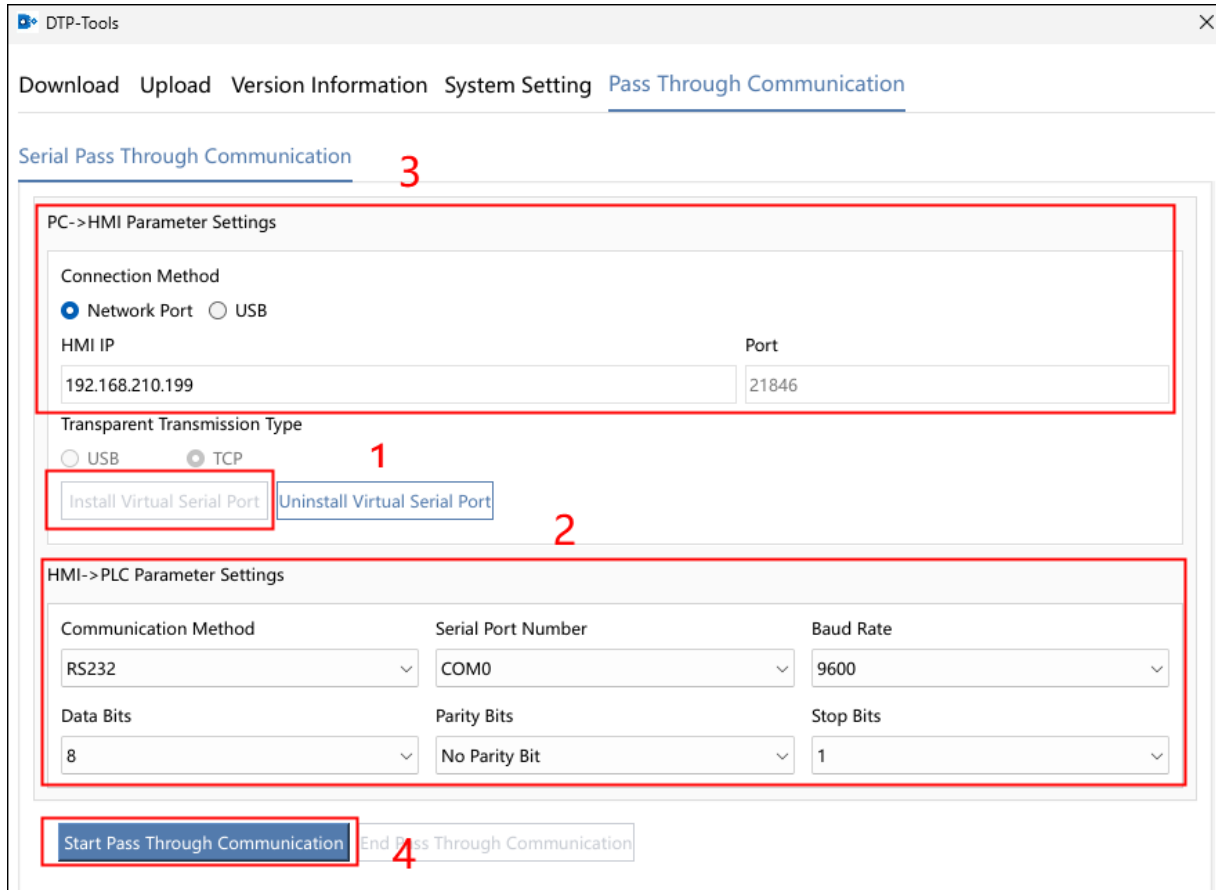
Decompiling Settings Description	
Decompile	Click the "Select" button of decompile, select the project file to be decompiled.
	Click on the "Decompile" button to decompile the program.
	Allow the project to decompile and the password is correctly entered, then the decompile operation will be executed, the project's default password: 888888
Save path	Click the "Select" button of the save path, and select the save path of the folder to be decompiled.
Save to decompile folder	Show this option if the path to the decompile file is not empty
	After executing the decompile operation, a subfolder with the same name as the decompile file is generated under the current path of the decompile file, this folder contains the folder of the project resources and the executable file of the host computer.
Open the project after decompiling	After decompilation is completed, open the decompiled project directly.

2.7 Pass Through Communication

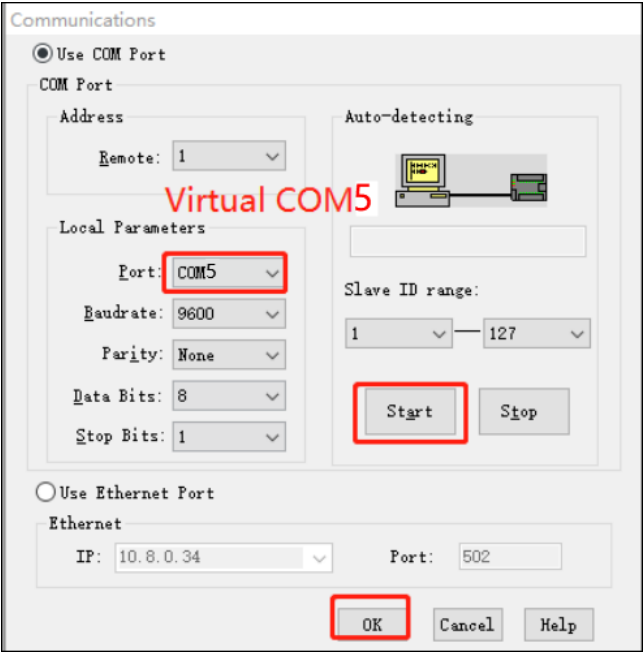
Serial Pass Through Communication function: When the screen and PLC are connected for communication through a serial port, the virtual serial port can be used to upload and download projects to the PLC through the screen.

As shown in the following steps:

1. Open DTP-Tools and click Install Virtual Serial Port. After successful installation, you will see the virtual serial port number COM5.
2. Set the communication parameters of the screen and PLC
3. Set the connection between the screen and DTP-Tools (PC), available network port or USB
4. Click "Start pass through communication" (Note: The communication between the HMI and the PLC will be disconnected during transmission. After downloading the PLC, remember to click to end the transmission communication and restore the communication between the screen and PLC)



5. Open the PLC software and set the online mode as the virtual serial port number COM5. After the detection equipment is successful, you can upload and download the PLC.

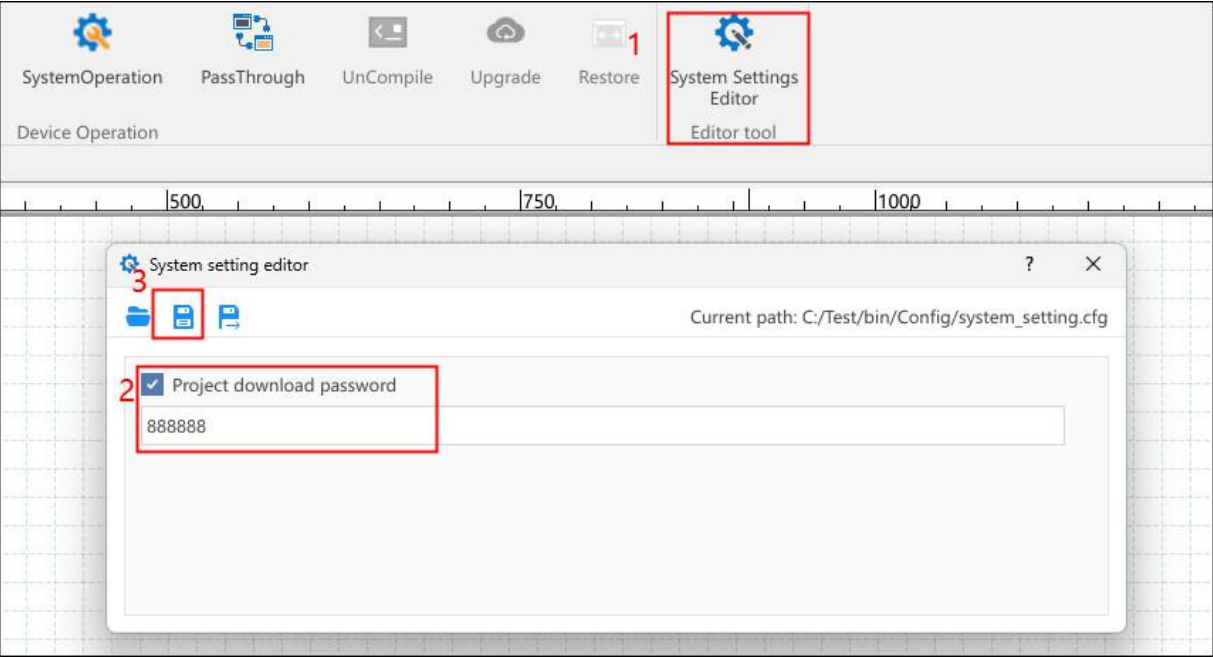


2.8 Project download password protection

Download password protection for HMI settings prevents user projects on the HMI from being overwritten by unauthorized operations.

- Configure download password

[Tools]-[System Settings Editor], check [Project download password], and save to download.



System Settings Editor Descriptions

	Open the configuration file
	Save the current configuration file. The default save path for the first time is the config folder under the root directory.



Save the current configuration file to another path.

- Use download password

To use the download password function:[Tools]—[System Settings Editor], check[Project Download Password], save the settings and then download.

DTP-Tools

Download Upload Version Information System Setting Pass Through Communication

Communication Method

☒ Network Port ☐ USB Port

Designated IP HMI Scan

☒ Use custom IP

☐ Use Net0 IP

☐ Use Net1 IP

IP: 192.168.0.100 Port: 21846

File Path

C:/Test/bin/InitProject/下载/Project.propkg Select

Download

☐ Auto shutdown after downloading

☐ Update IP after downloading

☐ Download Power-on screen

☒ Download project file

☐ Download local device name

☒ Download system setting

System setting path

C:/Test/bin/Config/system_setting.cfg Select

Clear

☒ Clear disk register data

☐ System register reset to factory settings

☒ Restore default user information

☒ Clear history alarm,operation log

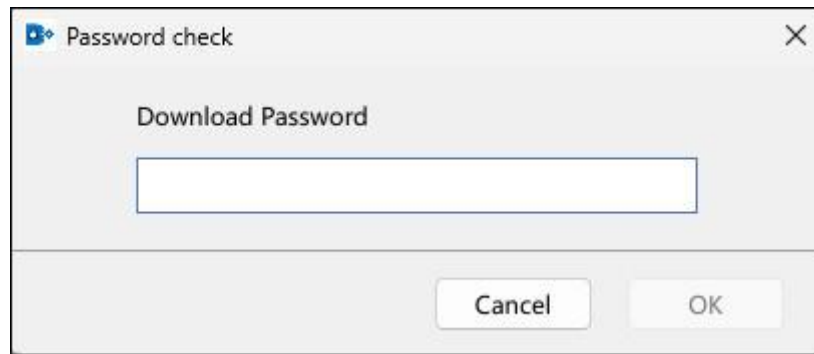
☒ Clear Sampling history data

☒ Clear local database

☒ Restore default recipe data

5 Download Exit

When the configuration settings running on the HMI have been set to use a download password, a “Password Check” pop-up window will appear when the user downloads the project to the HMI again, as shown in the figure below. If the password is entered incorrectly, a password error prompt will appear. Only when the password is entered correctly can the project be downloaded to the HMI.



1. When a “download password” is set in the HMI, clicking the download button again (including download options such as startup screen, project, clear data, etc.) will trigger a download password verification, popping up a “password check” window. Only after the password is entered correctly can the corresponding action be performed on the HMI.

2. Supports downloading configuration files only, but **【Download Configuration Files】** and

【Download Startup Screen】 cannot be selected for download at the same time.

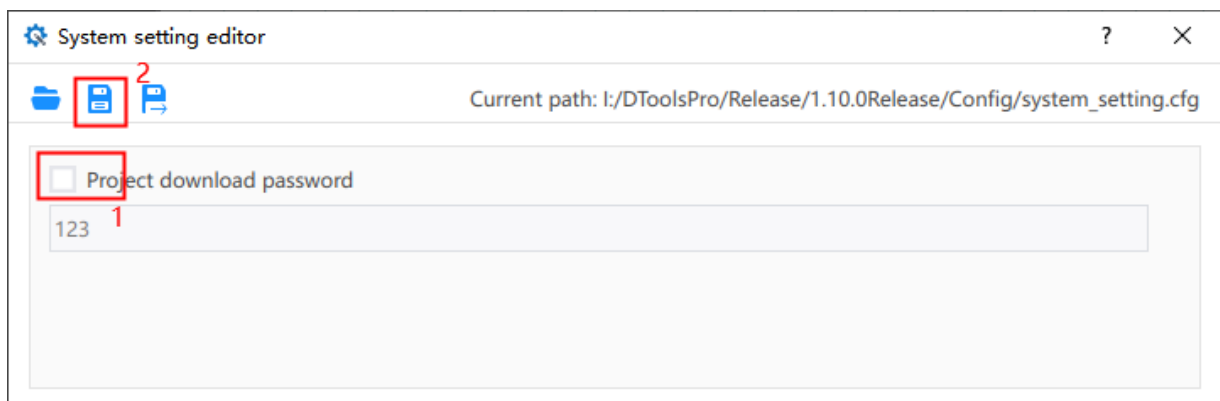
3. USB flash drive downloads do not currently support this feature.

4. After setting the download password, please remember it carefully, otherwise it will cause the corresponding HMI operation to fail, and you will need to re-update the HMI firmware to remove the download password.

- Disable download password

Method 1

- 1) Unchecked Project Download Password in the System Settings Editor.
- 2) Save the configuration file.



3) When downloading, select this configuration file to download to the HMI. After the new configuration file is downloaded to the HMI, the download password verification dialog will no longer appear for subsequent downloads, and users can download the project directly to the HMI.

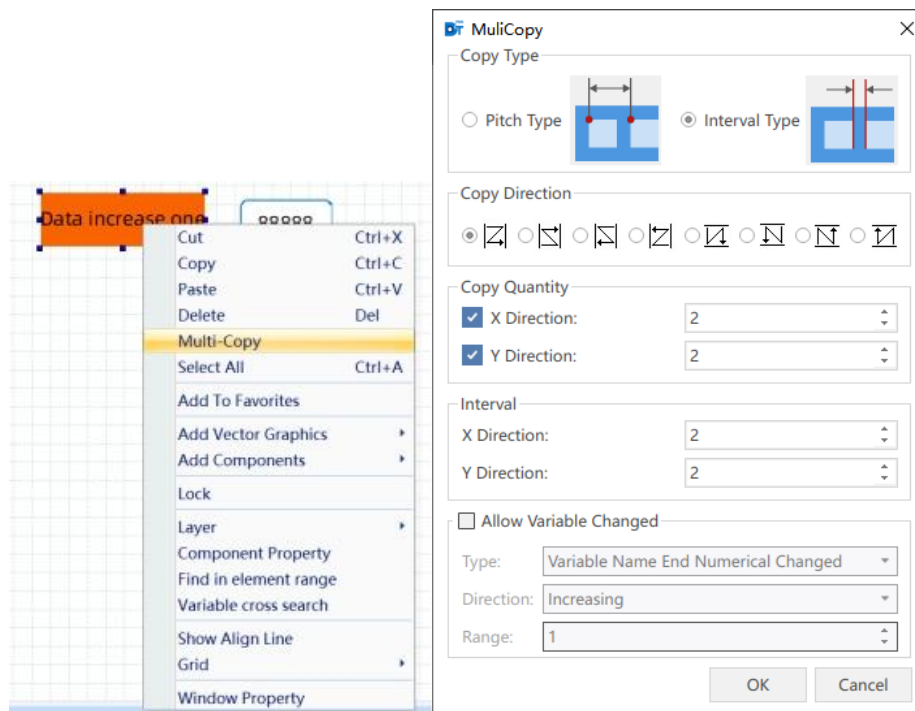
Method 2

Updating the HMI firmware can also disable the download password.

3 Basic Operations

3.1 Multiple replication

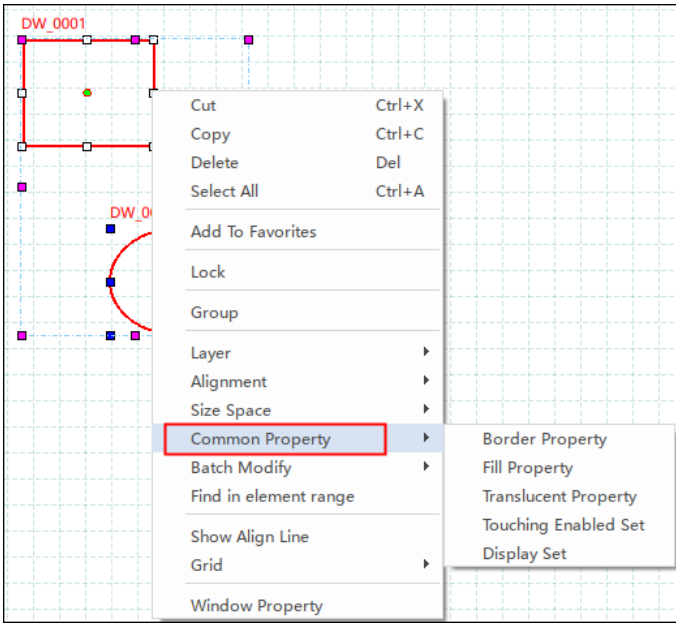
Right-click "Multi-Copy", you can set the copy type, quantity, spacing and interval according to the regularity to get multiple elements.



Multi-copy setup Descriptions		
Copy Type	Interval type	Start copying from the right outer frame of the component
	Pitch type	Start copying from the first point in the top left corner of the component
Copy Direction	Support 8 kinds of direction selection	The direction of address increment is the same as the direction of serial number increment
Copy Quantity	Number of copied elements.	You can set the number of duplicate elements in the X and Y directions, or set only one direction separately.
Interval	X/Y direction	Spacing between copied elements, in pixels
Allow variable Changed	Variable Name End Numerical Changed	Increasing or decreasing, ranging from 1 to 999
	Array Variable Index Changed	Increasing or decreasing, ranging from 1 to 999
	Variable Offset Changed	Increasing or decreasing, ranging from 1 to 999

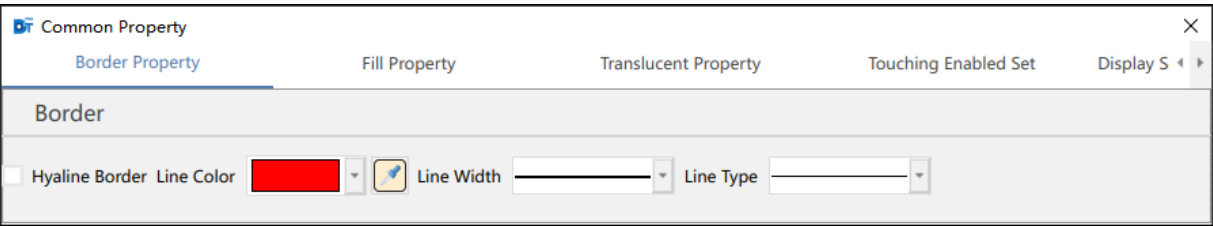
3.2 Common Property

When the selected elements have the same property, you can set the selected elements to the same property at the same time through the public property interface and it will take effect in real time. After selecting a component, click the right mouse button on the public property, and the property displayed at this time is the common property of the selected component. These include border property, fill property, shadow property, translucent property, arrow property, label data, font property, walking lantern, Touching Enabled Set and Display Set.



Note: Common property only supports basic operations on non-table elements. If there are elements in the selected component that do not support public property, the right mouse button will not display the public property item.

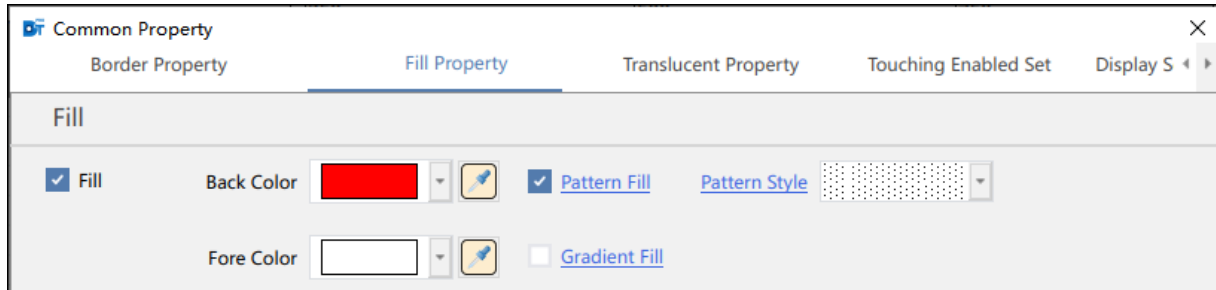
3.2.1 Border property



Description of the border property	
Hyaline Border	Effective when checked, i.e., elements that support transparent borders are displayed without borders when checked
Line color	Set the border color, the color picker can absorb all the colors on the computer screen at this time
Line Width	Set the line width of the border
Line Type	Set the line type of the border
Note:	

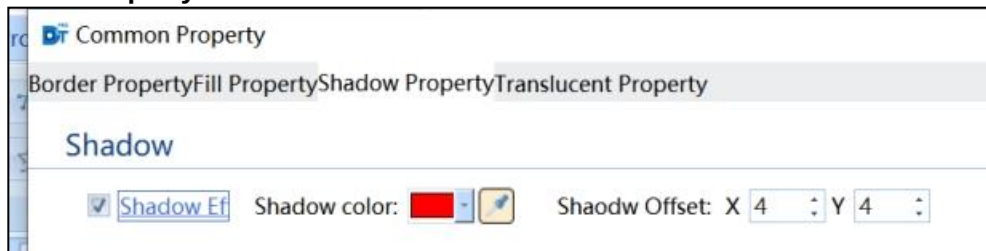
1. When the initial property of the selected elements are not consistent, the relevant items in the public property are not checked or displayed as empty
2. The text of the corresponding attribute will be underlined in blue after the attribute is modified
3. Properties will take effect immediately after modification

3.2.2 Fill Property



Description of fill property	
Fill	Effective when checked, that is, support for filling elements can be set after checking the fill style
Back Color	Set the background color of the fill, the color picker can absorb all the colors on the computer screen at this time
Fore Color	Set the fill foreground color, the color picker can absorb all the colors on the computer screen at this time
Pattern Fill	Effective when checked. It can combine background color, foreground color and select pattern style for filling
Gradient Fill	Effective when checked. It can be combined with background color, foreground color, gradient type, and gradient effect to fill

3.2.3 Shadow Property



Description of shadow property	
Shadow Effect	Effective when checked, i.e. set the component shadow effect
Shadow Color	Set the component shade color, the color picker can absorb all the colors on the computer screen at this time
Shadow Offset	Set the component shading offset value. Offset value range: 0~16

3.2.4 Translucent Property

Common Property

Border Property Fill Property **Translucent Property** Touching Enabled Set Display S

Translucent

☒ Translucent transparency 50

Description of Translucent Property

Translucent	Effective when checked, you can set the translucent value of the component
Transparency	Set component translucency value, translucency value setting range: 0~99

3.2.5 Arrow Property

Common Property

Border Property **Arrow Property** Display Set

Arrow

☒ Arrow Arrow Type ←

Description of Arrow Property

Arrow	Effective when checked, you can set arrow properties for the elements that support arrow property
Arrow Type	Set component arrow style, translucent value setting range: 0~99

3.2.6 Label Data

Common Property

Translucent Property **Label Data** WalkingLantern Touching Enabled Set Display S

☒ UseLabel ☐ Language Independent Cur Language English(Latin) Cur State State1

Text Type Direct input

Content test

☒ Auto Extend By Content ☐ Set Label Position By Language Or State

Font Property

Microsoft YaHei UI 16 Line spac 0 Hor Center

☐ Bold ☐ Italy ☐ Underline Multi-line align Align Left Char spac 0 Ver Center

Description of Label Data	
Use Label	Effective when checked, you can set arrow property for elements that support arrow property
Language independent	Effective when checked, labels do not change with language switching
Current Language	Labels can be set in different languages
Current State	Set the current status of the configuration screen, which is consistent with [Status/Language] under General
Text Type	1. Can choose to directly input or associated text library, the following [content] display label data 2. Can choose the component size according to the content of automatic expansion 3. Can choose the language and state but with the setting of the label position
Font Property	Set font property such as label font, font size, color, etc.
Shadow	Effective when checked, you can set the label shadow, the range of the shadow is 0 ~ 16

3.2.7 Font Property

Font properties such as font, font size, and color can be set for the component.

3.2.8 Walking Lantern

Description of Walking Lantern	
Walking Lantern	Effective when checked. You can set the direction, step length, and speed of the Walking Lantern
Out of range is displayed as a walking lantern	Effective when checked. Labels beyond the component range are displayed as walking lantern
Other	1. When the initial property of the selected elements are not consistent, the relevant item in the public property is not checked or displayed as empty and the relevant font is displayed in black. 2. The text of the corresponding property is displayed in blue with underline after the property is modified 3. The property will take effect immediately after modification.

3.2.9 Touching Enabled Set

Touching Enabled Set Descriptions

Touching Enabled Set	Always Valid	Checking indicates that a touch in the active area of the current component can effectively write status values or data to the specified registers.
	Always Invalid	Checked to indicate that status values or data cannot be validly written to the specified registers even if the current element is touched in the valid area of the touch.
	Conditional Enabling	Permission Control: Check to indicate that the operator's user privileges must simultaneously satisfy the multiple privileges checked for the component in order to touch the current component and write status values or data to the specified registers.
		Auto show login window: Check this box to indicate that when the current user's permission ID does not meet the set permissions, the password input window provided by the system will be automatically popped up for the user to input the password in order to log in.
Express Control: Check to indicate that the current element can be touched and the status value or data can be written to the specified register only when the status of the specified bit register or word register satisfies the set condition. (false status in effect means valid when the condition is not met)		
Show Invalid Tag		Check this box to indicate that the component displays the invalid marker when the component is currently in the invalid touch state.
Display Grayscale Font		Check this box to indicate that the component label is grayed out when the current component is in the touch invalid state.
Security	MinPushDurati	The current element must be pressed continuously for a period of time not less

Setting	on	than the set time before the status value or data can be effectively written to the specified register. The minimum unit is 100 milliseconds, and 0 means that the minimum press time is not set.
	OperConfirm wait	The check box indicates that the HMI will automatically pop up the operation confirmation window when touching the current component, and the status value or data will be written to the specified register only when clicking "OK", and the operation will be canceled automatically when clicking "Cancel" or exceeding the set [Waiting Time] and the user does not confirm the operation with "YES". When "Cancel" is clicked or the set [Waiting Time] is exceeded and the user does not confirm with "YES", the operation will be canceled automatically. (You can add the ability to record the change of data in a register when pressed.)
	MinPushInterval	Minimum time interval between two operations of the same component, the minimum unit is 100 milliseconds, 0 means do not set the minimum time interval of the operation

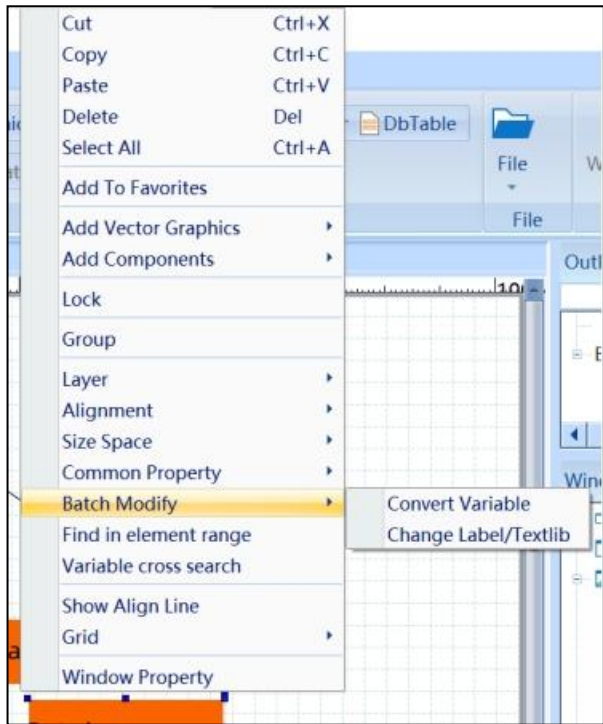
3.2.10 Display Set

Display Set Descriptions

Display Set	Always Display	Checked to indicate that the current component is always displayed
	Condition Display	Do not communicate when element is hidden: when the variable used by the element is an external variable, check this option and the element will not communicate when it is hidden
		False state work: in case of an error status
		Authority Control: Check to indicate that the operator's user privileges need to meet the multiple privileges checked for the component in order for the current component to be displayed.
		Express control: check to indicate that the current component will be displayed only when the status of the specified bit register or word register satisfies the set condition (false status in effect indicates that it is displayed when the expression is not satisfied)

3.3 Batch Modify

Batch Modify includes the Convert Variable function、Change Label/Text Lib、Touching Enabled Set and Display Set function. Select multiple elements, right-click, and you will see the "Batch Modify" option, you can choose "Convert Variable" or "Change Label/Textlib".
If the selected component does not contain a label, right-click will only display the " Convert Variable " function.



3.3.1 Convert variable

Right-click on "Batch Modify" and select "Convert Variable" to bring up the boxes for converting variables, which contain variable information for all boxed elements.

Bach Modify

Convert Variable

Change Label/Textlib

Touching Enabled Set

Display Set

Convert Window

☒	ID	Variable To Convert	Variable After Convert		Location	Name
☒	0	{NET0:Device1}0X1	{NET0:Device1}0X1	</> +	B_1:Basic Window(1)-SB_0001	Switch-Read and Write Variable
☒	1	{NET0:Device1}0X1	{NET0:Device1}0X1	</> +	B_1:Basic Window(1)-SB_0002	Switch-Read and Write Variable

☐ Allow Variable Changed

Batch Modify

Cancel

OK

Description of Converting variable	
Variable to convert	Variables associated with the current component
Variable after convert	The initial variables are the same as "Variable to convert". Clicking "Variable after convert" will bring up a variable selection box, which can be modified to other allowed variable types, and then click "Convert" to take effect.
Location	Location of the associated variable element

Name	Information about the component corresponding to the variable
Allow Variable Changed	Check multiple variables of the same type, and the "Allow Variable Changed" checkbox will appear at the bottom. The modification conditions include "Type", "Direction" and "Range", which are consistent with the "Allow Variable Changed" function in multiple replication, please refer to 3.1 Multiple replication for details.
Batch Modify	Check multiple variables with the same allowable variable type, and the "Batch Modify" button will appear at the bottom. After clicking it, the variable selection box will pop up, showing the allowable variable types. After you select the variables, you will modify the checked variables in batch according to the settings in "Allow Variable Changed".

3.3.2 Change Label/TextLib

Right-click on "Batch Modify" and select "Change Label/TextLib" to bring up the box, which contains the label information for all boxed elements.

Batch Modify

Convert Variable **Change Label/TextLib** Touching Enabled Set Display Set Convert Window

	Location	Name
☒		
☒ 0	B_1:Basic Window(1)-SB_0001	Switch-Label
☒ 1	B_1:Basic Window(1)-SB_0002	Switch-Label

Language: Chinese(Simplified Han) State: State 1

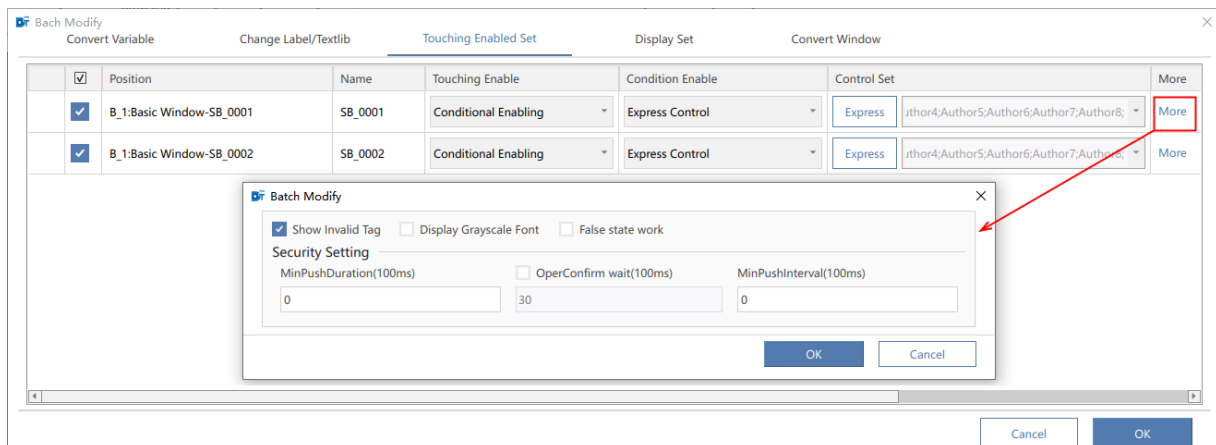
Text Type: Direct input

test

Cancel OK

Description of changing Label/TestLib	
Location	The location of the component corresponding to this label
Name	Information about the elements corresponding to this label
Language	You can set the content of the component under each language. If the component is checked for language irrelevant, you can gray out the checkbox
State	You can set the content of each state of the component. if the component has only one state, this item is not displayed
Text Library	Text type select "Use Text Library" will show the current text library, you can select other text libraries.
Text Type	You can select "Direct Input" or "Use Text Library". Note that "Use Text Library" can only be selected if there is content in the project text library.
Content	You can modify the contents of the corresponding settings. If you select "Use Text Library", the text library content will be displayed.

3.3.3 Touching Enabled Set



Touching Enabled Set Descriptions

Position	This label corresponds to the location of the component		
Name	Component information corresponding to this tag		
Touching Enable	Click on the drop-down box to select Always Active, Always Inactive and Conditionally Enabled		
Condition Enable	Permission Control		A check indicates that the operator's user privileges need to satisfy more than one of the component's checked privileges before the current component can be touched and status values or data can be written to the specified registers.
	Express Control		Check indicates that the current element can be touched and the status value or data can be written to the specified register only when the status of the specified bit register or word register satisfies the set condition. (false status in effect means valid when the condition is not met)
	Permission & Express Control		The current element can be touched and the state value or data written to the specified register only when both the permission control condition and the expression control condition are satisfied.
Control Set	Click the drop-down box to set expression control or permission control		
More	Click "More" to bring up the Logo Settings screen and Security Settings screen.		
	Show Invalid Tag		Check this box to indicate that the component displays the invalid marker when the component is currently in the invalid touch state.
	Display Grayscale Font		Check this box to indicate that the component label is grayed out when the current component is in the touch invalid state.
	Auto show login window		Check the box to indicate that when the current user privilege ID does not meet the set permissions, the password input window provided by the system will automatically pop up for the user to enter the password to log in.
	Security Setting	MinPushDuration	The current element must be pressed continuously for a period of time not less than the set time before the status value or data can

			be effectively written to the specified register. The minimum unit is 100 milliseconds, and 0 means that the minimum press time is not set.
		OperConfirm wait	The check box indicates that the HMI will automatically pop up the operation confirmation window when touching the current component, and the status value or data will be written to the specified register only when clicking "OK", and the operation will be canceled automatically when clicking "Cancel" or exceeding the set [Waiting Time] and the user does not confirm the operation with "YES". When "Cancel" is clicked or the set [Waiting Time] is exceeded and the user does not confirm with "YES", the operation will be canceled automatically. (You can add the ability to record the change of data in a register when pressed.)
		MinPushInterval	Minimum time interval between two operations of the same component, the minimum unit is 100 milliseconds, 0 means do not set the minimum time interval of the operation

3.3.4 Display Set

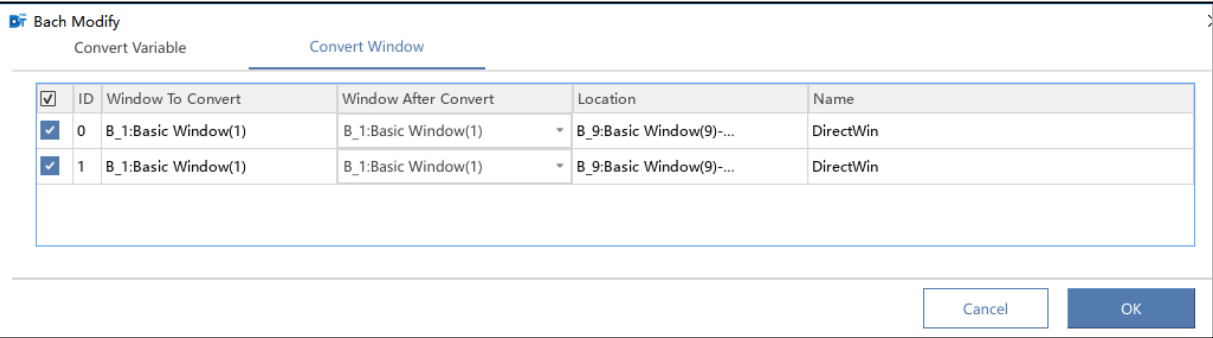
Display Set Descriptions

Position	This label corresponds to the location of the component	
Name	Component information corresponding to this tag	
Touching Enable	Click on the drop-down box to choose between Always and Conditional Display	
Condition Enable	Permission Control	Checking indicates that the operator's user permissions need to satisfy more than one of the component's checked permissions in order for the current component to be displayed
	Express Control	Checked to indicate that the current component will be displayed only when the status of the specified bit register or word register satisfies the set condition (false status in effect indicates that the expression is displayed when it is not satisfied)
	Permission & Express Control	The current component is displayed when both permission control conditions and expression control conditions are met.
Control Set	Click the drop-down box to set expression control or permission control	
More	Do not communicate when hidden	When the variable used by the component is an external variable, check this option so that the component will not communicate when it is hidden.

	False state work	Effective on error status
--	------------------	---------------------------

3.3.5 Convert Window

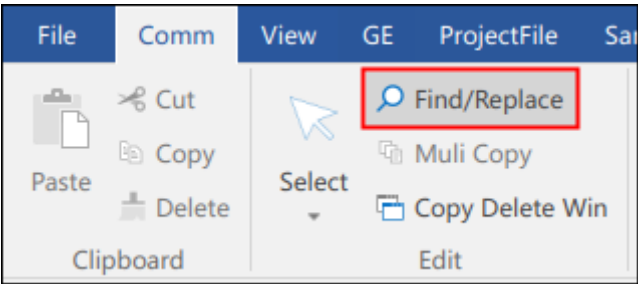
Right-click "Convert Variable" and select "Convert Window" to pop up the conversion window box, which contains the window information of all selected components;



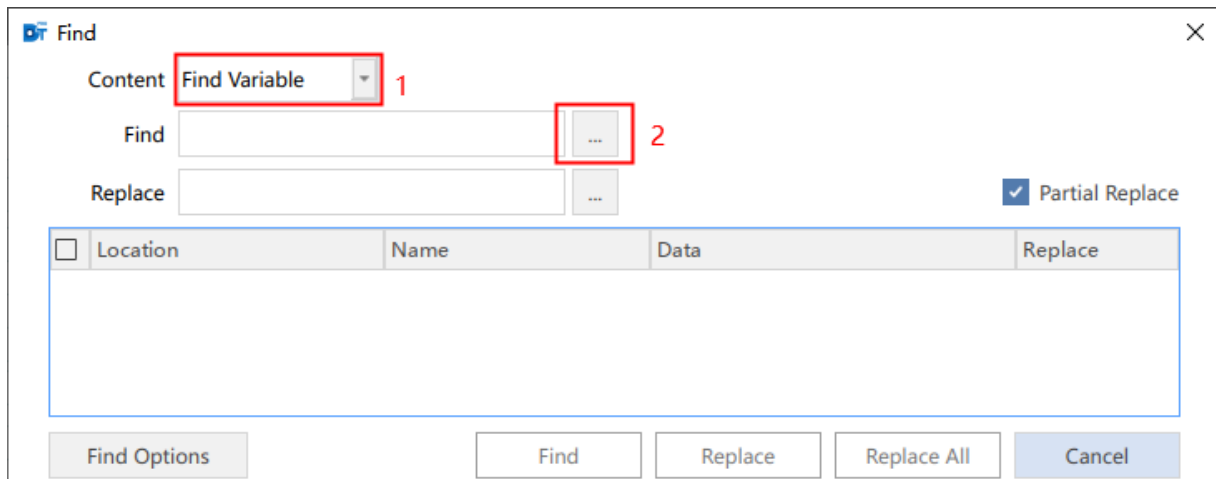
Convert window settings Descriptions	
window to conversion	The window associated with the current component does not support modification.
window after conversion	The initial value is the same as the "window to conversion". The "window after conversion" can be modified through the drop-down box and fuzzy search. After modification, click "OK" to take effect.
Location	The position associated with the window component
Name	Component information corresponding to the window
Component range	Direct window, print window, window operation-switch, pop-up, close window, input component-keyboard properties-specify keyboard window

3.4 Find/Replace

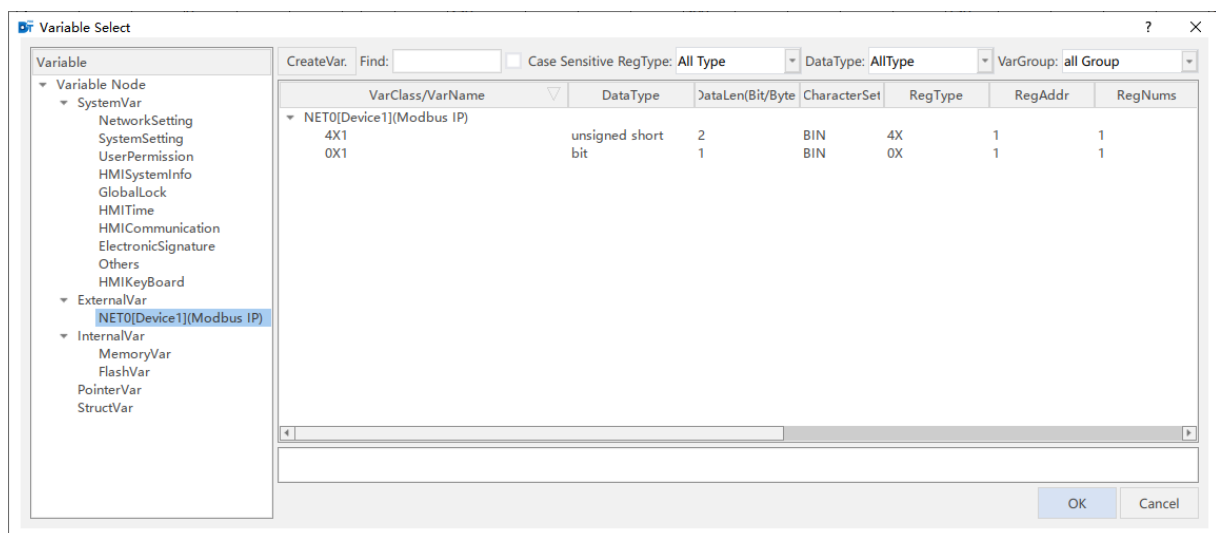
Click "Find/Replace" or hold down "Ctrl+F" to find and replace targets, variables, text and macros.



3.4.1 Find/Replace Variable



The Find dialog box is shown with the 'Content' dropdown set to 'Find Variable' (labeled 1). The 'Find' text box is empty, and the 'Replace' text box is also empty. A red box highlights the 'Find' button (labeled 2). The 'Partial Replace' checkbox is checked. Below the text boxes is a table with columns: Location, Name, Data, and Replace. At the bottom are buttons: Find Options, Find, Replace, Replace All, and Cancel.

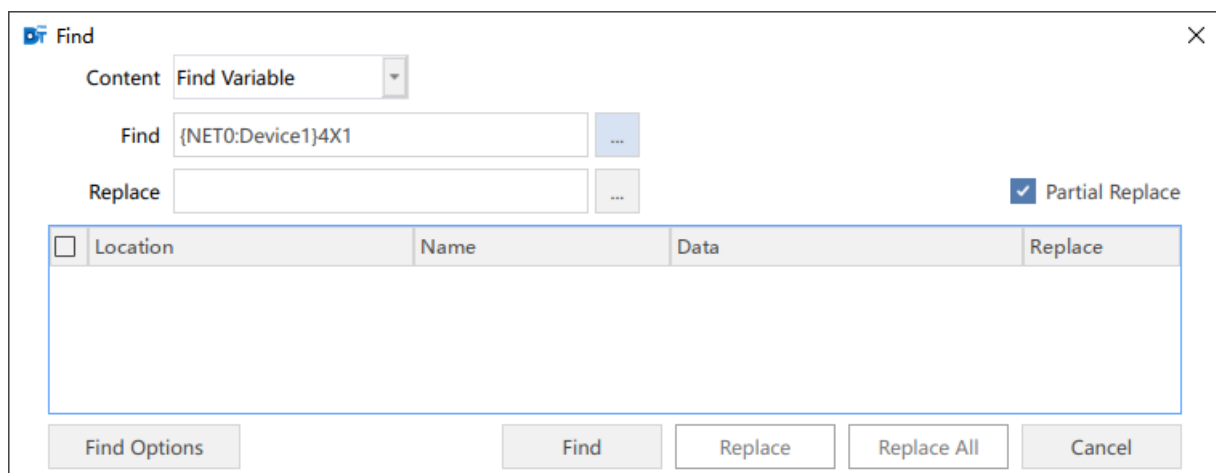


The Variable Select dialog box is shown. The 'Variable' tree on the left has 'NET0[Device1](Modbus IP)' selected. The 'CreateVar' section shows 'Find:' with an empty text box, 'Case Sensitive' unchecked, 'RegType' set to 'All Type', 'DataType' set to 'AllType', and 'VarGroup' set to 'all Group'. The main table lists variables:

VarClass/VarName	DataType	DataLen(Bit/Byte)	CharacterSet	RegType	RegAddr	RegNums
NET0[Device1](Modbus IP)						
4X1	unsigned short	2	BIN	4X	1	1
0X1	bit	1	BIN	0X	1	1

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

After selecting a variable, you can press the backspace key to expand all similar variables for re-selection.

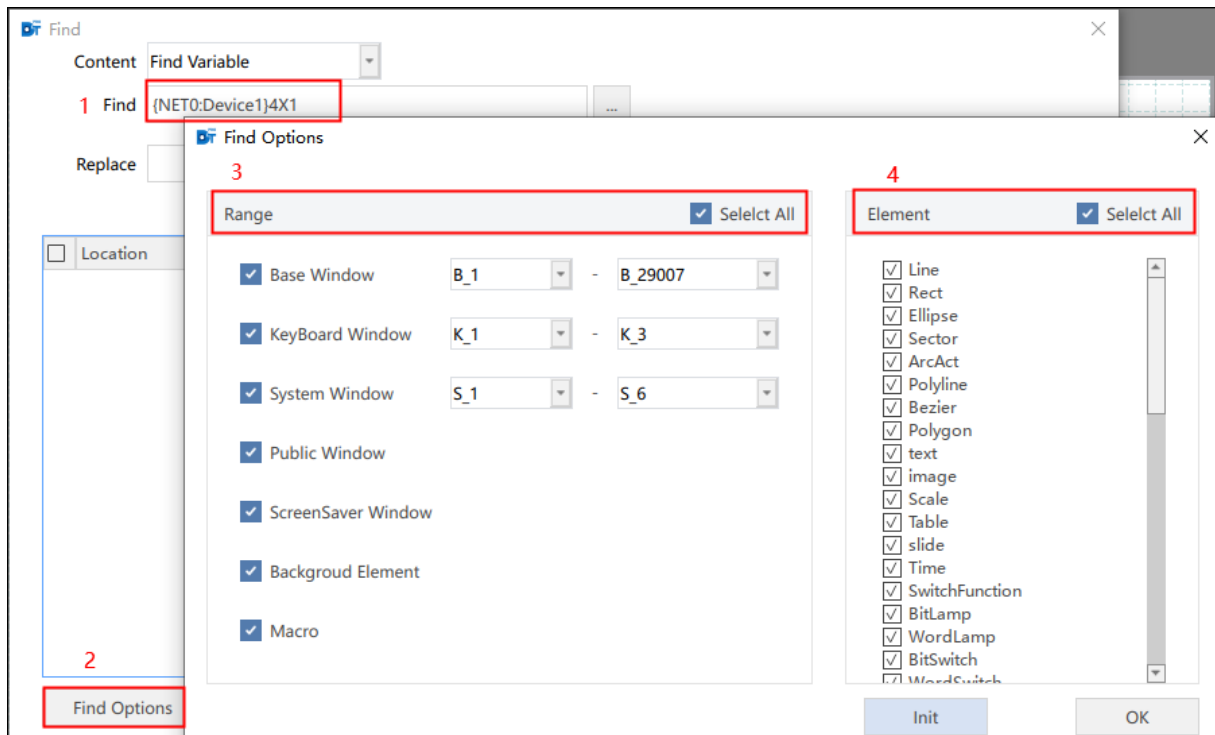


The Find dialog box is shown with the 'Content' dropdown set to 'Find Variable'. The 'Find' text box now contains '{NET0:Device1}4X1'. The 'Replace' text box is empty. The 'Partial Replace' checkbox is checked. Below the text boxes is a table with columns: Location, Name, Data, and Replace. At the bottom are buttons: Find Options, Find, Replace, Replace All, and Cancel.

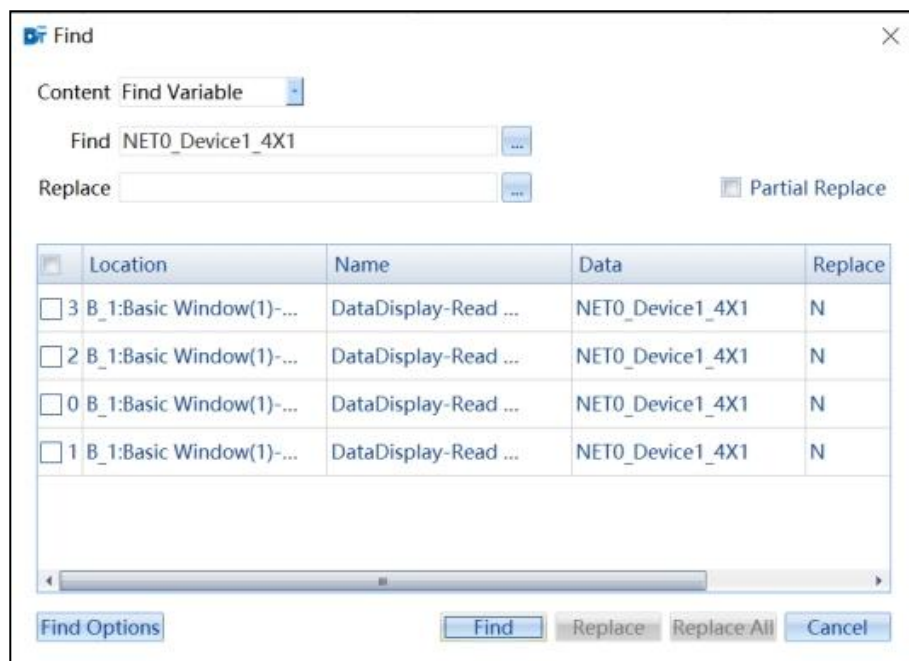
You can select the entire array or a specific array subscript.

Click on 'Find Options' to set the range condition and component condition checkbox to search. Click "Init" to

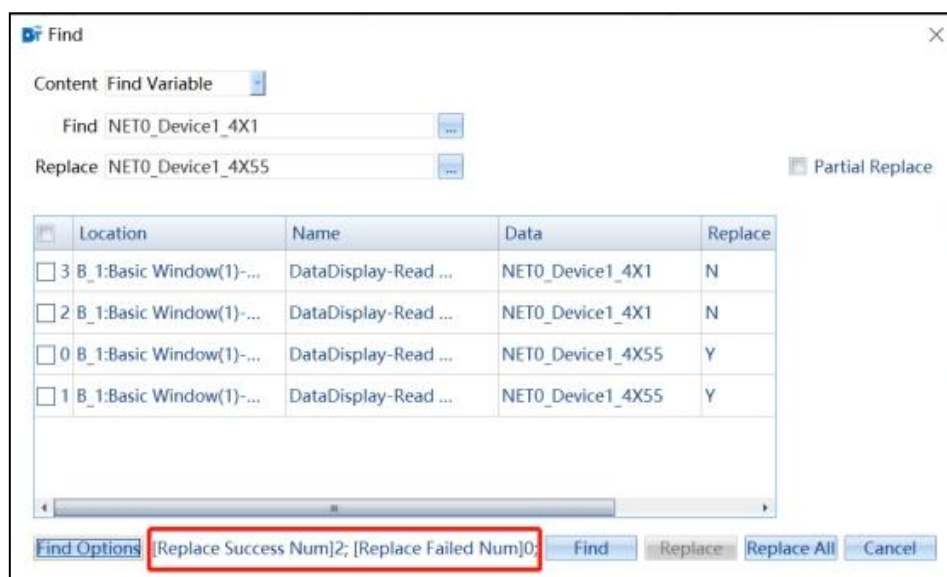
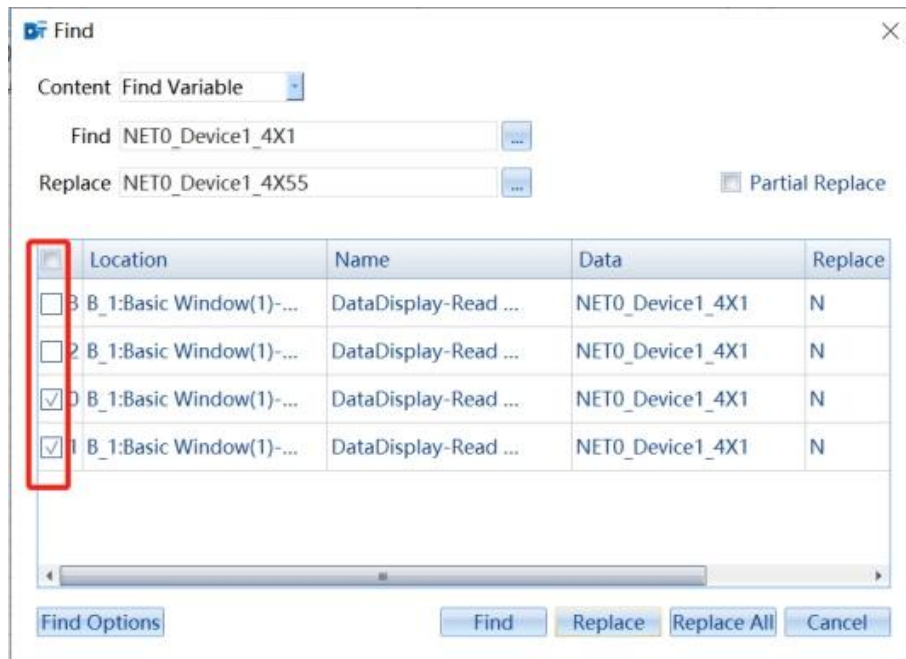
restore the default search conditions.



Double-click to find the corresponding item, the mouse cursor will automatically jump and select the component.

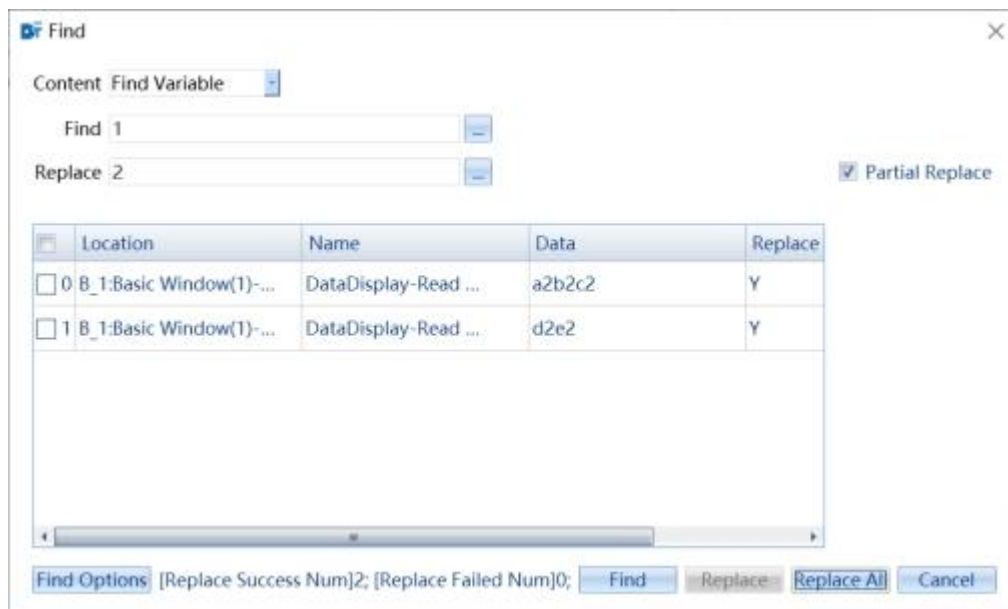
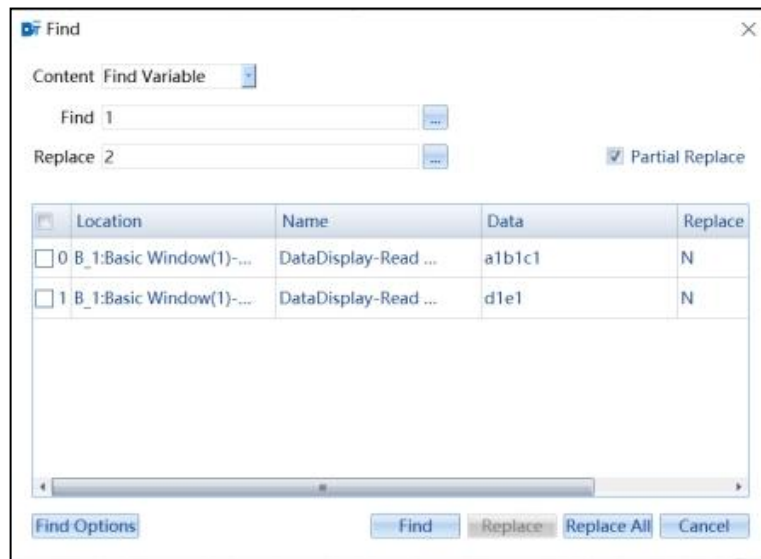


In the same operation, select the replacement address, check the variables to be replaced, click "Replace" to replace only the checked variables, and click "Replace All" to replace all the variables found with the target variables.



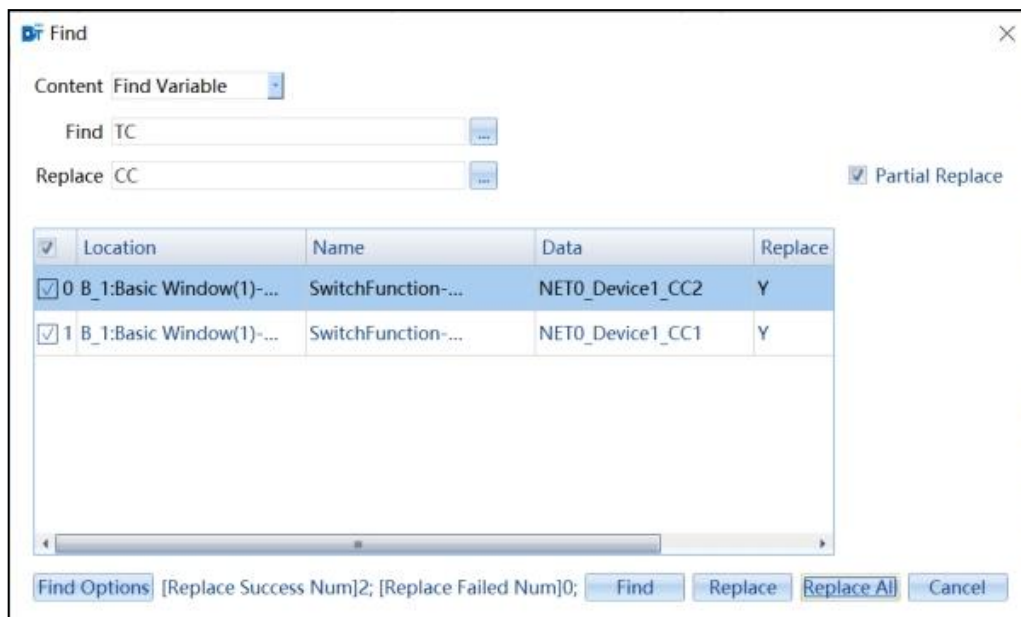
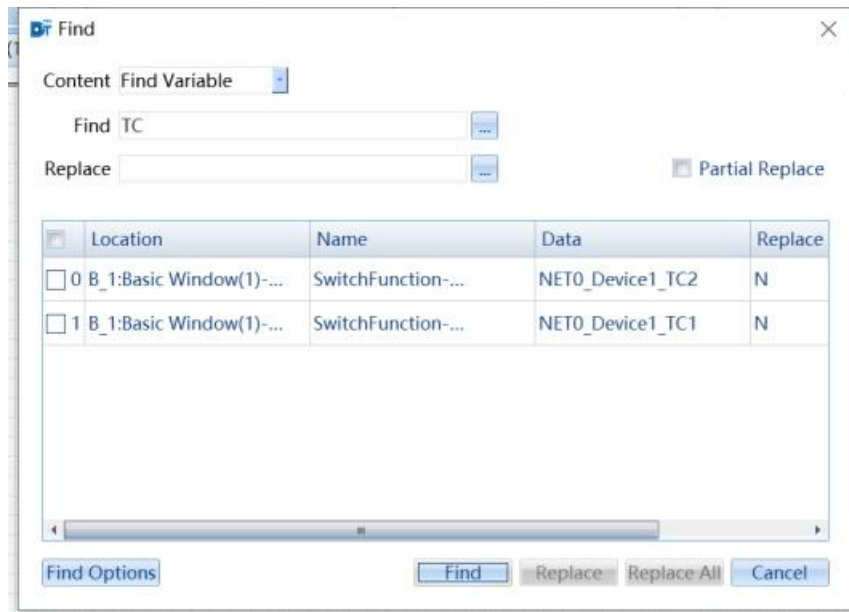
Partial replacement:

1. For a field with multiple recurrences, for example, the variable "a1b1c1", "d1e1" can be replaced by "a2b2c2". "d2e2", as shown in the following figure:



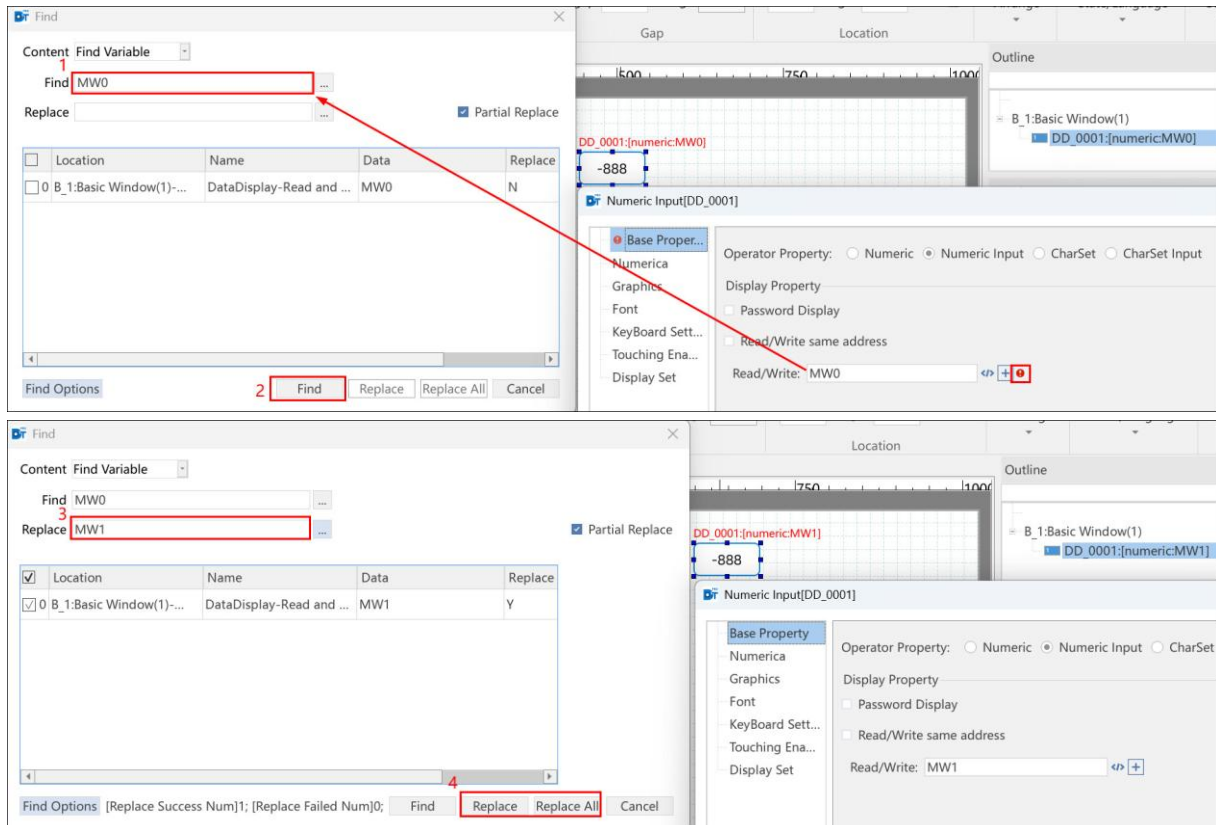
2. Batch replacement of entire register types:

For example, I want to replace all the "TC" register types in the screen with "CC" types. The address remains the same, only the register type is changed, as shown in the following figure:



3.Support for invalid variable search and replacement;

For example: If MW0 does not exist in the variable list but is associated with MW0 in the component properties (in which case the property configuration will report an error and the compilation will also report an error), you can manually enter the invalid variable (MW0) in the search component, and then replace the invalid variable (MW0) with a valid variable (MW1) through the search and replace method.

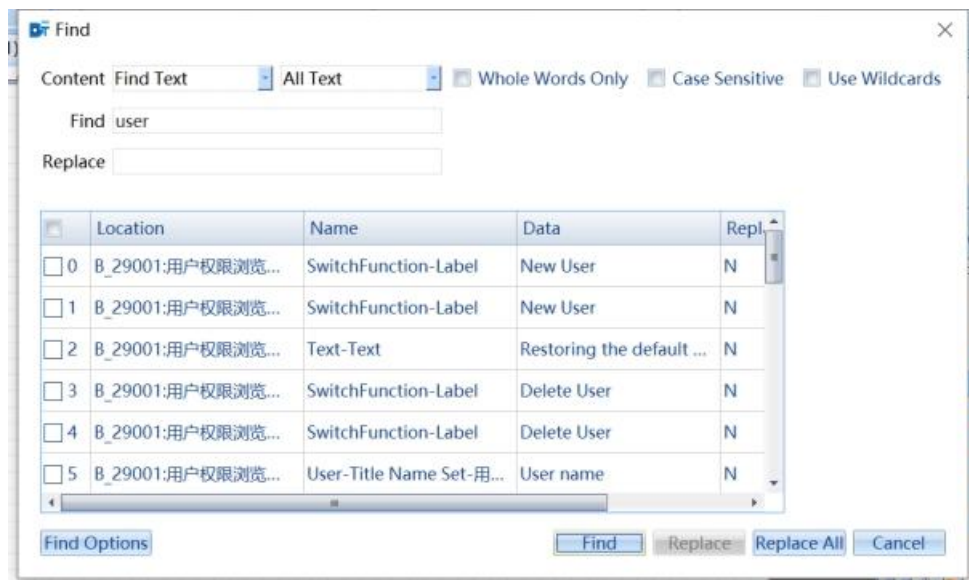
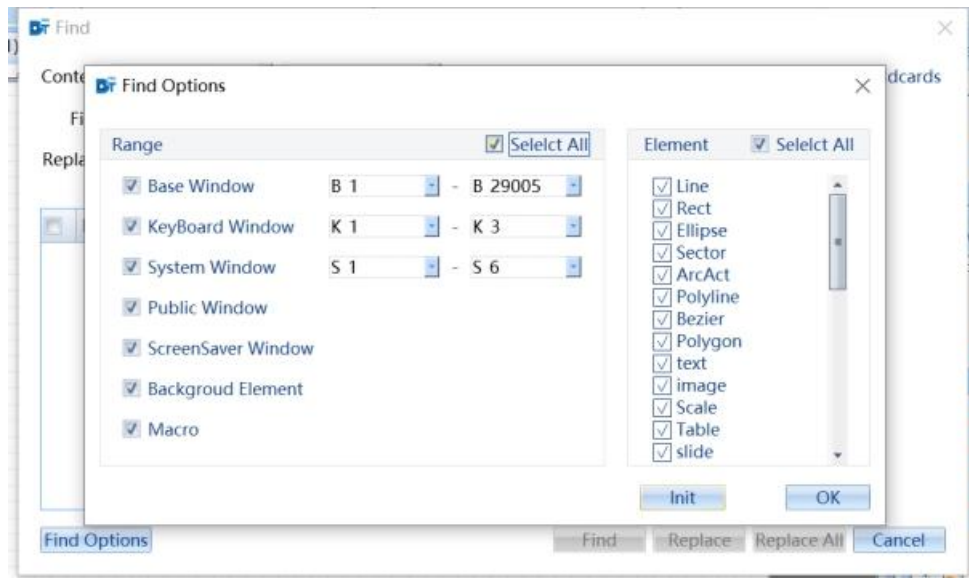


3.4.2 Find/Replace Text

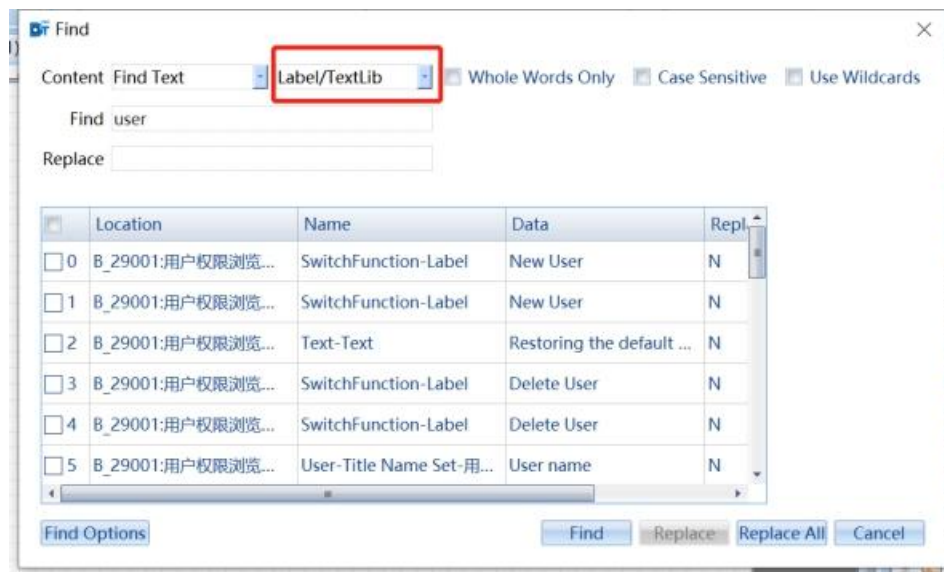
Search content can be selected from "All Text", "Label/TextLib", "Operational Data", with full text matching, case matching and wildcard matching.



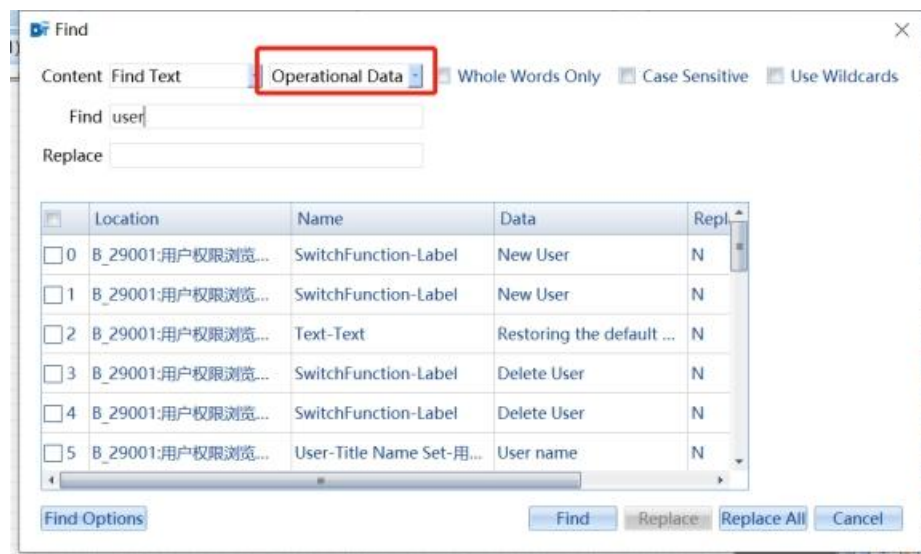
1. All Text: Find all the texts that meet the search criteria.



2. Label/TextLib: Find only static text, component label and content in text libraries.



3. Operational Data : Find only the operational parameters set by the project, such as operation log settings, user settings, recipe settings, keyboard mapping, etc.

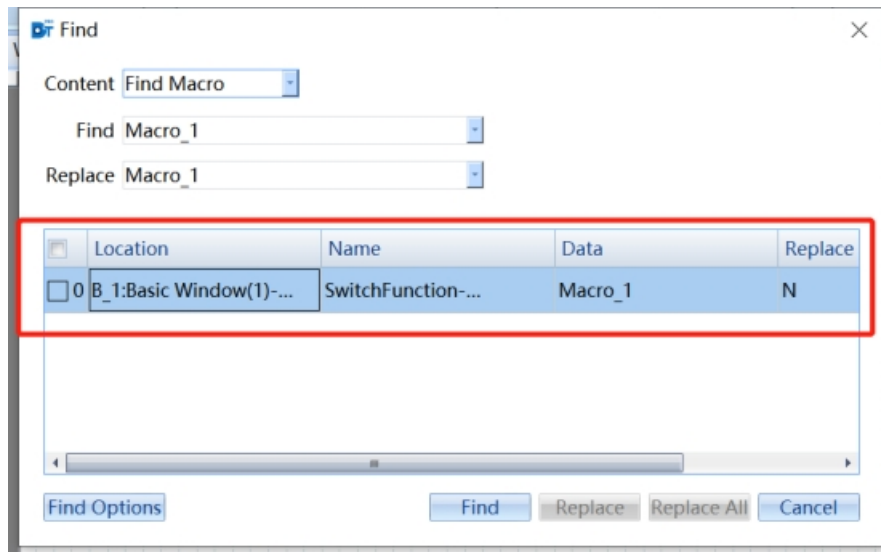


3.4.3 Find/Replace Macro

Select the drop-down for the macro you want to find.

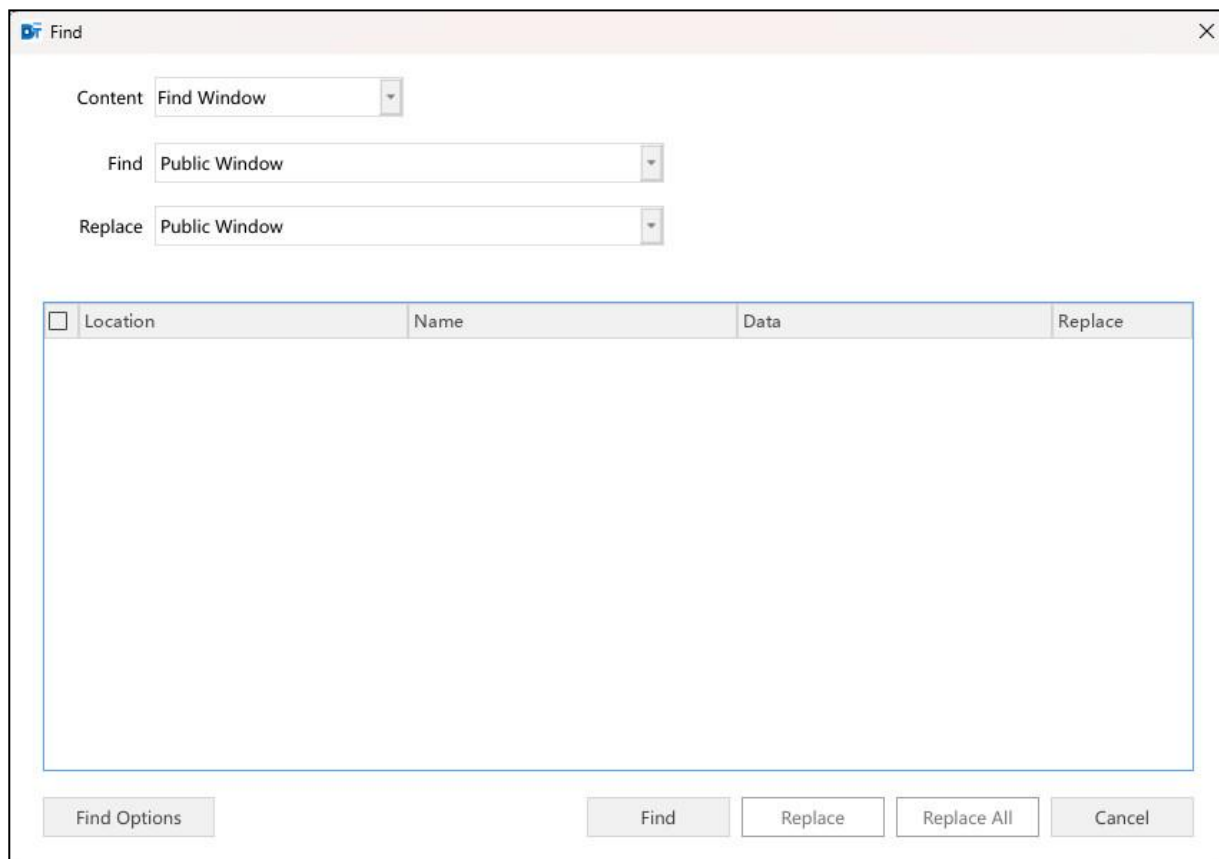


Click Find, double click and the software automatically jumps to the location.

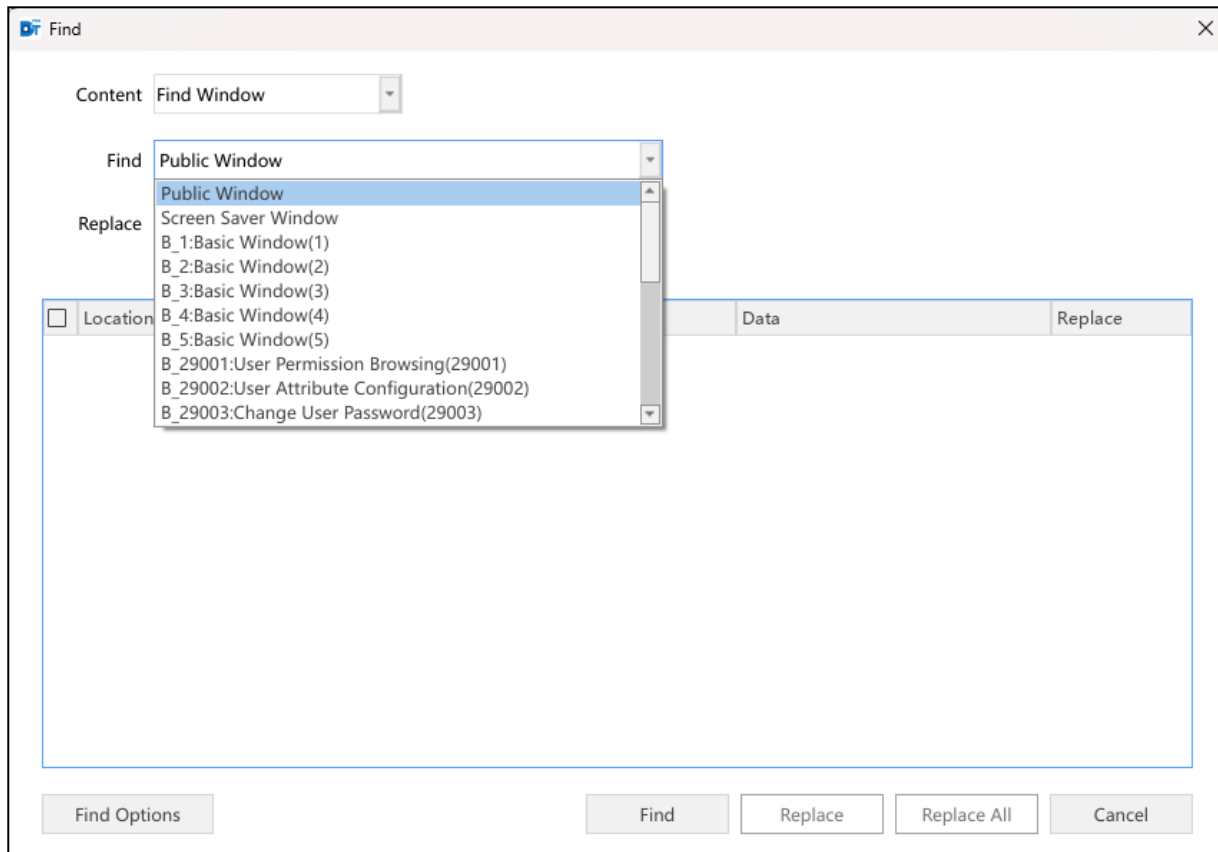


After setting the replacement macro, the replacement operation can be performed.

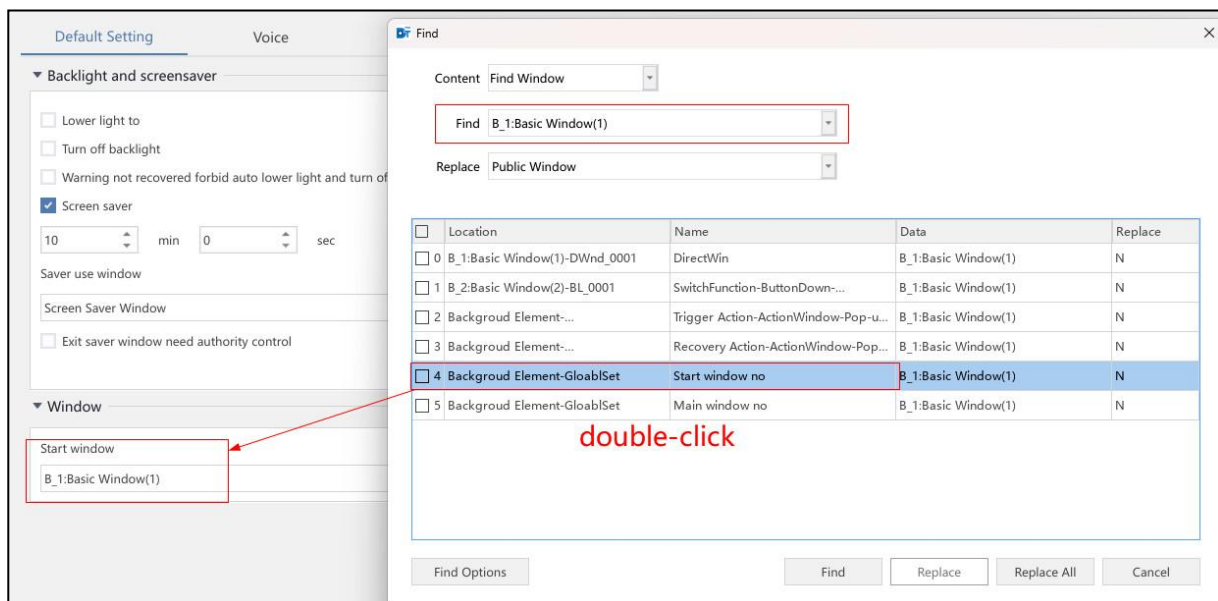
3.4.4 Find/Replace Window



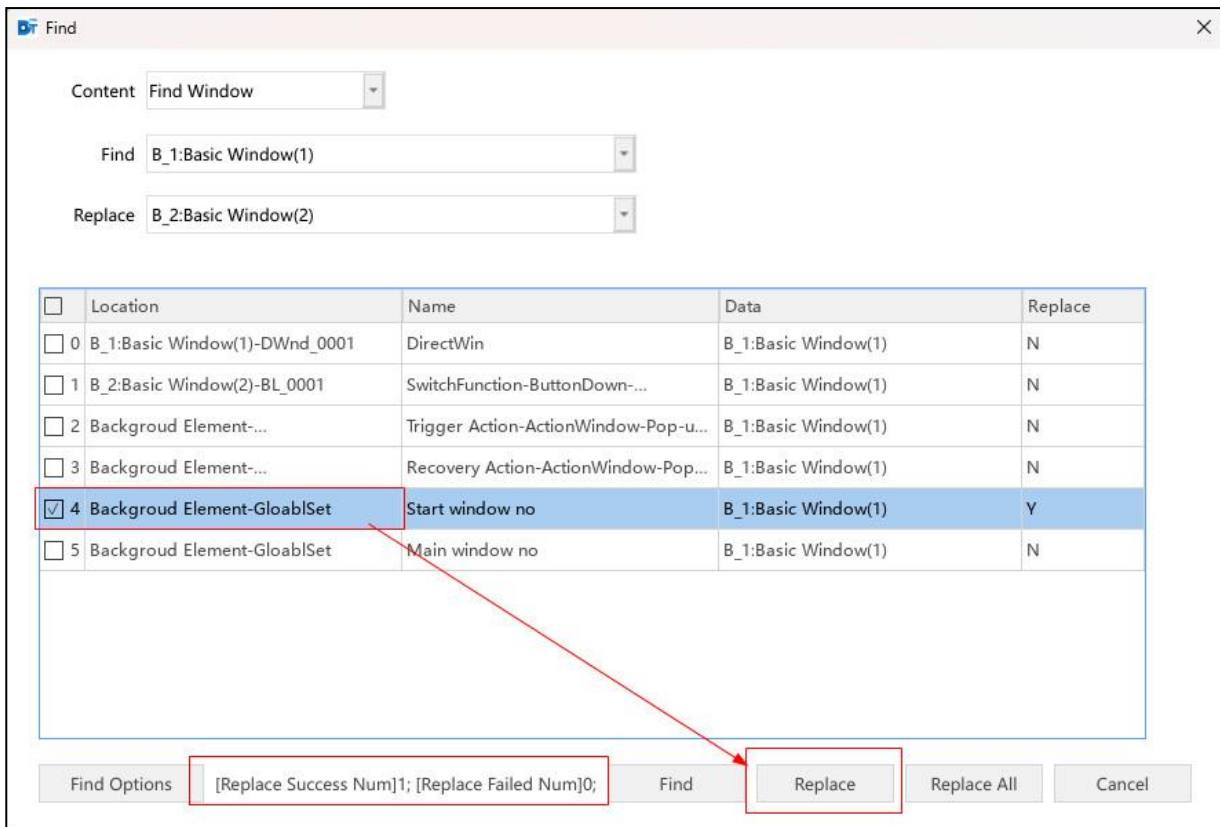
Select the target query window in two ways, through the drop-down box [direct selection], or in the input box to enter keywords, support [fuzzy search], the drop-down box to match the search conditions object display window number



Click Find, double-click, the software automatically jumps to the location

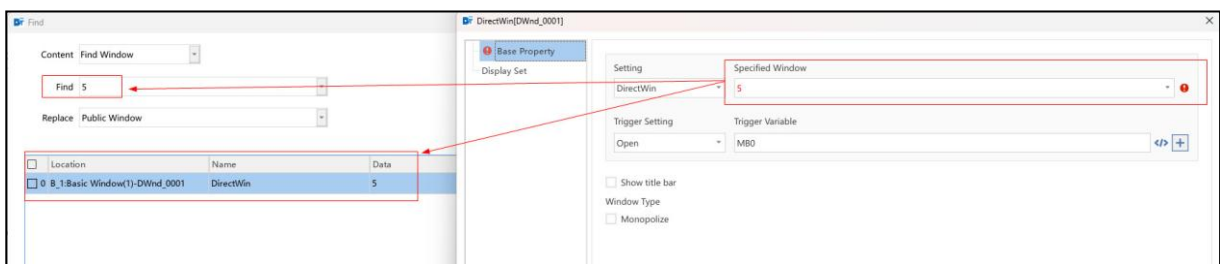


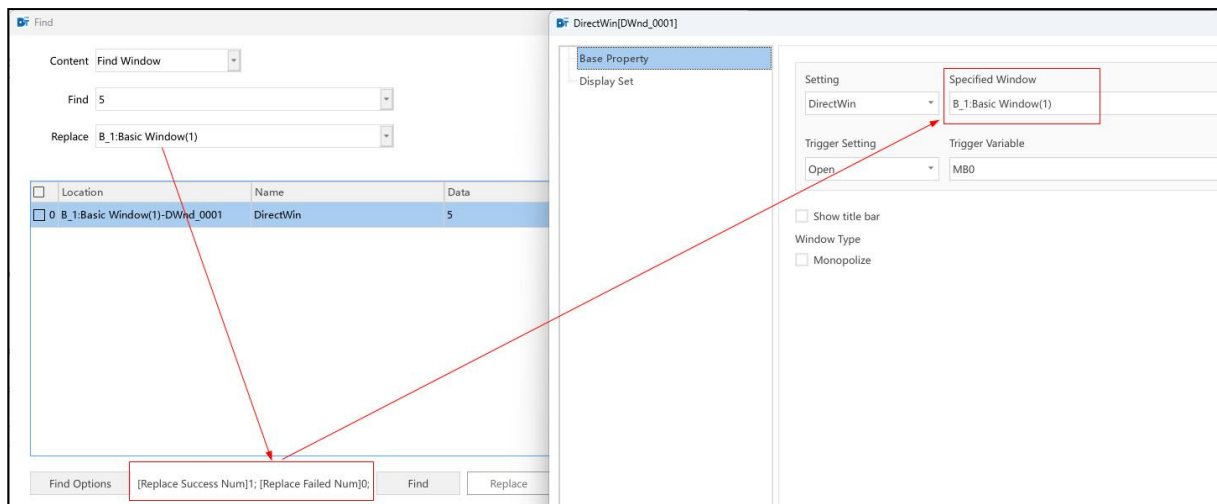
After setting the replacement window, you can perform the replacement operation



Supports Find Replace Deleted Window

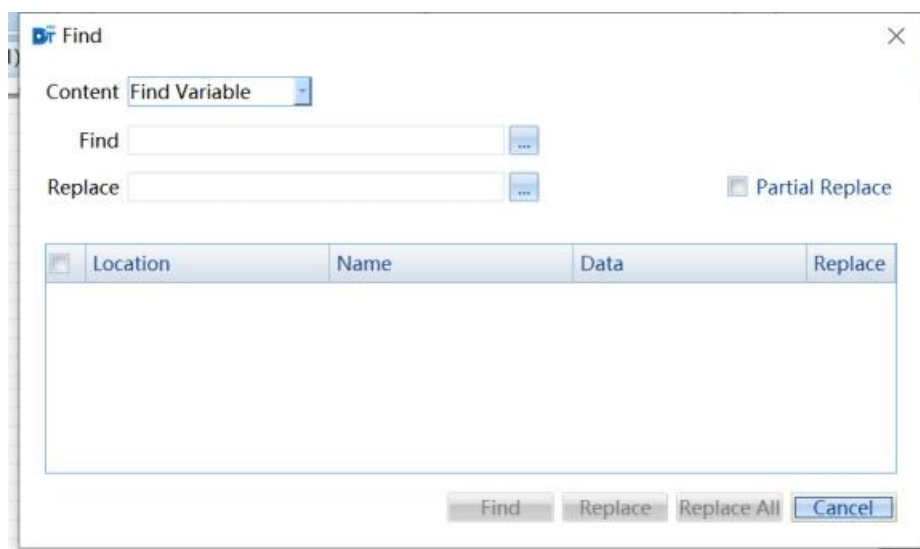
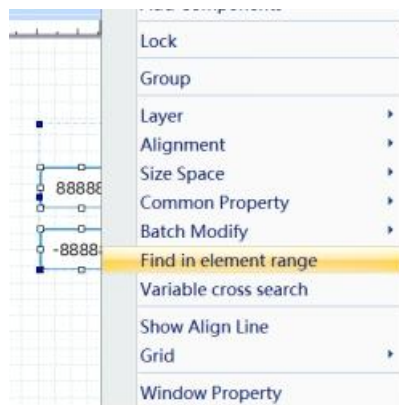
For example, if the Basic window 5 has been deleted, but the Basic window 5 is used somewhere in the project (at this time, the attribute configuration will report an error, and the compilation will also report an error), you can manually enter the invalid window number (5) in the Find component, and then replace the invalid window (the Basic window 5) with a valid window by means of Find and Replace.





3.5 Find in element range

Select the multiple elements to be found on the screen and right-click on "Find in element range".

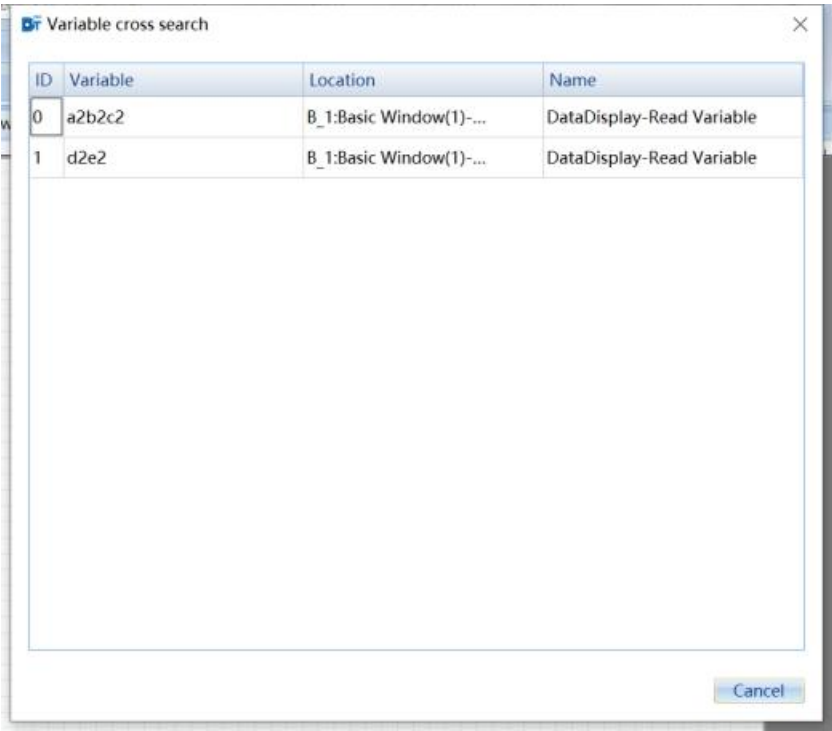
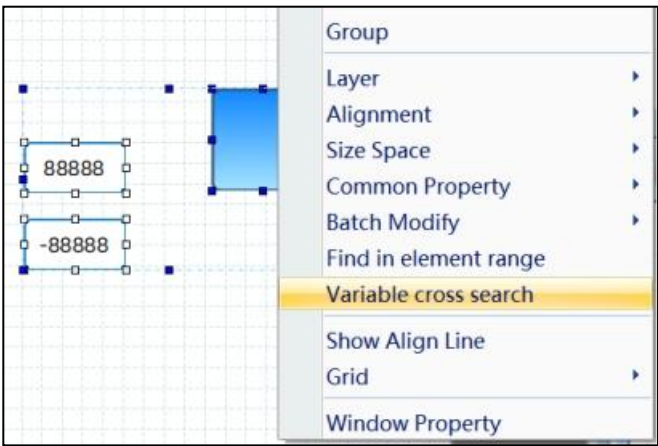


Refer to 3.4 - "Find/Replace" for step-by-step instructions

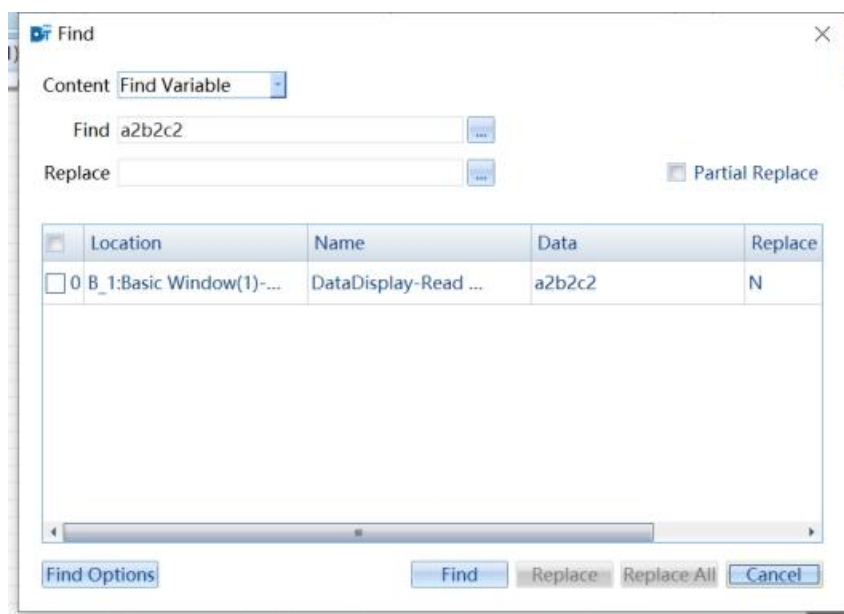
3.6 Variable cross search

Select multiple elements on the screen and right-click "Variable cross search" to display the address and location

information of the selected component.



Double-click the cross-search variable to jump to the Find \ Replace screen, which has automatically looked up the so-called location information of the variable's appearance. Next, you can perform a replacement operation on it by double-clicking on the item found, and the mouse cursor automatically selects the component at its location.

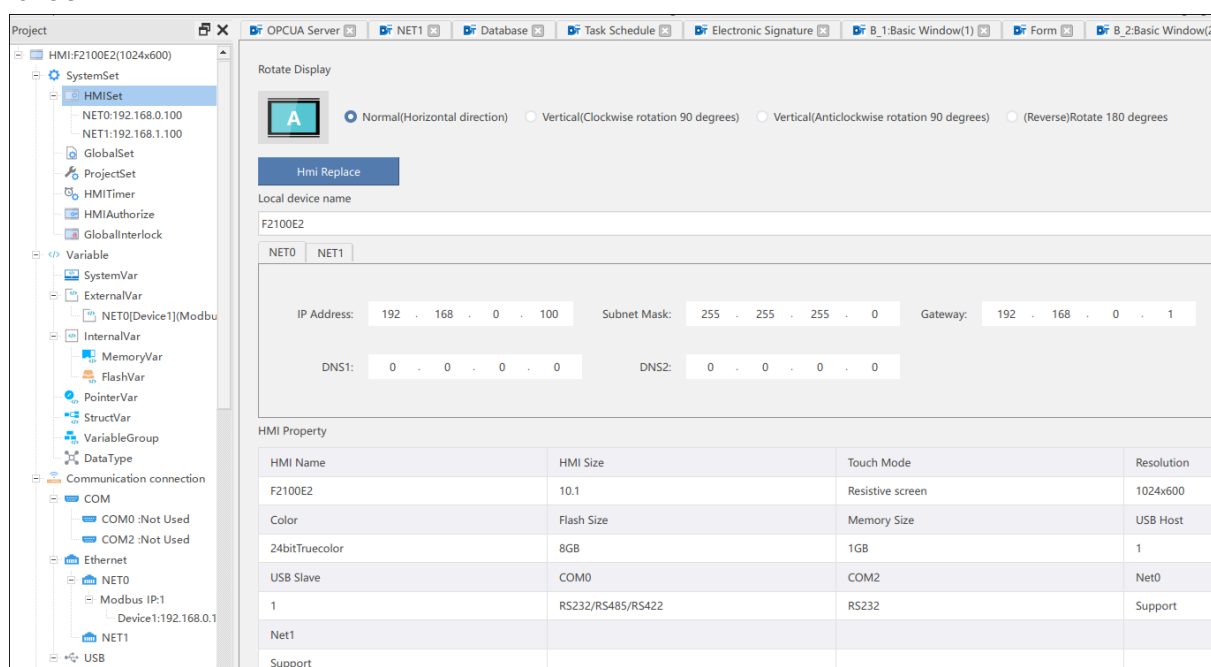


Refer to 3.4 - "Find/Replace" for step-by-step instructions for replacement.

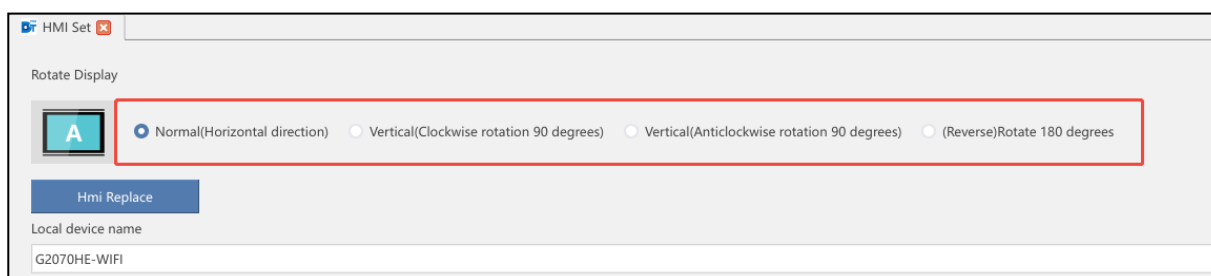
4 System Set

4.1 HMI Set

As shown in the figure below, the HMI settings mainly include network port settings and product descriptions. The IP address, subnet mask and gateway of the screen can be set in the network port setting. When downloading, check 'Download completed' to update the IP and it will take effect on the screen. The product description includes the model, size, resolution, memory size, etc. of the touch screen hardware used, making it convenient for users to view touch screen related parameters during use. At the same time, we can also view the communication type corresponding to the touch screen COM. The touch screen model shown in the following figure supports RS232/RS485/RS422 for COM 0 and 1, while RS232 is only supported for COM 2.



4.1.1 Rotate Display



Supports setting the rotation direction of HMI screens. The effects of offline simulation and standalone desktop maintain a horizontal display, while VNC and on-screen four orientation effects include:

Horizontal:

192.168.210.116 (guipro) - RealVNC Viewer

Seq	date	time	CH1	CH2	CH3
952	2025-04-14	13:19:11	6	22	55
951	2025-04-14	13:19:11	6	22	55
950	2025-04-14	13:19:11	6	22	55
949	2025-04-14	13:19:11	6	22	55

22 55 0

语种1

Seq	date	time	CH1	CH2	CH3
952	2025-04-14	13:19:11	6	22	55
951	2025-04-14	13:19:11	6	22	55
950	2025-04-14	13:19:11	6	22	55
949	2025-04-14	13:19:11	6	22	55
948	2025-04-14	13:19:11	6	22	55
947	2025-04-14	13:19:11	6	22	55
946	2025-04-14	13:19:10	6	22	55

Vertical(Clockwise rotation 90 degrees):

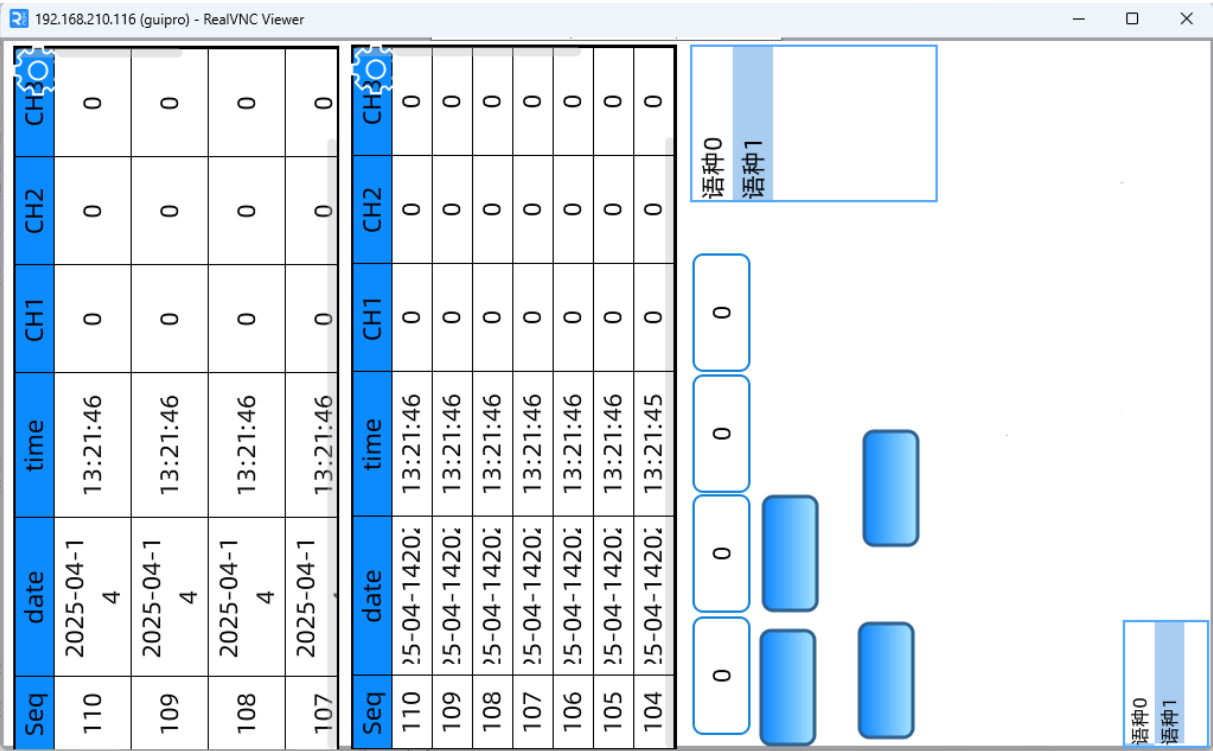
192.168.210.116 (guipro) - RealVNC Viewer

Seq	date	time	CH1	CH2	CH3
244	2025-04-14	13:24:54	0	0	0
243	2025-04-14	13:24:54	0	0	0
242	2025-04-14	13:24:54	0	0	0
241	2025-04-14	13:24:54	0	0	0
244	42025-04-1	13:24:54	0	0	0
243	42025-04-1	13:24:54	0	0	0
242	42025-04-1	13:24:54	0	0	0
241	42025-04-1	13:24:54	0	0	0
240	42025-04-1	13:24:54	0	0	0
239	42025-04-1	13:24:53	0	0	0
238	42025-04-1	13:24:53	0	0	0

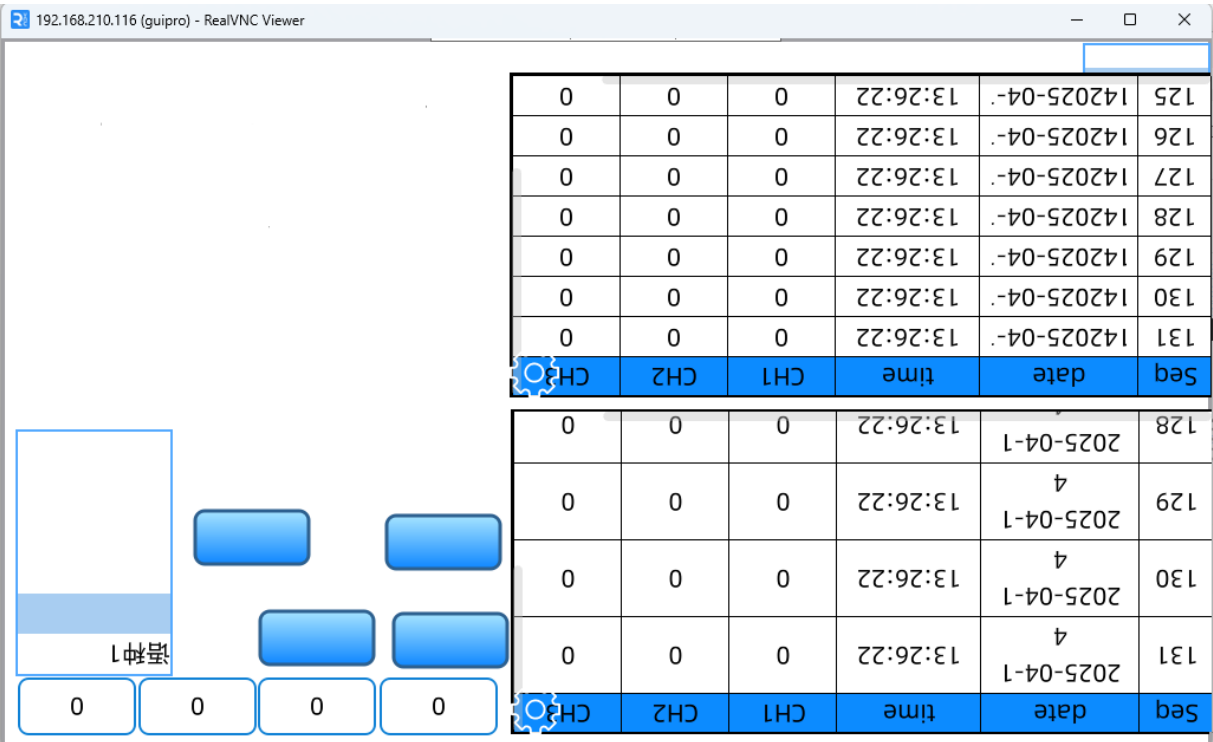
0 0 0 0

语种0 语种1

Vertical(Anticlockwise rotation 90 degrees):



(Reverse)Rotate 180 degrees:



4.1.2 HMI Replace

Replace the HMI model in the current project with another model. If the resolution of the replaced HMI is different from that of the source HMI, the basic window components and fonts of the project will be automatically replaced according to the proportion.

The basic template window adaptation and keyboard window adaptation are not selected by default. If replaced, the sizes of these windows in the original project will remain unchanged; If checked, it will automatically scale proportionally.

Configure the communication port to be checked by default, with the source port number corresponding to the target port. If the source port number does not exist on the target HMI and is not set, the port and variables on the source HMI will be automatically discarded.

HMI Name	HMI Size	Touch Mode	Resolution
F2070E	7	Resistive screen	1024x600
Color	Flash Size	Memory Size	USB Host
24bitTruecolor	8GB	1GB	1
USB Slave	COM0	COM1	COM2
1	RS232/RS485/RS422	RS485/RS422	RS232
Net0			
Support			

☒ Configure Comm Ports i
☐ Basic Template Win Adaptation
 ☐ Keyboard Win Adaptation

	Source Port	Target Port	Communication Protocol
☒	NET0	NET0	Modbus IP

4.2 Global Set

4.2.1 Default Setting

4.2.1.1 Backlight and screensaver

☒ Lower light to
 3 min 0 sec 80%

☒ Turn off backlight
 Lower light before passing
 10 min 0 sec

☒ Warning/event occur auto turn on backlight
☒ Warning not recovered forbid auto lower light and turn off backlight
☒ Screen saver
 10 min 0 sec

Saver use window
 Screen Saver Window

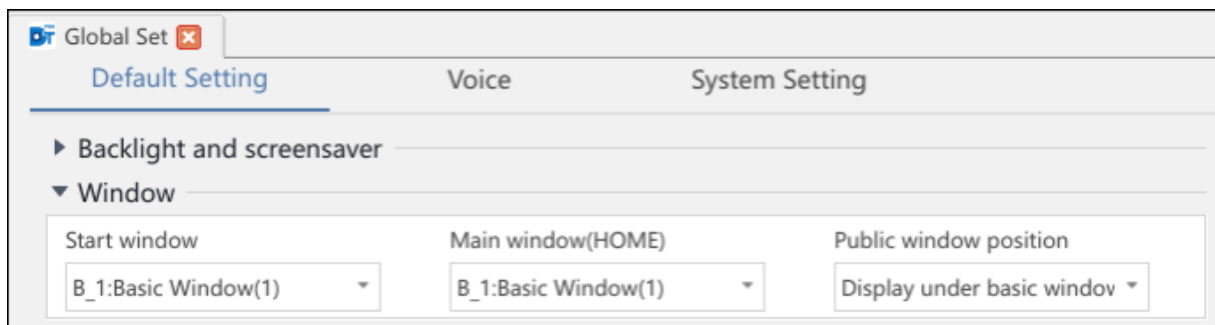
☒ Exit saver window need authority control
 User privilege
 \author1;Author2;A... Select permission group

Setting Descriptions	
Lower light to	After not touching the screen for a period of time, the brightness of the screen is reduced to the specified brightness. As shown in the figure, if checked, the default value is 3 minutes without operation, and the brightness is reduced to 80%.
Turn Off Backlight	Backlight refers to when the duration of not touching the HMI screen is equal to this setting value, the HMI automatically turns off the screen backlight and enters the energy-saving state. When the HMI screen has touch operation again, it can end the energy-saving state and turn on the screen backlight. Turning off the backlight as shown in the figure can be used in conjunction with adjusting the brightness. It can be set to turn down the brightness and do not operate for a specified time before entering the backlight energy-saving state. The default time is 10 minutes.
Screen Saver	If you enter the screensaver state without operating for a specified time, you can set the screensaver interface by yourself. After checking the user permission required to exit the screensaver window, set the specify user permission, and check 'Exit the saver window need user privilege'.

4.2.1.2 Window

The difference between the use of the start window and the main window(HOME) is that the start window refers to the interface displayed after HMI startup, and users can set the window display after startup. There is an option in the window

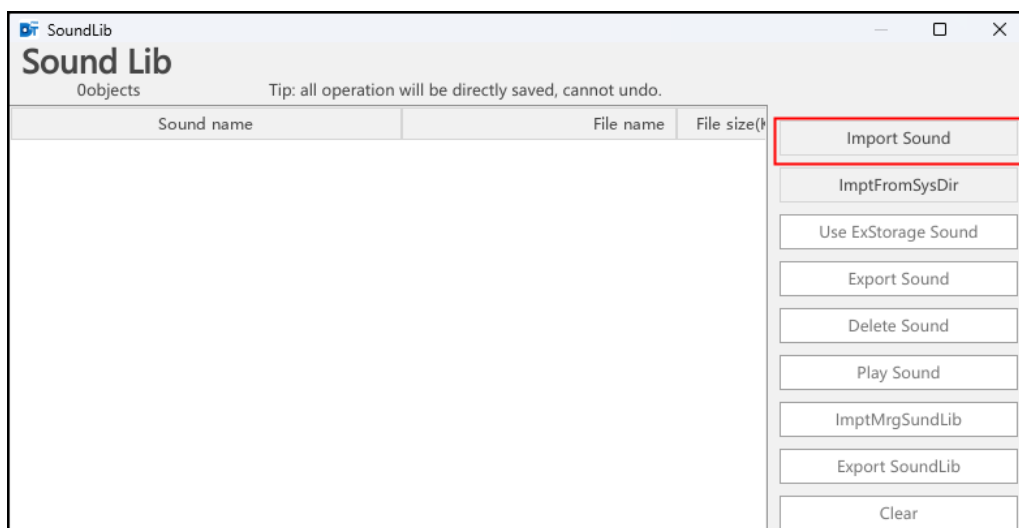
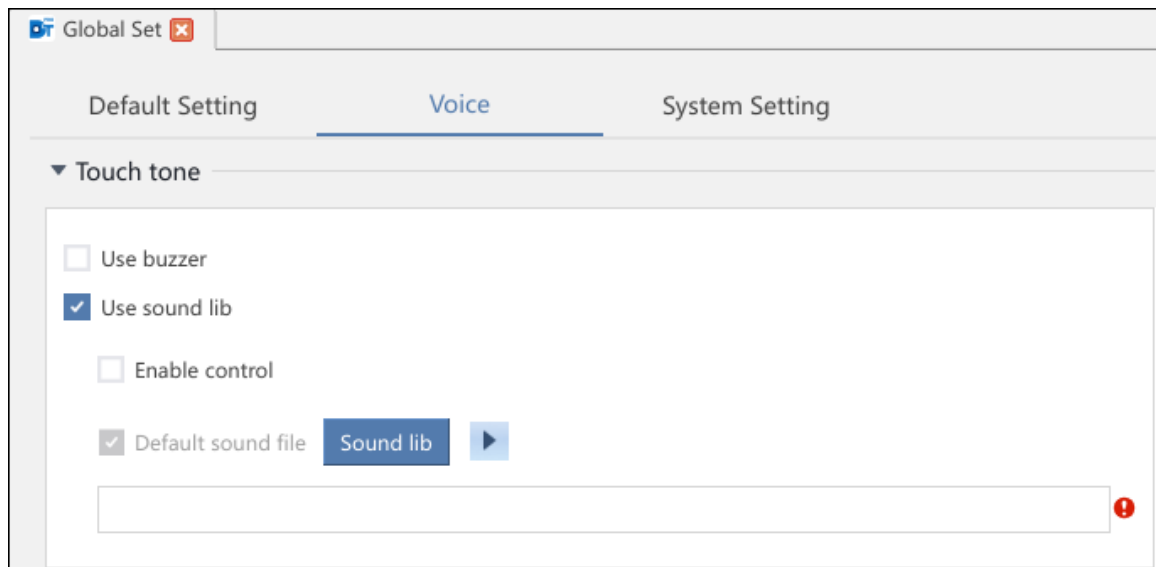
operation settings to quickly return to the main window of the project.



Setting description	
Start Window	HMI startup screen
Main Window	HMI main screen window
Common Window Position	Can be set to display above or below the basic window

4.2.2 Voice

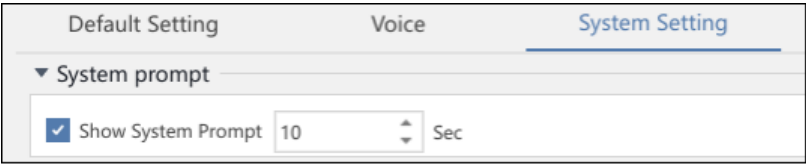
4.2.2.1 Touch tone and System Prompt



- Use buzzer: Set the HMI to enable touch beeping, and you can also control whether to turn it on by enabling it
- Using sound library : Set the HMI sound to enable the sound library. You can also control whether to turn on the sound library by enabling it. This feature needs to be used in conjunction with the sound library.
- Show System Prompt : Set the time for the system prompt to display, with a default of 10 seconds.

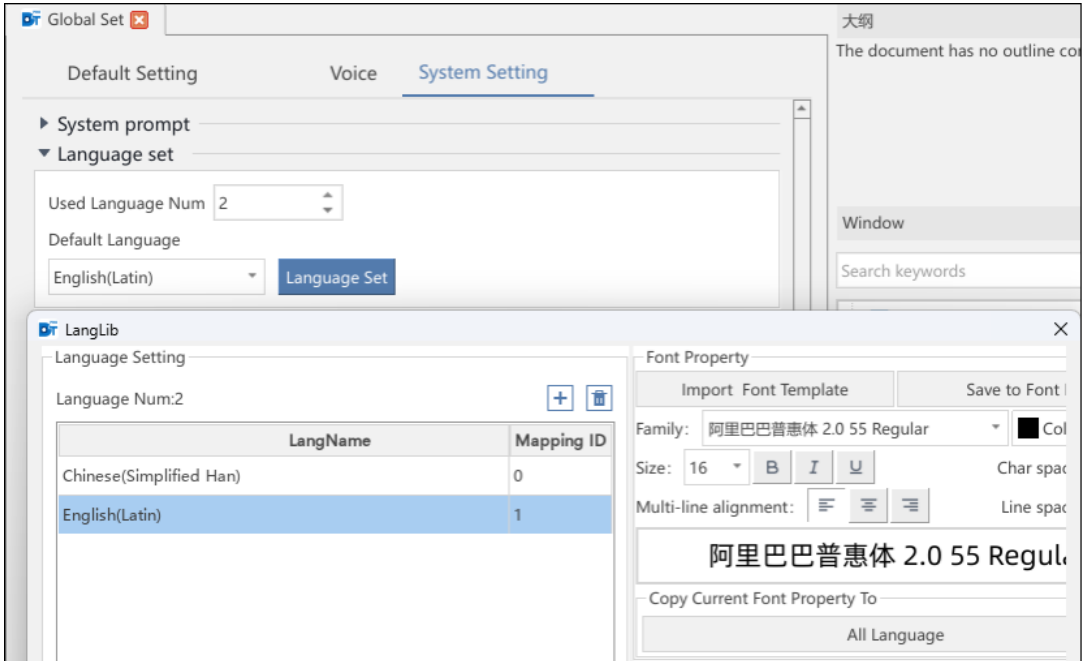
4.2.3 System Settings

4.2.3.1 System Prompt



Display system prompt: Set the time for displaying system prompts. The default is 10 seconds

4.2.3.2 Language Setting

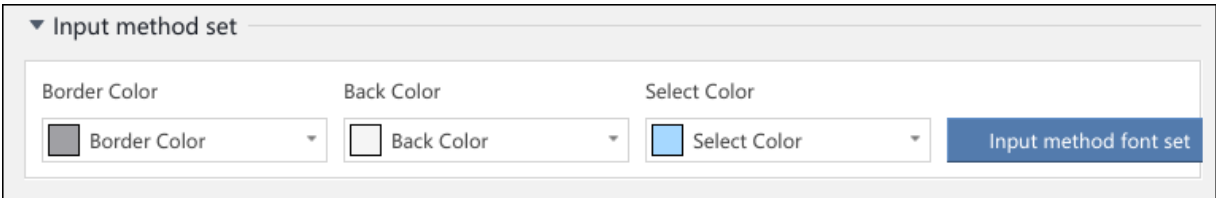


Language Setting Description

This function needs to be combined with the language library. For specific attributes of the language library, please refer to [Chapter20.3:Language Library](#).

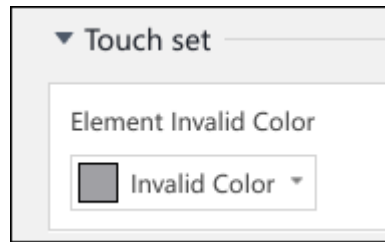
Used Language Num	Set the number of editable languages in the language library, up to 32 languages can be set
Default Language	After the HMI is powered on, the language displayed on the configuration interface is the language set here.

4.2.3.3 Input Method Set



As shown in the figure, set the border color, back color, select color, font, and element invalid color of the input method.

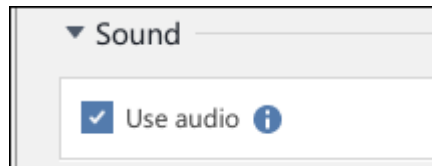
4.2.3.4 Touch set



As shown in the figure, invalid marking colors can be set for components that are not responsive to touch.

4.2.3.5 Voice

Note: This feature requires a screen kernel version ≥ 6111



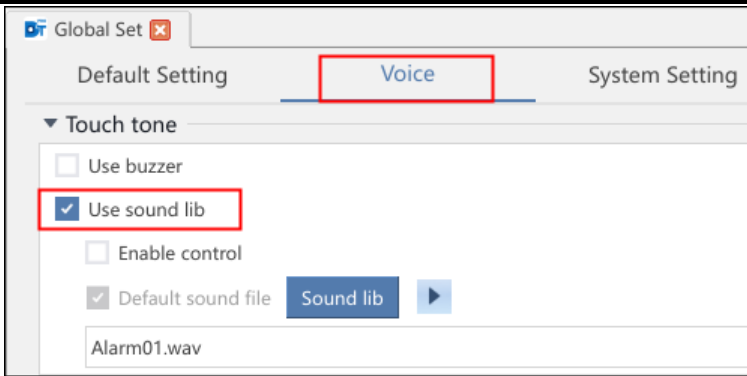
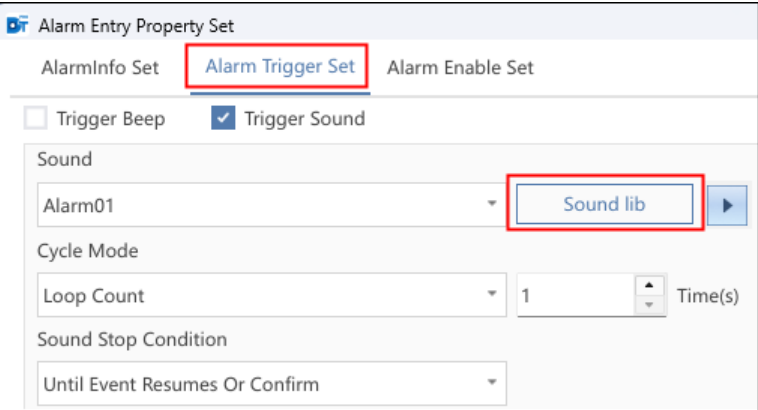
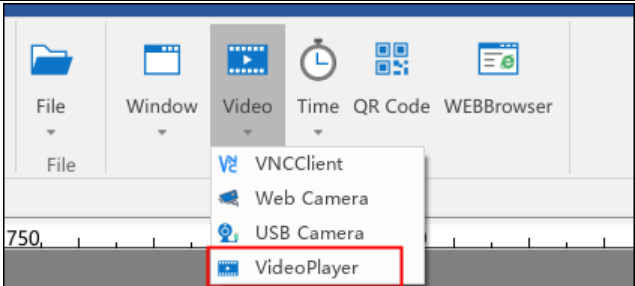
After checking this option, the F2/G2 series touch screen can use USB peripherals such as audio devices and USB-to-headphone adapters to play sound.

When a USB external speaker is plugged in, audio is played from the USB port by default. After removal, if headphones are plugged into the headphone jack, playback automatically switches to the headphone jack. When the USB external speaker is plugged in again, playback automatically switches back to the USB port (Note: USB-to-headphone jack devices do not support hot plugging. Removing and reinserting them will not be recognized, and the screen needs to be restarted for re-recognition).

\$Audio Volume: Modifying the value of the system variable "\$Audio Volume" can set the audio volume level. The factory default value is 50, which is retained even after power loss (Note: Different audio playback devices may have different volume levels for sound playback)

VarClass/VarName	DataType	DataLen(Bit/Byte)	CharacterSet	RegType
SystemVar				
UserPermission				
SystemSetting				
\$AudioVolume	unsigned char	1	BIN	SFW
Others				
NetworkSetting				
HMITime				
HMISystemInfo				
HMIKeyboard				
HMICommunication				
\$SYS_COM2_Baud	unsigned char	1	BIN	SFW
\$SYS_COM1_Baud	unsigned char	1	BIN	SFW
\$SYS_COM0_Baud	unsigned char	1	BIN	SFW
GlobalLock				
ElectronicSignature				

The available sound sources for playback are:

Audio playback support description		
Touch tone- Voice-Use sound lib		
Alarm Trigger - Sound lib		
Video Player		

4.3 Project Set

4.3.1 Project property

▼ Project property

☒ Allow upload

☒ Allow decompile

888888

888888

Description of project property settings	
Allow upload	Set whether to allow the configuration project in HMI to be uploaded to PC or external storage device. Checked by default, the initial password is: 888888. unchecked, the project is not allowed to upload.
Allow decompile	Set whether or not to allow the configuration project file, i.e. .propkg file, to be decompiled into the editable .prodpj file of Altus DTools Pro software. Default check box, the initial password is 888888, unchecked, the project is not allowed to decompile.

4.3.2 Project runtime protection

☒ Project runtime protection ⓘ

Device serial number

Prompt window

SN Registry.txt

Export

Import

B_1:Basic Window(1)

Description of Project runtime protection settings	
Device serial number	After turning on the project runtime protection, write the HMI device serial number by line into a txt file and import it
	The Txt file supports writing multiple HMI device serial numbers, distinguishing different serial numbers by line breaks; Content format: 067272222990029 067287995006593
	HMI serial number can be viewed through the system settings - version information interface
Prompt window	When there is no serial number corresponding to the currently downloaded project HMI in the SN registry, it will enter the operation protection state, and the HMI home page will be displayed as a prompt window. Note : If the content of the txt file is empty, when downloaded to the screen, the screen will activate the project operation protection function



1. During the operation and protection of the HMI project, all other functions are unavailable except for the following:
- ① Switch language;
 - ② U disk download function;
 - ③ Normal display of pictures and text;
 - ④ Normal call to system settings, and the function of switching pages in the system settings interface;

4.3.3 FTP Server

▼ FTP Server

User name

Password

ftpuser

888888

☒ Using anonymity

FTP server setup Descriptions
Allow HMI as FTP server, support user name password, anonymous two access methods, the default is anonymous access

4.3.4 Item state graphic miss

▼ Item state graphic miss

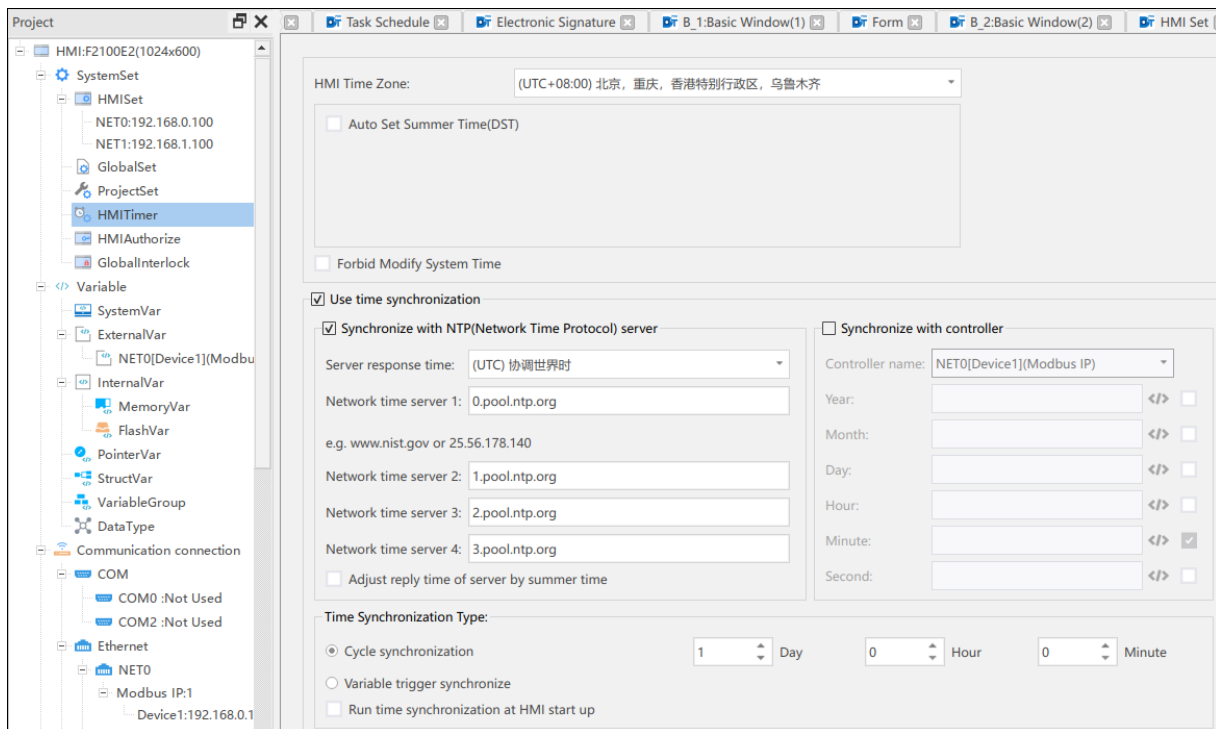
☒ Not use graphic while state graphic miss
 ☐ Use last state graphic while state graphic miss

Item state graphic miss Description	
Item state graphic miss	You can choose not to display the graphic when the graphic status is missing or to display the last status graphic. For example, when setting a control graphic, only state 1 has a corresponding graphic, then control state 2 and subsequent states can either not display the graphic or display the graphic of state 1.
Item not communication display	Can be set to not display or display images.

4.3.5 Use USB Default Input

Use USB Default Input Description	
Use USB Default Input	If checked, the string read by the card reader or scan gun will be directly displayed in the specified variable; Unchecked, you need to manually select a character variable in the screen to receive display. Default not enabled
Custom terminator	Unchecked means the default Enter key is used to end; checked allows for setting a custom end character, which cannot be empty and cannot exceed 10 characters, supporting special symbols and spaces
Notify write success	After enabling, successful writing will notify the execution of the specified action
Note: This feature is mutually exclusive with USB card swiping automatic login	

4.4 Clock Set



Clock set description

HMI Time Zone	You can choose the time zone of the system time according to your needs. You can check the option to automatically set daylight saving time and make relevant settings, and you can also disable modifying the system time.	
	Auto Set Summer Time	If checked, you can set the start and end times of daylight saving time and adjust the time offset.
Use time synchronization	You can select whether the HMI system time is synchronized with the NTP (Network Time Protocol) server or with the connected controller.	
	Time synchronization type	Support cycle synchronization and variable trigger synchronize If Synchronize time on HMI startup is checked, time synchronization will be automatically executed once when the HMI starts.

4.5 HMI Authorize

It can achieve the function of timed screen locking. When the HMI reaches the authorization expiration time, an expiration window will pop up. Only after entering the authorization password on the specified page can the HMI continue to be used normally. Otherwise, the HMI will continue to display the expiration pop-up window. The time judgment is based on the system time of the HMI. Once the authorization function is used, modifying the system time will not result in invalid authorization. At the same time, you can check the related content of the upcoming expiration reminder settings.

HMI authorization setting Descriptions

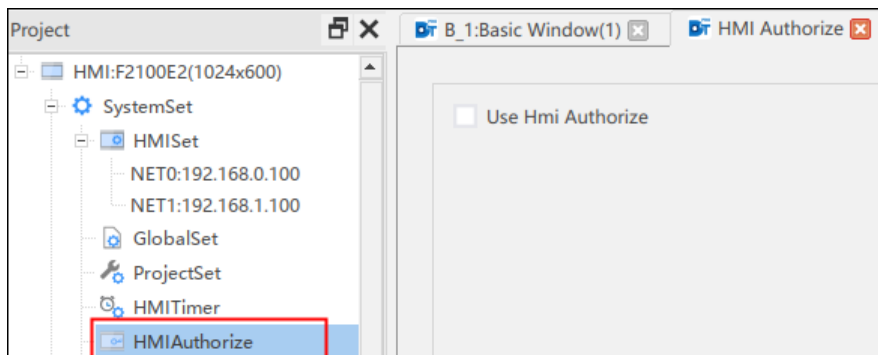
Use HMI Authorization	Total Number of HMI Authorizations	Can be set from 1 to 32.
	Authorization 1 ~ 32	The priority of the "Continue Authorize Password" is determined by the configured expiration time: the later the expiration time, the higher the priority. A higher-priority password can revoke lower-priority authorizations. Note: The time and password for each authorization must be unique.
Parameter Settings	Expire jump to page	Configures the specified screen that the HMI will display when the authorization expires.
	Authorization Expiration Time	Sets the exact date and time when the HMI will be locked and unable to operate normally.
	Continue Authorization Password	The password used to lift the authorization restriction. After being entered correctly once, the device will no longer be restricted by this authorization. Note: The password needs 8 to 15 numbers.
Expiration Reminder	Advance Reminder Days (1~31 days)	For example, if set to 15 days, the system will pop up an "Authorization Expiration Reminder" dialog box 15 days before the expiration time. Only a reminder will be shown during this period; the HMI will not jump to the lock screen until the actual expiration time is reached.
	Reminder Frequency (minutes)	The interval at which the expiration reminder pop-up is displayed. The default value is 60 minutes.

Example: Three-Phase Expiration Lock Screen Authorization

Authorization 1: Expiration time is 2025-03-31 23:59:59, authorization password: 11111111; Authorization 2: Expiration time is 2025-04-30 23:59:59, authorization password: 22222222; Authorization 3: Expiration time is 2025-05-31 23:59:59, authorization password: 33333333. After entering the correct password, the HMI will return to the initial page.

Operation Steps

- 1) In the touchscreen authorization settings, double-click to open [HMI Authorization].



2) Check "Use HMI Authorize" and set 3 authorize respectively.

☒ Use Hmi Authorize

Pay attention to: authorize password input use special register SMW268.

	Authorize Num	Authorize Expiration Time	Expire pop up window	Continue Authorize Password
	1	2025/03/31 23:59:59	B_29004:Authorization Expiration(29004)	11111111
	2	2025/04/30 23:59:59	B_29004:Authorization Expiration(29004)	22222222
	3	2025/05/31 23:59:59	B_29004:Authorization Expiration(29004)	33333333

Authorize Num.	Authorize Expiration Time	Expire pop up window	Continue Authorize Password
1	2025/3/31 23:59:59	B_29004:Authorization Expiration(29004)	11111111
2	2025/4/30 23:59:59	B_29004:Authorization Expiration(29004)	22222222
3	2025/5/31 23:59:59	B_29004:Authorization Expiration(29004)	33333333

3) Check "Soon Expiring Reminder", set 15 days in advance, reminder frequency: 60 minutes; Reminder window ID: B_29005: Authorization Expiration Reminder (29005)

☒ Soon Expiring Reminder

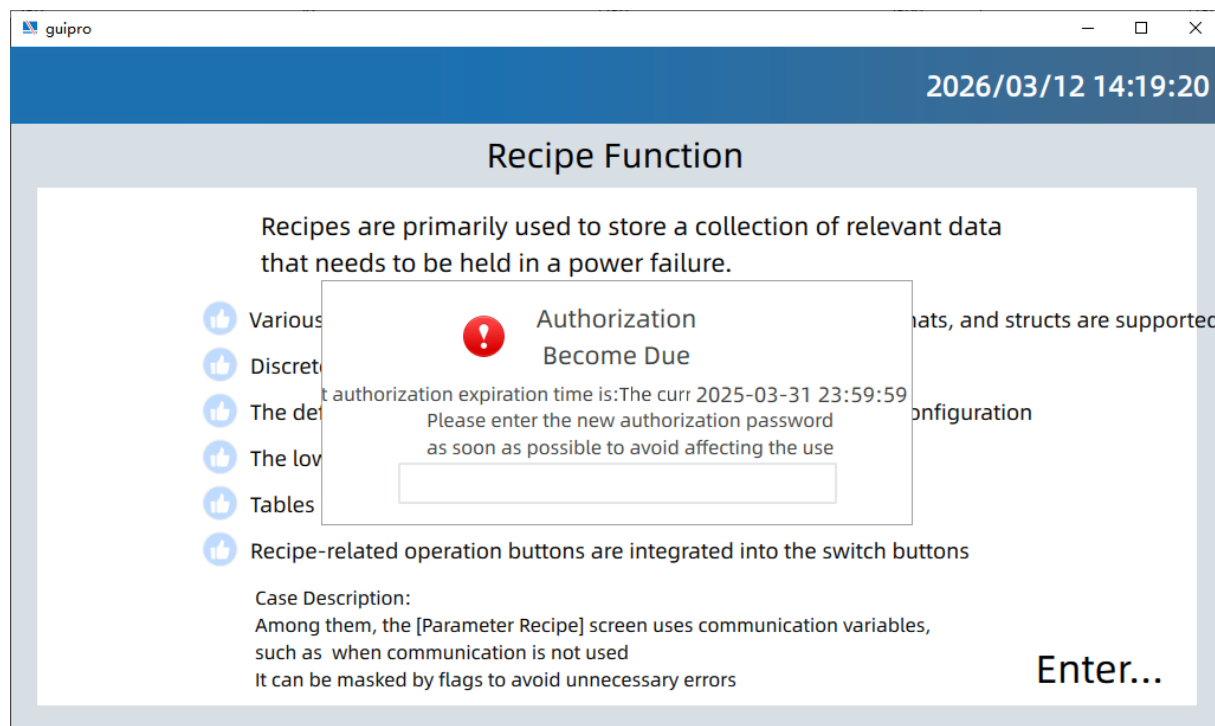
Advance Time Day Tip Frequency Minute

Tip Window No

4) Offline Simulation Effect

When the system time reaches the authorization expiration time, the HMI will jump to the specified screen:

B_29004: License Expired (29004)



At this point, the correct continued authorization password must be entered to unlock the screen.

4.6 Global Inter Lock

When there is a PLC or multiple PLCs connected by multiple HMIs in the network, in order to prevent malfunction by multiple people, it can be set to only operate a single or a certain number of PLCs simultaneously.

Global interlock setting Descriptions		
To enable the global interlock function, it needs to be checked and enabled. It is not checked by default		
Device grouping		Interlocking restrictions can be applied between HMIs in the same group
Dynamic grouping		Modify the corresponding variable value to dynamically set grouping
Unlock remaining time		Every time the HMI is touched, the countdown starts at this time and automatically unlocks and releases touch control when it reaches 0
Authorization unlock prompt		After checking, the device that has obtained control will pop up an authorization application pop-up window sent by other devices
Occupied status touch prompt		When checked, when the main control is occupied by other devices, the touch HMI will pop up relevant information about the main control device (remaining time, name of the main control device)

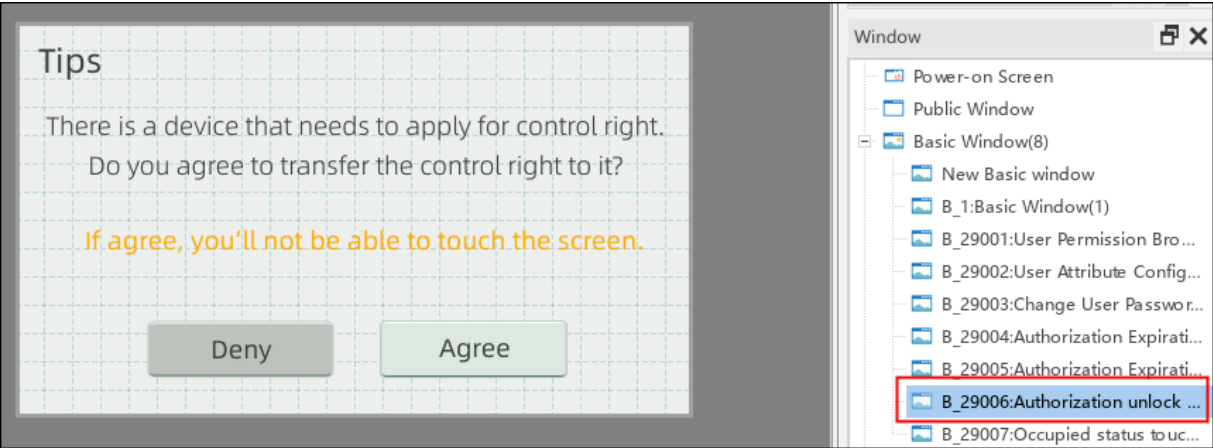
Authorization unlocking prompt window: When the main control device pops up this window and clicks agree to authorize, the main control will be transferred to the device that initiated the application

There are four methods to release control:

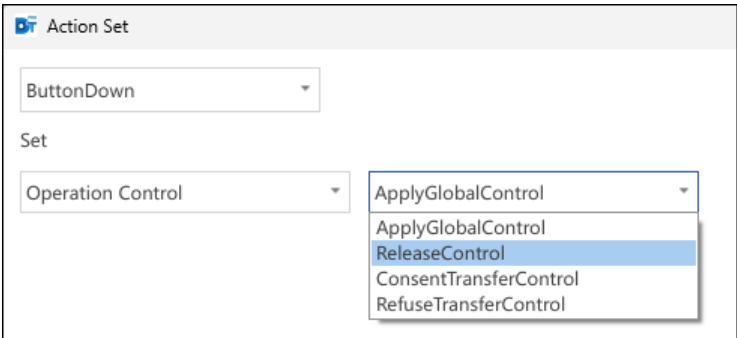
1. Transfer authorization to the device initiating the application
2. When the countdown to unlocking time reaches 0, control will be automatically released
3. Action Setting - Operation Control - Release Control Action Active Release
4. For devices that have obtained the initiative, if they go offline for more than 5 seconds (other devices show that the countdown time for unlocking the main control device is stuck for 5 seconds without changing), it will automatically determine that the device is offline and the offline device's permission will be automatically released.

Other devices can operate to gain control; When the offline device's network is restored, it can automatically rejoin the interlock group and perform interlock operations normally

Attention: Users can create template windows for authorization unlocking and occupancy status touch prompts. It should be noted that closing windows cannot be added. After manually closing the pop-up window, it will no longer pop up when other devices initiate authorization applications.



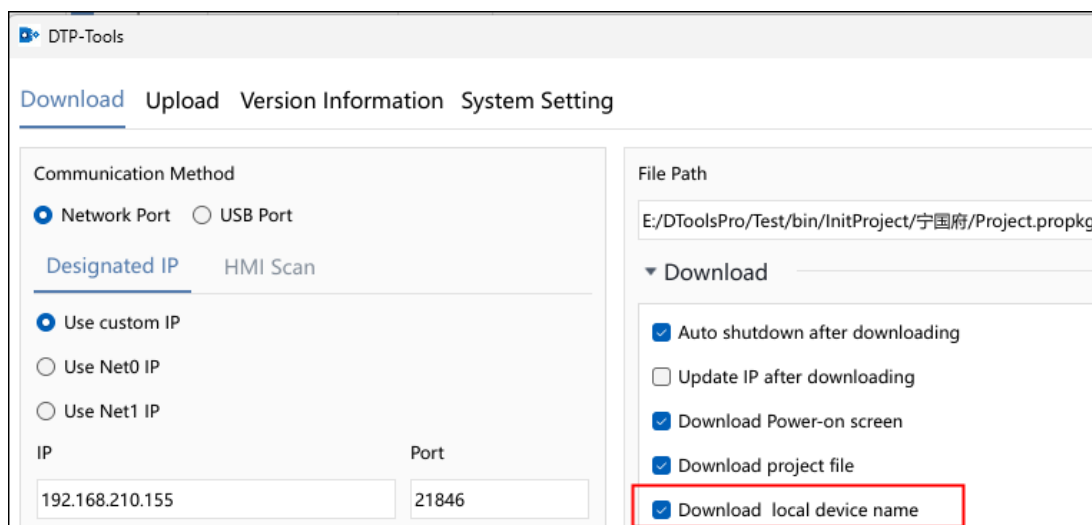
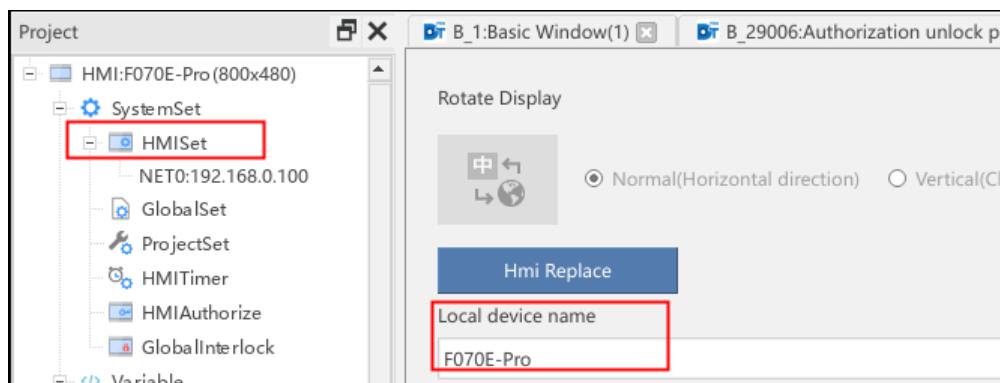
Related system actions:



Related system variables:

GlobalLock									
\$MasterDevName	string	31	UTF-8	SMW	1120	31	Read	FALSE	
\$LocalDevName	string	31	UTF-8	SFW	190	31	Read/Wr...	FALSE	
\$ControlStatus	unsigned int	4	BIN	SMW	1164	4	Read	FALSE	
\$ControlRemaining	unsigned int	4	BIN	SMW	1160	4	Read	FALSE	

\$Local device name: Initially the HMI model, it can be edited in HMI settings or read and write operations can be performed on the screen. When downloading a project, check "Download Local Device Name" to update it, and leave it unchecked to keep the current name on the screen



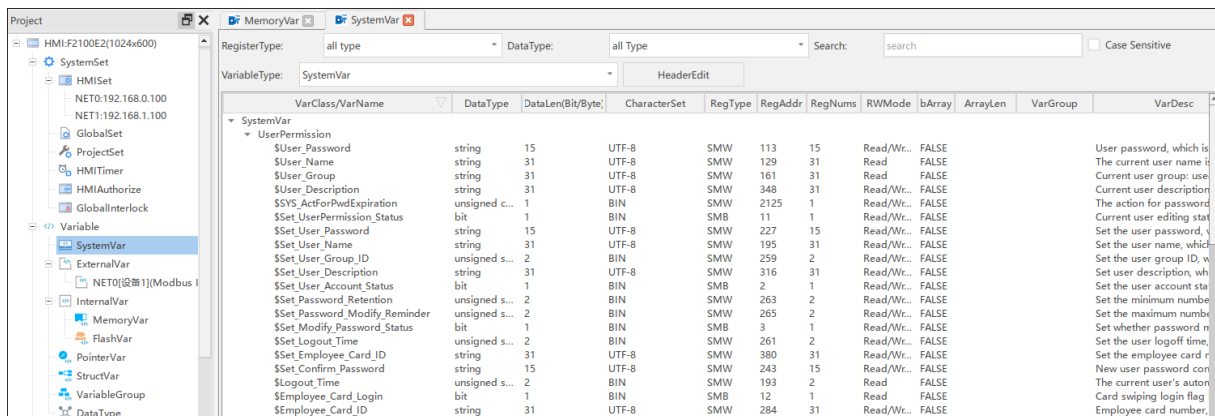
5 Variable

The word "variable" comes from mathematics and is an abstract concept in computer language that can store calculation results or represent values.

In DToolsPro software, elements or functional modules are associated with variable names, so variables used in project programs need to be first established in the variable table to define a variable name that is easy to identify and unique. Variables can be "external controller variables", "internal variables", or HMI "system variables".

5.1 System Variable

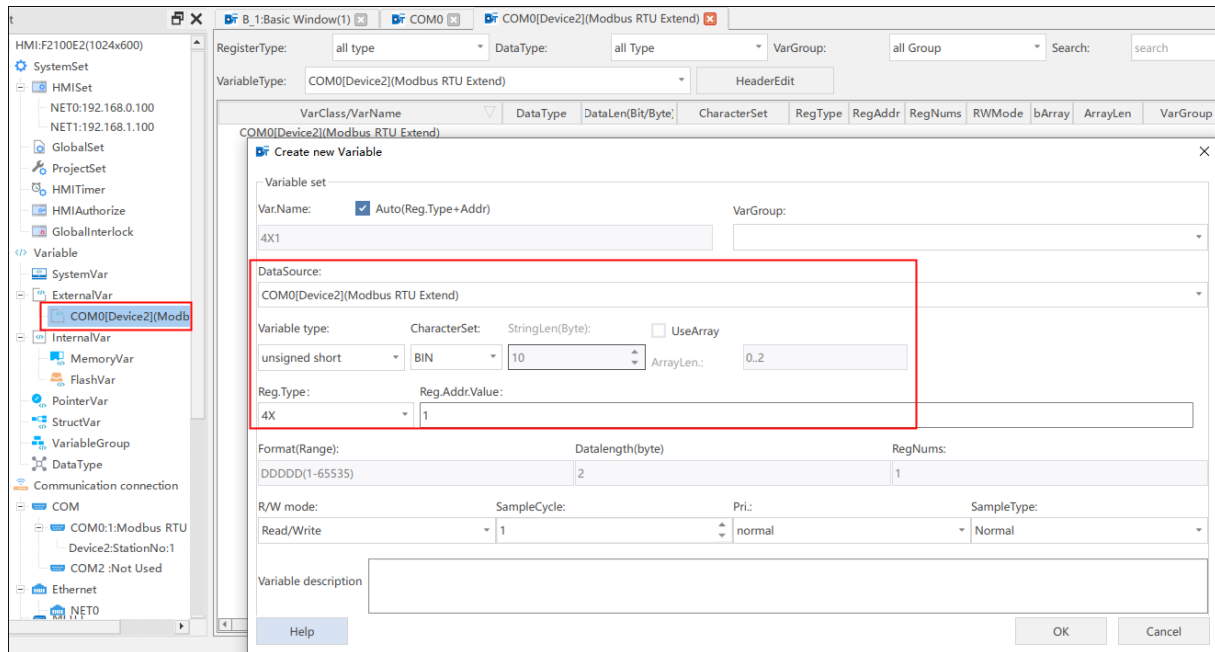
System variables are used to monitor or access system parameters on the operation panel. The use of system variables is the same as that of controller variables, and can be associated with elements in the screen configuration, as well as in related functional modules or macro command scripts. System variables mainly include HMI time variables, user permissions, system information, and other variables that can be directly used.



VarClass/VarName	DataType	DataLen(Bit/Byte)	CharacterSet	RegType	RegAddr	RegNums	RWMode	bArray	ArrayLen	VarGroup	VarDesc
\$User_Password	string	15	UTF-8	SMW	113	15	Read/Wr...	FALSE			User password, which is
\$User_Name	string	31	UTF-8	SMW	129	31	Read	FALSE			The current user name is
\$User_Group	string	31	UTF-8	SMW	161	31	Read	FALSE			Current user group; use
\$User_Description	string	31	UTF-8	SMW	348	31	Read/Wr...	FALSE			Current user description
\$SYS_ActForPwdExpiration	unsigned c...	1	BIN	SMW	2125	1	Read/Wr...	FALSE			The action for password
\$Set_UserPermission_Status	bit	1	BIN	SMB	11	1	Read/Wr...	FALSE			Current user editing stat
\$Set_User_Password	string	15	UTF-8	SMW	227	15	Read/Wr...	FALSE			Set the user password, v
\$Set_User_Name	string	31	UTF-8	SMW	195	31	Read/Wr...	FALSE			Set the user name, whic
\$Set_User_Group_ID	unsigned s...	2	BIN	SMW	259	2	Read/Wr...	FALSE			Set the user group ID, w
\$Set_User_Description	string	31	UTF-8	SMW	316	31	Read/Wr...	FALSE			Set user description, wh
\$Set_User_Account_Status	bit	1	BIN	SMB	2	1	Read/Wr...	FALSE			Set the user account sta
\$Set_Password_Retention	unsigned s...	2	BIN	SMW	263	2	Read/Wr...	FALSE			Set the minimum numbe
\$Set_Password_Modify_Reminder	unsigned s...	2	BIN	SMW	265	2	Read/Wr...	FALSE			Set the maximum numbe
\$Set_Modify_Password_Status	bit	1	BIN	SMB	3	1	Read/Wr...	FALSE			Set whether password n
\$Set_Logout_Time	unsigned s...	2	BIN	SMW	261	2	Read/Wr...	FALSE			Set the user logoff time,
\$Set_Employee_Card_ID	string	31	UTF-8	SMW	380	31	Read/Wr...	FALSE			Set the employee card r
\$Set_Confirm_Password	string	15	UTF-8	SMW	243	15	Read/Wr...	FALSE			New user password con
\$Logout_Time	unsigned s...	2	BIN	SMW	193	2	Read	FALSE			The current user's auton
\$Employee_Card_Login	bit	1	BIN	SMB	12	1	Read	FALSE			Card swiping login flag
\$Employee_Card_ID	string	31	UTF-8	SMW	284	31	Read/Wr...	FALSE			Employee card number,

5.2 External Variable

External controller variables refer to the variables used by the controller in communication with the operation panel, which are used to read real-time data of the controller end variables or make changes to the values of the control end variables. Please refer to the corresponding driver manual for specific establishment and support types.



As shown in the above figure, taking the Modbus RTU Extend protocol as an example, after adding the protocol, there will be multiple protocol directories under the external variables. Double click to enter the variable page, and click “Add” to see register types related to the controller, such as 3X and 4X, in the register type section. Select and add according to your needs.

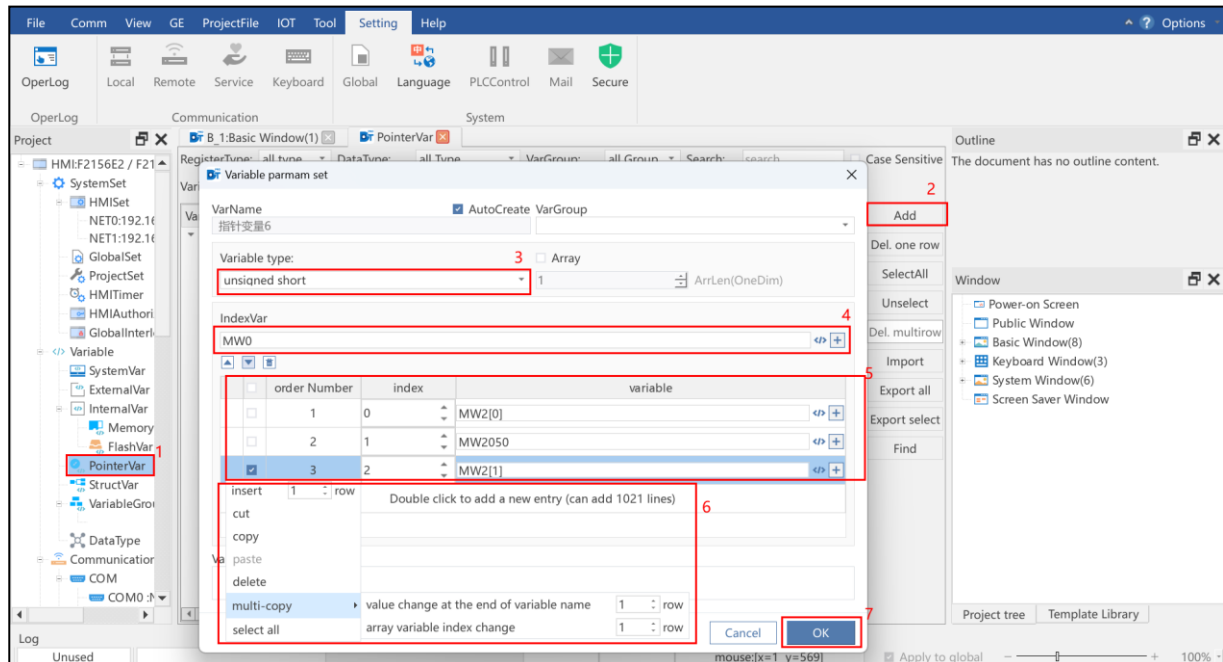
5.3 Internal variable

Internal variable can be used to calculate values that do not need to be processed in the controller, such as using only information displayed to the operator. The use of internal variables is the same as that of controller variables, and any number of internal variables can be created. Internal variables are divided into memory variables and flash variables, where flash variables are power down hold data.

5.4 Pointer Variable

Pointer variables can be used to store/point to variables corresponding to index values.

Pointer variable properties screen:



- 1.1. double-click to open the list of pointer variables;
2. click to add a new pointer variable;
3. Select the data type of the pointer variable;
4. Associate index variables (8-64 bit word variables are allowed to be associated);
5. Add the pointer variable:



1. The data type of the added variable should be consistent with the data type of the pointer; if an array is checked, the length of the array should also be consistent;
2. The index value range of the variable: 0-2147483647; if the associated index variable range is smaller than the range, then refer to the maximum value of the variable, for example: associated 16-bit unsigned, the range of 0-65535; the index value is not allowed to repeat;
3. Add a maximum of 1024 number of entries

6. Right-click on a variable entry to insert, cut, copy, paste, delete, multi-copy, select all, and so on;

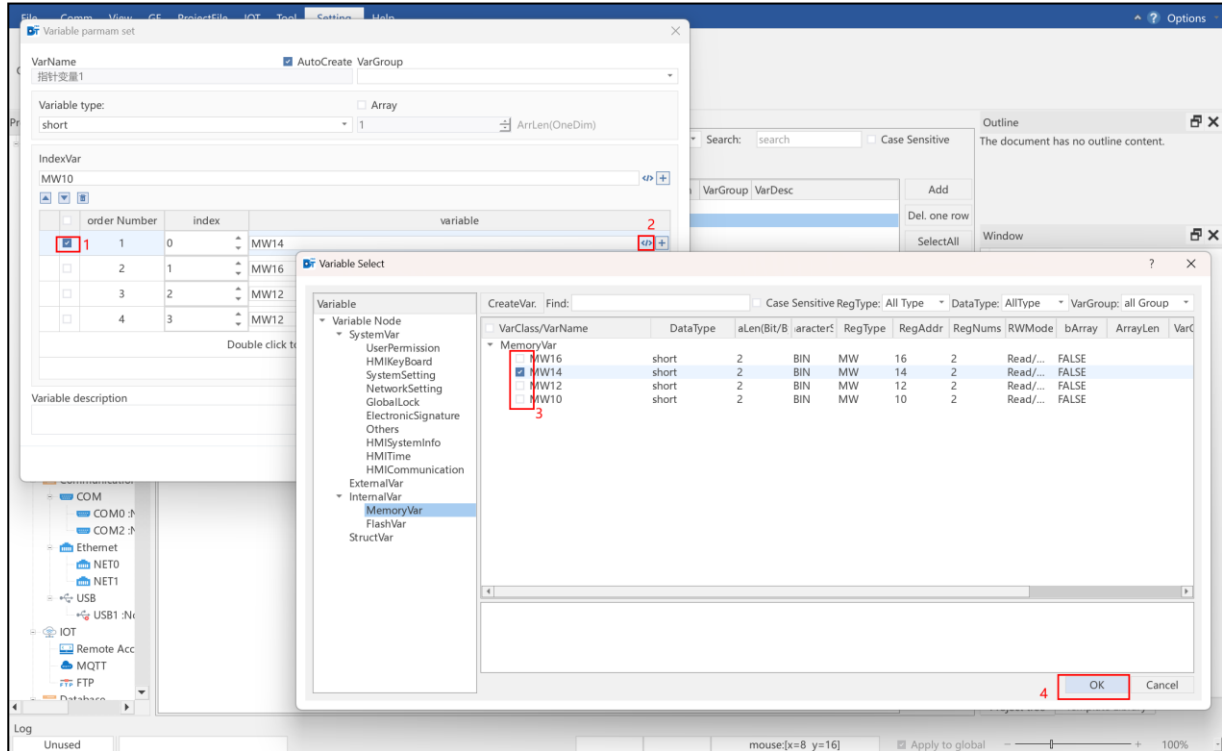


1. If there are multiple selections (whether consecutive or not) are treated as one whole selected line and inserted below;
2. Allow copy and paste operations between members of pointer variables or between members of pointer variables;
3. only supports the same data type or the same data type and the same length of the array between the copy and paste and other operations, does not meet the error will be reported;
4. Paste rules: select a line or select more than one line, according to the serial number to cover, the source selected lines is greater than the number of lines selected by the target, inserted in the target selected line below;
5. Multi-selected entries or do not meet the multiple copy specification (variable name does not end

with a number at the end of the end), can not be multiple copy;

7. Click OK and the pointer variable is created successfully;

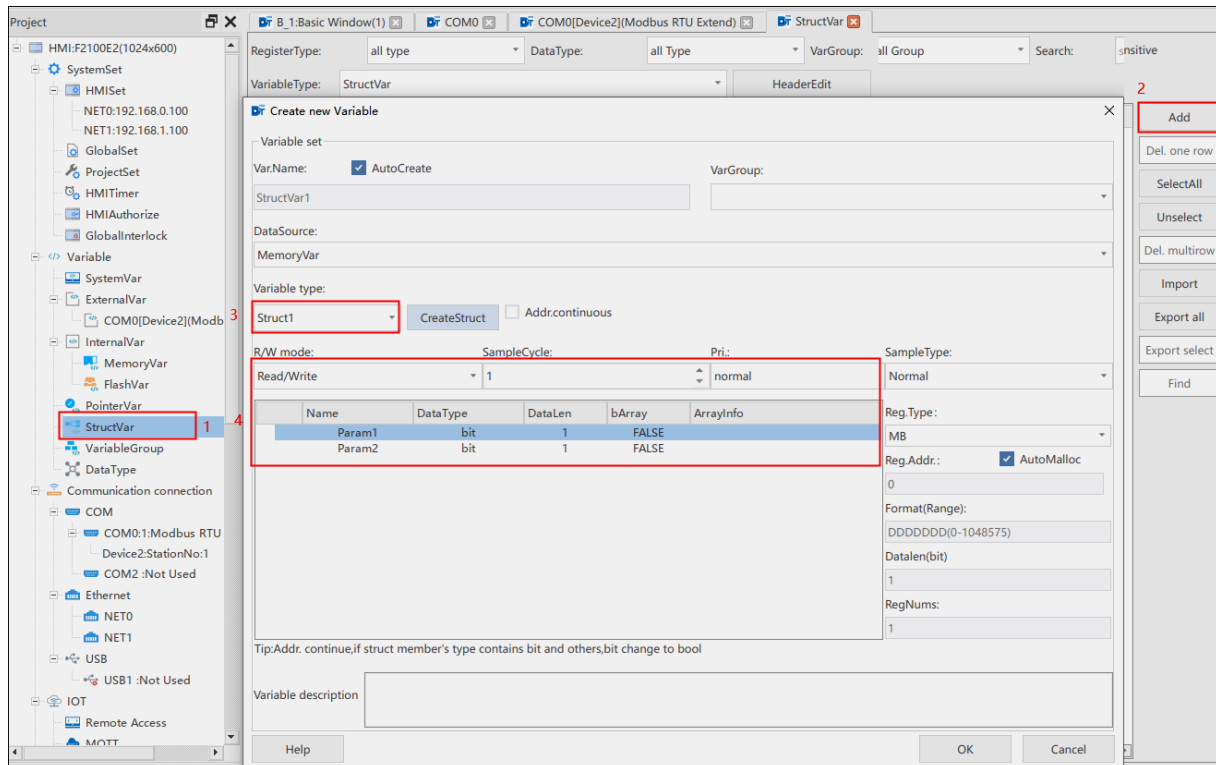
Variable selection window screen:



1. Check one or more variable entries to open the variable selection interface;
2. Display the variables allowed to be associated, keep the selected variables when switching the variable node Tab page, and add/modify all the selected variables when clicking OK;
3. After entering the variable selection window, the number of variables allowed to be checked is judged in real time, when there are more than 1024 entries, the variables are grayed out and cannot be checked;
4. Click the OK button to compare the modified items:
 - ① The unchanged variables remain unchanged, and the changed variables are modified according to the serial number from the smallest to the largest;
 - ② variable less than the previous checkbox, OK, clear the previously selected variable name, excess checkbox, according to the serial number from the smallest to the largest modified in the selected line below the insertion of the new
5. When multiple selection of pointer members associated with the same variable, if the variable has not changed, it will not change, if the variable has changed but the variable still exists, only the line with the smallest index value is retained

5.5 Structure Variable

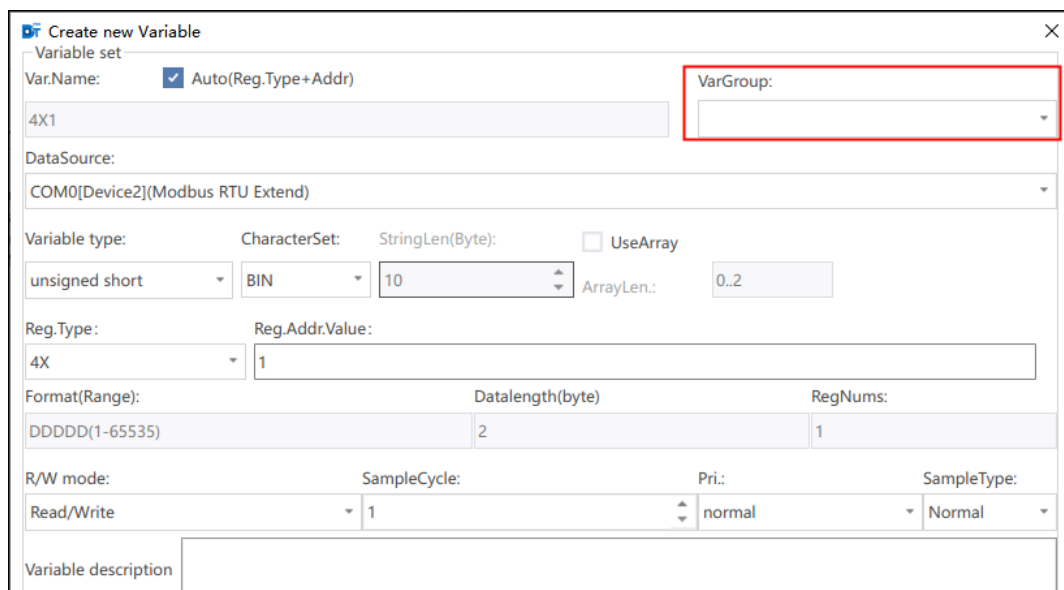
Structure variables consist of a set of different data called members (or domains, or elements), where each member can have a different type. Note: When creating structural variables for the first time in the project, the data type needs to be created first.



1. Double click to open the list of structure variables
2. Add structure variables
3. Select variable type
4. Display all members under the corresponding data type

5.6 Variable Group

Variables can be grouped and managed in the project production.



1. Right click on the parent node of the variable group to add a variable group.
2. Right click on the corresponding variable group to rename or delete it.
3. When adding variables from the variable list or opening variable properties, variable groups can be associated.

5.7 Data Type

Data type: Select the data type to be set, which can be an array. The supported types are listed in the table below.

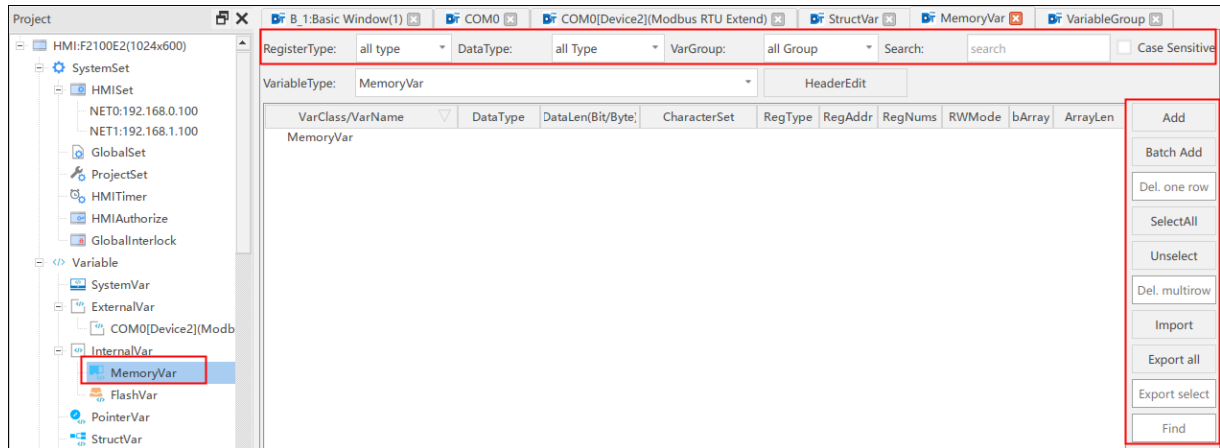
Character set: Numerical values can be set to BIN, BCD, LSB. The default string is UTF-8, and can be set according to the desired string type.

Data Type Name	Data Type	Data range
Bit	Bit	0~1
Boolean value	BOOL	FALSE (0) ~TRUE (Nonzero number)
8-bit signed integer	INT8	-128~127
8-bit unsigned integer	UINT8	0~255
16-bit signed integer	INT16	-32768~32767
16-bit unsigned integer	UINT16	0~65535
32-bit signed integer	INT32	-2147483648~2147483647
32-bit unsigned integer	UINT32	0~4294967295
64-bit signed integer	INT64	-2 ⁶³ ~2 ⁶³ -1
64-bit unsigned integer	UINT64	0~2 ⁶⁴ -1
Single-precision floating point	Float	3.4E-38~3.4E+38
Double-precision floating point	Double	1.7E-308~1.7E+308
Date	Date	
Date And Time	Date_And_Time	
Time of one Day	Time_of_Day	
Time	Time	
Long time	LTime	
Timestamp	Timestamp	
Character String	UTF-8	

5.8 Addition/deletion/use of variables

5.8.1 Adding variables

Taking adding memory variables as an example, select Internal Variables - Memory Variables/Flash Variables, click Add/Batch Add, and the following figure will pop up:



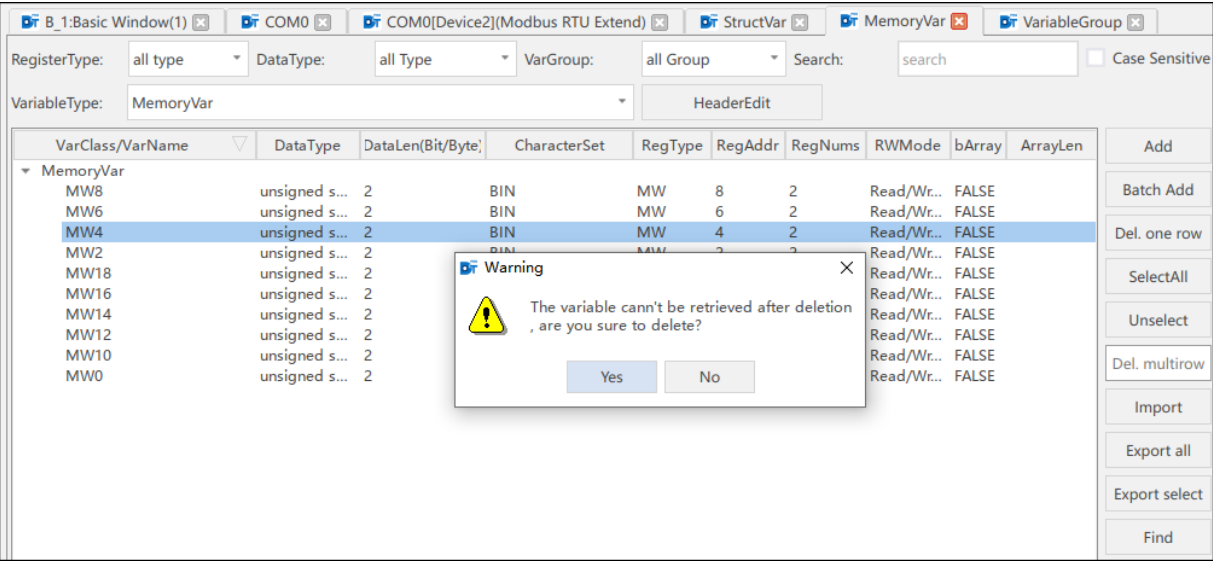
Name	Description	
Variable name	A unique variable identifier, with automatic generation checked by default (register type + address)	
Variable group	Set the group to which the variable belongs for easy subsequent filtering. It can be skipped and defaults to an empty group.	
Data source	Optional data sources include memory, disk, and external controller.	
Array	By default, it is not checked. After checking, the array length can be set, and a two-dimensional array can be checked. Please note that the array length is less than the number of available registers.	
Register Type	Set the data type according to the selected data source	
Register Address	Default automatic allocation, can be unchecked and the register address can be manually changed. Please note that the address cannot be duplicated.	
Read/Write mode	Set read-only/read write/write only attributes for variables.	
Variable Description	Explain the purpose of the variable	
Batch establishment	Command mode	1. Prefix and index id set 2. Register name and address
	Quantity	Number of variables created.
	Same name or address	1. Skip establishment 2. Delete reconstruction

5.8.2 Deleting Variables

Delete one row : Delete variables from the currently selected row.

Delete muti-row : Delete the selected variable. You can hold down Ctrl and click on the variable you want to delete,

or you can click on Select All.



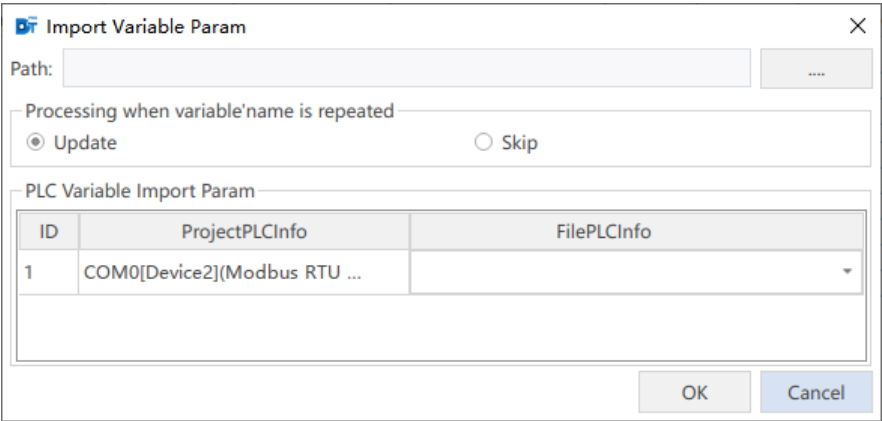
5.8.3 Export/import variable

Export: Export the currently created variables, including both export all and export selected items.

Import: Import a table of variables edited externally.

Note: The format of the imported table needs to have the DTP format. Otherwise, the import will NOT be successful.

First, choose the path to import the file, and then choose the method of handling duplicate variable names. The PLC variable import parameter is the external controller driver protocol that has already established a connection.



6 Communication Connection

The communication connection is mainly used for communication with external controllers, including COM, Ethernet port, and USB.

For the connection and parameter settings of each drive, please refer to the communication manual.

6.1 Equipment management

According to your own needs, set common communication protocols to facilitate and quickly establish communication connections with external controllers.

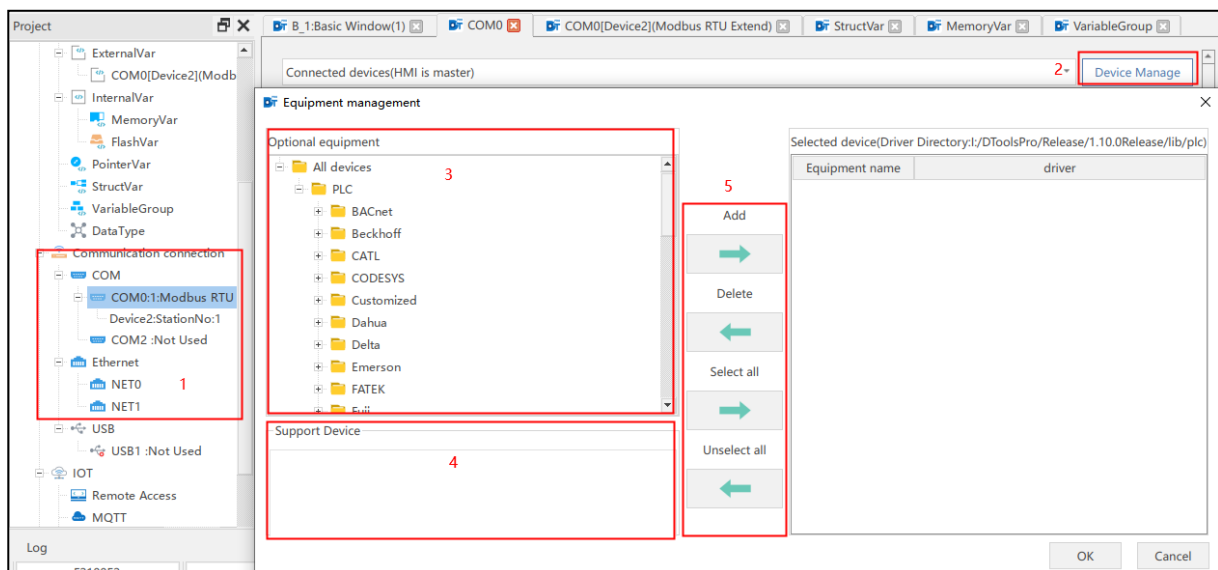
Select the corresponding communication connection method, taking COM as an example, double-click the corresponding COM port, click Common Device Management, and the following window will pop up:

Optional equipment : External controller protocols currently supported by HMI.

Support Device : PLC models supported by the currently selected protocol.

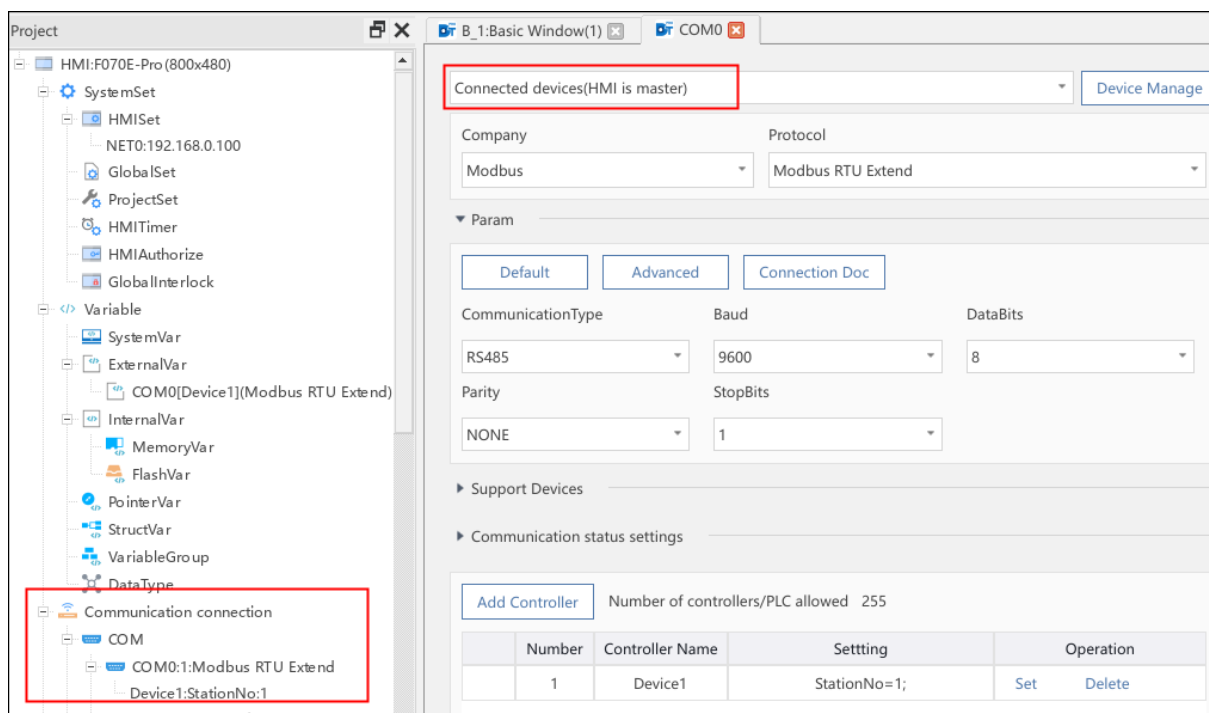
Selected Device : Display a list of commonly used devices selected, click “OK” to take effect.

NOTE : Unselect “SelectAll” will clear the selected devices, and it will take effect after clicking “OK”.



6.2 COM

For applications related to various external driver protocols, please refer to the corresponding communication manual.



Parameter Setting Description

Communication type	com0 : RS232/RS422/RS485 com1 : RS422/RS232/RS485 com2 : RS232
Baud	Maintain consistency with connecting slave stations
Data Bits	Maintain consistency with connecting slave stations
Parity	Maintain consistency with connecting slave stations
Stop Bits	Maintain consistency with connecting slave stations
Default	Restore communication parameters to system default parameters

Serial communication method:

HMICommunication						
\$SYS_COM1_Comm.Method	unsigned char	1	BIN	SFW	242	1
\$SYS_COM0_Comm.Method	unsigned char	1	BIN	SFW	241	1
\$Communication_Error_Display_F...	bit	1	BIN	SFB	16	1

Connected devices(HMI is master) Device Mar

Company

Modbus

Protocol

Modbus RTU Extend

Param

Default

Advanced

Connection Doc

CommunicationType

RS485

Baud

9600

DataBits

8

Parity

NONE

StopBits

1

Support Devices

Communication status settings

Add Controller

Number of controllers/PLC allowed 255

Number	Controller Name	Settting	Operation
1	设备5	StationNo=1;	Set Delete

Support the configuration of COM0/COM1 communication mode; use the corresponding variable configuration in the system variables, COM0 communication mode: according to the project configuration-0, rs232-1, rs422-2, rs485-3; COM1 communication mode: according to the project configuration-0, rs422-2, rs485-3

Communication advanced settings

Timeout and package parameters

CommunicationTimeout

3

CharacterTimeout

1

CommunicationInterval

0

CommunicatioMinCycle

0

CommunicatioErrorRetries

1

CommunicatioErrorChecks

3

CommunicatioNakRetries

3

CommunicatioNakChecks

3

DeviceRetryInterval

3

DeviceMaxRetries

1

MaxReadBlockWords

32

MaxWriteBlockWords

32

MaxReadBlockBits

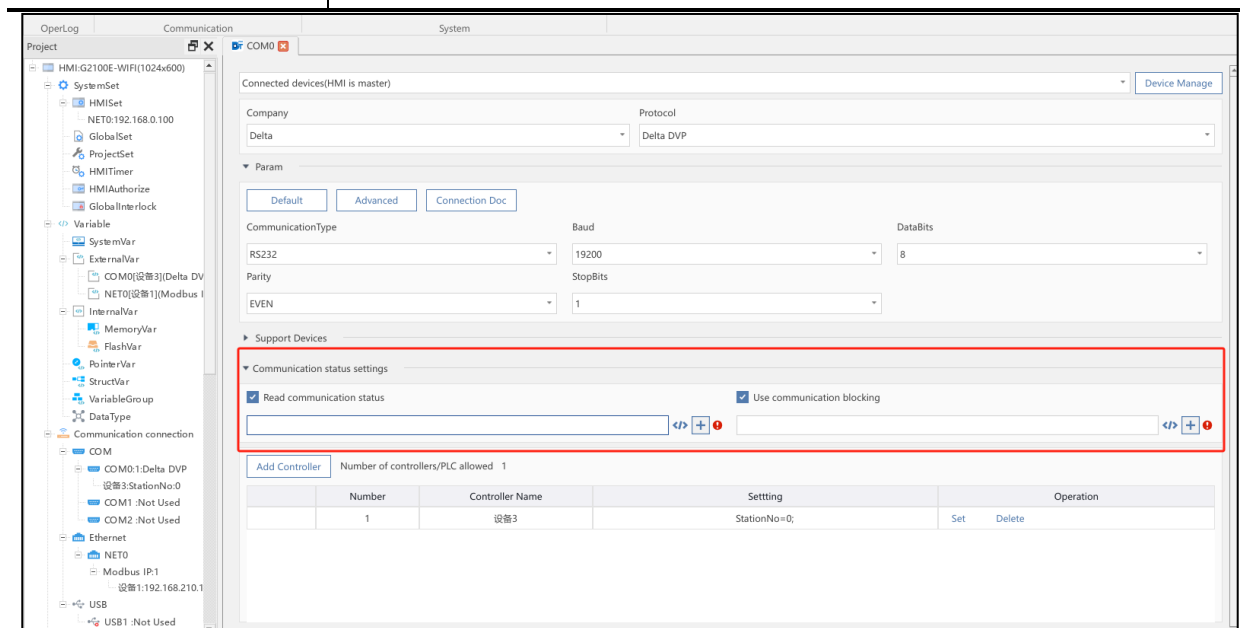
128

Broadcasting Station Number

65535

Advanced Parameter Description		
Communication Timeout	The time in seconds when the communication cannot receive correct message feedback	
Character Timeout	The time, in milliseconds, between the end of one character (stop bit) and the end of the next character (stop bit)	
Communication interval	In millisecond	
Communication Error	Number of requests after communication error	

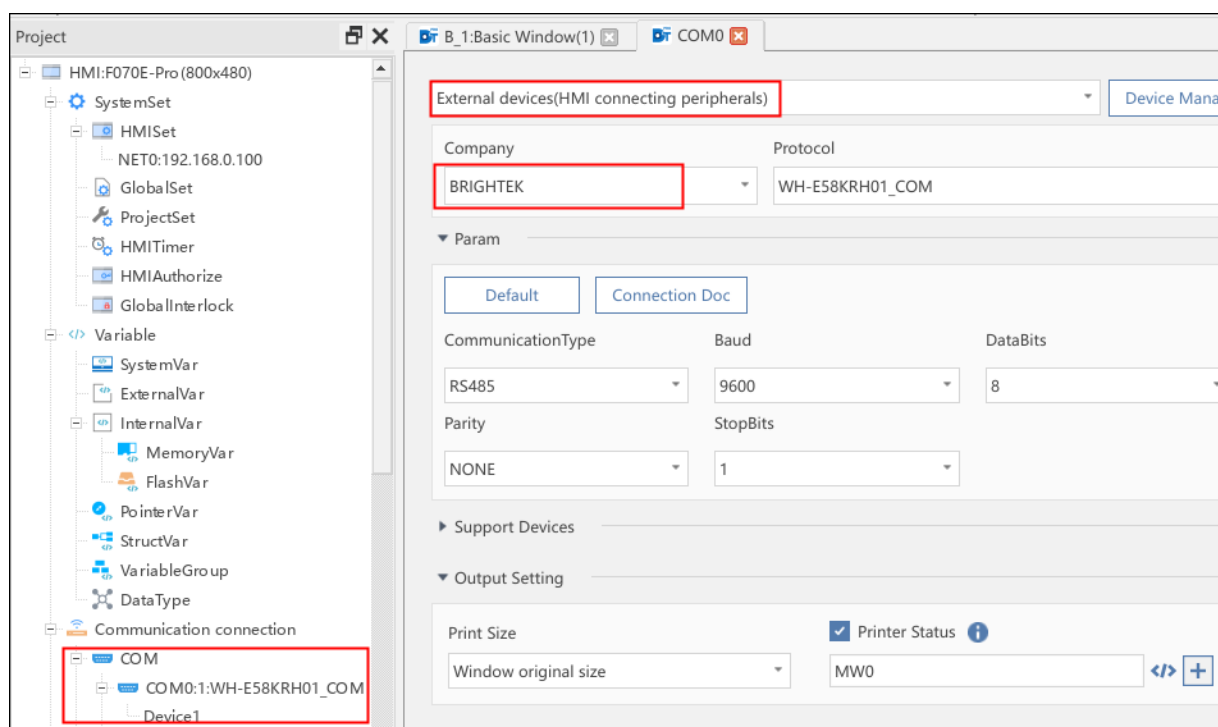
Retries		
Communication Checks	Error	Number of consecutive communication errors, triggering an error message
Communication Retries	Nak	Number of consecutive repeated requests after communication timeout
Communication Checks	Nak	Number of detection after communication timeout
Device Retry Interval		The time interval between each reconnection request after communication disconnection, in seconds.
Device Max Retries		Number of device reconnections after communication disconnection
Max Read Block Words		Indicates the maximum number of word registers per message read. Exceeding this word count will result in multiple requests being split
Max Write Block Words		Indicates the maximum number of word registers per message written. Exceeding this word count will result in multiple requests
Max Read Block Bits		Indicates the maximum number of bit registers per message read. Exceeding this word count will result in multiple requests being split
Broadcasting number	station	As long as the device with the broadcasting station number sends a data frame, all connected devices that support the broadcasting station number can receive it, but do not reply.



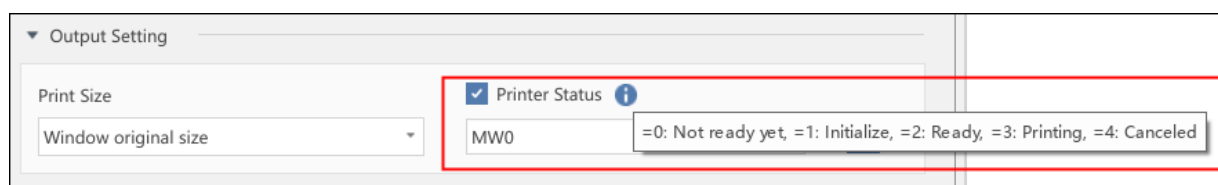
Communication status settings Description	
Read communication status	Only supports internal variables, bit/pool variables (bit wise), and supports unsigned integer variables (8-64); Supports non arrays and arrays (supports array elements and the entire array; multi-dimensional arrays do not cross dimensions); 0- No communication, 1- Communication;
	Array bit variable: The array index of the entire array represents the controller number; The array variable variable [0] represents the masking state of the controller with number 1; Variable [1] represents the communication status of the controller with number 2, and so on;

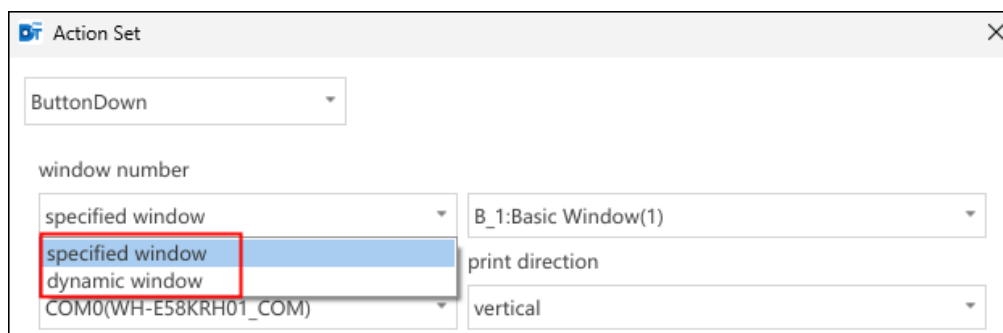
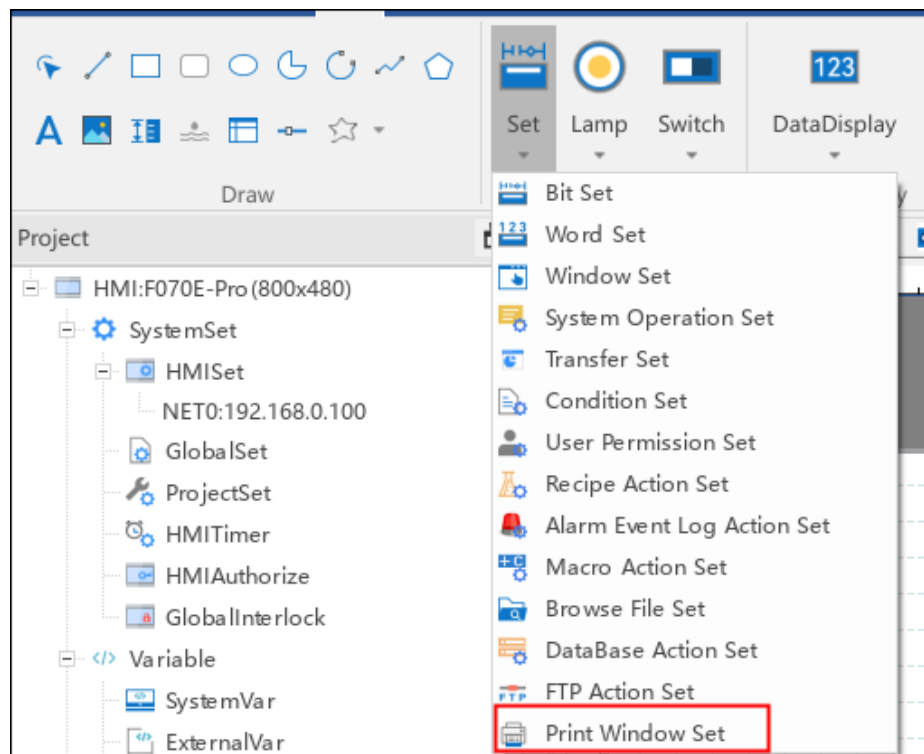
	Array word variable: For example, if the PLC protocol is associated with 10 controllers and an 8-bit unsigned array variable with an array length of 2 is selected, variable [0]. bit0 represents the communication status of the controller with the number 1; Variable [0]. bit1 represents the communication status of controller number 2, and so on. variable [1]. bit0 represents the communication status of controller number 9; Variable [1]. bit1 represents the communication status of controller number 10;
Use communication blocking	When the blocking state is 1, the communication state is 0, and the component effect is consistent with the current non communication (no error window pops up); When the blocking status is 0, the communication status is read in real-time; 0- Not blocking; 1. blocking; Only supports internal variables and disk variables; Supports non arrays and arrays (supports array elements and the entire array; multi-dimensional arrays do not cross dimensions); Variable usage settings and communication status are similar

Serial port connect to external device (printers):

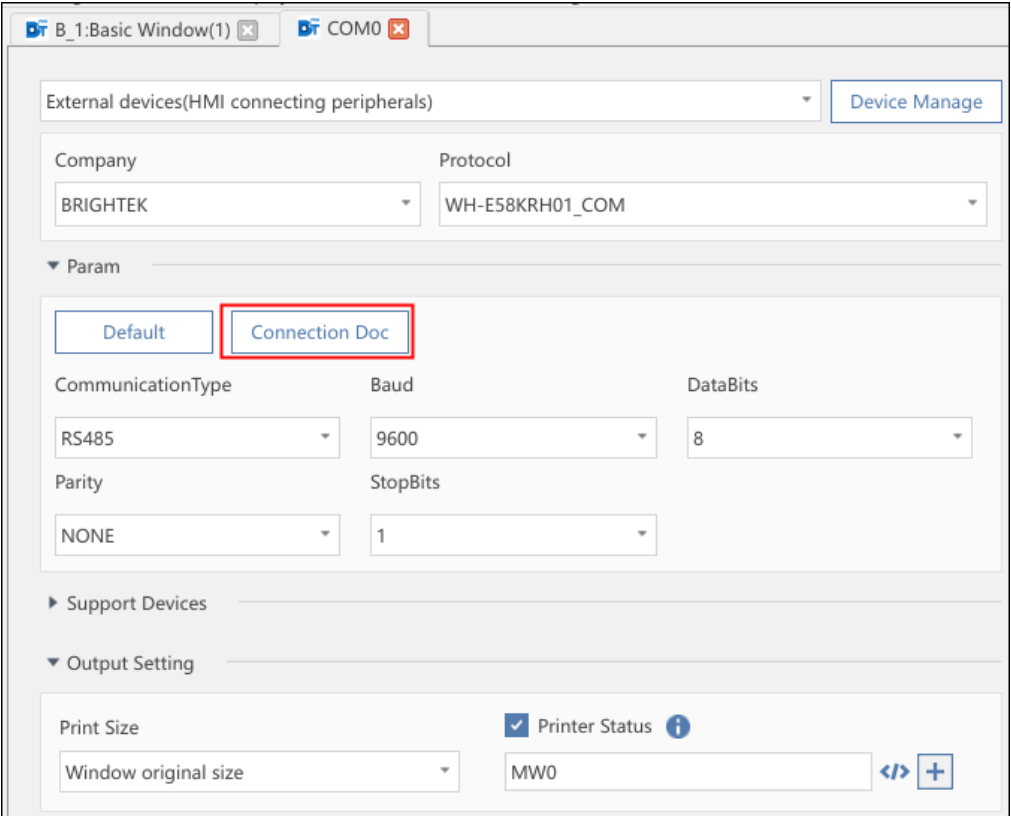


Printer status: After checking, the value of the corresponding register can be used to view the running status of the printer.





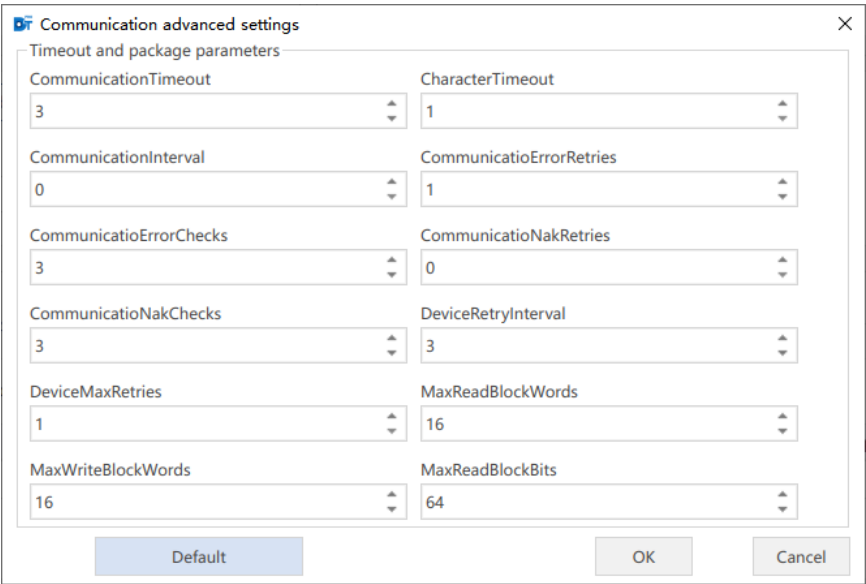
Supports printing of specified windows and dynamic windows. The dynamic window assigns the corresponding variable to the window number to be printed. For the printer connection manual, please refer to the "ConnectionDoc" for details.



6.3 Ethernet port

For the application of various external driver protocols, please refer to the corresponding reference manual

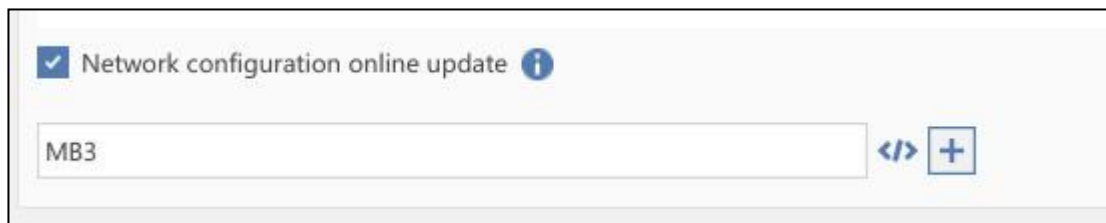
Communication method : UDP 、 TCP



Advanced Parameter Description	
Communication Timeout	The time in seconds when the communication cannot receive correct message feedback
Character Timeout	The time, in milliseconds, between the end of one character (stop bit) and the end

		of the next character (stop bit)
Communication interval		In millisecond
Communication Retries	Error	Number of requests after communication error
Communication Checks	Error	Number of consecutive communication errors, triggering an error message
Communication Nak Retries		Number of consecutive repeated requests after communication timeout
Communication Nak Checks		Number of detection after communication timeout
Device Retry Interval		The time interval between each reconnection request after communication disconnection, in seconds.
Device Max Retries		Number of device reconnections after communication disconnection
Max Read Block Words		Indicates the maximum number of word registers per message read. Exceeding this word count will result in multiple requests being split
Max Write Block Words		Indicates the maximum number of word registers per message written. Exceeding this word count will result in multiple requests
Max Read Block Bits		Indicates the maximum number of bit registers per message read. Exceeding this word count will result in multiple requests being split

Network Configuration Online Update :



When unchecked, network configurations such as IP addresses require a restart to take effect after modification. When checked, bit variables/bit array variables (one-dimensional) may be associated, with bits taking effect from 0 to 1. Upon activation, they automatically reset, and the configuration takes effect immediately. Simultaneously, the configuration remains active after device restart (even if the bit variable has not triggered a change, it will take effect after restart).

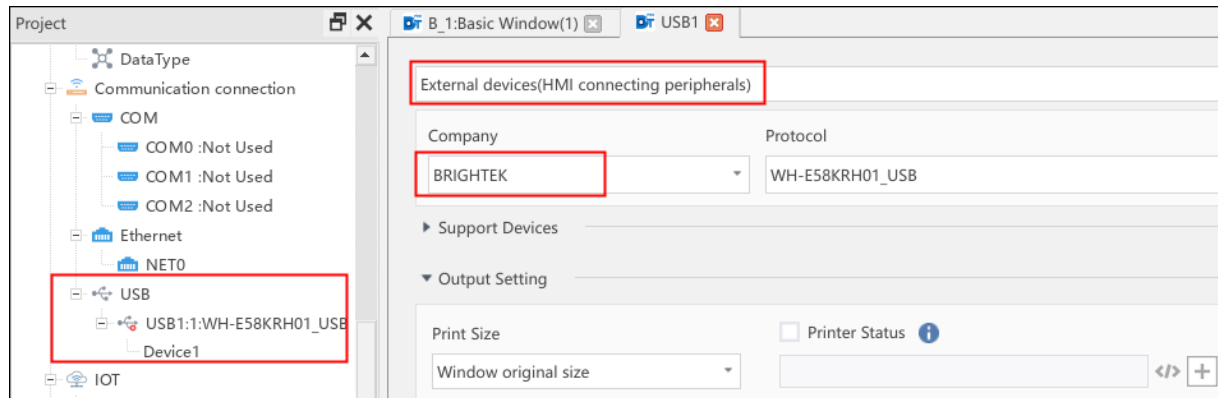
Note:



1. Currently, the [Network Configuration Online Update] setting is only displayed under the Siemens driver SIEMENS TIAPortal Ethernet (TCP Slave) (Free Tag Names). This setting is hidden under other drivers.
2. When multiple devices are present, if any device is not using a dynamic IP address, it shall not occupy an array index.

6.4 USB

Supports drive-free devices such as RFID, Barcode scanner and printers.



7 Window Screen

“Window” is a fundamental element of an HMI project, and each screen is composed of several windows. With a window, various elements, graphics, and text can be placed on the HMI interface.

7.1 Types of windows

According to different functions or usage methods, windows can be divided into 6 types: Power-on screen, public window, basic window, keyboard window, system window, and screensaver window. The basic window can be used as a pop-up window or as an underlying window. The specific instructions are shown in the table:

Window Type	Description
Power-on screen	The screen displayed during HMI startup. Users can customize according to their needs.
Basic Window	The basic window is the most commonly used window. When using 【Button】 — 【Switch Basic Window】 or global control to switch basic windows, the current screen will be cleared (except for public windows), and the basic window to switch will be displayed on the current screen. When an element on the basic window calls a pop-up window, the basic window remains open, and the original information on the window is retained. The called pop-up window is attached to the current basic window, and all pop-up windows are parent-child windows. When switching from basic window N to basic window M, all sub windows on window N can be set to close or continue to be retained.
Public Window	The elements of this window will be displayed on other windows, but do not include pop-up windows. Usually, elements that are common to each window are placed in a public window.
Keyboard Window	This window is mainly used to set various keyboards and will be displayed on other windows. Users can freely design keyboard styles, click here to jump to keyboard window properties
System Window	This window is generally used to place multiple preset system operation windows, such as error prompts, user login, electronic signatures, and communication information.
Popup Window	Popup windows are all attached to the current basic window. You can set whether to automatically close child windows when the parent window is closed.
Screen Saver Window	When screen saver is enabled and HMI is not operated within the set time, this window will automatically pop up to prevent misoperation.
Bottom Window	This window is generally used to place common elements that multiple windows need to call. Using the underlying window eliminates the need to repeatedly edit the same elements. For example, background graphics, charts, titles, etc.

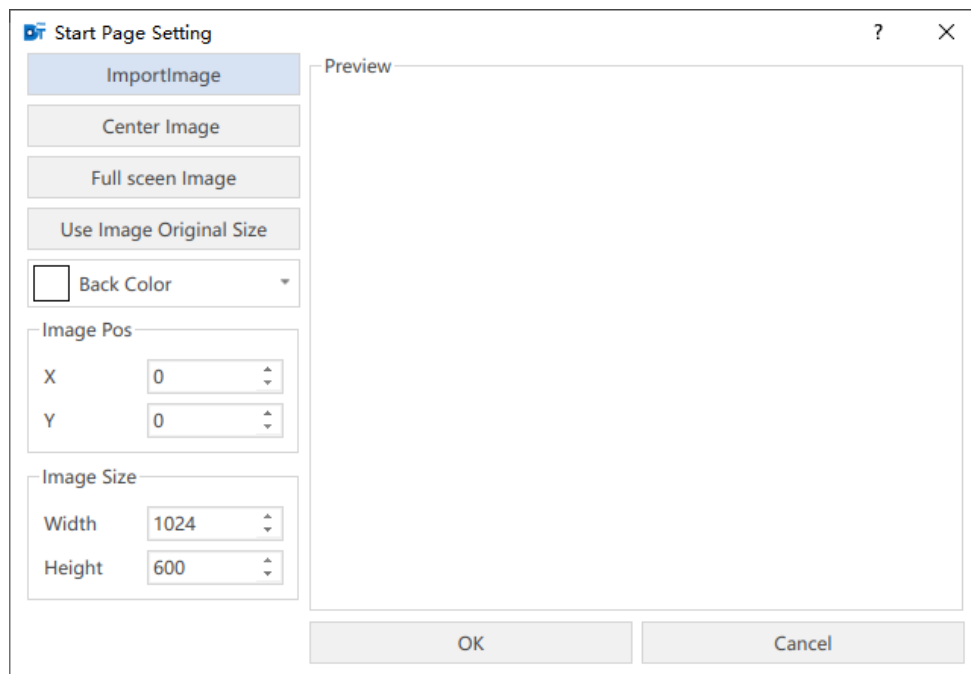
A screen can contain both basic and public windows, and each basic window can contain multiple bottom and pop-up windows.

There is a certain limit on the number of windows in each project, as shown in the table below:

Window Type	Default window number	Maximum number of supported windows
Power-on screen	--	1
Basic Window	1	Window number range: Basic window 1~30000
Public Window	--	1
Keyboard Window	40001	40001-40006
System Window	--	A single window can have up to 3 bottom windows
Popup Window	--	Unlimited until memory runs out
Screen Saver Window	30001	Window number range:30001-40000
Bottom Window	51001	1

7.2 Start Page Settings

The start page setting is the first setting when the screen is turned on, and users can set it according to their needs. The setting interface is shown in the following figure:



The specific setting instructions are shown in the table below:

Start Page Setting Description	
Import image	Import startup screen images, supporting image formats of *. png *. jpg *. jpeg *. bmp. *svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are currently not supported)
Center image	Click to put the image in the middle of the window
Full screen image	Click on it and let the picture spread all over the window
Use Image Original Size	After clicking, the image will be displayed in its original size on the window
Background Color	Select the background color of the window after selecting the image
Image position	Modify the coordinate position of the image on the window. The top left corner of the window

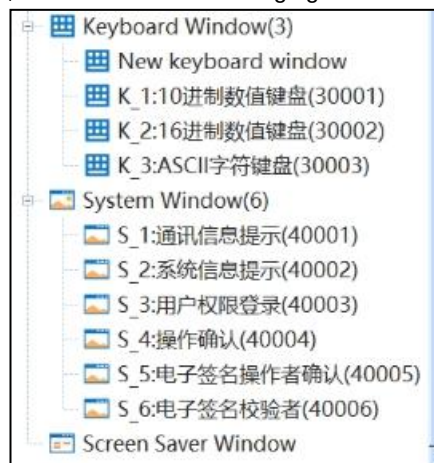
	is the origin position, the right is the X coordinate, and the bottom is the Y coordinate
Image Size	Modify the width and height of the image on the window, with horizontal width and vertical height



The X-coordinate plus width must be less than or equal to the screen width, and the Y-coordinate plus height must be less than or equal to the screen height.

7.3 System Window

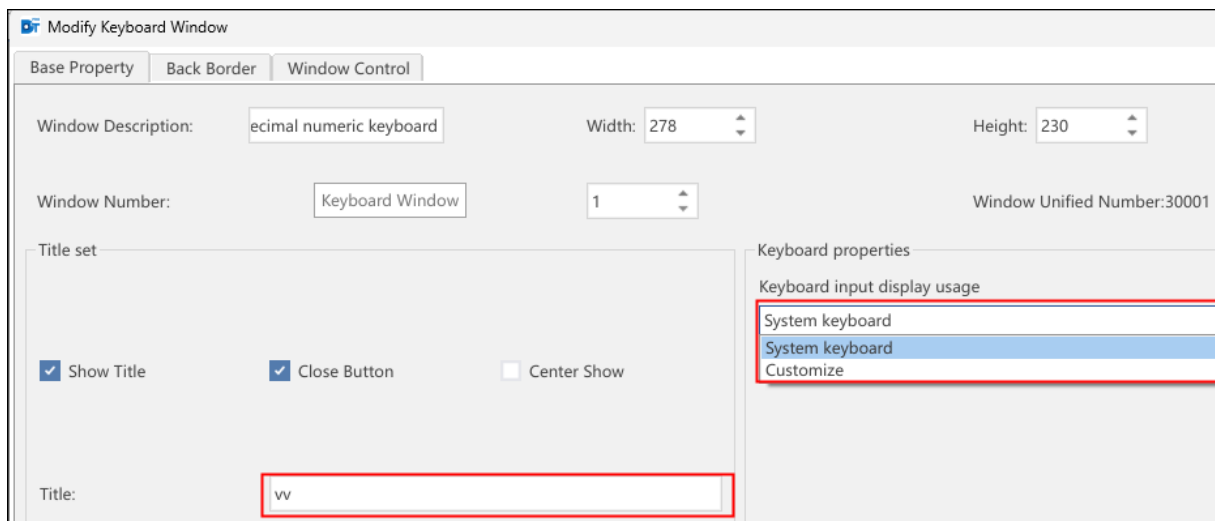
After creating a new project, the project comes with 6 default system windows and 3 keyboard windows. You can see it in the project structure window, as shown in the following figure:



The specific description of the default window is shown in the table below:

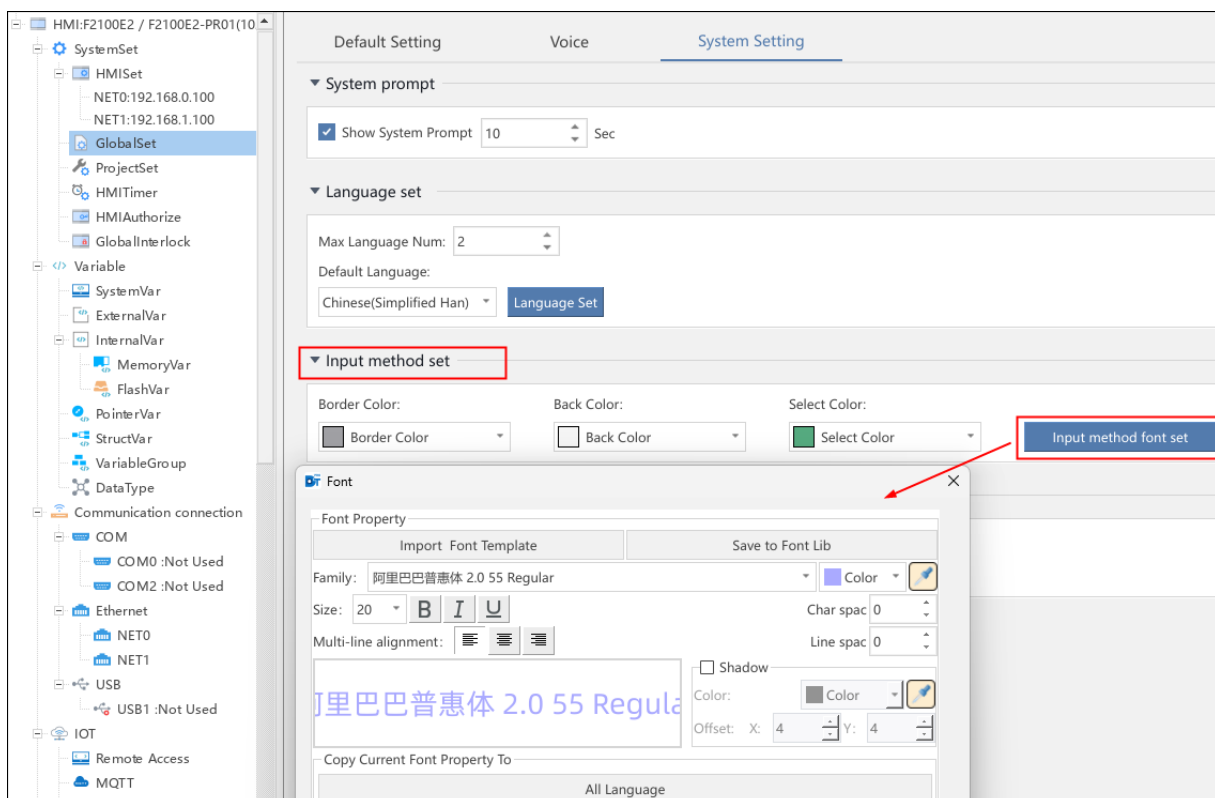
Window number	Window Name	Description
30001	Decimal numeric keyboard	Decimal numeric keyboard. Default pop-up numeric keyboard for decimal input
30002	Hexadecimal numeric keypad	Hexadecimal numeric keyboard. Default pop-up numeric keyboard for hexadecimal input
30003	ASCII character keyboard	String keyboard, default pop-up character keyboard for character input
40001	Communication Message Alert	Pop up message window when external controller error occurs
40002	System information prompt	System information prompt
40003	User permission login	Automatic pop-up window for user permission login. For more information on user permissions, please refer to 【11.2.2 User Permission Information】
40004	Operate Confirm	Automatic pop-up confirmation window for operation control
40005	Electronic signature operator confirmation	The electronic signature operator confirms the automatic pop-up window. For more information on electronic signatures, please refer to 【19. Electronic Signature】
40006	Electronic signature verifier	Electronic signature verifier confirmation automatic pop-up window

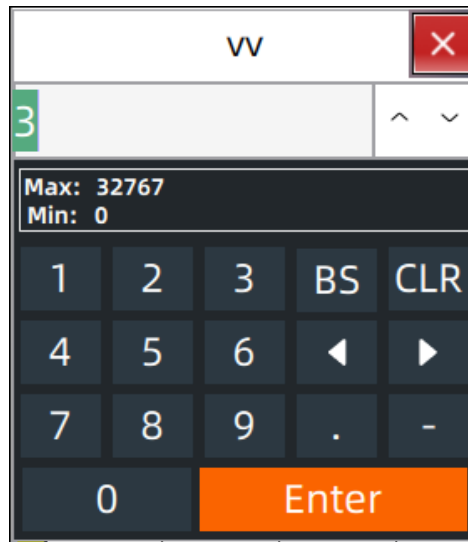
7.4 Keyboard Window



System Keyboard : The input method properties of the system keyboard need to be set in the "Global Set" -

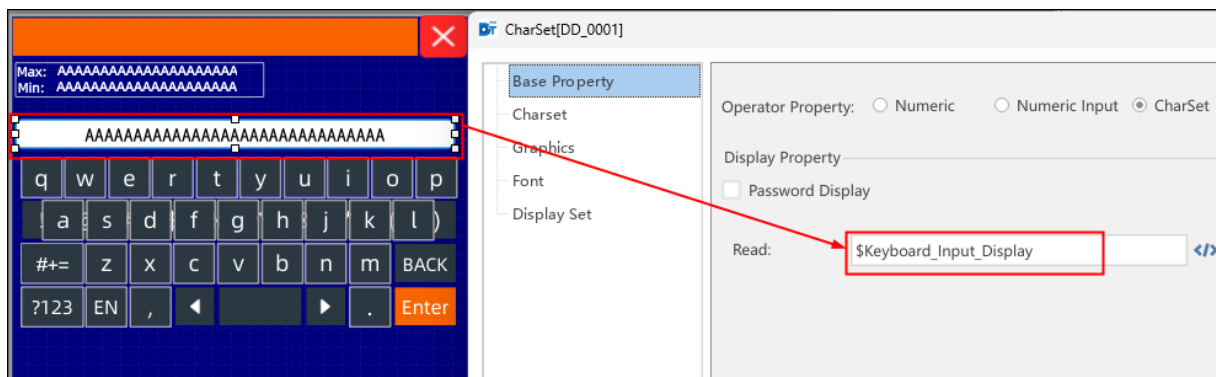
"System
setting"



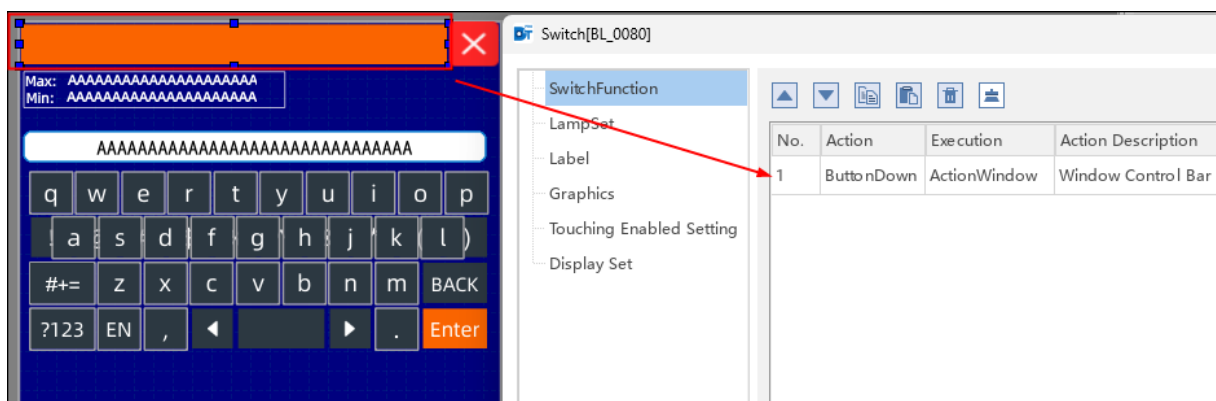


Customize :

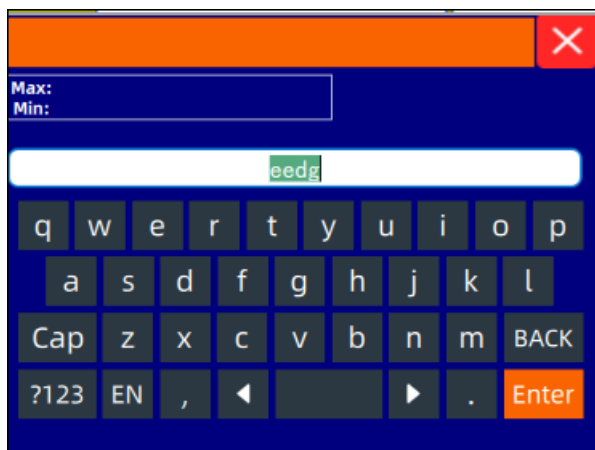
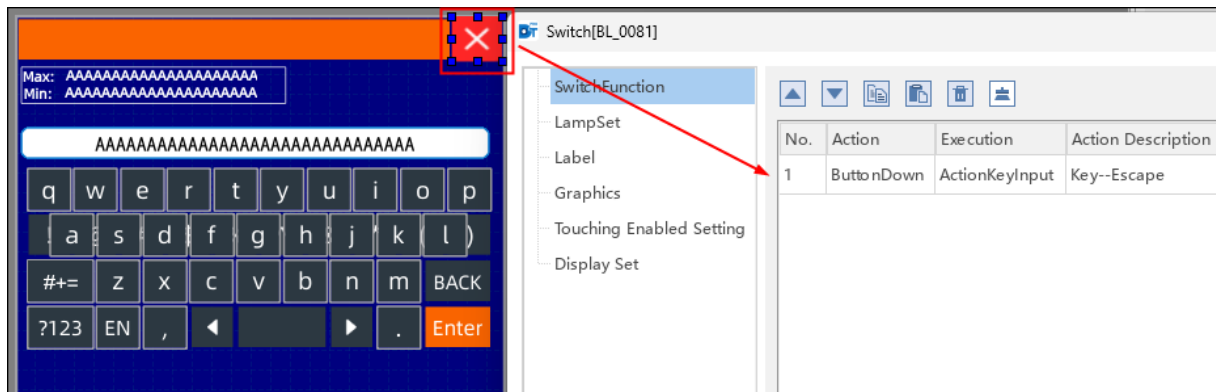
To display input data, the character display component needs to be associated with the "\$Keyboard_Input_Display" variable



Enabling the display of the title bar and the close button will result in a display effect consistent with the system keyboard. You can also uncheck and design your own title bar and close button: you need to place the "Switch" component - "ActionWindow"- "Window Control Bar"



"Switch" component - "ActionKeyInput"- "Key-Escape"

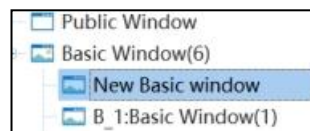


7.5 Editing Window

7.5.1 Create a new window

New projects have one window by default, and users can add several new windows in the following two ways.

- Double click **【New Basic Window】** on the project management tree



- Click on the **【New Window】**  icon in **【View】**
- Right click on the project management tree window and select New Window as shown in the following figure:



Double Click **【New Basic Window】** , Menu - View **【New Window】** and right click on 'New Window' will automatically pop up the **【New Window】** page.

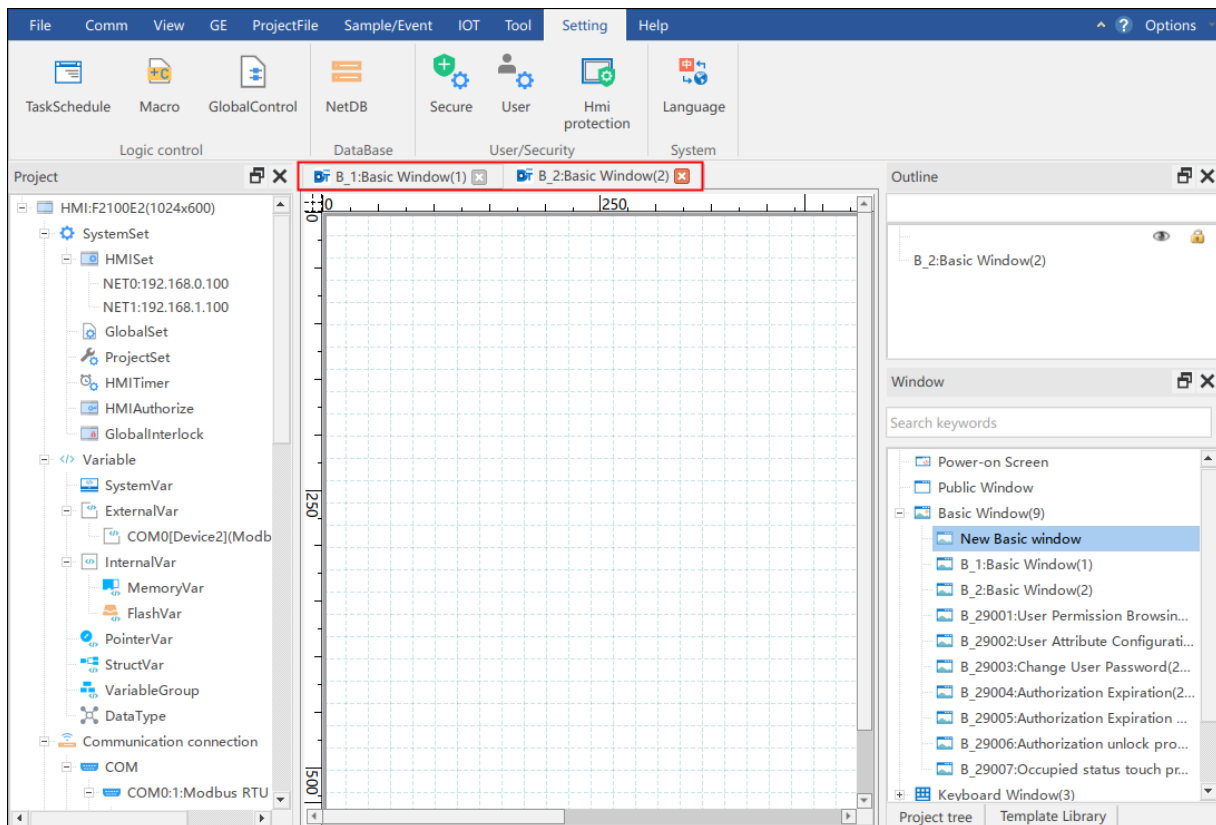
The specific description is shown in the table below:

Name		Description
Numbering Method	Vacancy	When the existing window numbers are not continuous, a new window can be inserted into the first vacant position automatically recognized by the system, and 【Vacancy】 is selected by default.
	Last	When creating a new window, the system will automatically set the window number to the maximum window number that currently does not exist.
	Custom	Create a new window at any location, with customizable window numbers ranging from 1 to 30000, but cannot be an existing window number.
	Insert Window Number	After selection, you can create a new window in any position, and the window number can be customized. If the defined number already exists, add 1 to the window after this number in sequence.
Window Number		Display the number of the new window. When the numbering method is selected as 【Vacancy】 or 【Last】 , the window number will be grayed out and can only be modified by selecting 【Custom】 or 【 Insert Window Number】 .
Window Description		User defined or system default.

7.5.2 Open Window

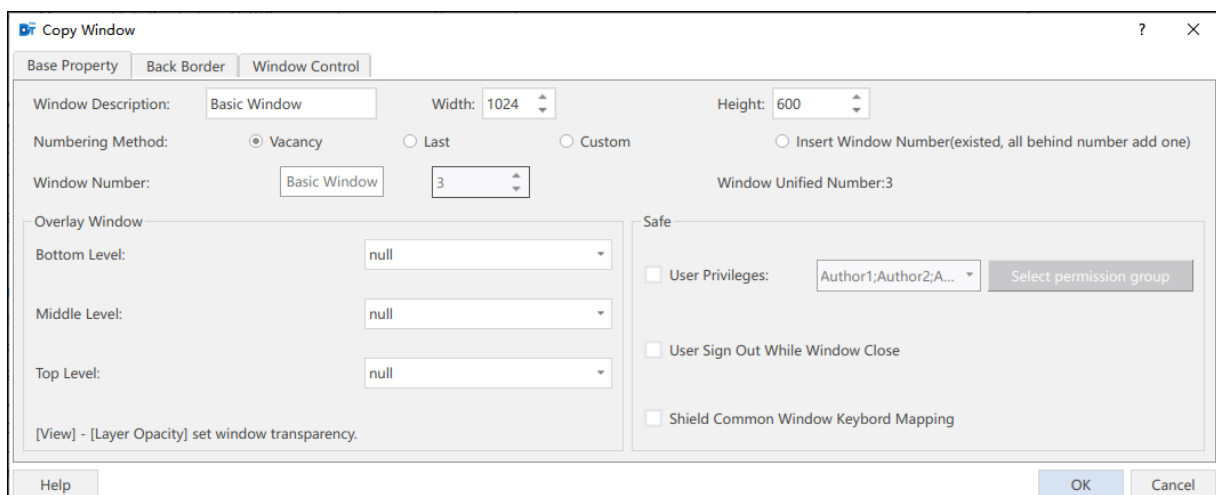
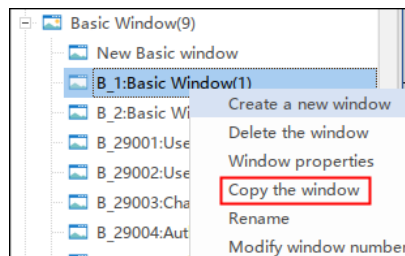
After creating a window, you can open it in the following ways:

- Double-click the window you want to open in the window list of the **【 Project Management Tree】**
- You can click to switch above the already opened window, as shown in the following figure

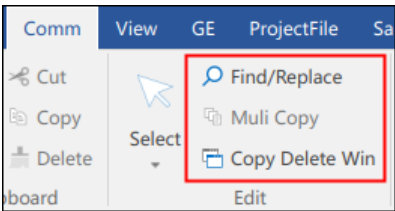


7.5.3 Copy the Window/ Batch Copy Windows

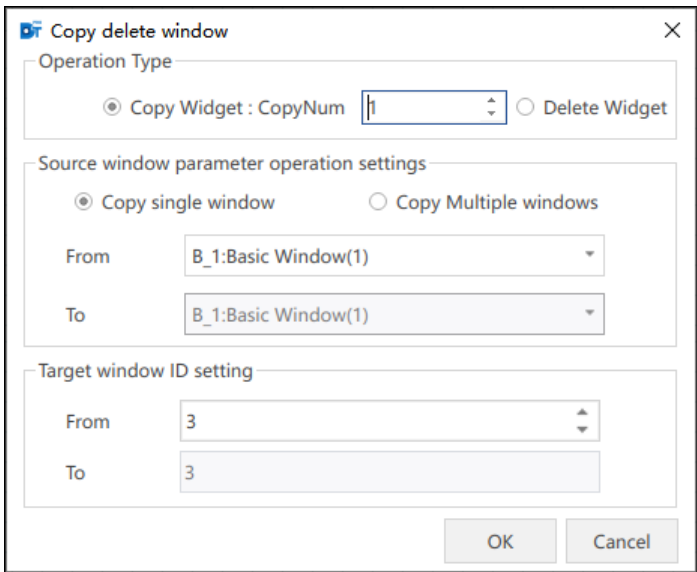
- Right click on the project management tree and select 'copy window' as shown in the following figure:



- In the Common menu of the project, select **【Copy Win】** , as shown in the following figure:



Click on **【Copy Win】** , as shown in the following figure:



The specific description is shown in the table:

Name		Description
Operation Type	Copy Widget: Copy Num	Select the copy window function and set the number of windows to be copied
Source Window parameter operation settings	Copy single window	Select a single window number to copy
	Copy multiple windows	Select the consecutive window numbers to be copied, from window M to window N, these several windows will be copied simultaneously
Target window ID setting		Set the starting window number for copying to. The target end window number is automatically generated by the system and cannot be changed



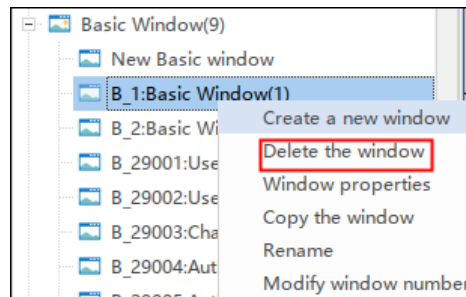
The target start window number can be an existing window number, but cannot be the window number being edited.

7.5.4 Delete the window/ Batch delete windows

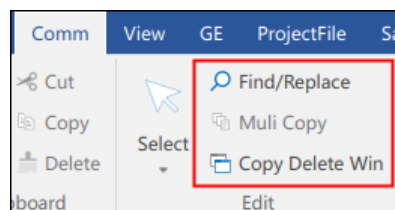
- Delete the current window

There are two ways to delete the current window:

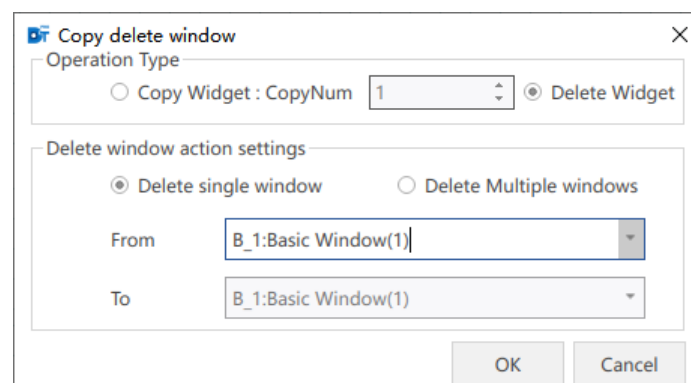
- Click on the project management tree to select the window that needs to be deleted. Right click as shown in the following figure and select "Delete the window":



- Click to delete the window
- In the project common menu, select **【Copy Win】**, as shown in the following figure:



Click on **【Copy delete window】** and select the delete window as shown in the following figure:



The specific description is shown in the table:

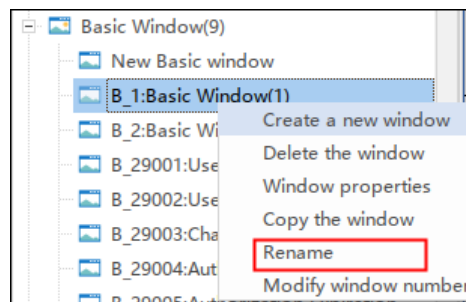
Name		Description
Operation Type	Delete window	Select Delete Window Function
Delete window action settings	Delete single window	Select the window number to delete
	Delete multiple windows	Select the window number to delete. From window M to window N, and these consecutive windows will be deleted



1. Once the window is deleted, all elements in the window will be deleted and cannot be restored. Use this function with caution
2. Keyboard window and system window cannot be deleted

7.5.5 Rename

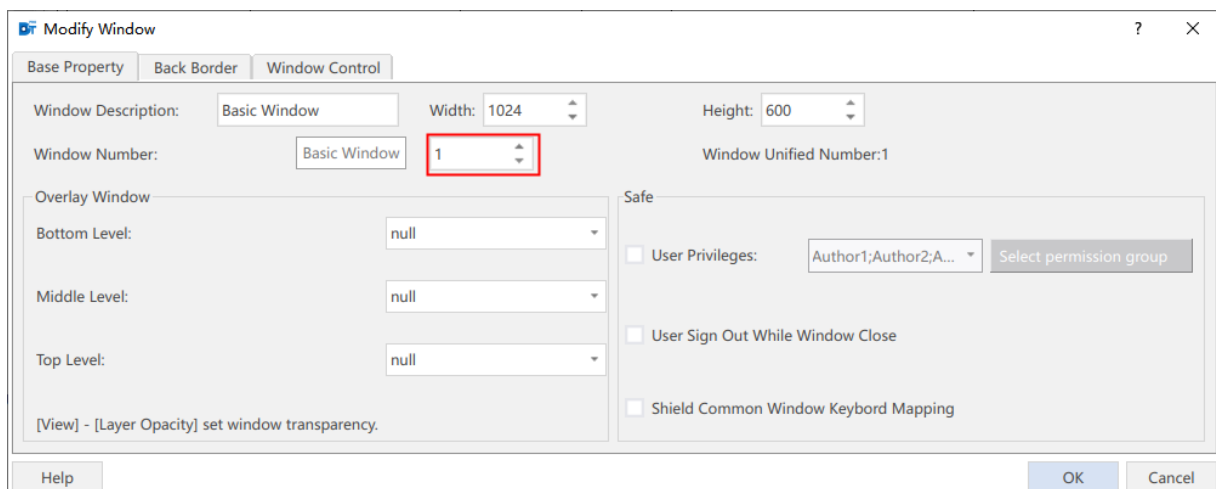
The window description can be modified except when adding or modifying a window. Right click on the project management tree window and select "Rename" as shown in the following figure to directly modify the window description.



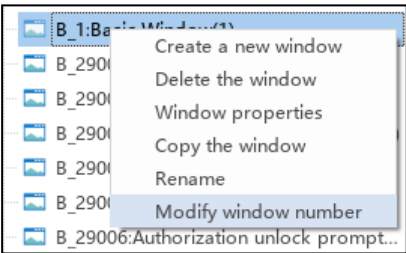
7.5.6 Modify window number

The user can modify the window number in 2 ways:

- Enter the window properties interface to modify the window number, this way only supports single window modification:



- Project management tree to select the window in the window need to modify the number of windows, this way to support the batch modification of the window number, right-click as shown in the figure below to select the modified window number:



The window numbering is set as shown below:

Specific descriptions are shown in the table:

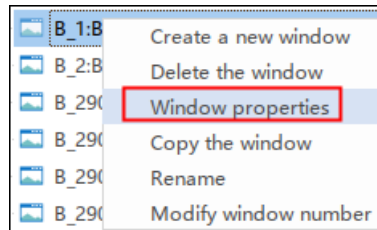
Name		Description
Search Number Source	Window type	Supports basic windows and keyboard windows
	Starting and ending number	Windows can be searched by entering start and end numbers
Replacement number	Starting and ending number	The start number can be entered manually, the end number is converted automatically according to the search range.
Operating method	Direct replacement	Enter the replacement number without ticking the 'Copy and Replace' box to directly replace the original window number.
	Copy and replace	Input the replacement number, tick 'Copy and Replace', copy the properties and components of the window in the search range, add a new window and replace its number.

7.6Window Properties

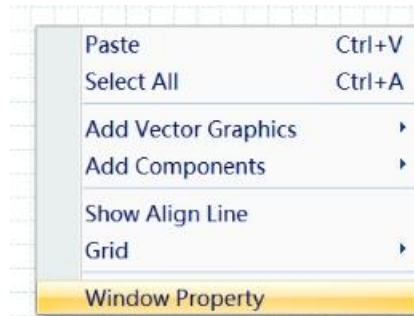
7.6.1 Open the Window Properties Page

Altus DToolsPro software provides three ways to set window properties.

- Right click on the project management tree and select “window properties” as shown in the following figure:

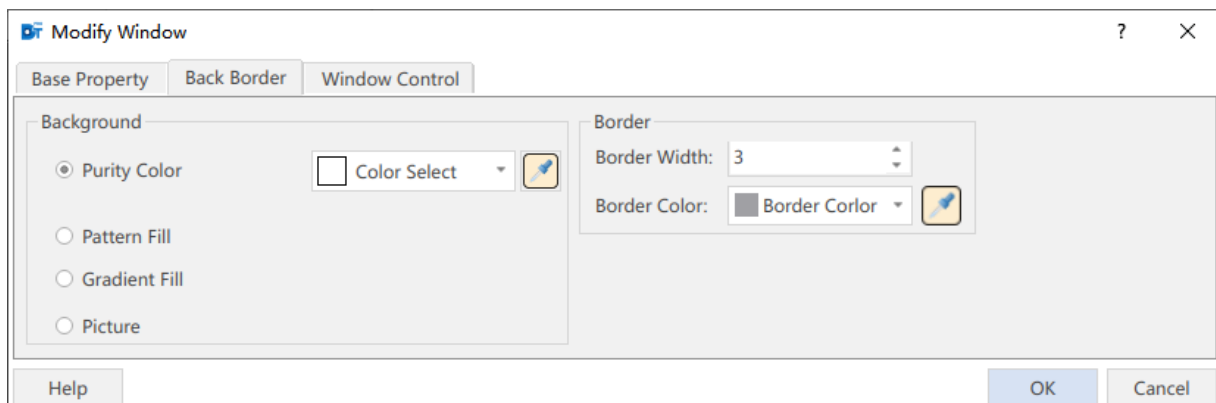
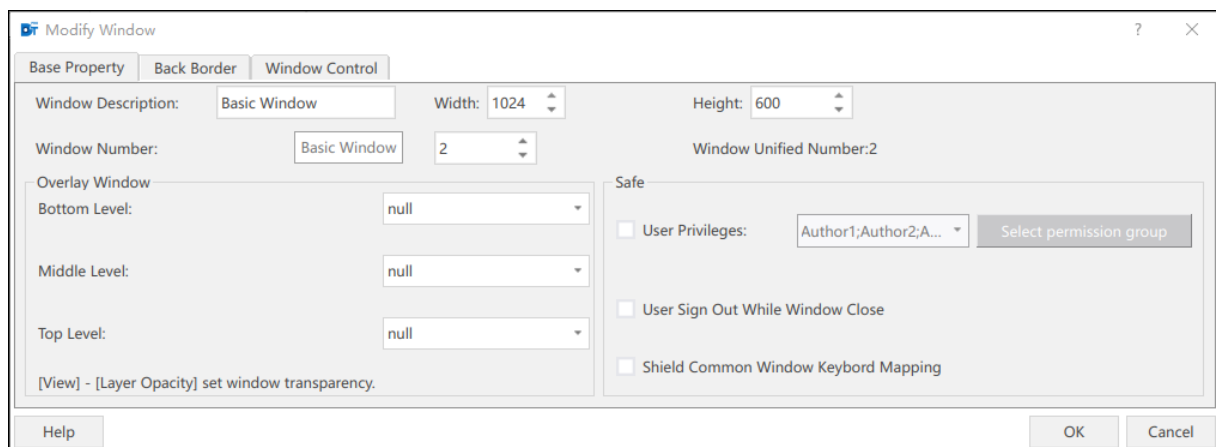


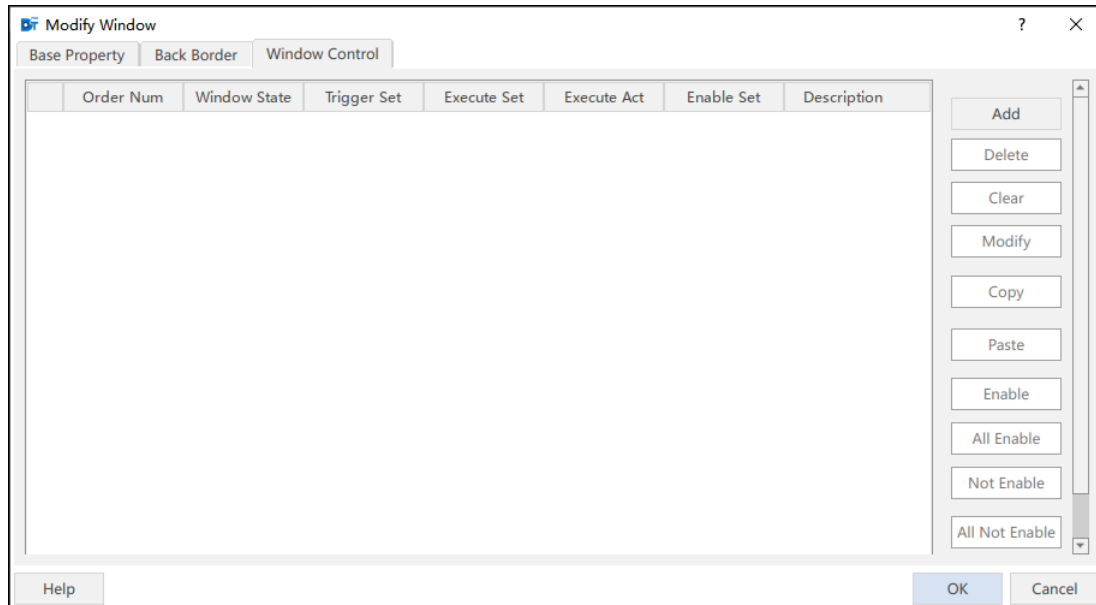
- Right click on any blank space within the window page to select “Window Property”



- Double click on any blank space within the window page to pop up “window properties”.

7.6.2 Description of window property





The description of window properties is shown in the table:

Window Property Description		
Window Description	Each window can be named for easy differentiation	
Width	Window width	
Height	Window height	
Window Number	The range of window numbers is 1-30000. The number can be set when creating a new window, and can be modified after creation	
Overlay Window	Set the corresponding underlying window for the current window. The bottom window is placed at the bottom of the editing window as a background image. The underlying window must be a basic window that has already been created, typically placing components common to multiple windows on top of the underlying window	
Safe	Set the security level of the current window	
User Privileges	Set the user level of the window. Supports multi-privilege control Only users who meet this permission can log in and switch to this window	
User Sign Out While Window Close	This function is used in conjunction with user permissions. After exiting this window, users who meet the permissions need to log in again before they can enter again	
Shield Common Window Keyboard Mapping	This function is only valid for HMI with built-in buttons	
Background	You can choose solid colors, pattern fills, gradient fills, or images as backgrounds. Images can be selected from a file or from a gallery	
Border	Set the width and color of the border. The width range of the border is 0~16. When the border width is not 0, the border color selection is valid	
Window Control	Trigger setting: The window status can be selected to execute when the window is opened/closed or when the window is running (consistent with the global control runtime setting). For more details, please refer to Chapter13-Global Control	
	Action settings: consistent with global control	
	Conditional enabling: consistent with global control	

8 Elements (Components)

An/A element(component) is an object with which the user interacts to input or manipulate data. The user manipulates the object to perform a specific action. When using an element(component), the user needs to set the element properties according to the actual requirements. Different properties can directly affect the result of the elements' operation and execution. This chapter describes the properties of each element in detail.

8.1 Public settings

8.1.1 Creation and deletion of elements

(1) Create elements

Click on the 'element' menu, select the desired element from the toolbar, and the element's attribute box will pop up. After setting the corresponding properties, click the [OK] button in the properties dialog box and a "+" cursor will appear in the upper left corner of the configuration editing workspace. Move the mouse to the appropriate position and click the left mouse button to create and place it. Click the right mouse button to cancel the creation.

(2) Deleting elements

The created elements can be deleted in two ways:

- Delete by right-clicking

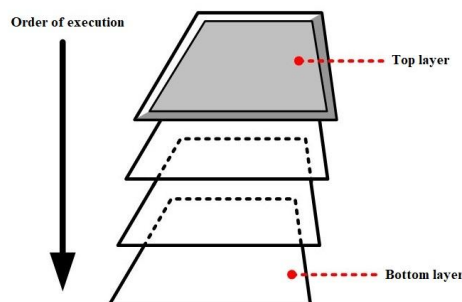
Select the element to be deleted, right-click, and then right-click **【Delete】** to delete the selected element.

- Delete through the Delete key on the keyboard

Select the element to be deleted, and then press the **【Delete】** button on the keyboard to delete the selected element.

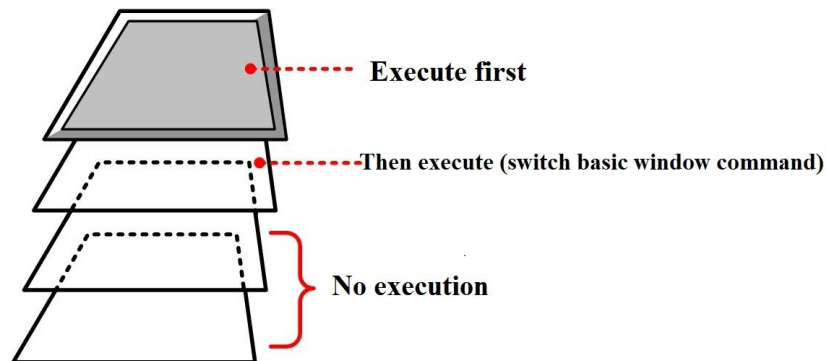
8.1.2 Execution order of elements

During the configuration design process, there may be situations where it is required to trigger multiple elements to execute corresponding operation commands with just one touch. In this case, multiple execution actions need to be added, and you can choose to execute them in sequence or all. Once there are touch actions, the superimposed actions will execute the operation commands according to the settings. The sequence of executing actions from top to bottom is uncertain. As shown in the following figure:





1. When encountering an element that executes the switch basic window command, after executing the switch basic window command, the commands for all components placed below that component will no longer continue to be executed.



2. Currently, only the switch function supports stacking actions

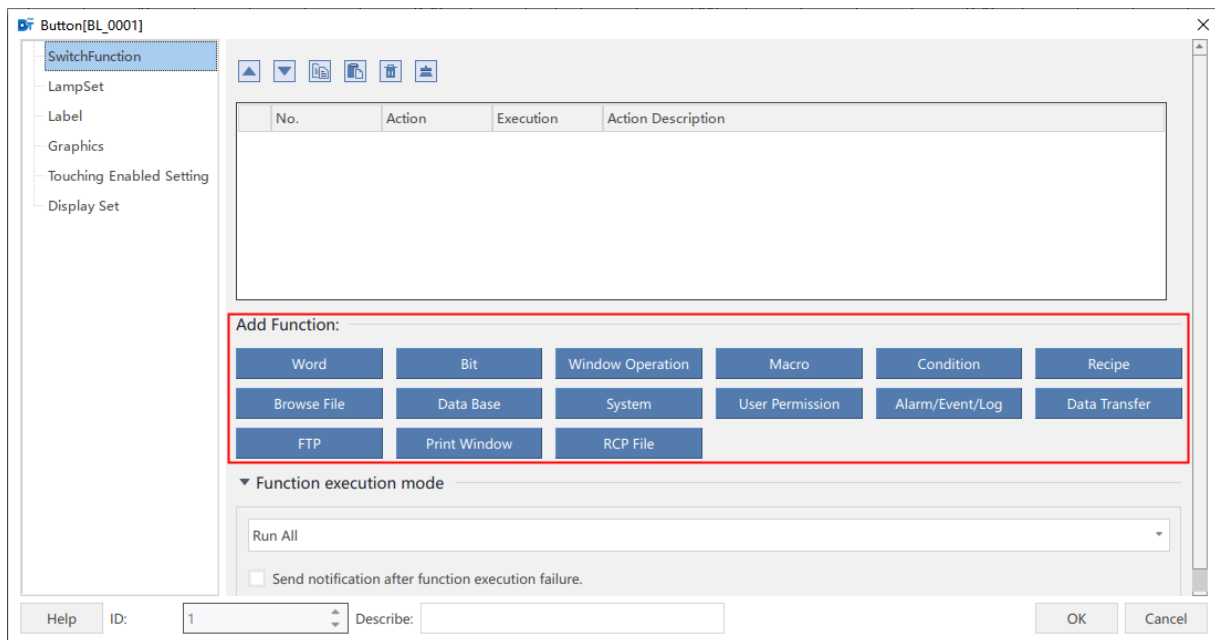
8.1.3 The way to open the property

In addition to automatically popping up during creation, the element properties dialog box can also be opened for created elements in the following two ways:

- Double-click the element directly to open the element property window.
- Select the element, right-click, select **【 Component Property 】** to open the element property window.

8.1.4 Set switch functions

The GE (element)-Set page allows you to set multiple operating objects for elements.



Description of Switch Function Settings	
Add function	Overlay and execute actions on switch functions
Function execution mode	Run All: All stacked execution actions are executed
	In Order Run: The stacked execution actions are executed sequentially from top to bottom
Continue to execute the subsequent functions after function execution failure	This option is only valid for sequential execution
Send notification after function execution failure	Trigger notification register: can be associated with bit/word status variables. If an action fails to execute, change the variable status according to the setting to indicate the failure
	Error Function Number Register: can be associated with word variables to display the function number where the error occurred on the set variable

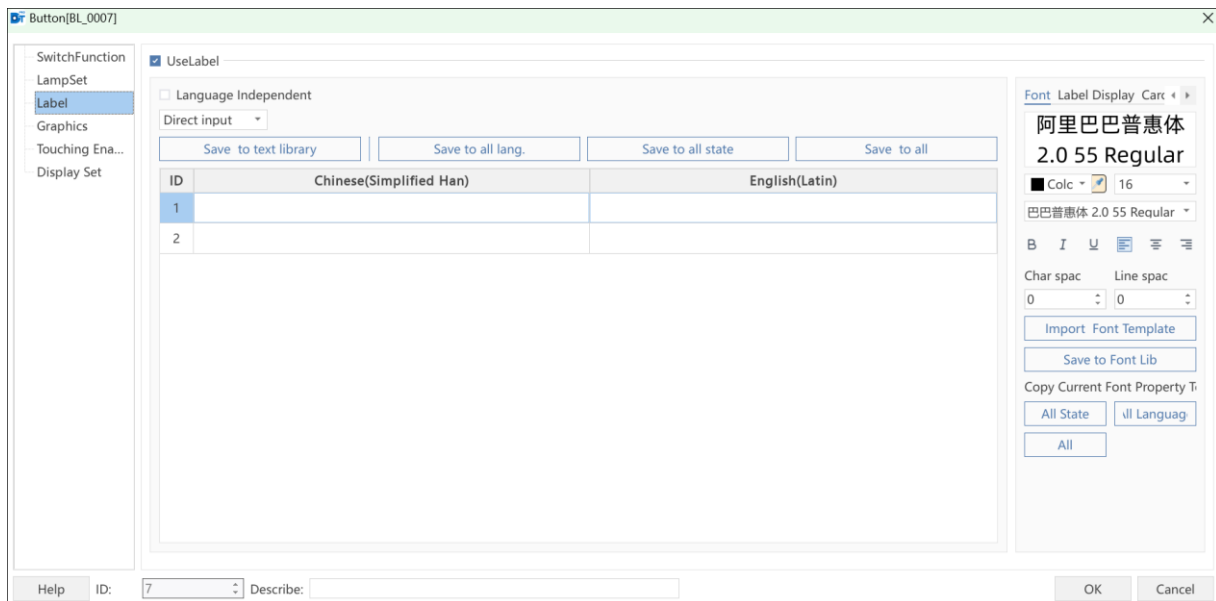
8.1.5 Lamp set function

The bit/word indicator light of the element can be set in the GE(element)-Set page.

Indicator light function description	
Enable MutiDisplay	Enable status indicator light
DisplayMode	Automatic loop and register control
VariableType	Supports Bits and Words
Multiple conditions meet at the same time, the smallest state is valid	Effective for word types

Invalid Input	Keep current state: When the input is invalid, keep the previous state of the incorrect input
	Display error text: Display the set error text when the input is invalid
Error Notify	It can be associated with a bit state variable, and in case of an error, set the bit variable to ON.

8.1.6 Label

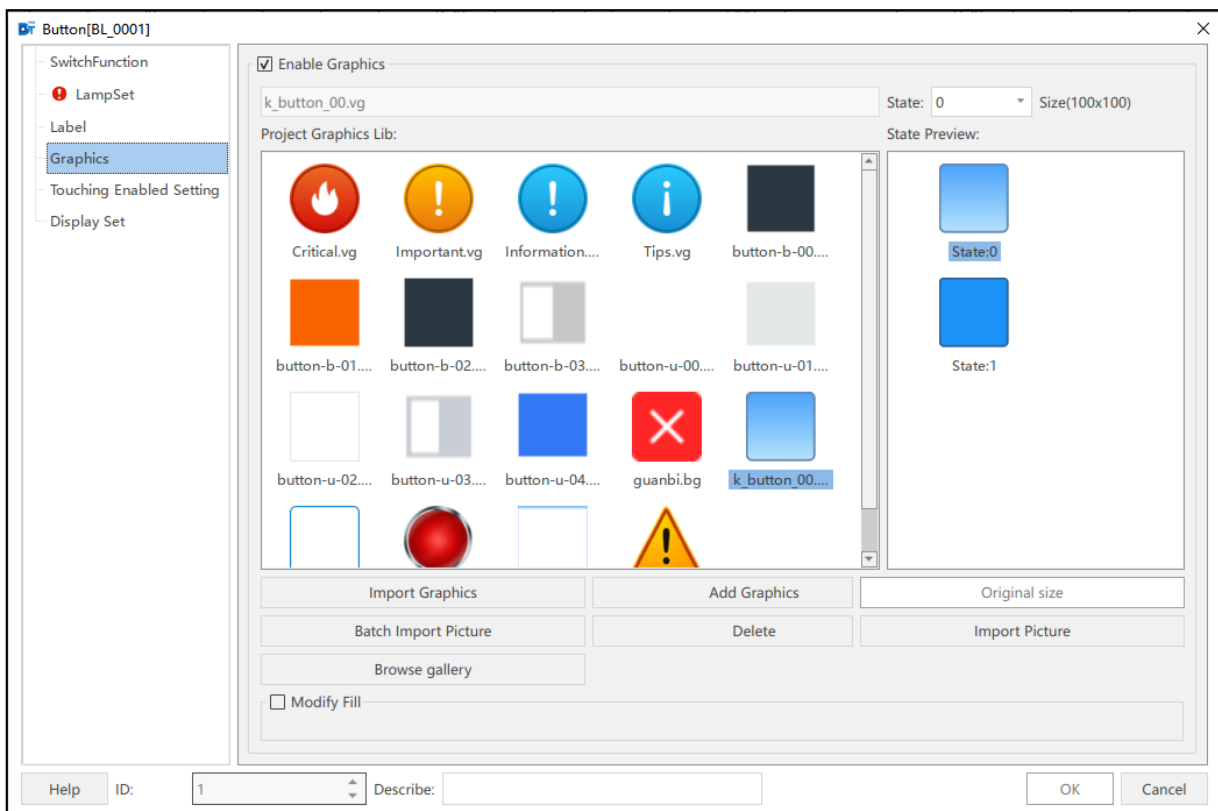


Label setting Descriptions	
Enable labels after checking "UseLabel"	
Language independent	After checking, it does not change with language switching and is not checked by default. When unchecked, select a different language to input text.
Direct input	1. Directly input the label text content. 2. Shortcut Descriptions: ① Alt+Enter: Line break editing in the current cell; ② Enter: Confirm input and move to the next line for editing; Note: When editing the last line, it means confirming the input and exiting the edit mode; ③ Esc: Undo the current edits and exit the edit mode.
Use Text Lib	By default, it is not checked, and the text content entered directly is used. After checking, select the text library content to use.
Save Content To	All states: Synchronize the current text content to all states
	All languages: Synchronize the current text content to all languages
	All: Synchronize the current text content to all states and languages
Font Property	Import font templates: Use templates from the font library
	Save to Font Library: Saves the currently set font properties to the font library, making it easy to call directly the next time you use it
Copy Current Font	Copy font attributes to the corresponding location, consistent with the function of

Property To	saving content section
Label List	Display labels in the current language and multiple states
Display Setting	Automatic expansion of element size based on content: adaptive element size when label changes
	Label position: Set the alignment method for element positions of labels according to requirements
	Walking Lantern: scrolling mode after data display exceeds the range

8.1.7 Graphics Setting

The graphics corresponding to the element status can be set on the **【Graphics】** property page of the element, which can be vector maps or bitmaps.



Using graphic settings Description

Enable Graphics : Check to enable graphics

Import Graphics	Import the required graphics from the system library
Add Graphics	Add graphics outside of the system library
Original Size	Use the original size of the graphic
Batch Import Picture	Batch import of external images. Supported image formats include. jpg. jpeg. png. bmp. *svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are currently not supported)

Delete	Delete the currently selected drawing
Import Picture	Import a single external image. Supported image formats include. jpg. jpeg. png. bmp. *svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are currently not supported)
Shadow Effect	Add image shadow effect
Modify Fill	Modify the filling effect of the image

8.1.8 Operating condition setting

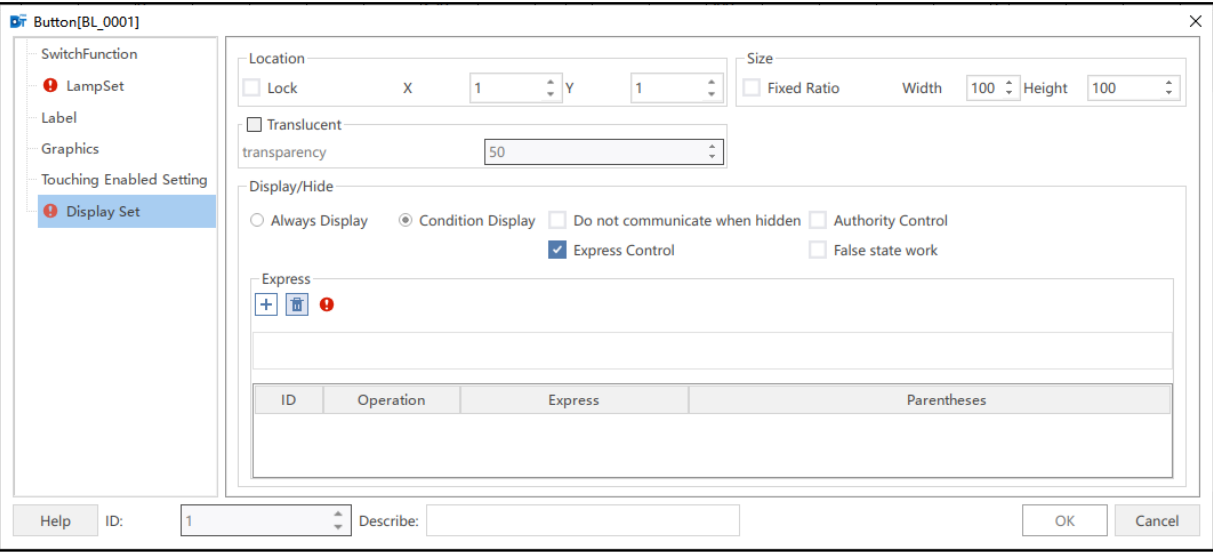
In the **【Touching Enabled Setting】** property page of the element, you can set the operating conditions of the element and the operating time. You can also set the function to notify or trigger touch.

Operating condition setting Description		
Touching Enabled Setting	Always Valid	Check to indicate that the status value or data can be effectively written to the specified register by touching the active area of the current element
	Always Invalid	Check to indicate that even in the current element touch effective area, touch cannot effectively write status values or data to the specified register
	Conditional Enabling	Permission Control : A check indicates that the operator's user privileges need to satisfy more than one of the component's checked privileges before the current component can be touched and status values or data can be written to the specified registers.
		Auto show login window: Check to indicate that when the current user's permission ID does not meet the set permissions, a password input window provided by the system will automatically pop up for the user to enter the password for login

		Express Control : Check to indicate that the current element can only be touched and the state value or data can be written to the specified register after the state of the positioning register or word register meets the set conditions. (False status indicates that it is valid when the condition is not met)	
Show Invalid Tag		When checked, it indicates that the current element is in a touch invalid state, and the element displays an invalid flag.	
Display Grayscale Font		Check to indicate that the element label is grayed out when the current element is in a touch invalid state.	
Security Setting	Min push Duration	The current element needs to be continuously pressed for no less than the set time before the status value or data can be effectively written to the specified register. The minimum unit is 100 milliseconds, and a value of 0 indicates that the minimum press time is not set	
	Oper Confirm wait	If checked, the HMI will automatically pop up an operation confirmation window when touching the current element. Clicking "OK" will write the status value or data to the specified register. If clicking "Cancel" or exceeding the set 【waiting time】 but the user does not confirm with "YES", the operation will be automatically cancelled. (It can be added to record data changes in a certain register during pressing)	
	MinPushInterval	The minimum time interval between two operations on the same element, with a minimum unit of 100 milliseconds. A value of 0 indicates that the minimum time interval for operation is not set	
	Record Oper	Check this option to indicate that the action event will be logged. The recorded operation events can be displayed through the operation log element and archived in CSV file format in external storage devices	
		Configuration of operation logs for components of the same type defaults to following: 1. When creating drawing components, numeric input components, and text input components of the same type, operation logs only follow the checkbox status; 2. For button components (switches, indicator lights, toggle operations), when operation logging is enabled for a component, newly added components will also have operation logging enabled by default. Their content will default to following the label. If the operation log description is manually modified and confirmed, that component's operation log content will no longer follow the label.	
	Notify	Notify before write	The specified action will be executed before the current operation is successfully executed
		Notify write success	The specified action will be executed after the current operation is successfully executed
		Triger/Touch	Mapping key or register corresponding operations

8.1.9 Display Set

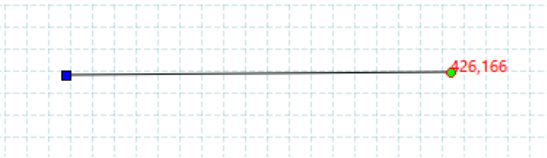
On the “Display Set” page of an element, you can set the display conditions, size, and position of the element.



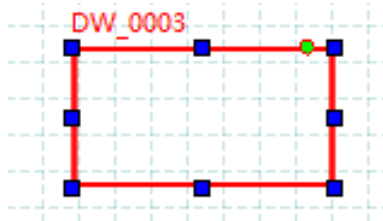
Display Settings Description		
Location	Lock	After checking, the element is locked. Once locked, the position of this element cannot be moved using the mouse or keyboard movement keys.
	X/Y	Coordinate value of the vertex at the top left corner of the element.
	Width/Height	The width and height of the element in pixels.
Translucent	After checking, the element translucency value can be set, ranging from 0 to 99	
Display/Hide	Always Display	Check to indicate that the current element remains displayed
	Condition Display	Permission control: Checking indicates that the operator's user permissions need to satisfy more than one of the component's checked permissions in order for the current component to be displayed
		Ex permission control: If checked, it indicates that the current element can only be displayed when the state of the positioning register or word register meets the set conditions (if the false state is valid, it indicates that the expression does not meet the requirements)

8.2 Plot

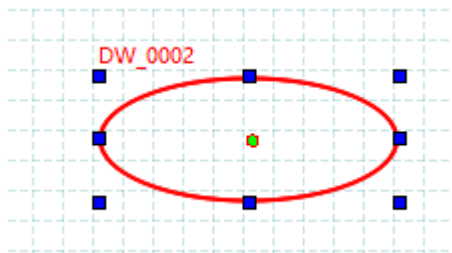
- Line : To draw lines, with one point at each end corner. Dragging it can directly modify the position of the line.



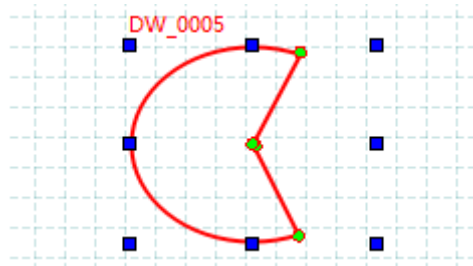
- Rectangle : It is a closed object that can be filled with background colors.



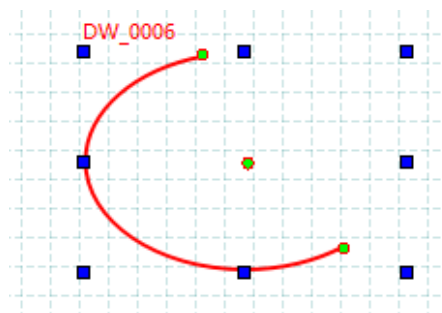
- Ellipse : It is a closed object that can be filled with background colors.



- Sector : Displayed as a percentage in a circular bar chart



- Arc : Display the specified form in an arc

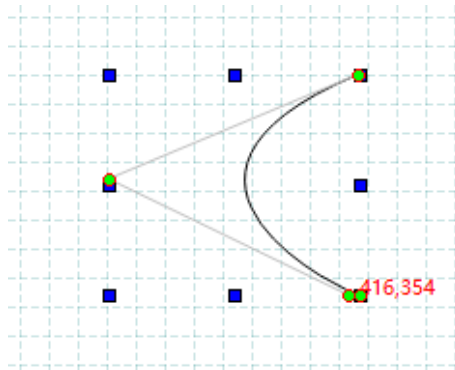


- Polyline : Consisting of interconnected segments. You can have any number of corners, each with a point.

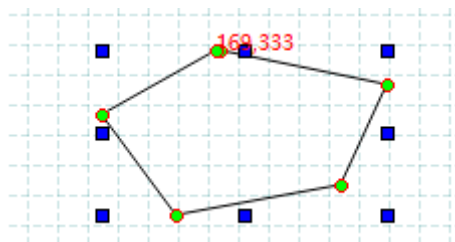
Drag directly to change its position. Although the starting and ending points may coincide on the same coordinate, the defined area cannot be filled.



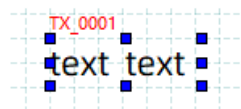
- Bezier : Display the Bezier curve. Each corner has a point. Drag directly to change its position.



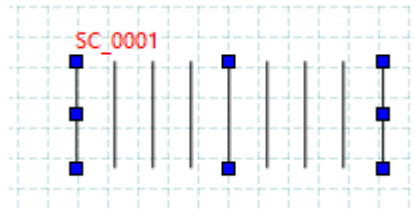
- Polygon : A closed object that can fill in background colors. Left click on a polygon in a simple control and form a cross cursor on the screen. Click on the left button and pull to create a polygon, and then click on the right button to end the creation. There is a point at each corner, which can be directly dragged to change the position of the polygon.



- Text : It can be used to add display text to other elements.



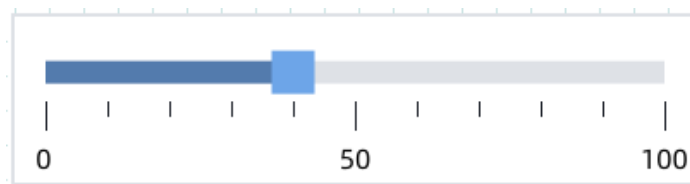
- Image : Click on **【Image】** to import graphics. The vector image is imported from the image library, and the external image is directly called for use when importing from a file , support for direct drag and drop import images, currently supports image formats *.jpg * .jpeg * .png * .bmp * gif * .jif * .svg (currently does not support text classes, animation classes, gradient fill, shadows, fuzzy, and other complex svg format).
- Scale : It can be used for labeling scaled quantities. In addition to using the built-in scale annotation, scale elements can also be used to label them.



- Table : It can be used to create options for displaying numerical values/text in a list format, enabling the alignment functionality of elements.



- Slide : It can be used to adjust the numerical value of a specified variable. If the value of a variable changes for other reasons, the slider of the slider component will also move to the actual value position of the variable. You can change the style so that the sliding direction can also be up, down, left, or right.



The slider functions are shown in the table below:

Operation Type	Functional Description	
Basic settings	Operating variables	Support for 8-64 bit numeric variables, support for array variables
	Minimum/maximum values	Default input static value, the maximum value is greater than the minimum value, the default value is 0-2.
	Min change value	Minimum value of variable change per operation, default is 1
	Add and decrease per click	Default unchecked, indicates that the value of the word address is incremented or decremented each time, set as a multiple of the minimum change value
	Change Write value changes in real time during the sliding process	The value of the word address is changed in real time during sliding; without ticking, the word address value is changed only after releasing the slider
Slider Settings	Slider Style	Default styles are round, square, support custom styles, show gallery buttons
	Slider direction	Default setting right, selectable left, right, up, down
	Slider size	Customisable slider width, height, axis height
	Slider Colour	Slider colour, axis selected colour and axis base colour can be set normally.
scale settings	Display scale	The scale checkbox is unchecked by default, and the scale position can be set according to the sliding direction.

		Scale colour, length and number of primary and secondary scales, line width can be set.
	Display label	Label checkbox is greyed out when the scale is unchecked and the label position is the same as the scale; when the scale is centred, the label can be modified according to the position of the slider
		Integer and decimal places can be set
		Font properties can be modified
background	Background and frame colors can be set	

8.3 Switch/Light

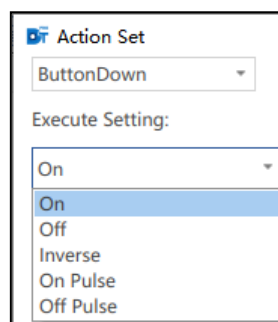
The switch/light elements include switch functions, indicator lights, and switching operations.

8.3.1 Switch Function

The switch functions include bit set, word set, window set, system operation set, condition set, user permission set, recipe action set, alarm event log action set, macro action set, browse file set, and database action set.

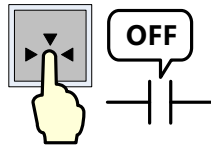
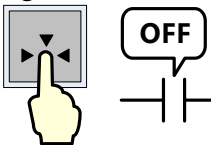
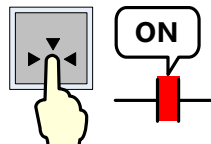
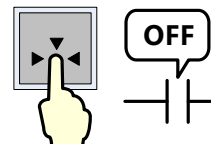
8.3.1.1 Bit Set

- Bit set : When an element is pressed or ejected, it will change the state (on/off) of the bit register address of the specified variable, and the displayed state of the component will not change based on the written state value.



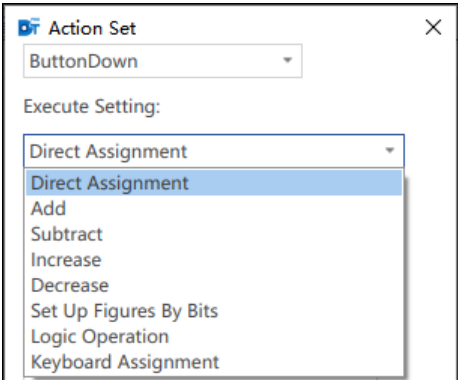
The description of bit setting function is shown in the table below

Type	Description
ON	Press once and the specified address is ON. If the button is released or pressed again, it remains ON.
OFF	Press once and the specified address is OFF. If the button is released or pressed again, it remains OFF.

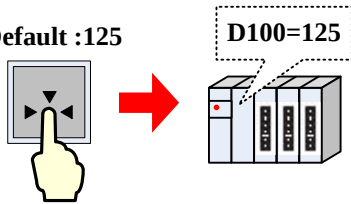
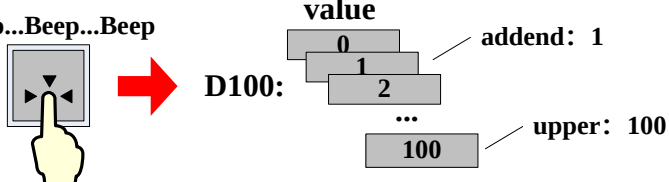
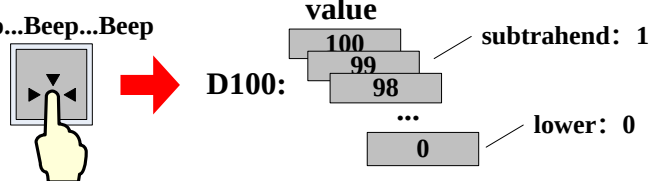
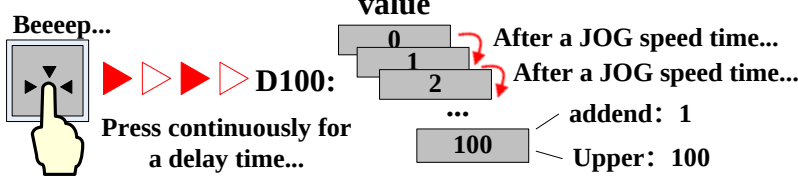
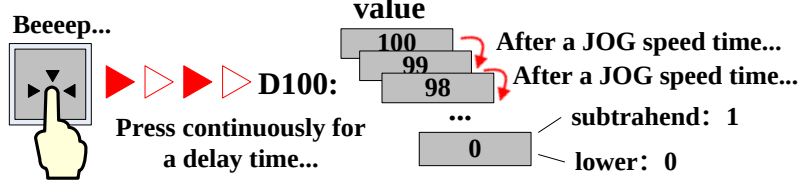
	Press and OFF   Press again still OFF 
Inverse	Press once for ON at the specified address and remain ON when the button is released. Press again for OFF and remain OFF after releasing the button until the next press. Press and ON   Press and OFF 
Off Pulse	When the button is pressed, it is set to OFF and a negative pulse with a specified pulse width is generated. The pulse time ends and then it is set to ON. The pulse width can be set, and when pressed, it will generate the set pulse width. The PLC receives the OFF signal, with a minimum of 100ms. If the set value is too short, the PLC cannot reliably receive it due to communication or long scanning time, and the pulse width needs to be increased to the receiving time.
On Pulse	When the button is pressed, it is set to ON and a positive pulse with a specified pulse width is generated. The pulse time ends and then it is set to OFF. Pulse width can be set. When pressed, a set pulse width is generated, and the PLC controller receives an ON signal, with a minimum of 100ms. If the set value is too short, the PLC cannot reliably receive it due to communication or long scanning time, and the pulse width needs to be increased to the receiving time.

8.3.1.2 Word Set

- Word Set : When an element is pressed or ejected, the set value is written to the word register address of the specified variable, and the state displayed by the element does not change based on the written value.



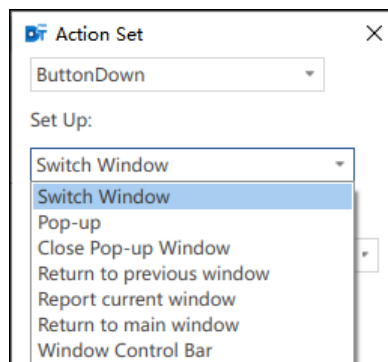
【Word Set】 function is shown below , There are 8 ways for 【Execute Setting】 .The description of each setting method is shown in the table below.

Type	Description
Direct Assignment	Set the constant function. Touch control element that can write the set value to a specified register. Default :125 
Add	Each press of this button will add an "addend" value to the value of the specified address. The result will not exceed the upper limit value. Beep...Beep...Beep 
Subtract	Each press of this button will subtract the "subtrahend" value from the value of the specified address. The result will not be lower than the lower limit value. Beep...Beep...Beep 
Increase	When this button is pressed and held for longer than the "lag time", the value of the specified address will be added to the "incremental value" for each "execution speed" time. The result will not exceed the upper limit value. Beep...  When 【 immediately execute increase/decrease action 】 is selected, every click will immediately add "Incremental Value" to the value of the specified address. If you press and hold this button, after each interval of the execution speed time, the value of the specified address will be added with the "incremental value" until it reaches the "upper limit value".
Decrease	When this button is pressed and held for longer than the "lag time", the value of the specified address will be subtracted from the "decreasing value" for each "execution speed" time. The result will not exceed the lower limit value. Beep... 

	When 【immediately execute increase/decrease action】 is selected, every click will immediately subtract "decreasing value" to the value of the specified address. If you press and hold this button, after each interval of the execution speed time, the value of the specified address will be subtracted with the "decreasing value" until it reaches the "lower limit value".
Set Up Figures by Bits	This attribute has two options: "plus" and "minus", and you can choose between them. This function can quickly and directly "add" or "subtract" the value of a specified bit, while the values of other bits remain unchanged.
Logic Operation	There are four modes of logical operation: AND, OR, XOR, and NOT, with one of the four options. The default operation is AND, the operand is constant by default, and the data format is hexadecimal. The data format is hexadecimal. It can also be a variable. The data type is the same as the set register data type.
Keyboard Assignment	By touching this element, numerical and string elements of the same variable can pop up corresponding keyboards to perform write operations.

8.3.1.3 Window Set

- Window Set : It can be used to switch to a specified window, switch to the previous window, switch to a dynamic window, and automatically pop up a password window, without requiring variable binding operations. You can directly operate elements to trigger and execute specified functions.



The 【Window Set】 function is shown below, and there are seven ways to 【Set Up】. The description of each setting method is shown in the table below.

Operation Type	Description		
Switch Window	Specified Window	Select the specified window and press to switch to the window interface	
	Previous Window	Switch to the previous window	
	Dynamic Window	Bind dynamic window variables and switch windows based on their values	
	Automatic pop-up password window	If you do not have permission to switch to the target window, you can set the automatic pop-up password window	
Pop-up Window	Window No.	Specified Window	Pop up specified window
		Dynamic Window	Bind dynamic window variables and

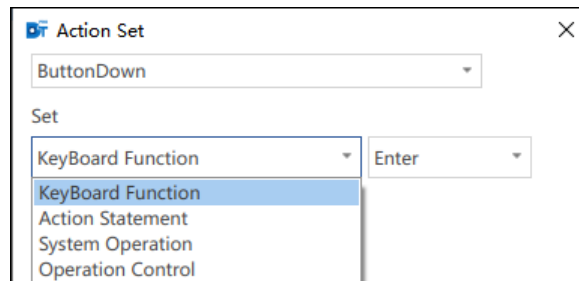
			popup windows based on variable values
	Location	Center	Center the pop-up child window at the position of the parent window
		Specify Coordinates	Display according to the set XY value
		Use dynamic variable to display coordinates	Bind XY variables for dynamic position display
	Close pop-up window when parent window is closed	When checked, all pop-up windows on the current parent window end when the parent window is closed	
	Show title/Close button	Display the title bar and close button of the pop-up window, and the title bar can set relevant content on its own	
	Automatic pop-up password window	If you do not have the permission for this pop-up window, you can set the password window to automatically pop up	
Close Pop-up window	Close the current pop-up window	This setting is only valid when the current window is a pop-up window, which means closing the current window	
	Close the specified pop-up window	Select the specified window and press to close the specified pop-up window	
	Close the dynamic window	Bind dynamic window variables and close pop-up windows based on the variables	
Return to previous window	Press to return to the previous window, this setting has no effect on pop-up windows		
Pop-up window control bar	Only valid for pop-up windows		
Report Current Window	Bind variables to write the numerical value of the current basic window number into the variable		
Return to main window	Return to the main window interface, which can be modified in the global settings in the system setting.		

The description of the type of pop-up is as follows

Description of type of pop-up	
Pop-up window type refers to the relationship between a pop-up window and adjacent windows	
Monopolize	If 【Monopolize】 is checked, then when this window pops up, its parent window will be locked from further operations. And this popup window is always displayed at the top level of the parent window
Top	The window is located at the top of all windows, the pop-up window is of this type by default

8.3.1.4 System Operation Set

- System Operation Set: It can be used to design keyboard buttons, set action states, and system operations, without the need to bind variables for operation. It can directly trigger the specified functions of the components.

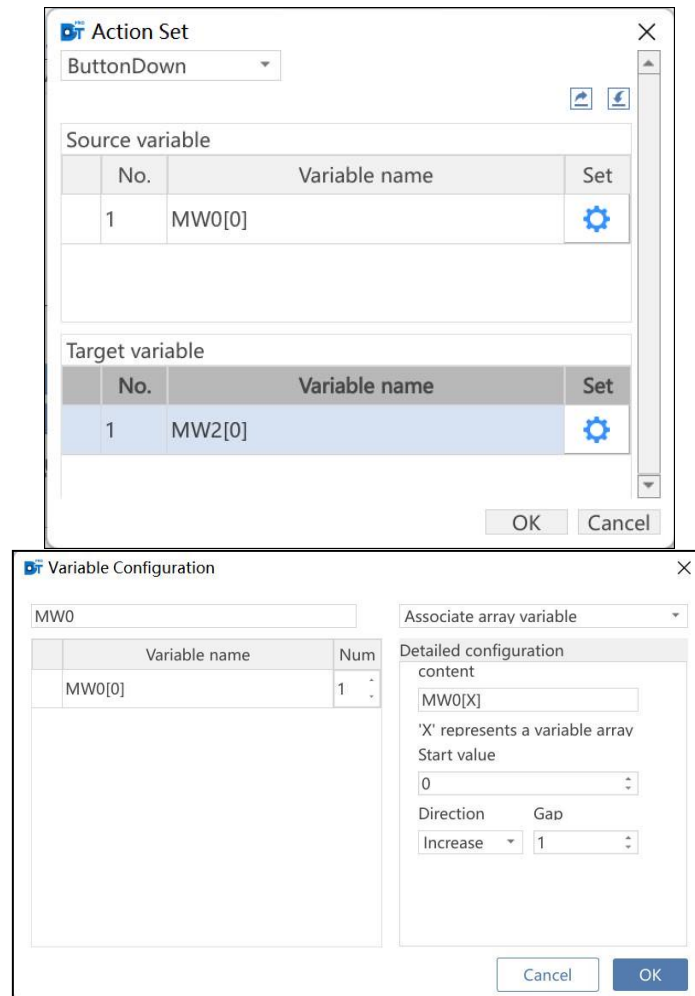


The description of system operation set is shown in the table below:

Operation type	Description	
Trigger Mode	Button Down	Execute action after pressing the button
	Button Up	Execute actions when the button pops up
Keyboard Function	Enter/Backspace	Enter and backspace operations used as keyboards
	Clear/Escape	Clear and cancel operations used as a keyboard
	Unicode	Used as a keyboard for Unicode encoding
	Left Arrow/Right Arrow	Left and right arrow keys on the keyboard
Action Statement	return	Execute return action
	delay	Carry out delay action according to the set delay time, and the unit of time is 100ms
System Operation	Shutdown	Turn off the touch screen
	restart	Restart the touch screen
	Turn off backlight	Turn off the backlight of the touch screen
	System setting	Enter system settings operation
	Eject the USB drive safely	Eject the USB drive safely to ensure data integrity and reduce damage to USB drives
		Support dynamic devices, sd=2 , usb1=3 , usb2=4
Operation control	When used in conjunction with the global interlock function, when multiple screens want to operate, corresponding control rights need to be operated. Please refer to 4.6 Global Interlocking for details	
	ApplyGlobalControl	When the global interlock function is enabled on the screen and screen A has control, other screens need to apply for control in order to operate the screen
	ReleaseControl	After obtaining control, Screen A can actively release control, and once released, all screens have control
	AgreeTransfer Control/RefuseTransfer Control	After obtaining control of screen A, when other screens apply for control, screen A receives a signal and can choose to agree or refuse the transfer. After agreeing to the authorization, screen A will lose control and cannot operate the current screen

8.3.1.5 Data transfer settings

- Data transfer settings: realize batch transfer from source variable to target variable, commonly used for mutual data transfer between local screen and PLC.



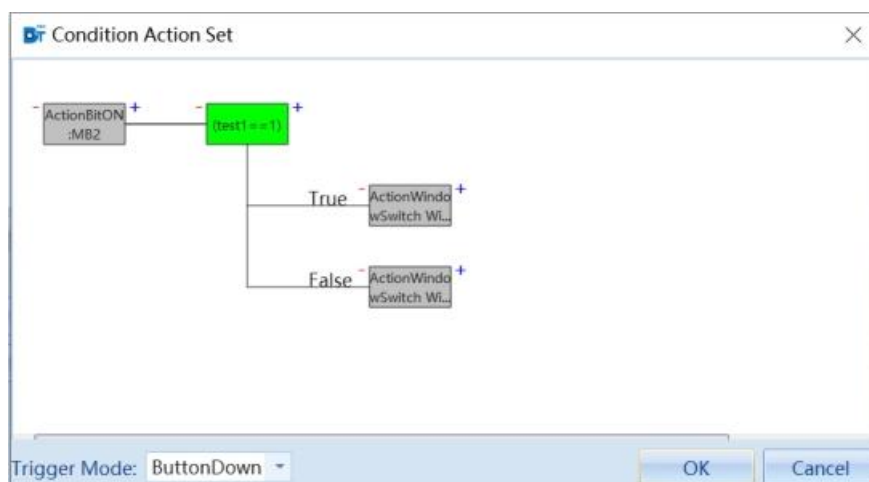
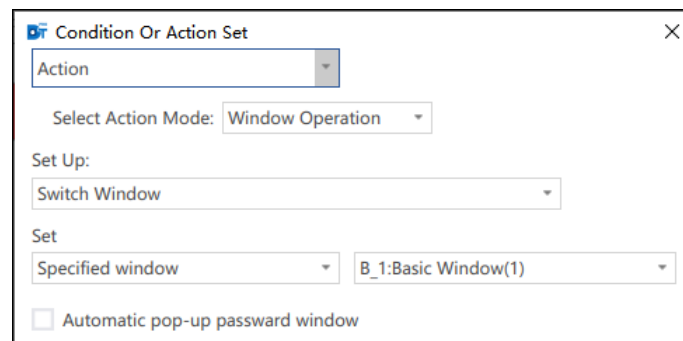
Description of data transmission properties

Source Variable	Sets the source address for data transfer
Destination variable	Sets the destination address of the data transfer
Configuration	Click the Configure button to enter the variable detail configuration screen
Associated Variables	You can select "Associated non-array variables" or "Associated array variables"
Number	When associating an array variable, you can increase the quantity according to the parameters set in the "Quantity Detail Configuration". Note: The number of variables column content display range: 1-2048
Detailed configuration of quantity	If the associated is a two-dimensional array, the content part can be modified, for example, MW0[0][X], or MW0[X][0]
	Start value: indicates the value of X at the content. For example, if the starting value is 3, the first entry in the right variable column shows MW0[3]
	Direction: can be set to "Incremental" or "Decremental"
	Interval: The interval value of each row of the array variable. The interval range is from

	"start value" to "array length"
Import	Import a data transfer table with a default file name of "TransferList. xlsx" and a type of xlsx; The pop-up window is called "Import Data Transfer" (the file name can also be imported without the input suffix. xlsx)
Export	Export the current engineering data transmission data. The exported file name defaults to "TransferList" or can be named by yourself, with the type xlsx. The exported file exists in the software installation directory
	  Two actions represent export data transfer and import data transfer, respectively.

8.3.1.6 Condition Set

- Condition Set : Configurable settings for simple "if" and "switch" macro commands to execute actions.



8.3.1.7 User Permission Set

- User Permission Set : It can be used to set permission actions, user variable addresses, and password variable addresses.

Action Set

ButtonDown

User permission:
User login

User:
\$Set_User_Name

Password:
\$User_Password

View user related system variables

Use user name

- Importing and exporting users

Action Set

ButtonDown

User permission:
Import user

View user related system variables

Import device
☐ Use dynamic devices
HMI

Imported subfolder
☐ Use dynamic subfolder

The text cannot contain any of the following characters:/*?*<>|

Import file name
☐ Use dynamic file name

The text cannot contain any of the following characters:/*?*<>|

☐ Encrypted file

Conflict data process
☒ Cover ☐ Discard

☐ Import State

OK Cancel

Action Set

ButtonDown

User permission:
Export user

View user related system variables

Export device
☐ Use dynamic devices
HMI

Exported subfolder
☐ Use dynamic subfolder

The text cannot contain any of the following characters:/*?*<>|

Export file name
☐ Use dynamic file name

The text cannot contain any of the following characters:/*?*<>|

☐ Encrypted file

☐ Export State

OK Cancel

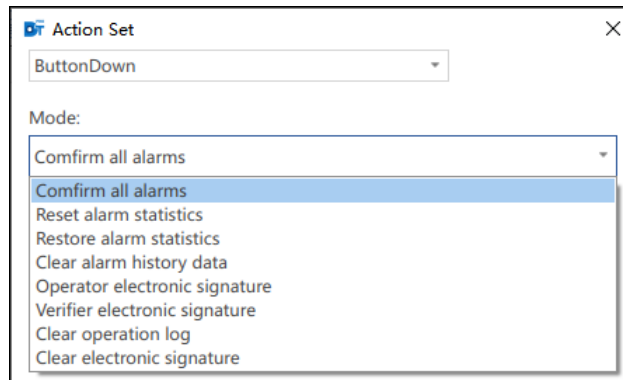
User import and export function description		
Import/export users	Import/Export Devices	According to the screen model drop down to select [HMI] / [usb1] / [usb2] / [SD card], the default choice of HMI, the user can drop down to select the use of other external storage devices
	Importing/exporting subfolders	Default check, can be empty field (corresponding to the root directory under the current device), or user input the corresponding folder name as the content of the field. Support dynamic folder, associated variable type string.
	Import/export file name	Ticked by default, can't be empty, supports dynamic file names, associated variable type strings.
	encrypted file	Default unchecked, after checking the default use of static password settings, password input is required, empty fields will report an error message
		When the user checks [Dynamic Password], the password input box will be grayed out to prohibit input, and the dynamic password is bound to an associated variable, the variable type is string.
	Import conflict data handling	Single-select [Cover]/[Discard], default use overwrite
		When the data judgement condition is the same as [user name]. Overwrite: Import the latest list content to replace the original content, corresponding to the replacement of content for [Permission Group], [User Status], [Auto Logout Time], [Auto Logout Time], [Card Number]. Discard: Import the list file and discard the corresponding content without replacing the original HMI corresponding user data.
	Import/Export Status	Default unchecked, after checking the variables need to be bound to visualise whether the import and export is successful or not.

8.3.1.8 Recipe Action Set

- Recipe Action Set : It can be used to set recipe actions, import recipe groups, import devices, import sub folders, import file names, encrypt files and handle conflict data.

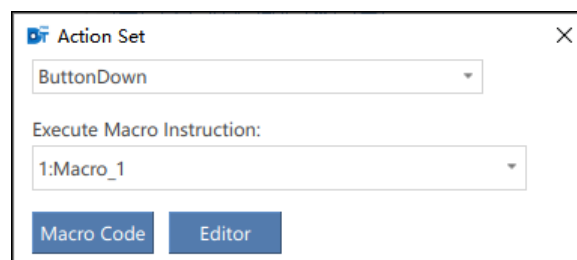
8.3.1.9 Alarm Event Log Action Set

- Alarm Event Log Action Set: can be used to perform operations such as "Confirm all alarms", "Reset alarm statistics", "Restore alarm statistics", "Clear alarm history data", "Operator electronic signature", "Verifier electronic signature", "Clear operation log" and "Clear electronic signature".



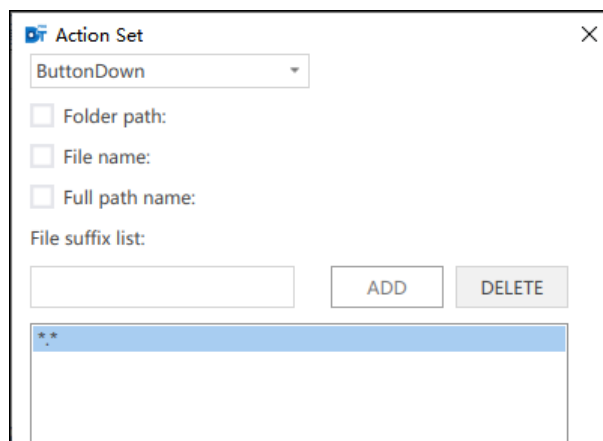
8.3.1.10 Macro Action Set

- Macro Action Set : Can be used to set the execution of a specified macro instruction.



8.3.1.11 Browse File Set

- Browse File Set: Can be used to set the displayed folder path, file name, full path, and set file suffix.



8.3.1.12 Database Action Set

- Database Action Set: can be used to perform operations such as "insert", "modify", "delete", "query", "Import", "Export", "create a table", "delete a table", "clear table" and "user SQL" on existing databases.

Description of Database Action Interface

Operation Type	Insert	Insert one or more rows of identical or different data			
		Insert Type	Contains both individual and batch inserts. Support variables during batch insertion		
		Insert field setting	Select single or multiple inserted fields. When selecting batch and constant, the default input is multiple rows of the same data. The inserted data allows for fixed values and variable inputs. Variables can be array variables and non-array variables. Insert as a single data when it is a non-array variable. When it is the entire array variable, insert it as the entire array data (the number of inserts must be less than or equal to the array length); When inserting a single array variable, insert the corresponding subscript data. The maximum number of inserts is 1000.		
	Modify	Modify one or more rows of data that meet the criteria. When no query criteria are selected, all data will be modified. And when applying this feature, at least one field must be selected for modification.			
		Modify Fields	Set the modified fields		
		Use modify condition	Fixed Query	Fixed query criteria	
			Dynamic Query	Dynamic options: Only string variables are supported, such as the input option symbol '&'. Dynamic field: Only string variables are supported, such as input field name 'column1'. Dynamic condition: Only string variables are supported, such as the input symbol ">".	
			View SQL	The set deletion conditions can be automatically generated into SQL statements	

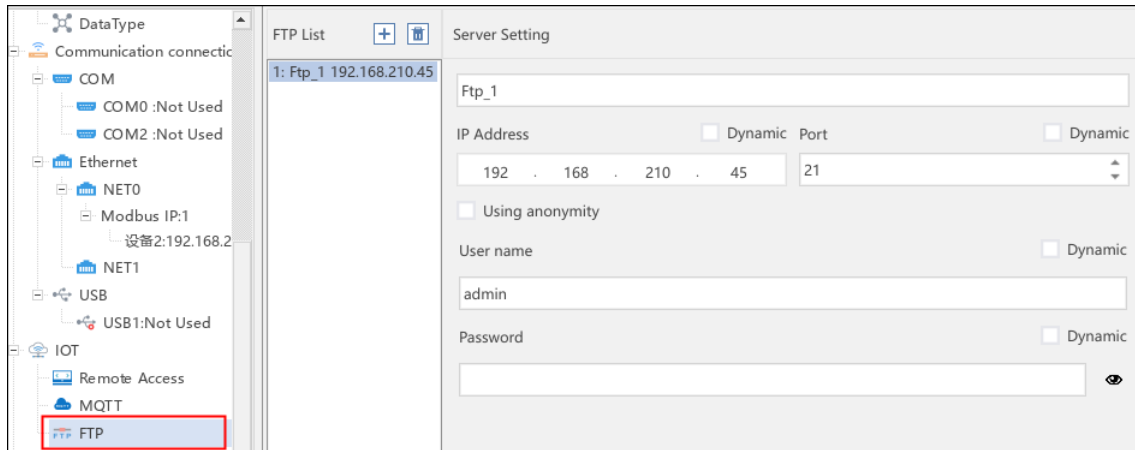
	Delete	Delete one or more rows of data that meet the criteria		
Query	Output the options that meet the conditions to variables			
	Query	Use Query Condition	When selected, query according to criteria	
		User order	Fixed sorting types are 'from small to large' and 'from large to small'. Fixed sorting channels select title blocks, dynamic sorting types and dynamic sorting channel setting variables	
		Use custom SQL statement	When customizing a statement, the fields to be queried must match the fields of the output variable and comply with SQL syntax. When using SQL statements, sorting and query criteria cannot be used	
	Query Result Output	Row count variable	Returns the variable for the number of query rows	
		According to row	The query field setting must be an array variable corresponding to the data	
		According to column	1. Query report data into variables by row based on the selected fields 2. Query the number of report rows	
Import	Importing database data tables requires correct and existing file information to be set up for successful import			
	Import storage devices	Select the database table in the external storage device to import. You can check Use dynamic, associated word variable to set the import device dynamically		
	Import path	Set the subfolder name for importing database tables. You can check Use dynamic, associate string variable to set the folder name dynamically		
	Import filename	Set the file name of the imported database table, it can not be empty, and the file format should be added after the file name, such as file name.csv. You can check Use Dynamic, Associated String Variable to set the file name dynamically		
	Encrypted file	If the imported database form requires password, you need to check Encrypt file and set the correct password to import successfully. Dynamic password can be checked, and the associated string variable can set the password dynamically		
Export	Exporting database data tables			
	Export storage devices	Export and save database data to an external storage device. You can check Use dynamic, associated word variable to dynamically set the export device		
	Export path	Sets the subfolder name for exporting database tables. You can check Use dynamic to set the folder name dynamically with the associated string variable. If the export is successful, the subfolder		

			name will be generated in the folder corresponding to the export device in the path of "disk" in the project root directory, and this item can be empty	
		Export filename	Set the file name of the exported database table, which cannot be empty. This item can be empty. You can set the file name of the exported database table dynamically by checking the Use dynamic, associated string variable	
		Encrypted file	Check the box to export the file format is compressed, decompression of files need to enter a password to successfully decompress, if you do not check the [Encrypted files], the file format is exported in the [Export file format] option to set the file format, open the file directly	
		The export file names contains a timestamp	Check the box to include timestamps in the exported file names	
		Export title bar	Check the box to include the title bar in the exported file	
		Export file format	Set the file format of the exported database data, including CSV and PDF	
		Export	Export condition	Export that meets the export conditions
			Export order	Fixed sorting type is divided into small to large and large to small sorting, fixed sorting channel selection title bar, you can select the dynamic sorting type and dynamic sorting channel setting variables, the exported file in accordance with the settings of sorting
			Use custom SQL statement	When customizing statements to conform to SQL syntax, you can use dynamic statements, associated string variables to set statements dynamically. When using SQL statements, export sorting and export conditions cannot be used
	data transmission	Transfer data from the source database table to the target database table		
		All fields	Transfer all field data from the source database table to the corresponding fields in the target database table	
		Partial Fields	By default, all fields are selected, and the fields that need to be transferred can be set to transfer the data to the corresponding words in the target database table	

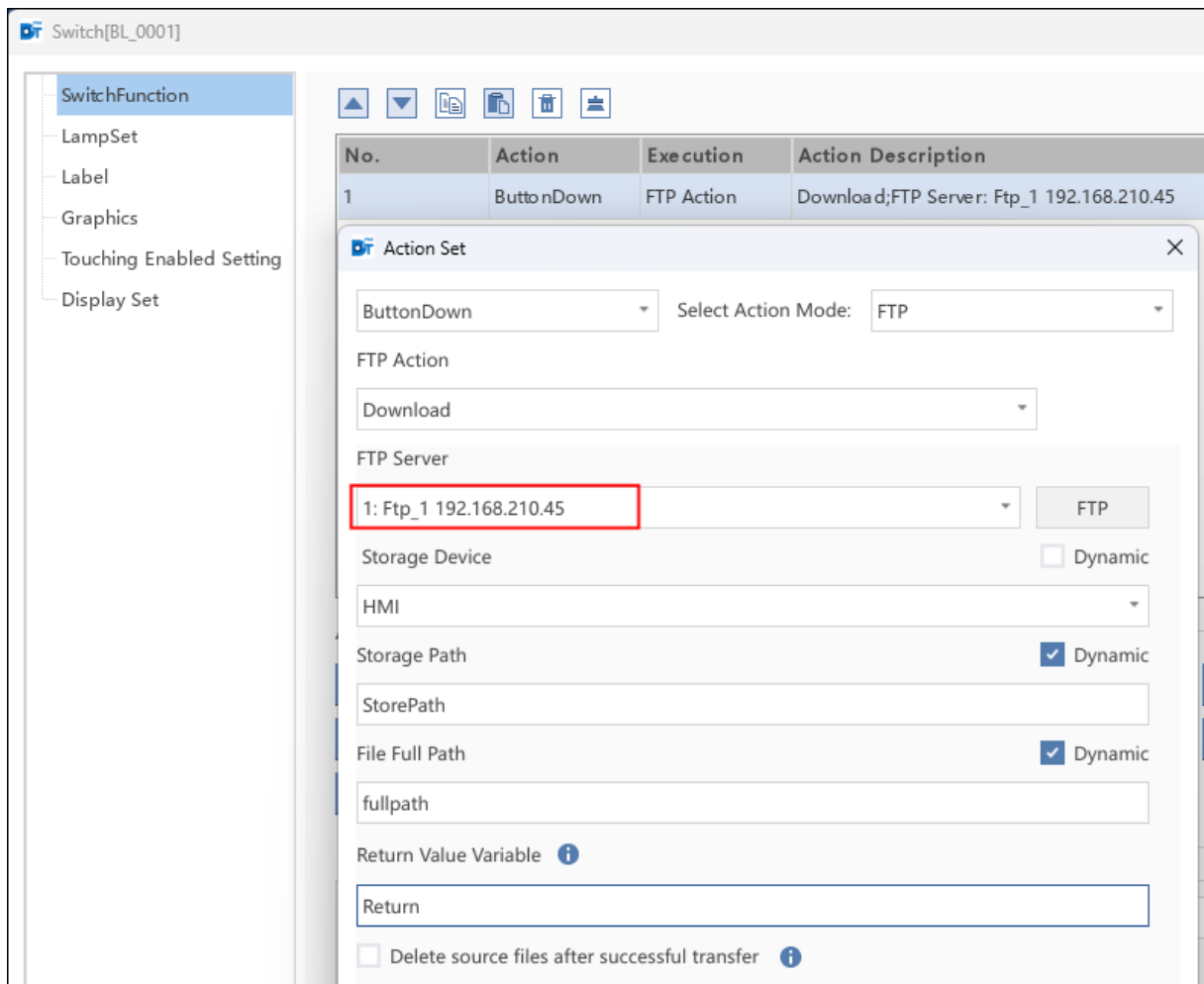
		Attention: 1. Currently, only local postgresQL is supported for transferring to local postgresQL 2. The field names and data types of the source and target database tables must be consistent 3.Both the source and target database tables have transfer words
	Create a Table	Creating tables in a database remotely or locally
	Delete a Table	Delete tables in remote or local databases
	Clear Table	Clear data from tables in remote or local databases
	User SQL	When customizing a statement, the fields to be queried must match the fields of the output variable and comply with SQL syntax
Return status variable	Status values indicating whether the operation was successful: 0: initialization, 1: successful execution, 2: database connection failure, 3: SQL statement execution failure, 4: output to variable or file failure, 5: other errors	
Source Data Base	The original database can be a local database or a remote database	

8.3.1.13 Ftp Action Set

Server settings: Add an FTP server in the left engineering column [IOT] - [FTP] column, set the server's IP, port, username, password, and refer to ["9.4 FTP"](#) for detailed settings



In the action settings, select the server in the FTP list above to support uploading and downloading actions



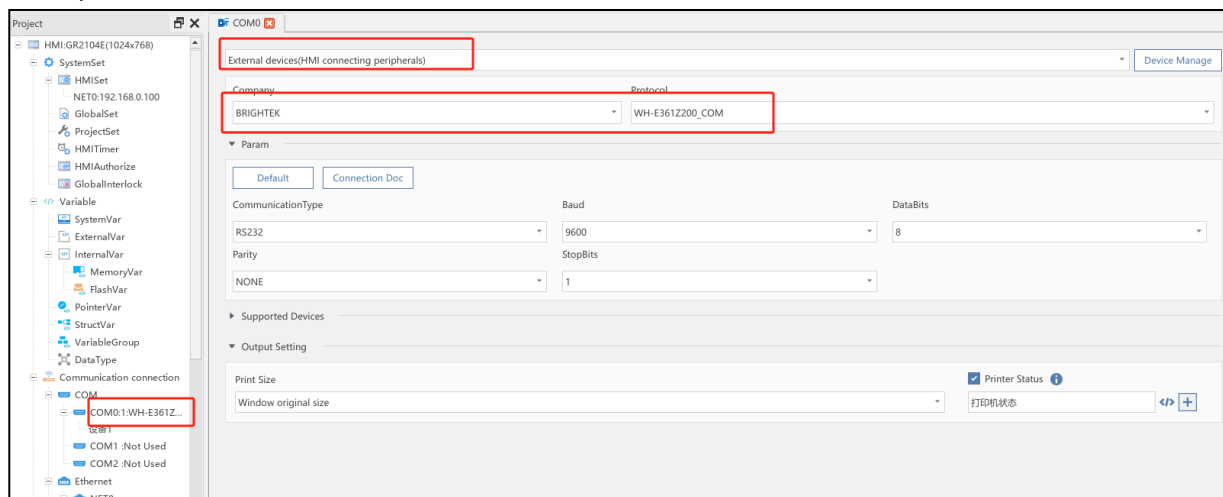
Description of Ftp Action Interface	
FTP Action	Support Download、Upload
FTP Server	Select the server in the FTP list in the IOT- FTP column
FTP Download :	①Storage Device:You can choose to store the files to be downloaded locally on the HMI or USB1 ②Storage Path:Store in the specified folder on the HMI, and create a new one when the folder does not exist ③File Full Path:The full path of the source file ④Delete source files after successful transfer : Pay attention to whether the currently logged in user has write and delete permissions for the file on the server
FTP Upload :	①Storage Device:You can choose to upload files locally on HMI or in USB1 ②Upload Path:Upload to the specified folder path on the server ③File Full Path:The full path of the source file ④Delete source files after successful transfer:After successful transfer, the source file will be deleted
Return Value Variable	After executing the FTP action, return the execution result of the action 0 -- Initial 1 -- File Transfer Successful 2 -- Connection Error (Port Error, Address Error, Network Error) 3 -- Username or Password Error 4 -- Source/Destination Path/File Does Not Exist 5 -- Disk Space Full 8 -- Unknown Error

8.3.1.14 Print window

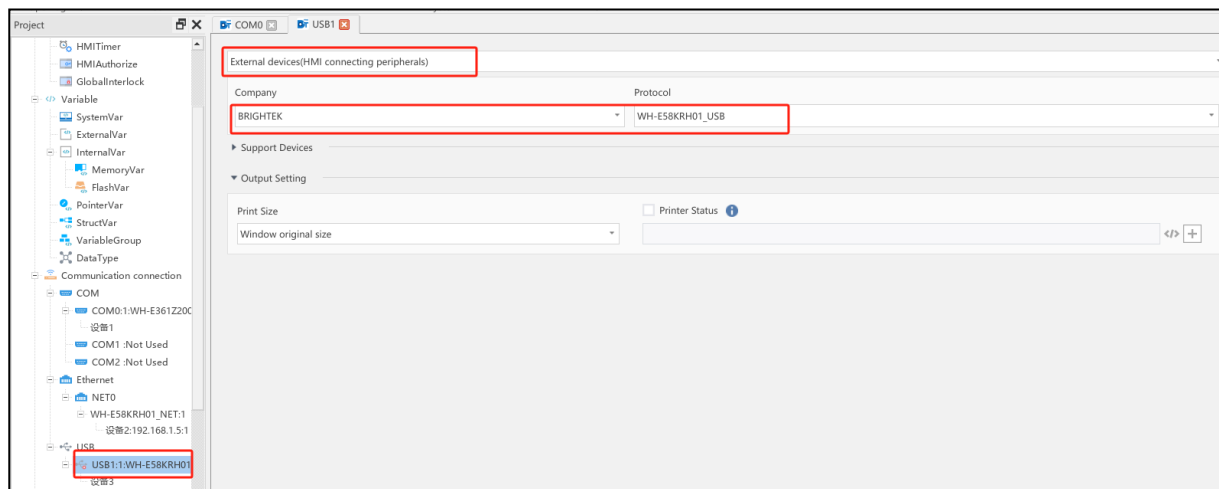
Print window function: Serial port, USB, and network port need to be set in the communication connection to connect to the external printer devices (output to a screenshot file without setting).

Note: Standalone desktop do not support this function; The public window does not support this function (the components of the public window are not displayed)

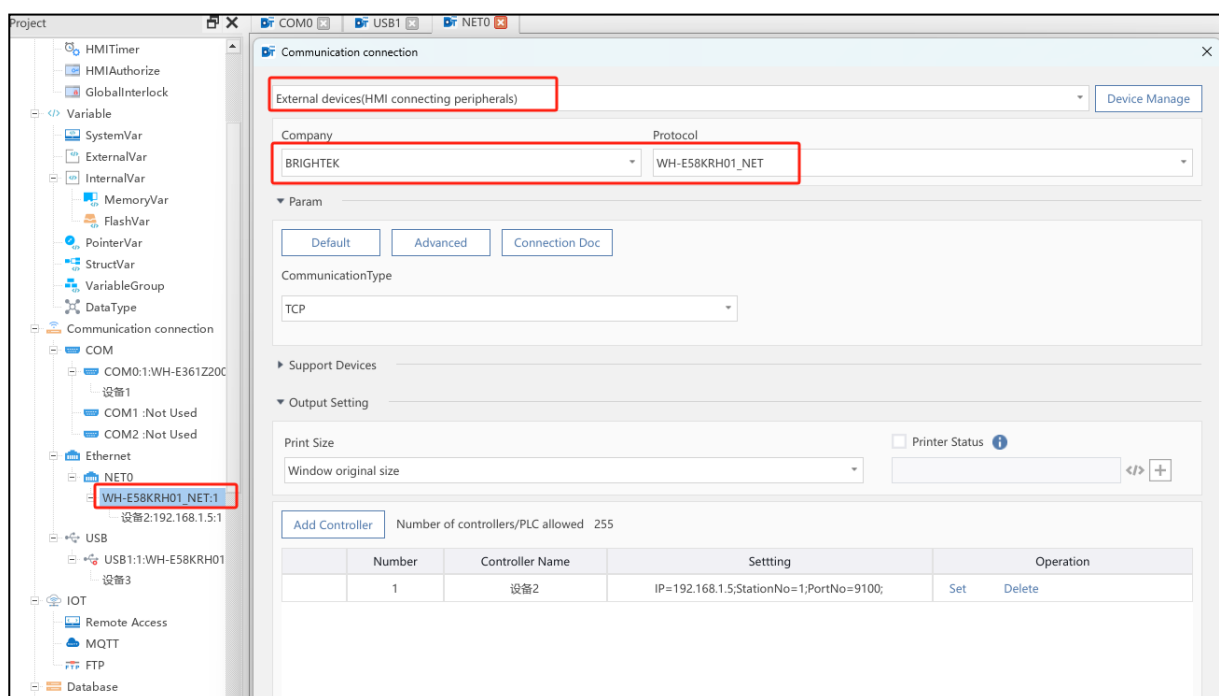
Serial port connection:



USB port connection :



Network port connection :



Print window action property description	
Print content	Select window print and screen capture file print; Print content ☒ Window print ☐ Screen capture file print Select window dynamic window Window number 打印窗口 </> + 【Window print】：Support the specified window, dynamic window printing, dynamic window will be the corresponding variable assigned to the window to be printed; Window printing supports output to the printer and export as a screen capture file;
	Print content ☐ Window print ☒ Screen capture file print Screen capture file path ☐ Use dynamic devices HMI ☐ Use dynamic subfolder ☐ Use dynamic file name 【Screen capture file print】:Set the path of the screen capture file; only supports output to printer ; 【 Use dynamic devices 】：According to the screen model, select [HMI]/[SD card]/[USB1]/[USB2] from the dropdown menu , default selection HMI; Support dynamic device : 1-HMI , 2-SD card , 3-USB1 , 4-USB2 ; 【Use dynamic subfolder】：Set the subfolder name of exported screen capture file; It can be an empty field (corresponding to the root directory under the current device), or the user enters the corresponding folder name as the field content. Support dynamic folder, associated variable type string ; 【Use dynamic file name】：Set the file name of exported screen capture file, it cannot be empty. Support dynamic file name, associated variable type string ;

Print output	Print output ☒ Output to printer ☐ Export to screen capture print direction vertical print device COM0[设备1](WH-E361Z200_COM)
	Select output to printer and export to screen capture;
	【Output to printer】：Printer direction and print device can be set
Print output	Print output ☐ Output to printer ☒ Export to screen capture Export file path ☐ Use dynamic devices HMI ☐ Use dynamic subfolder 测试 ☐ Use dynamic file name hmi ☐ The exported filename contains timestamp ☐ Export State
	【Export to screen capture】：Set export path for screen capture file;
	【 Use dynamic devices 】：According to the screen model, select [HMI]/[SD card]/[USB1]/[USB2] from the dropdown menu , default selection HMI;
	Support dynamic device：1-HMI , 2-SD card , 3-USB1 , 4-USB2 ;
	【Use dynamic subfolder】：Set the subfolder name of exported screen capture file; It can be an empty field (corresponding to the root directory under the current device), or the user enters the corresponding folder name as the field content. Support dynamic folder, associated variable type string ;
	【Use dynamic file name】：Set the file name of exported screen capture file,it cannot be empty. Support dynamic file name, associated variable type string ;
	【The export file name contains timestamp】：Unselected by default, if it is selected, the exported file name contains timestamp.
	【Export state】：Unselected by default, if it is selected, the export state can be viewed：
	0-Initial state , 1-Export successfully , 2-No external memory , 3-Write error ; associated

numerical type variable;

8.3.1.15 RCP file operations

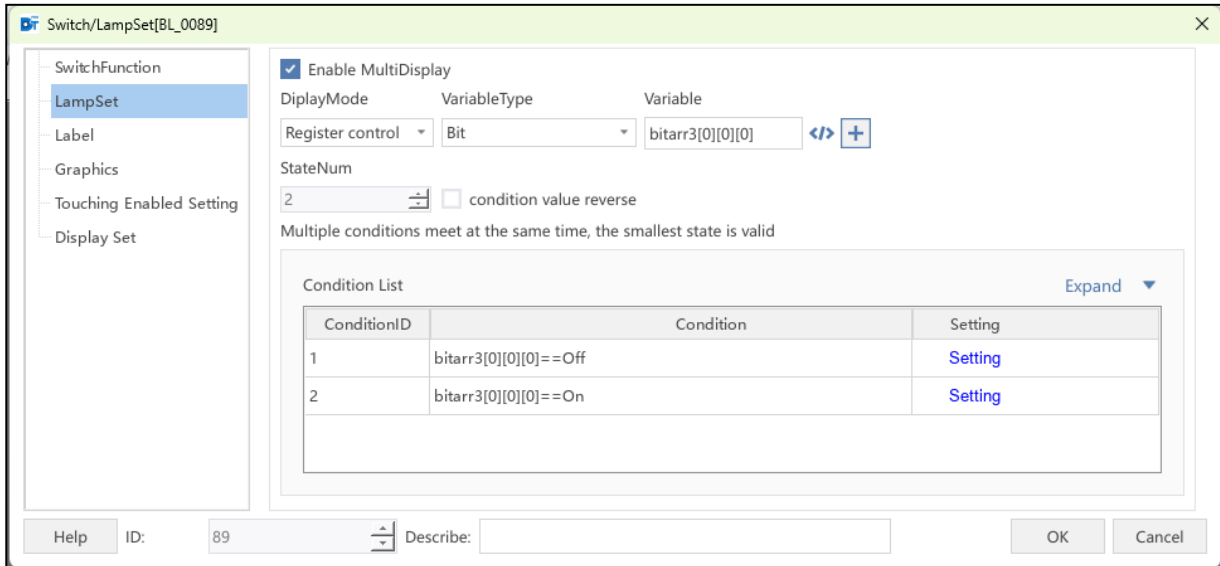
Click on the Import button, according to the path setting, when it is recognized as RCP file suffix, read its binary file and store it to the corresponding register address in the FW area, which can be converted to the corresponding value of the variable type by defining the corresponding register address variable type in the disk variable, so as to realize the engineering application (e.g. recipe uploading and downloading)

Description of RCP File Operation Attributes

Execute action	Support for importing RCP file actions
Storage Registers	① Stored in the FW area ② Start position range: [0-787574] ③ Data length range: [2-261000]
Import RCP file	① Import device: according to the screen model drop-down selection [HMI]/[SD card]/[USB1]/[USB2], the default selection of HMI; support for dynamic devices: 1-HMI, 2-SD card, 3-USB1, 4-USB2; ② Import subfolder: set the name of the subfolder to import RCP files; can be an empty field (corresponding to the root directory under the current device), or the user can input the corresponding folder name as the content of the field. Support dynamic folder, associated variable type string. ③ Import file name: set the file name of the imported RCP file; cannot be empty, supports dynamic file name, associated variable type string

8.3.2 Lamp Set

- Bitlamp: used to display the 0 and 1 states of the pointer variable register, and the displayed content can be both label text and graphics.



Bitlamp description

display mode	Register control	Bit	Associated bit variables (including bit variables taken from words), displayed based on the status of the bit variables
		StateNum	Set the number of status display components, default: 2
		Condition value reverse	Unchecked by default, when checked, the condition values in the list will be swapped; For example, when the default condition ID=1, MB0=OFF; When condition ID=2, MB0=ON. When checked 【 Condition value reverse 】 , and condition ID=1, MB0=ON; When condition ID=2, MB0=OFF.
	Expand	The "Flashing" and "Frequency" columns in the condition list have been changed to default hidden, and will be displayed in real-time when the extended column is selected; [Settings] column is checked by default, displaying values	
	Auto circle (Independent of register control selection)	Statenum	Default 2, range 1-254, set the number of displayed component states
		Frequency	Default 1, range 1-99
		Conditional control circle	Circle control with correlated bitvariables

- Wordlamp: will display the mapped status based on the value or offset of the specified word variable register, and the displayed content can be label text and graphics.

Switch/LampSet[BL_0090]

SwitchFunction
LampSet
Label
Graphics
Touching Enabled Setting
Display Set

☒ Enable MultiDisplay

DisplayMode: Register control VariableType: Word Variable: MW1

StateNum: 2 Added status value type: Status

Multiple conditions meet at the same time, the smallest state is valid

Condition List

ConditionID	Condition	Setting
1	MW1 == 0	Setting
2	MW1 == 1	Setting
3(error r)		

Invalid Input: ☐ Keep current state ☒ Display error text

☐ Error Notify

Help ID: 90 Describe: OK Cancel

Wordlamp description

Display Mode	Register control	Word	Display the mapping status based on the value or offset of the word variable register
		Statenum	Default 2, range 1-254, set the number of states for the word status display component
		added states Value types	When it is in "state", the new condition is in "state", and the value of the new condition is the maximum value+1; When it is already the maximum condition value, subsequent additions will remain at the maximum condition value; When it is "bit", the new condition is to take a bit, and the new offset value is the maximum offset value+1; When it is already the maximum offset value, subsequent additions will remain at the maximum offset value;
		invalid input	Keep current state: Continue to maintain current valid state when invalid input occurs Display error text: Display the text label in the error state, which can be bound to a positional variable or string variable for error notification. If the input is invalid, set the positional variable to ON or output the corresponding character content; Otherwise, it will be OFF or cleared
		multiple conditions meet at the same time,The smallest state is valid.	
	Expand	The "Flashing" and "Frequency" columns in the condition list have been changed to default hidden, and will be displayed in real-time when the extended column is	

		selected; [Settings] column is checked by default, displaying values	
Auto circle(Independent of register control selection)	statenum	Default 2, range 1-254, set the number of displayed component states	
	Frequency	Default 1, Range 1-99	
	Conditional control circle	Circle control with correlated bitvariables	

- BitCombine: arranged according to the serial number to form a binary system (with a large serial number corresponding to a high position and a small serial number corresponding to a low position), converted to an unsigned decimal system, and displayed with the corresponding status and label based on the decimal value or offset.

Switch/LampSet[BL_0080]

SwitchFunction
LampSet
Label
Graphics
Touching Enabled Setting
Display Set

☒ Enable MultiDisplay

DisplayMode: Register control VariableType: BitCombine

StateNum: 4 Added status value type: Status

Multiple conditions meet at the same time, the smallest state is valid

Minimum of variables2

ConditionID	Condition	Flash	Frequency(x100n)	Setting
1	Bit Combine == 3	none		Setting
2	Bit Combine == 2	none		Setting
3	Bit Combine == 10	none		Setting
4	Bit Combine bit0==ON	none		Setting
5(error)		none		

Invalid Input: ☐ Keep current state ☒ Display error text

☐ Error Notify

Help ID: 80 Describe: OK Cancel

Bit Combine description

Display Mode	Register control	BitCombine	Display based on decimal system composed of bit combinations
		statenum	Default 2, range 1-254, set the number of states for the word status display component
		added states Value types	When it is in "state", the new condition is in "state", and the value of the new condition is the maximum value+1; When it is already the maximum condition value, subsequent additions will remain at the maximum condition value; When it is "bit", the new condition is to take a bit, and the new offset value is the maximum offset value+1; When it is already the maximum offset value, subsequent additions will remain at the maximum offset value;
		Condition List	Cannot be empty, associated with bit variables, supports a maximum of 64 The binary digit corresponding to subtracting one from the number of states must be greater than or equal to the number of

			rows in the variable table
			the variable list (icon or right-click)Can add, insert, delete, copy, paste, etc.
		invalid input	Keep current state: Continue to maintain current valid state when invalid input occurs
			Display error text: Display the text label in the error state, which can be bound to a positional variable or string variable for error notification. If the input is invalid, set the positional variable to ON or output the corresponding character content; Otherwise, it will be OFF or cleared
		multiple conditions meet at the same time, The smallest state is valid.	
	Expand	The "Flashing" and "Frequency" columns in the condition list have been changed to default hidden, and will be displayed in real-time when the extended column is selected; [Settings] column is checked by default, displaying values	
Auto circle(Independent of register control selection)	statenum	Default 2, range 1-254, set the number of displayed component states	
	Frequency	Default 1, Range 1-99	
	Conditional control circle	Circle control with correlated bitvariables	

8.3.3 Switch Operation

- Bit switch : Bitwise operation can be performed on the bind variable, and the status displayed by the switch will be displayed according to the status of the read variable.

Button[SB_0001]

Switch property

Label

Graphics

Touching Enabled Setting

Display Set

Operator property: ☒ Bit switch ☐ Word switch

Operator variable

☐ Read/Write variable different

Read/Wr MB0

Switch property

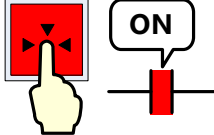
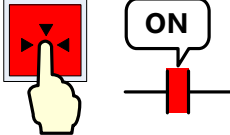
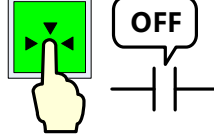
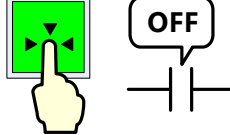
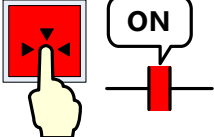
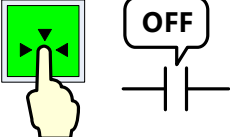
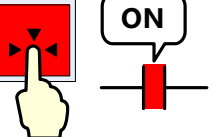
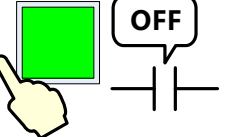
Trigger action: Down

Switch type: Reverse

State number: 2

State set

State ID	Corresponding value
1	0
2	1

Description of types of Bit Switch	
Switch type	Setting Function Description
ON	Press once, the specified address status is ON. Release the button or press again, it remains ON. Press and ON  Press again still ON 
OFF	Press once, the specified address status is OFF. Release the button or press again, it remains OFF. Press and OFF  Press again still OFF 
Switch Property	Press once, the specified address is ON. Release the button, it remains ON. Press again to turn it off. After releasing the button, it remains OFF until the next press Press and ON  Press and OFF 
Reset switch	The specified address state is ON only when this element is pressed. It turns OFF when released. Press and ON  OFF when released 

- Word switch: Word operations can be performed on bind variables. During operation, the corresponding state mapped data can be written to the specified variable register.

Button[SB_0001]

Switch property

Label

Graphics

Touching Enabled Setting

Display Set

Operator property: ☐ Bit switch ☒ Word switch

Operator variable

☐ Read/Write variable different

Read/Wr MW8

</> +

Switch property

Trigger action: Down

Switch type: Plus ☐ Not circle

State number: 2

State set

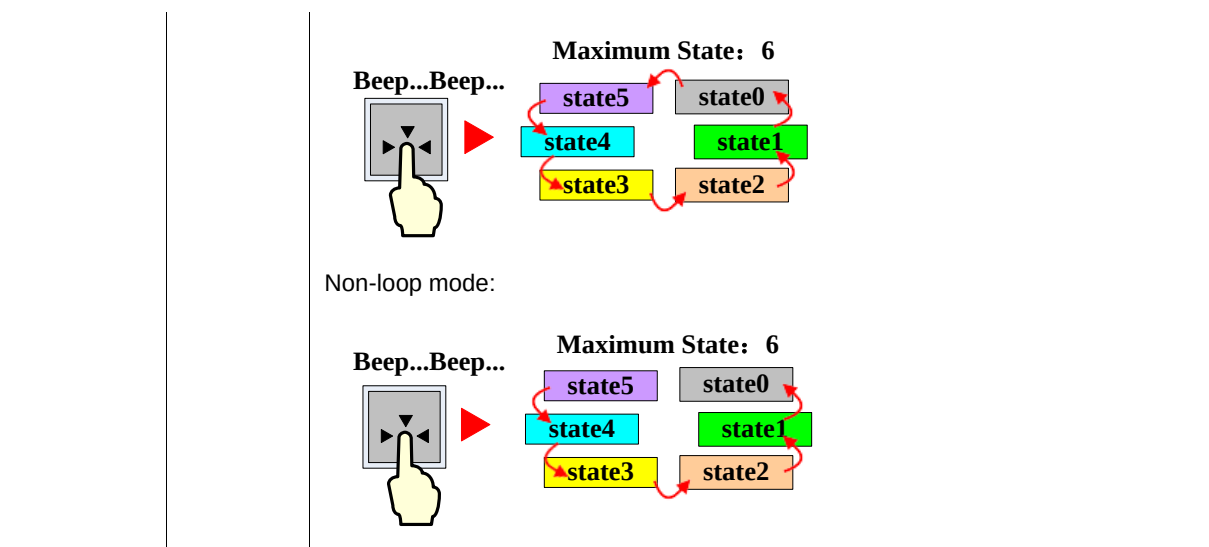
State ID	Corresponding value
1	0
2	1
3(Error)	other

Invalid input: ☒ Keep current state ☐ Show error state

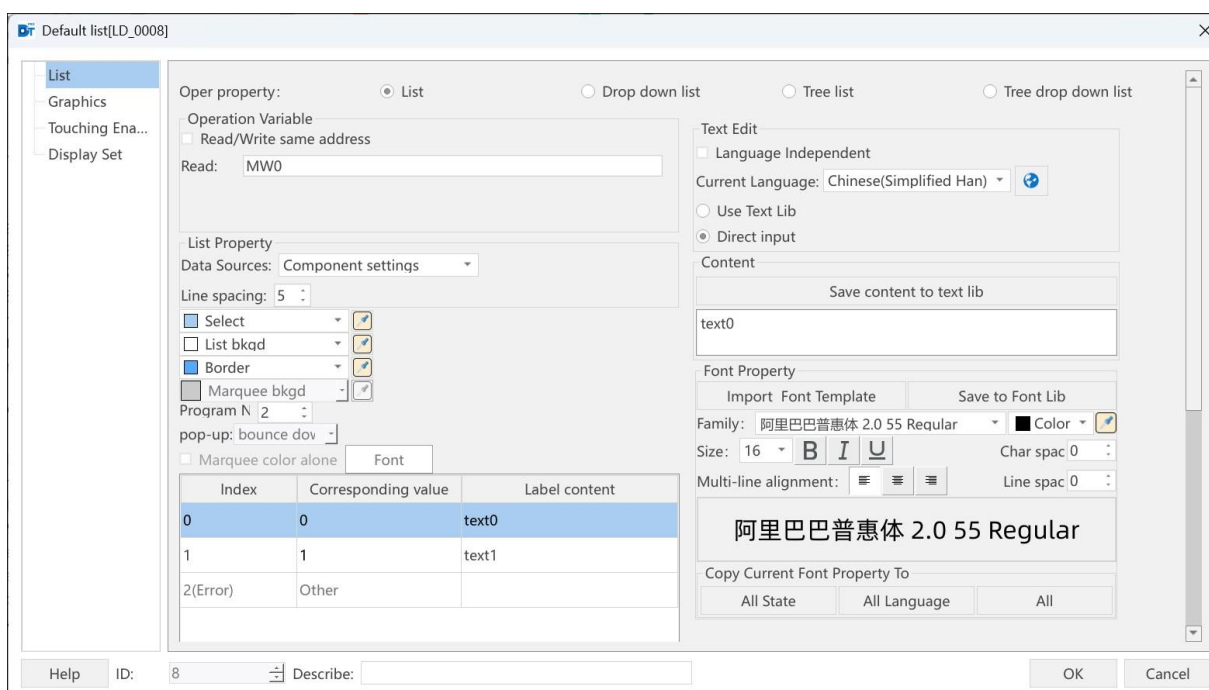
☐ Error notify

</> +

Word switch description		
Control mode	Add	Each time this element is pressed, the status number is increased by 1. The specified write address will write the corresponding status mapping value, and the corresponding status graph will be displayed based on the value of the specified read address. Loop Mode: Beep...Beep... Non-loop mode: Beep...Beep...
	Subtract	Each time this element is pressed, the status number is decreased by 1. The specified write address will write the corresponding status mapping value, and the corresponding status graph will be displayed based on the value of the specified read address. Loop mode :



- List: Display the set number of states in the form of a list, and indicate the currently selected state by the selected color. It includes four types: list, dropdown list, tree list, and tree dropdown list.



1. When the data sources is component settings, if associated with the text library, the label content of the multi-state text list corresponds to the status of the associated text library;
2. When the data sources is user or rights groups, the data list follows the multilingual settings in the background of user settings and security settings;

8.4 Data display

- Element attribute settings:

Description	
Password display	If checked, replace all numerical values with the * symbol

data type	Binary	The data is displayed in binary (0,1) format, with adjustable integer bits. For example, 16-bit data range: 0-65535	
	Signed Decimal	The data is displayed in the signed Decimal (0-9) format; For example, 16-bit data range: -32768~32767	
	Unsigned Decimal	Data is displayed in unsigned Decimal (0-9) format; For example, 16-bit data range: 0~65535	
	Hexadecimal	The data is displayed in hexadecimal (0-F) format, with adjustable integer bits; For example, 16-bit data range: 0~65535	
	Percentage	When the data type is Floating-point arithmetic, optional percentage display	
Leading zero	When the number of digits obtained from input is less than the actual set number of digits, if checked, fill in "0" before the insufficient digits		
Display positive sign	When the data type is a signed Decimal number, if checked, a "+" sign will be displayed before the value		
Format	Set to numerical or custom format, (percentage data type can only be in numerical format)		
Integer/decimal places	Set the number of digits displayed before the decimal place and the number of digits displayed after the Decimal separator		
Max/Min value setting	Set the allowed data range for numerical input/display components. If "Variable" is checked, set the range for numerical input/display component data input/display as a variable and specify the register address for variable reading. The number of words in the register is related to the data width set by the component.		
Using Input Deviation Control	When the control variable is in the OFF state, user input is only limited by the maximum and minimum values; When the control variable is in the ON state, the user input is not only limited by the maximum and minimum values, but also by the deviation value. For example, if the deviation value is 5 and the configured minimum value is 0 and the maximum value is 100, then when the current value is 50, the input minimum value is 45 and the maximum value is 55. If the current value is 0, then the input range at this time is 0-5, because the deviation exceeds the minimum value range, the minimum value shall prevail.		
Upper/lower limit exceeding alarm	When the value of the specified variable is less than the lower limit value or greater than the upper limit value, the element will display the value in the current set color		
	flicker	When the value of a fixed variable is greater than the upper limit or less than the lower limit, the element value will flash to highlight the warning effect of exceeding the limit	
Enable numerical calculation	Scale conversion	It indicates that the displayed data is the data obtained after the original data is calculated in a certain proportion. After checking and using, it is necessary to set the 【minimum and maximum proportional values】. You can directly set a constant or use variables	
	Zoom Conversion	It indicates that the displayed data is the data obtained after the original data is scaled to a certain scale. After checking and using, it is necessary to set the 【Gain】 and 【Offset】, which can be directly set as a constant or variable	
	Sub macro	Write to PLC	Indicates that the displayed data is written to the PLC value

	conversion	value	according to the data obtained after the sub-macro operation.
		HMI display value	Indicates that the displayed data is the data obtained from the original data after the sub-macro operation.
	Logical calculation	The value after operation is equal to the monitored value and the data after constant/variable operation	
	shift	After calculation, the value is equal to the specified number of digits moved left/right by the monitoring value	

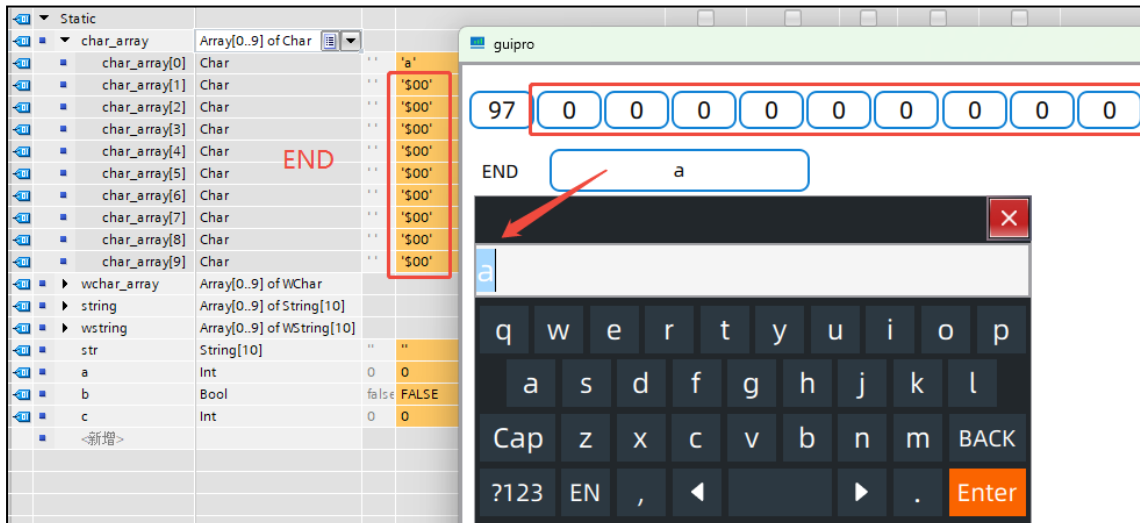
※ For signed/unsigned Decimal and hexadecimal numbers, after the number of decimal places is set, the original data is moved to the left to display the corresponding Decimal separator position. However, the data actually written to the register is still the original data.

Character Property Description	
Single line display	The newline character in the string is displayed as a space, and the ASCII code (LF) of the newline character is 10 (0xA)
Multiline display	Set the total number of displayed lines, the number of displayed lines, and the number of characters per line
	When selecting multiple lines display, you can set a custom delimiter. If not checked, the default is to use the Enter key for ending; if checked, you can set a custom delimiter, which cannot be empty and cannot exceed 10 characters, supporting special symbols and spaces
The remaining characters are displayed	End character: For example, if the associated variable has 10 characters, input characters less than 10, and the remaining characters are filled with the endword. The text element does not display spaces filled at the end of the characters
	Fill in empty characters and truncate: For example, if the associated variable has 10 characters, input characters less than 10, and the remaining characters are filled with empty characters in the form of spaces. Text elements do not display spaces filled at the end of characters
	Fill in empty characters and display: for example, if the associated variable has 10 characters, enter characters less than 10, and fill the remaining characters with empty characters in the form of spaces. The text element displays all filled spaces

For example, a Siemens char-type array variable, after associating it with a text component, set three display formats for the remaining characters respectively.

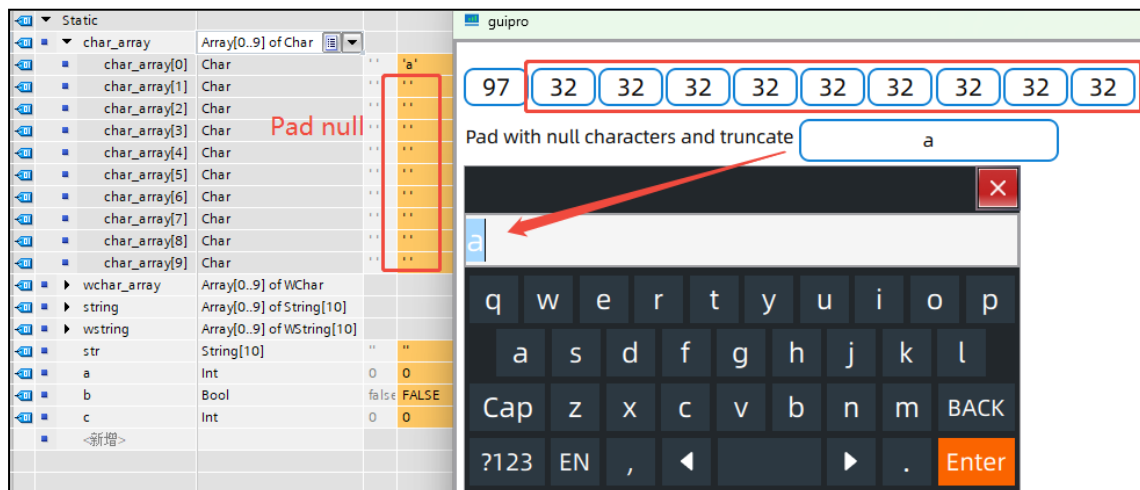
1. End symbol display effect:

Input a character 'a' into the text element



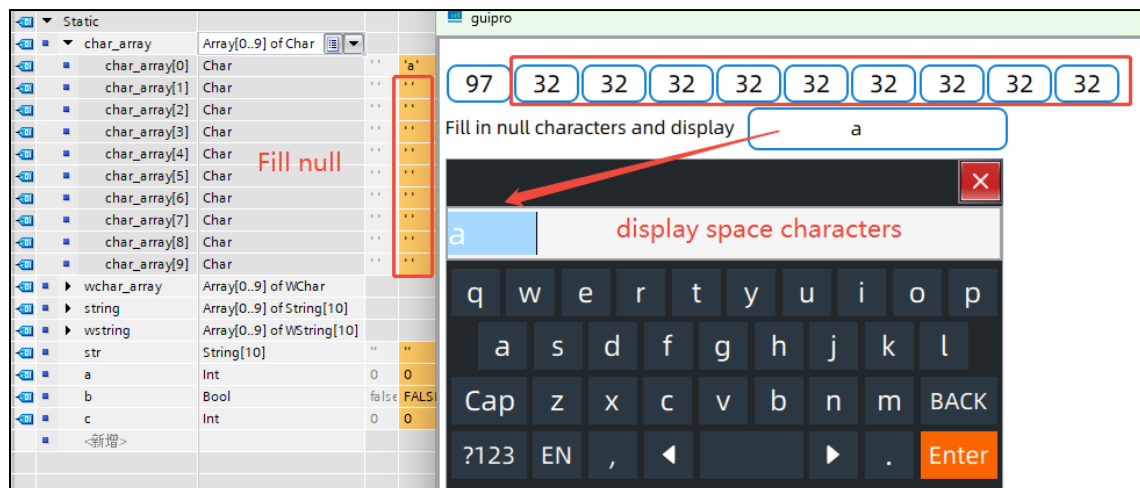
2.Fill in empty characters and truncate the effect:

Input a character 'a' into the text element

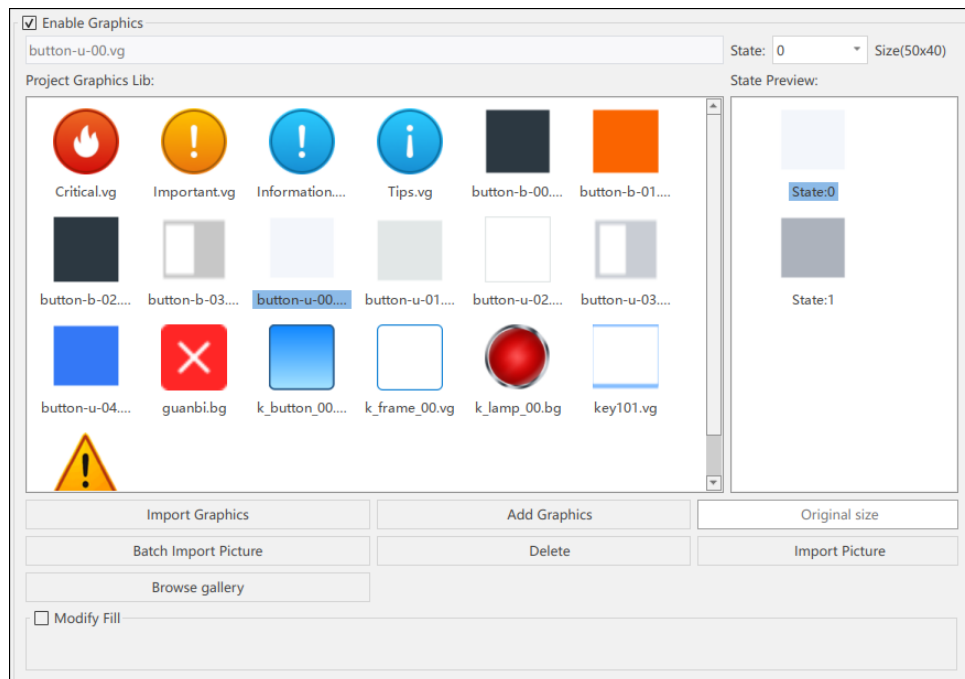


3. The effect of filling in empty characters and truncating them for display:

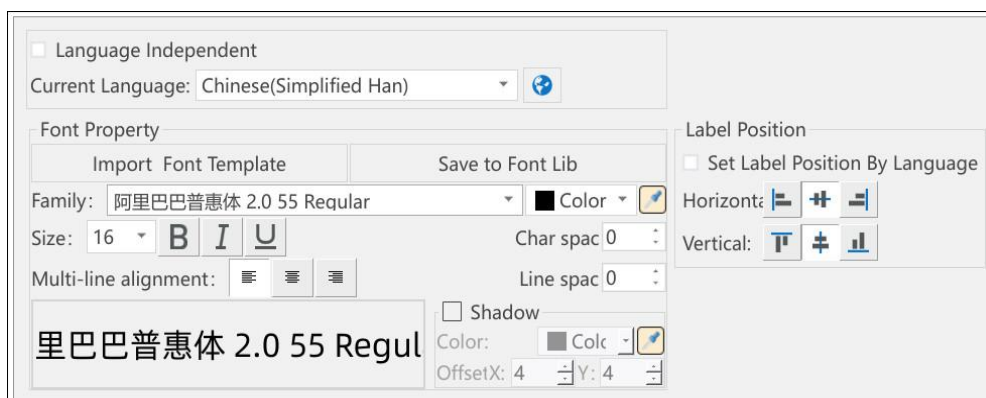
Input a character 'a' into the text element



- Graphics : Can be used to set whether the control uses graphics and shadow effects.



- Font property setting: Can be used to set the font of the label content displayed by the control.



Description of font properties	
Language Independent	Checked by default, unchecked to set font properties for different languages.
Set Label Position By Language	Uncheck the language-independent display box to set the horizontal or vertical position of labels in different languages.

- Display setting : Can be used to set the location, size, and display/hide of the control.

Location ☐ Lock X 1 Y 1		Size ☐ Fixed Ratio Width 100 Height 50	
☐ Translucent transparency 50			
Display/Hide ☒ Always Display ☐ Condition Display			

- Keyboard setting property : This property is only valid for numerical input and character input components.
- Used to set whether to pop up the keyboard, the type and position of pop up, and whether to enable the “Use Input Order” function..

KeyBoard Settings

Using the pop-up keyboard

Keyboard Type:
K_1:Decimal Numeric Keyboard(30001)

☐ Keyboard pop-up position ☐ Specified position ☒ Automatic adjust position

☐ Use Input Order
☐ After Input Is Completed, No Longer Sequentially Input

Input Order 1 ☐ Group 1

- Touching Enabled Setting Property : This property is only valid for numerical input and character input elements. This can be used to set control touch enable, security settings, notification functions, trigger touch functions, etc.

Touching Enabled Setting ☒ Always Valid ☐ AlwaysInvalid ☐ Conditional Enabling	Security Setting ☐ OperConfirm wait(100ms) 30 MinPushInterval(100ms) 0 ☐ RecordOper ☐ Language Independent Current Language: Chinese(Simplified Han)  ☐ Use Text Lib ☒ Direct input Save Content To All language Text lib ☒ Record data change ☒ Same as manipulated variable Variable:   Notify ☐ Notify before write ☐ Notify write success ☐ Trigger/Touch
---	---

Data Display Description	
Numerical display	Display the data in the specified variable register in numerical form on the HMI.
Numerical input	Write data in numerical form from the HMI into the specified variable register, and assign values to the specified variable register by popping up the keyboard.
Character display	Parse the data within the specified variable in ASCII code and display it as a string on the HMI.
Character input	Parse the data into ASCII characters and write it as a string from the HMI to the specified variable register. At the same time, you can also assign values to the specified variable register by popping up the keyboard.

8.5 Alarm browsing

Alarm browsing components are components used to display user alarm information. Altus DToolsPro provides components for displaying alarms, including alarm bar, current alarm, alarm history, and alarm statistic. Users can choose to use these components based on their functions and actual needs.



1. If there is a need to export background alarm information, it is necessary to check **【Enable Alarm Record】** and **【Export Record】** in **【Project】 - 【Event/Alarm】 - 【Alarm Setting】** in advance. Please refer to [Chapter14: Alarm Setting](#) for specific attribute descriptions of alarm settings.
2. The alarm information displayed in the alarm bar, current alarm, and other components should be established in advance in the **【Project】 - 【Event/Alarm】 - 【Alarm Information Table】**.
3. The current alarm cannot save historical information, and only displays unrecovered alarm information. After the alarm is restored, it disappears.
4. Alarm history can save historical information and query function to query alarm history. In addition, it can display not only unrecovered event information, but also recovered event information.

8.5.1 Alarm Bar

The alarm bar is a one-way walking lantern. Scroll to display the alarm information content that has been established in the **【Alarm Information Table】** and the current state meets the triggering conditions. Please refer to [Chapter14.3:Alarm Information Table](#) for specific attribute descriptions of alarm settings.

##	22-09-29	11:22:29

1. In the "Alarm Property" dialog box of the "Alarm Bar" component, corresponding properties can be set.

Alarm Bar - Alarm Description	
Alarm Type	Current component alarm type
Alarm Group	For specific attribute descriptions of alarm groups, please refer to Chapter 14 【Alarm Setting】
Include	Include subordinate alarm groups

subordinate alarm groups	
Alarm Level	For specific attribute descriptions of alarm levels, please refer to Chapter 14 【Alarm Setting】
Include higher levels	Contains higher levels
Sort Order	Gray display, invalid settings
Language independent	If checked, the selection box after "Display Language" is invalid, and the component defaults to using the first language
Show title bar	If checked, the alarm bar component will be displayed with a title bar. In addition, the settings related to the font of the title bar will also be displayed. There will be no explanation here for the time being. For instructions, please refer to the alarm attribute description in 8.5.2 【Current Alarm】
List font set	Set the relevant properties of the list font
Set font by column	If checked, the data table in the alarm properties will display the "Column Font Settings" content. Double click on the corresponding "Font Settings" to set the font properties of the corresponding column
Preset text set	It includes two options: 【Input Direct】 and 【Use Text Lib】 : ① When selecting 【Input Direct】 , you can directly input the title name in the corresponding area of the 'Title Bar Name Setting' column ② When checking 【Use Text Lib】 , you can select the name of the text library in the corresponding area of the 'Title Bar Name Setting' column. This item is only valid when 【Show Title Bar】 is checked
Display language	Set the language of the title bar. When 【Language Independent】 is not checked and 【Show Title Bar】 is checked, it is valid
Data column dynamic show	Check to control whether the corresponding data column is displayed by setting a bit of the word variable to ON or OFF
Move up	When selecting the row in the data table, click 【Move Up】 to move the selected row up. The 【Move Up】 button is valid except for selecting the first row of the data table
Move down	When selecting a row in the data table, click 【Move Down】 to move the selected row down. The 【Move Down】 button is valid except for selecting the last row of the data table

Default Sort	Restore to the original sorting of the data table
Dynamic set by column	If checked, the "Dynamic Display" column will appear in the data table of the alarm property. By first checking and then selecting the bit variable, you can control whether the corresponding data column is displayed through the state of this bit variable
Alarm Status Display	Set trigger colors and confirm colors. The color picker can absorb all colors on the computer screen at this time
Alarm Display type	Fixed to display the same alarm in different states on a single line, cannot be modified
Marquee Moving Mode	When setting the alarm information trigger, display the movement mode of the alarm bar component
Step size	Move the displayed alarm information by the number of pixels moved each time. The unit is pixels. The larger the step size value, the faster the movement display speed
Frequency	The time interval between the last moved pixel and the next moved pixel of the displayed alarm information. The unit is 0.1 seconds. The higher the value, the slower the movement display speed
Carousel	Display alarm content in a rotating carousel format at set time intervals; Time interval settings range: 2 to 5 seconds

2. In the "Table Property" dialog box of the "Alarm Bar" component, corresponding properties can be set.

Alarm Bar - Table Property Description	
Current Page/Total Pages	【Alarm Bar】 component Invalid
Page Up/Down Switch Button	Alarm components other than alarm bars are valid
Display grid line	Set display borders, row split lines, and column split lines
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the color of the outer frame, and the color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Separator line width	Set Split Line type
Sprt Color	Set the split line color. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Row gap	set row gap
Column gap	set column gap
Date Format	Set the format of the alarm message date
Date Separator	Set the separator of the alarm message date
Show 4-digit year	If this option is checked, the date of the alarm message will be displayed with 4 digits of the year, otherwise it will be displayed with 2 digits.
Time Format	Set the format of alarm message time

3. In the "Display Set" dialog of the "Alarm Bar" component, you can set the corresponding properties.

Alarm bar-display set description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Translucent	Set display borders, row split lines, and column split lines
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.5.2 Current Alarm

Current alarm is used to display the alarm information content that has been established in the **【Alarm Information Table】** and the current state meets the triggering conditions. When the variable state of the alarm switches back to a non-alarm state, the alarm information will disappear, otherwise it will be displayed continuously. Please refer to [Chapter14.3–Alarm Information Table](#) for the establishment of an alarm information table.

No.	Alarm content	Trigger date	Trigger time	Alarm cumulative number
1	##	23-06-05	18:21:07	1

1. In the "Alarm Property" dialog box of the "Current Alarm" component, corresponding properties can be set.

Current Alarm–Alarm Property description	
Alarm type	The alarm type of the current component
Alarm Group	For specific attribute descriptions of alarm groups, please refer to Chapter 14 【Alarm Setting】
Include subordinate alarm group	If this option is checked, the alarm component will display the lower-level alarm groups of the currently selected alarm group. If it is not checked, only the alarm information of the currently selected alarm group will be displayed. It is checked by default
Alarm level	For specific attribute descriptions of alarm levels, please refer to Chapter 14 【Alarm Setting】
Include higher levels	If this option is checked, the alarm component will display the superior alarm level of the currently selected alarm level. If it is not checked, only the alarm information of the currently selected alarm level will be displayed. It is checked by default

Sort Order	Set the sorting method for displaying alarm information on alarm components
Language independent	If checked, the selection box after "Show language" is invalid. The first language is used by default for the component
Show Title Bar	If checked, the alarm bar component will be displayed with a title bar. It is checked by default.
Title font set	Click to set the title bar font related properties, this is only valid when 【Show Title Bar】 is checked.
List Font same as title	If checked, the font properties of the list are the same as those of the title bar.
List font set	Set the related properties of the list font
Set font by column	If checked, the data table in the alarm properties will display the "Column Font Settings" content. Double click on the corresponding "Font Settings" to set the font properties of the corresponding column
Preset text set	It includes two options: 【Input Direct】 and 【Use Text Lib】 : ① When selecting 【Input Direct】 , you can directly input the title name in the corresponding area of the 'Title Bar Name Setting' column ② When checking 【Use Text Lib】 , you can select the name of the text library in the corresponding area of the 'Title Bar Name Setting' column. This item is only valid when 【Show Title Bar】 is checked
Display language	Set the language of the title bar. When 【Language Independent】 is not checked and 【Show Title Bar】 is checked, it is valid
Data column dynamic show	Check to control whether the corresponding data column is displayed by setting a bit of the word variable to ON or OFF
Dynamic set by column	If checked, the "Dynamic Display" column will appear in the data table of the alarm property. By first checking and then selecting the bit variable, you can control whether the corresponding data column is displayed through the state of this bit variable
Output select row data to var	Check to set output variables for the data column, and the 【Trigger Variable】 and 【Trigger Type】 are valid. Click on any alarm information on the alarm component, and when the trigger variable meets the set trigger type, the content of the data column will be displayed in the corresponding output variable
Move up	When selecting the row in the data table, click 【Move Up】 to move the selected row up. The 【Move Up】 button is valid except for selecting the first row of the data table

Move down	When selecting a row in the data table, click 【Move Down】 to move the selected row down. The 【Move Down】 button is valid except for selecting the last row of the data table
Default sort	Restore to the original sorting of the data table
Alarm Status Display	Set trigger colors and confirm colors. The color picker can absorb all colors on the computer screen at this time
Alarm Display Type	Fixed to display the same alarm in different states on a single line, cannot be modified
Confirm Mode	Set the method for confirming alarm information, including clicking, double clicking, and long pressing
Unconfirm Alarm Blink Cycle	Set the frequency of the unconfirmed alarm flashing cycle, in 0.1s

2. In the "Table Property" dialog box of the "Current Alarm" component, corresponding properties can be set.

Current Alarm - Table Property Description	
Show browser control	When the default is ticked, the alarm element will display a browse control box with the settings icon, including the total number of entries, the current page/total number of pages, and the content of the page up/down switch button (if all three options are ticked); when the customization is ticked, the content of the current page and the total number of pages can be displayed using a variable corresponding to the content of the current page and the total number of pages (if the current page/total number of pages is ticked)
Total entries	The total number of alarm messages for the current alarm component
Current/total page	The current page displayed by the alarm component and the total number of pages of the current alarm information. It is valid when the 【Show browser control】 and 【 Pagination display 】 are checked
Page down/up button	Used for flipping up and down alarm information. It is effective when checking the 【Show browser control】 and 【 Pagination display 】
Display grid line	Set display borders, row split lines, and column split lines
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the color of the outer frame, and the color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Separator line width	Set Split Line type
Sprt Color	Set the split line color. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time

Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Set the background color for separating rows between two rows
Select color	Set the color of the selected alarm message. The color picker can absorb all the colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Date Format	Set the format of the alarm message date
Date Separator	Set the separator of the alarm message date
Show 4-digit year	If this option is checked, the date of the alarm message will be displayed with 4 digits of the year, otherwise it will be displayed with 2 digits.
Time format	Set the format of alarm message time
Content exceeds table width	When the alarm content exceeds the width of the table, truncation or scrolling can be checked. If set to scrolling, you can set the step size and speed of scrolling
Total entries	Display the total number of alarm messages for the current alarm component using variables
Single page entry num	Use a constant to set the number of entries for displaying alarm information on each page. It is valid when selecting 【 Pagination display 】
Dynamic entries num	Use a constant to set the number of entries for displaying alarm information on each page. It is valid when selecting 【 Pagination display 】
Export device	Export and save the alarm information displayed by the current alarm component in an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the name of the sub folder for exporting alarm information. If this item is blank, the alarm information will be saved in the "tar" folder of the project root directory by default
Use dynamic subfolder	Dynamically setting the name of a subfolder using string variables
Trigger var	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for exporting alarm information, with a default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name do not include export time	If checked, the exported file name does not include the export time
Export file format	The file format for exporting alarm information, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component

File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encrypt】 is not checked, the exported file format is the file format set in the 【Export File Format】 option and can be opened directly
Password	Dynamically setting the password for file encryption using string variables

3. In the "Display Set" dialog box of the "Current Alarm" component, corresponding properties can be set.

Current Alarm - Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Translucent	Set display borders, row split lines, and column split lines
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.5.3 Alarm History

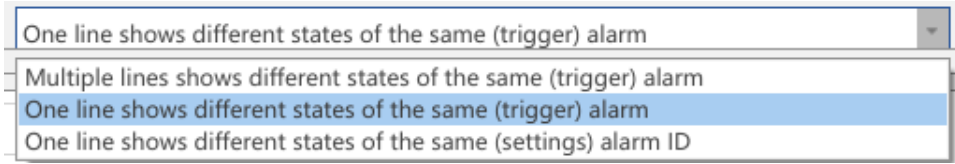
Alarm history is used to display the alarm information content that has been established in the **【Alarm Information Table】** and the current state meets the triggering conditions. Alarm history can display real-time alarm information and query historical information. Please refer to [Chapter 14.3: Alarm Information Table](#) for the establishment of an alarm information table.

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date
1	##	23-06-05	18:24:24	23-06-05	18:24:24	23-06-05

1. In the "Alarm Property" dialog box of the "Alarm History" component, corresponding properties can be set.

Alarm History - Alarm Property Description	
Alarm type	The alarm type of the current component
Alarm Group	For specific attribute descriptions of alarm groups, please refer to Chapter 14 【Alarm Setting】
Include subordinate	If this option is checked, the alarm component will display the lower-level alarm groups of

alarm group	the currently selected alarm group. If it is not checked, only the alarm information of the currently selected alarm group will be displayed. It is checked by default
Alarm level	For specific attribute descriptions of alarm levels, please refer to Chapter 14 【Alarm Setting】
Include higher levels	If this option is checked, the alarm component will display the superior alarm level of the currently selected alarm level. If it is not checked, only the alarm information of the currently selected alarm level will be displayed. It is checked by default
Sort Order	Set the order in which alarm messages are displayed on the alarm component; configure the trigger time, alarm level, and cumulative number of alarms When the sorting method is set to "Cumulative Alarm Count," the option "Display different statuses of the same (triggered) alarm on separate lines" in the alarm display settings is grayed out; the two options are mutually exclusive.
Language independent	If checked, the selection box after "Display language" is invalid. The first language is used by default for the component
Show Title Bar	If checked, the alarm bar component will be displayed with a title bar. It is checked by default.
Title font set	Click to set the title bar font related properties, this is only valid when 【Show Title Bar】 is checked.
List Font same as title	If checked, the font properties of the list are the same as those of the title bar.
List font set	Set the related properties of the list font
Set font by column	If checked, the data table in the alarm properties will display the "Column Font Settings" content. Double click on the corresponding "Font Settings" to set the font properties of the corresponding column
Preset text set	It includes two options: 【Input Direct】 and 【Use Text Lib】 : ① When selecting 【Input Direct】 , you can directly input the title name in the corresponding area of the 'Title Bar Name Setting' column ② When checking 【Use Text Lib】 , you can select the name of the text library in the corresponding area of the 'Title Bar Name Setting' column. This item is only valid when 【Show Title Bar】 is checked
Display language	Set the language of the title bar. When 【Language Independent】 is not checked and 【Show Title Bar】 is checked, it is valid
Data column dynamic show	Check to control whether the corresponding data column is displayed by setting a bit of the word variable to ON or OFF
Dynamic set by column	If checked, the "Dynamic Display" column will appear in the data table of the alarm property. By first checking and then selecting the bit variable, you can control whether the corresponding data column is displayed through the state of this bit variable

Output select row data to var	Check to set output variables for the data column, and the 【Trigger Variable】 and 【Trigger Type】 are valid. Click on any alarm information on the alarm component, and when the trigger variable meets the set trigger type, the content of the data column will be displayed in the corresponding output variable	
Move up	When selecting the row in the data table, click 【Move Up】 to move the selected row up. The 【Move Up】 button is valid except for selecting the first row of the data table	
Move down	When selecting a row in the data table, click 【Move Down】 to move the selected row down. The 【Move Down】 button is valid except for selecting the last row of the data table	
Default sort	Restore to the original sorting of the data table	
Alarm Status Display	Set trigger color, unrecovered confirmation color, confirmation color, and recovery confirmation color, and the color picker can absorb all colors on the computer screen at this time	
Alarm Display Type	 The display methods for alarm information include: "One line shows different states of the same (trigger) alarm", "Multiple line shows different states of the same (trigger) alarm", and "One line shows different states of the same (settings) alarm ID". Click here to jump to the detailed introduction of these three display methods.	
	One line shows different states of the same(trigger) alarm	Display the triggering, recovery, and confirmation states of the same alarm on the same line;
	Multiple lines show different states of the same(trigger) alarm	Display the triggering, recovery, and confirmation states of the same alarm in different rows. When this option is selected, you can check whether to display the triggering, confirmation, and recovery states. By default, all three states are checked and one of them has to be checked
	One line shows different states of the same (settings) alarm ID	Display all alarm records generated at different times for the same alarm in one line, combined into a single line

2. In the "Alarm Query" dialog box of the "Alarm History" component, corresponding properties can be set.

Alarm History - Alarm Query Description		
Query Function		If unchecked, it means using the alarm browsing function to display all alarm information
		If checked, it indicates that the current component is using the query function
Query states		Used to determine whether the query function is allowed. If the status is 1, the query is

variable	allowed; If the status is 0, query is prohibited and real-time browsing of all alarm information is enabled	
Query trigger variable	When the query trigger variable meets the conditions set by the trigger method, execute the query function once	
Trigger type	Trigger method for querying trigger variables	
Custom	Query by alarm trigger time	Variables of the date, date and time, or timestamp types can be associated; Note: If the variable is of the date type, the start date and end date cannot be the same;
	Query by Alarm Group	Set single alarm group query: associate with a variable; the default value of 0 represents the default alarm group, and the alarm value data is sourced from the corresponding ID in the backend alarm group settings
		Configuring queries for multiple alarm groups: Associate two character variables and use a closed-to-open interval to display alarm information; for example, when the ID range is [0, 1), only display alarm information for alarm group 0.
	When enabling custom queries, select at least one option: query by alarm trigger time or query by alarm group	
	When custom queries are enabled, multiple alarm filters (group filters and time filters) and static sorting conditions from the host computer can be applied simultaneously. (Note: If sorting is not performed using the control, static sorting is used; otherwise, sorting is performed using the control.)	
	Prerequisites for custom queries: At least one of the “Date” or “Time” fields must be selected in the alarm history list; otherwise, the custom query option will be grayed out, and the system will automatically switch to the control query mode.	

3. In the "Table Property" dialog box of the "Alarm History" component, corresponding properties can be set.

Alarm History - Table Property Description	
Show browser control	When the default is ticked, the alarm element will display a browse control box with the settings icon, including the total number of entries, the current page/total number of pages, and the content of the page up/down switch button (if all three options are ticked); when the customisation is ticked, the content of the current page and the total number of pages can be displayed using a variable corresponding to the content of the current page and the total number of pages (if the current page/total number of pages is ticked)
Total entries	The total number of alarm messages for the current alarm component
Current/Total page	The current page displayed by the alarm component and the total number of pages of the current alarm information. It is valid when the 【Show browser control】 and 【 Pagination display 】 are checked
Page down/up button	Used for flipping up and down alarm information. It is effective when checking the 【Show browser control】 and 【 Pagination display 】

Show Filter Button	Clicking will pop up a filtering window for the settings. Effective after checking 【show browser control】
Display grid line	Set display borders, row split lines, and column split lines
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the color of the outer frame, and the color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Separator line width	Set Split Line type
Sprt Color	Set the split line color. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Set the background color for separating rows between two rows
Select color	Set the color of the selected alarm message. The color picker can absorb all the colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Date Format	Set the format of the alarm message date
Date Separator	Set the separator of the alarm message date
Show 4-digit year	After checking, the year can be displayed in 4 digits, otherwise it will be displayed in 2 digits. For example, for the year 2008, it displays "2008" if 【Show 4-digit year】 is selected; If 【Show 4-digit year】 is not selected, only 2 digits will be displayed, i.e. '08'
Time format	Set the format of alarm message time
Content exceeds table width	When the alarm content exceeds the width of the table, truncation or scrolling can be checked. If set to scrolling, you can set the step size and speed of scrolling
Total entries	Use word variables to display the total number of alarm messages for the current alarm component
Pagination display	Set alarm information to be displayed on multiple pages
Single page entry num	Use a constant to set the number of entries for displaying alarm information on each page. It is valid when selecting 【 Pagination display 】

Export device	Export and save the alarm information displayed by the current alarm component in an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the name of the sub folder for exporting alarm information. If this item is blank, the alarm information will be saved in the "data" folder of the project root directory by default
Use dynamic subfolder	Using string variables to dynamically set sub folder names
Trigger var	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for exporting alarm information, with a default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name do not include export time	If checked, the exported file name does not include the export time
Export file format	The file format for exporting alarm information, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component
File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encryption】 is not checked, the exported file format is set in the 【Export File Format】 option. Simply open the file
Dynamic Password	Dynamically setting the password for file encryption using string variables

4. In the "Display Set" dialog box of the "Alarm History" component, corresponding properties can be set.

Alarm History - Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Translucent	Set display borders, row split lines, and column split lines
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are external, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.5.4 Alarm Statistic

Alarm statistics are used to count the cumulative number of alarm messages that have been established and

triggered in the 【Alarm Information Table】. Please refer to [Chapter 14.3: Alarm Information Table](#) for the establishment of an 【alarm information table】.

No.	Alarm content	Alarm cumulative time	Alarm cumulative number
1	##	1	1

1. In the "Alarm Property" dialog box of the "Alarm Statistic" component, corresponding properties can be set.

Alarm Statistic - Alarm Property Description	
Alarm type	The alarm type of the current component
Alarm Group	For specific attribute descriptions of alarm groups, please refer to Chapter 14 【Alarm Setting】
Include subordinate alarm group	If this option is checked, the alarm component will display the lower-level alarm groups of the currently selected alarm group. If it is not checked, only the alarm information of the currently selected alarm group will be displayed. It is checked by default
Alarm level	For specific attribute descriptions of alarm levels, please refer to Chapter 14 【Alarm Setting】
Include higher levels	If this option is checked, the alarm component will display the superior alarm level of the currently selected alarm level. If it is not checked, only the alarm information of the currently selected alarm level will be displayed. It is checked by default
Sort Order	Set the sorting method for displaying alarm information on alarm components
Language independent	If checked, the selection box after "Display language" is invalid. The first language is used by default for the component
Show Title Bar	If checked, the alarm bar component will be displayed with a title bar. It is checked by default.
Title font set	Click to set the title bar font related properties, this is only valid when 【Show Title Bar】 is checked.
List Font same as title	If checked, the font properties of the list are the same as those of the title bar.
List font set	Set the related properties of the list font
Set font by column	If checked, the data table in the alarm properties will display the "Column Font Settings" content. Double click on the corresponding "Font Settings" to set the font properties of the corresponding column
Preset text set	It includes two options: 【Input Direct】 and 【Use Text Lib】 : ① When selecting 【Input Direct】, you can directly input the title name in the

	corresponding area of the 'Title Bar Name Setting' column ② When checking 【Use Text Lib】 , you can select the name of the text library in the corresponding area of the 'Title Bar Name Setting' column. This item is only valid when 【Show Title Bar】 is checked
Display language	Set the language of the title bar. When 【Language Independent】 is not checked and 【Show Title Bar】 is checked, it is valid
Data column dynamic show	Check to control whether the corresponding data column is displayed by setting a bit of the word variable to ON or OFF
Dynamic set by column	If checked, the "Dynamic Display" column will appear in the data table of the alarm property. By first checking and then selecting the bit variable, you can control whether the corresponding data column is displayed through the state of this bit variable
Output select row data to var	Check to set output variables for the data column, and the 【Trigger Variable】 and 【Trigger Type】 are valid. Click on any alarm information on the alarm component, and when the trigger variable meets the set trigger type, the content of the data column will be displayed in the corresponding output variable
Move up	When selecting the row in the data table, click 【Move Up】 to move the selected row up. The 【Move Up】 button is valid except for selecting the first row of the data table
Move down	When selecting a row in the data table, click 【Move Down】 to move the selected row down. The 【Move Down】 button is valid except for selecting the last row of the data table
Default sort	Restore to the original sorting of the data table
Alarm Display type	Fixed to display the same alarm in different states on a single line, cannot be modified

2. In the "Table Property" dialog box of the "Alarm Statistics" component, corresponding properties can be set.

Alarm Statistic - Table Property Description	
Show browser control	When the default is ticked, the alarm element will display a browse control box with the settings icon, including the total number of entries, the current page/total number of pages, and the content of the page up/down switch button (if all three options are ticked); when the customisation is ticked, the content of the current page and the total number of pages can be displayed using a variable corresponding to the content of the current page and the total number of pages (if the current page/total number of pages is ticked)
Total entries	The total number of alarm messages for the current alarm component
Current/Total page	The current page displayed by the alarm component and the total number of pages of

	the current alarm information. It is valid when the 【Show browser control】 and 【 Pagination display 】 are checked
Page down/up button	Used for flipping up and down alarm information. It is effective when checking the 【Show browser control】 and 【 Pagination display 】
Show Filter Button	Clicking will pop up a filtering window for the settings. Effective after checking 【show browser control】
Display grid line	Set display borders, row split lines, and column split lines
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the color of the outer frame, and the color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Separator line width	Set Split Line type
Sprt Color	Set the split line color. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Set the background color for separating rows between two rows
Select color	Set the color of the selected alarm message. The color picker can absorb all the colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Date Format	Set the format of the alarm message date
Date Separator	Set the separator of the alarm message date
Show 4-digit year	After checking, the year can be displayed in 4 digits, otherwise it will be displayed in 2 digits. For example, for the year 2008, it displays "2008" if 【Show 4-digit year】 is selected; If 【Show 4-digit year】 is not selected, only 2 digits will be displayed, i.e. '08'
Time format	Set the format of alarm message time

Content exceeds table width	When the alarm content exceeds the width of the table, truncation or scrolling can be checked. If set to scrolling, you can set the step size and speed of scrolling
Total entries	Use word variables to display the total number of alarm messages for the current alarm component
Pagination display	Set alarm information to be displayed on multiple pages
Single page entry num	Use a constant to set the number of entries per page that display alarm information. Valid when checked for 【Pagination Display】
Dynamic entry num	Use the word variable to set the number of entries for displaying alarm information on each page, which is valid when 【Display by Page】 is checked
Page num	Use the word variable to set the total number of pages for the current alarm message. Valid when checked for 【Pagination Display】
Current Page	Use word variables to control the current page displayed by the alarm component. Valid when checked for 【Pagination Display】
Export device	Export and save the alarm information displayed by the current alarm component in an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the name of the sub folder for exporting alarm information. If this item is blank, the alarm information will be saved in the "tar" folder of the project root directory by default
Use dynamic subfolder	Using string variables to dynamically set sub folder names
Trigger var	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for exporting alarm information, with a default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name do not include export time	If checked, the exported file name does not include the export time
Export file format	The file format for exporting alarm information, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component
File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encryption】 is not checked, the exported file format is set in the 【Export File Format】 option. Simply open the file
Dynamic Password	Dynamically setting the password for file encryption using string variables

3. In the "Display Set" dialog box of the "Alarm Statistic" component, corresponding properties can be set.

Alarm Statistic - Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of	Set the size of the component and calculate the corresponding width or height proportionally.

width and height	The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Translucent	Set display borders, row split lines, and column split lines
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

Detailed Introduction to Alarm Display Methods :

1. Multiple lines show different states of the same(trigger) alarm :

Display the trigger, recovery, and confirm states of an alarm in separate lines

No.	Alarm content	Date	Time	Alarm Status
6	Alarm2	26-03-10	13:49:30	Recovery
5	Alarm2	26-03-10	13:49:29	Confirm
4	Alarm2	26-03-10	13:49:28	Alarm
3	Alarm1	26-03-10	13:49:26	Recovery
2	Alarm1	26-03-10	13:49:25	Confirm
1	Alarm1	26-03-10	13:49:24	Alarm

2. One line shows different states of the same(trigger) alarm :

Display the three states of the alarm (triggered, recovered, and confirmed) in the same row, showing the latest status. For alarms with the same ID, display them in separate lines after the trigger

Trigger

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
1	Alarm1	26-03-10	13:58:02					0	1

Confirm

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
1	Alarm1	26-03-10	14:01:40	26-03-10	14:01:41			0	1

Recovery

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
1	Alarm1	26-03-10	14:01:40	26-03-10	14:01:41	26-03-10	14:02:19	0	1

After the same ID alarm is triggered, it will be displayed line by line, with the accumulated number of alarms and time updating based on the total count at the moment of each trigger

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
3	Alarm1	26-03-10	14:04:06	26-03-10	14:04:07			46	3
2	Alarm1	26-03-10	14:03:56			26-03-10	14:04:03	39	2
1	Alarm1	26-03-10	14:01:40	26-03-10	14:01:41	26-03-10	14:02:19	0	1

3. One line shows different states of the same (settings) alarm ID

Display the three states of the alarm—trigger, recovery, and confirmation—in the same row, updating according to the latest status. Merge alarms with the same ID into a single row for display, and update the cumulative count and time in the same row with the latest values

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
2	Alarm2	26-03-10	14:31:26	26-03-10	14:31:26	26-03-10	14:31:27	1	1
1	Alarm1	26-03-10	14:31:21	26-03-10	14:31:23	26-03-10	14:31:24	2	1

When querying alarms during a time period, display the cumulative number and time based on the alarms generated during the time period

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
1	Alarm1	26-03-10	14:23:31			26-03-10	14:23:34	8	4
2	Alarm2	26-03-10	14:23:35			26-03-10	14:23:37	5	3

Accumulated time and frequency within the time period

Alarm1 Alarm2 2026-03-10 14:18:02 2026-03-10 14:24:08 Enable query Trigger query

No.	Alarm content	Trigger date	Trigger time	Confirm date	Confirm time	Recovery date	Recovery time	Alarm cumulative time	Alarm cumulative number
2	Alarm2	26-03-10	14:24:44			26-03-10	14:24:46	15	10
1	Alarm1	26-03-10	14:24:28			26-03-10	14:24:29	12	7

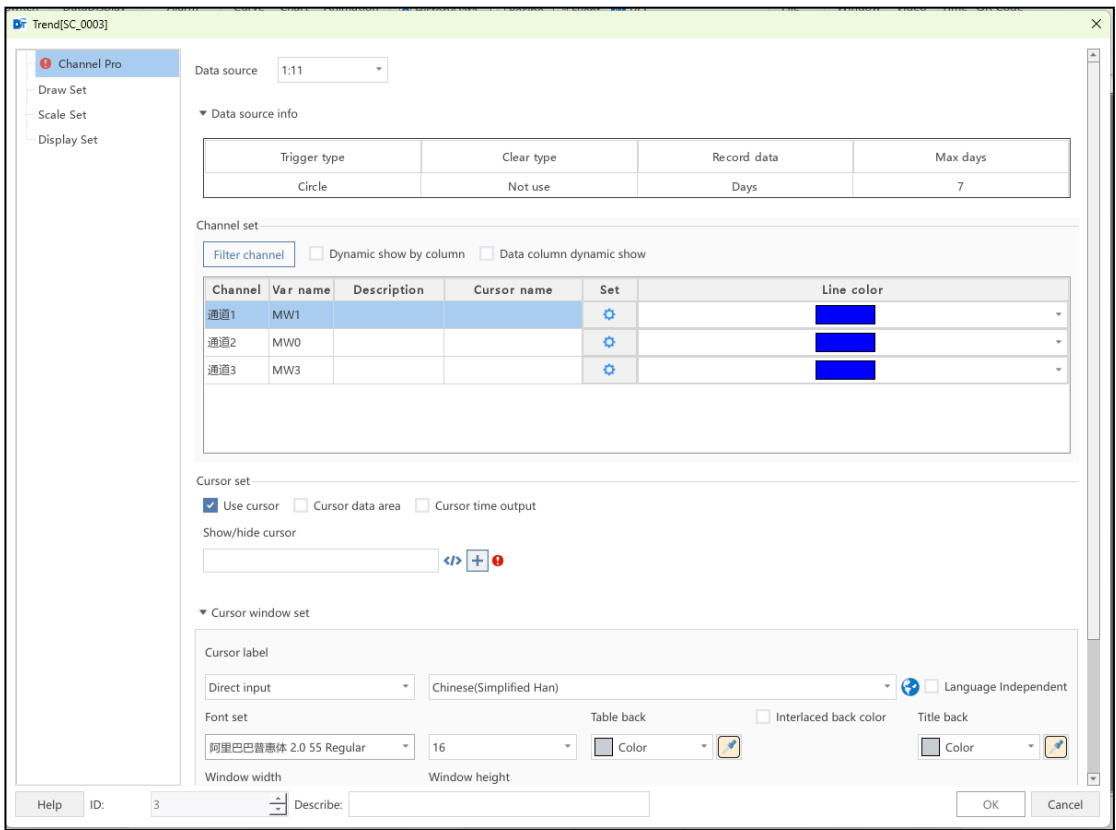
Accumulated total time and number

8.6 Chart

8.6.1 Trend

Display the background data of data sampling in the form of curve Run chart, and refer to "Data Sampling" for background settings of data sampling

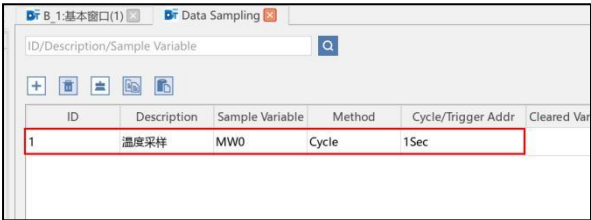
[Trend] interface



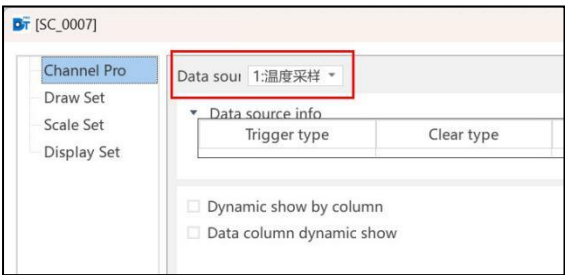
8.6.1.1 Channel Properties

Trend - Channel Properties Description

Select sampling entries added in data sampling



Data sources



Date source info Display channel information for backend data sampling: trigger method, clear method, record data, and maximum number of days

Channel set

Channel set

Filter channel

☐ Dynamic show by column

☐ Data column dynamic show

Channel	Var name	Description	Cursor name	Set	Line color
通道1	MW1				
通道2	MW0				
通道3	MW3				

Filter channel: default all selection, can manually filter/cancel the display of corresponding channels

Dynamical show by column: Bit variable, controls column display separately, displays when 0, hides when 1

Data column dynamic shows: Word variables, whose bits control the display of columns, display the first column when bit0 is 0, hide when it is 1, control the second column when bit1, and so on

Channel table: displays the backend channels, variable names associated with the channels, channel descriptions, settings to display the associated variables by column after opening, cursor names after opening the cursor, output variables associated with opening the cursor data area, and channel property settings

Set: You can set the color, size, and type of point markers for channels, as well as the color, width, and projection of channel connection lines towards the x-axis; The maximum and minimum values of the channel;

Channel set

Filter channel

☐ Dynamic show by column

☐ Data column dynamic show

Channel	Var name	Description	Cursor name	Set	Line color
通道1	MW1				
通道2	MW0				
通道3	MW3				

Channel set

☒ Point mark

Point color

Point size

Point type

☒ Tie line

Line width

Line type

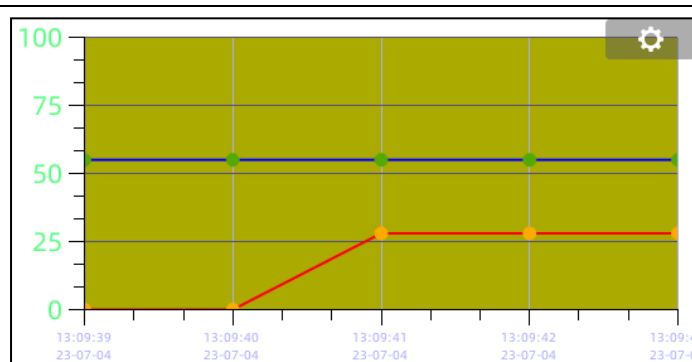
☐ Projection in x axis

Minimum

Maximum

OK

Cancel



Cursor set	When using a cursor, it is not selected by default. After selecting it, cursor information can be set
	Show/hide cursor: bit variable, opens cursor display when 1, closes cursor display when 0
	Cursor color: Set the color of the cursor trigger line
	Cursor data area: not selected by default. After selecting it, you can set the output variable in the 【Channel Set】 to output cursor data to the corresponding variable
	Cursor time output: By default, it is not checked. Once checked, the cursor time output variable can be set to output the cursor's collection time to the corresponding variable. It supports types such as one-day time, date, date and time, and timestamp
Cursor set - cursor window set	Cursor label: Set whether cursor names and list titles in 【Channel Set】 should use text or a text library, as well as language, etc
	Font set: Set the font and size of the cursor table content and title; Attention: The font color of the table content follows the channel color setting, and the font color of the title bar is black, which cannot be changed
	Table back color : Set the background color of the table
	Title back color : Set the title bar background color for the table
	interlaced back color: Set the interlaced background color for the table content
	Window width and height: Set the width and height of the cursor window,the minimum is 1
	Dynamic display following cursor: When a channel is controlled by a variable to hide conditions, the corresponding cursor row in the cursor list can follow the display/hide of the channel curve. When dynamic display is not enabled, the 【cursor follows dynamic display】 checkbox is disabled from being checked; When channel dynamic display is enabled, the 【cursor follows dynamic display】 is automatically checked by default
	Display window title: Display the title bar of the window component, and open the title properties to set the relevant content (font color, font size, whether to use text) by yourself
	1. The screen can display a title name consisting of the title content and cursor capture sampling time, as well as a cursor zoom button that controls the size of the cursor window. The default size is to zoom in, and users can click to expand and change the height of the window;

2. Drag the title bar to move the component position

Display table column title: Display the content of the title bar. When the text library is selected, the content of the title bar can be directly used in the text library

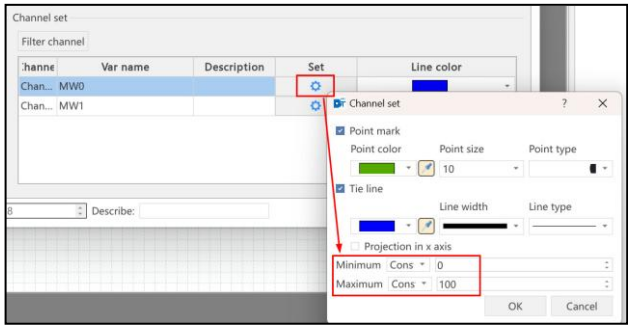
8.6.1.2 Draw Settings

Trend - Draw Settings Description		
Display mode per screen	Screen show point number: Set the number of sampling points that can be displayed on the current page of the curve.	
	Screen show time range: control the curve data in the time period displayed on the current page according to the constant/variable (minutes).	
Background color	Background color settings for curves	
Use scale	Control the display size of the trend chart;	
	Gesture scale: The capacitive screen defaults to gesture scaling and supports both gesture scaling and variable scaling; After setting the gesture zoom, display the one click restore zoom ratio button; Resistive screens are not supported by default	
	Variable scale: Supports integer variables with values greater than 0 and less than 100, allowing you to view the reduced state of the curve; 0 and 100 are displayed normally at a 1:1 ratio; Set the value to be greater than 100 to view the magnified state of the curve	

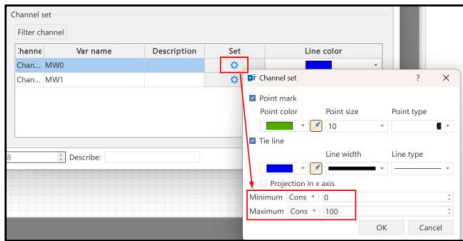
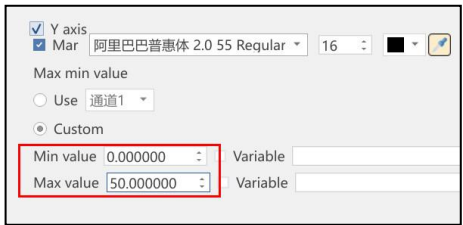
8.6.1.3 Scale Settings

Trend - Scale Settings Description			
Scale settings	X-axis	Main scale number: Setting of the number of main scales of the X-axis of the curve; main scale length: setting of the length of the main scale line	
		Second scale number: check the box to set the number of X-axis subscales and the length of the subscales.	
	Y-axis	Main scale number: Setting of the number of main scales of the Y-axis of the curve; main scale length: setting of the length of the main scale line	
		Second scale number: check the box to set the number of Y-axis subscales and the length of the subscales.	
	Axis scale color	Setting the color of X/Y axis scale lines	
Label settings	Show gridlines	Check the box to set the grid color of the X/Y axis main scale inside the curve.	
	X-axis	Marker: Check the box to display the X-axis scale label, set the font, size and color.	
		Scale display method	Using point scale values: The scale displayed on the X-axis is the serial number of the sampling point "1, 2, 3..."
			Use the time scale value: the scale displayed on the X-axis is the corresponding date of the sampling point, time
	Y-axis	Marker: Check the box to display the Y-axis scale label, set font, size, color, integer/decimal digits.	
		Max min value	Use channel: select the corresponding channel to control the upper and lower Y-axis scale value, the maximum and minimum value of the channel can be set as constant/variable control in

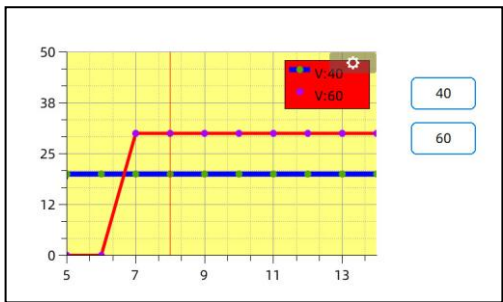
the channel property setting.



Customize: Constants/variables can be set to control the upper and lower Y-axis scale values: for example, the maximum value of the Y-axis scale is set to 50 and the minimum value to 0, while the maximum value of the channel is 100 and the minimum value is 0:



When the sampling value of the channel is 40, then the position of the point in the curve occupies 40% of the Y-axis, where the scale value is 20, and if the sampling value is 60, then it occupies 60% of the Y-axis scale, where the scale value is 30, as follows



8.6.1.4 Display Settings

Trend - Display Settings Description	
location	Sets whether the position of the component is locked or not
Fixed Ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Ratio] is ticked.
Translucent	Check Enable to set the component's semi-transparency.
Display/Hide	Always display: check to indicate that the current component is always displayed Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect. ①Privilege control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ②Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition ③Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden. ④False state work: Effective in error status

8.6.1.5 View and zoom function

1. View recent historical curves: In the trend chart component area, drag left to view historical data curves, double-click the control to restore to real-time curves;

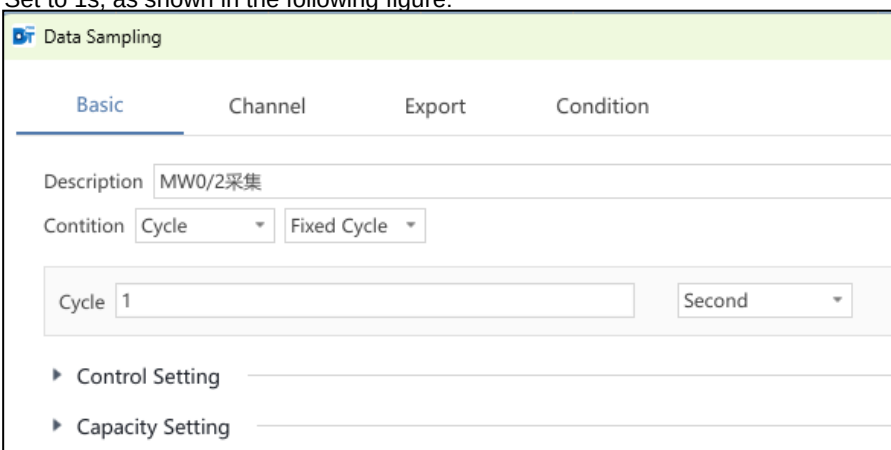
2.View the curve within a certain time period: Click on the time setting icon in the upper right corner of the control, set the start/end time for activation, and click confirm to display the curve within that time period; Double click the control or manually close the start/end date button to restore the real-time curve;

3.Zoom function: Variable zoom, set associated variables, such as MW0, 16 bit unsigned number, set MW0 variable to 120, which is 1.2 times the display size of the component in the X-axis direction; Set the MW0 variable to 8, which is 0.8 times the display of the component in the X-axis direction; Gesture scaling: The capacitive screen supports dual finger sliding for scaling;

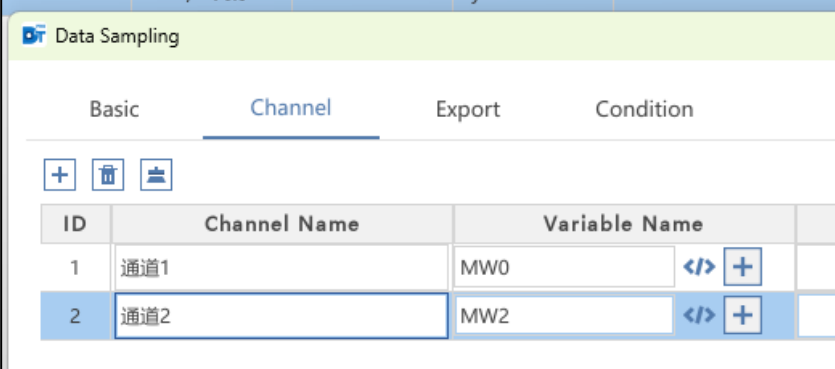
8.6.1.6 application

Taking the F2156E-PX screen as an example, it is required to perform real-time sampling of the data in the local registers MW0 and MW2 and plot it in the form of a trend chart. At the same time, the cursor data and the time and data of the data sampling points can be viewed.

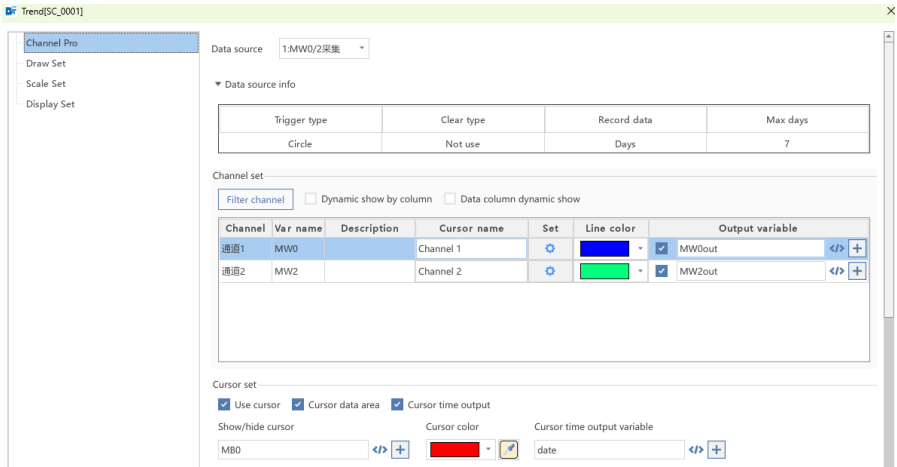
1. Background settings, set a sampling cycle of 1 second for MW0 and MW2 data

Basic	
Condition	Set to 1s, as shown in the following figure:
	

Channel	
Channel set	Two channels, associated with MW0 and MW2, as shown in the following figure



2. Create a new project [Trend] and add a trend chart component with its properties set to:

Channel set	
Channel 1	Y Lower/Upper Limit: 0/100 Color: Blue
Channel 2	Y lower/upper limit: 0/100 color: yellow green
Cursor set	
Use Cursor	Check and set the display/hide cursor variable MB0
Cursor data area	Check and set the output variables MW0out/MW2out for channel settings
Cursor time output	Check and set the variable 'date'
Set as shown in the figure	

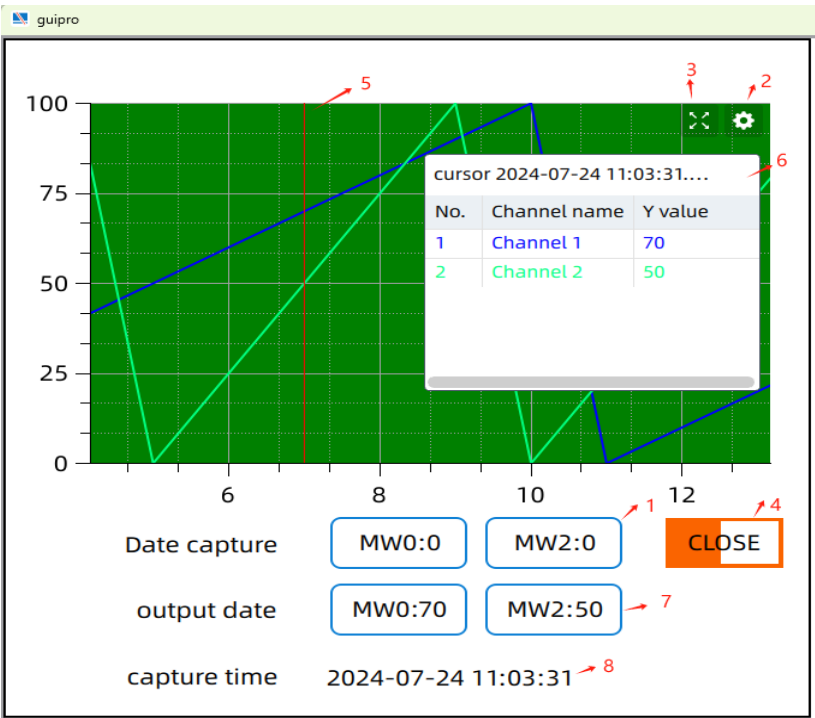
3. Add a bit state toggle switch to enable and disable the cursor, with its properties set to:

Read/write address associated variables	MB0
switch type	bit switch
graphical	Use button-b-03

4. Add two numerical display components separately to obtain the coordinate values of the current sampling point. Its attributes are set to:

Read address associated variables	MW0out/MW2out
5. Add a time display component to obtain the time of the current sampling point. Its attributes are set to:	
Read address associated variables	date

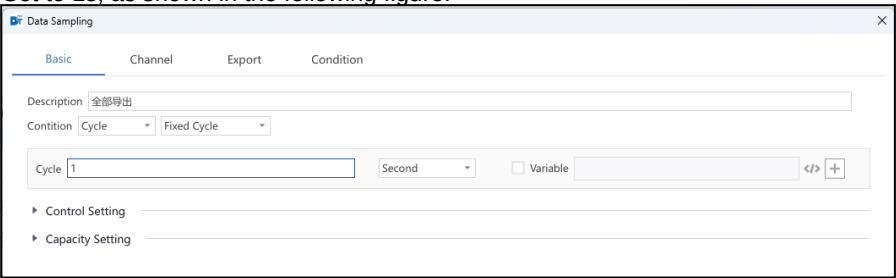
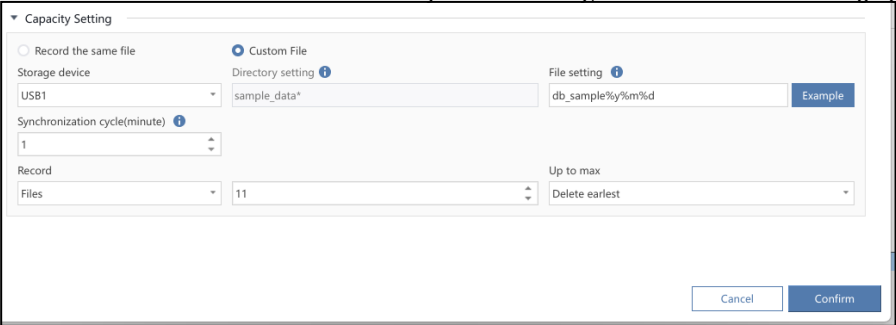
The running effect is as follows:

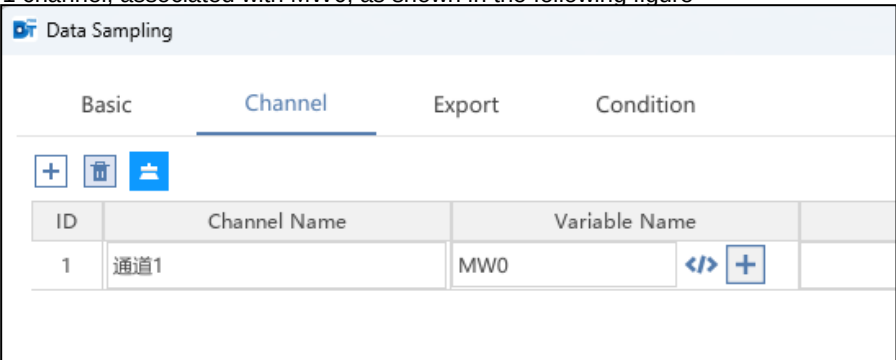


Legend Explanation										
1	Variables associated with backend data collection channels									
2	Query time setting: It can be moved, and after setting the time, the curve within a certain time period can be viewed									
3	One click restore zoom ratio button: can be moved, capacitive screen supports multi touch zoom, automatically restores the original zoom ratio of 100% after clicking									
4	Open and close cursor									
5	The cursor triggers the marking line									
6	cursor 2024-07-24 11:20:26.17'  <table><tr><th>No.</th><th>Channel name</th><th>Y value</th></tr><tr><td>1</td><td>Channel 1</td><td>num</td></tr><tr><td>2</td><td>Channel 2</td><td>num</td></tr></table> Cursor display window: View all currently triggered channel values and trigger times;  Vernier zoom button: controls the size of the cursor window, default is to zoom in. Users can click to expand and the window will change height;	No.	Channel name	Y value	1	Channel 1	num	2	Channel 2	num
No.	Channel name	Y value								
1	Channel 1	num								
2	Channel 2	num								
7	Display all triggered channel values									
8	Display the triggered time value									

Taking the F200E2 screen as an example, view the historical data of a specific date or file.

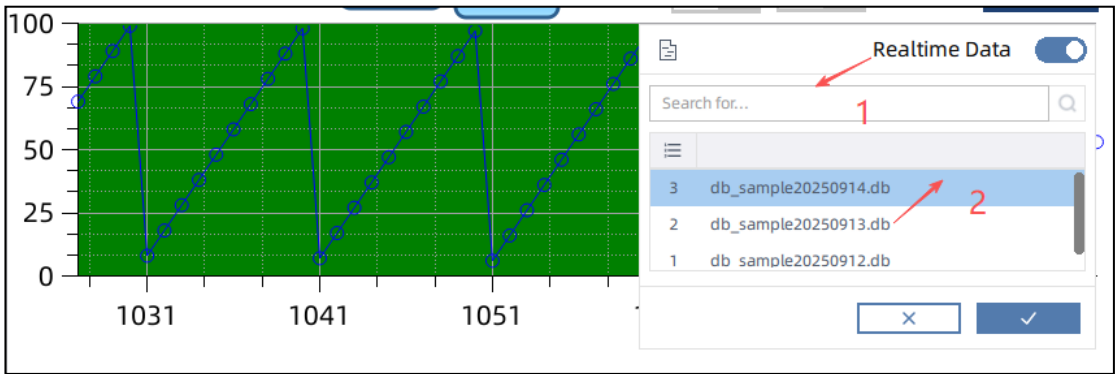
1. Background settings, set a sampling cycle of 1 second for MW0

Channel set	
Condition	Set to 1s, as shown in the following figure: 
Capacity Setting	Select the custom file and set the file to year month day, as shown in the following figure: 

Cursor set	
Channel set	1 channel, associated with MW0, as shown in the following figure 

2. Create a new project [Trend], add a trend chart component, and set it by default:

The running effect is as follows:



Legend Explanation	
1	Realtime data: default display of db data with the latest date
2	DB file table: arranged in reverse order, specifying the file to be queried; View data;
3	After querying, click on real-time data+confirm or double-click on the curve to return to real-time data

8.6.2 XY CHart

The sampled data is displayed in the form of curves

【XY chart element 】 Interface

XY Chart[XYC_0005]

Basic setting | Draw Set | Scale Set | Display Set

Basic Setting | Channel Setting

ChartType: Trajectory | Sample Condition: Cycle | Fixed Cycle

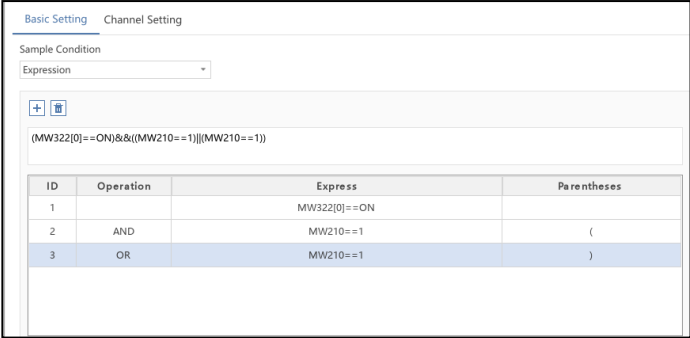
Cycle: 1 | 100Millisecond | Variable: ☐ | </> +

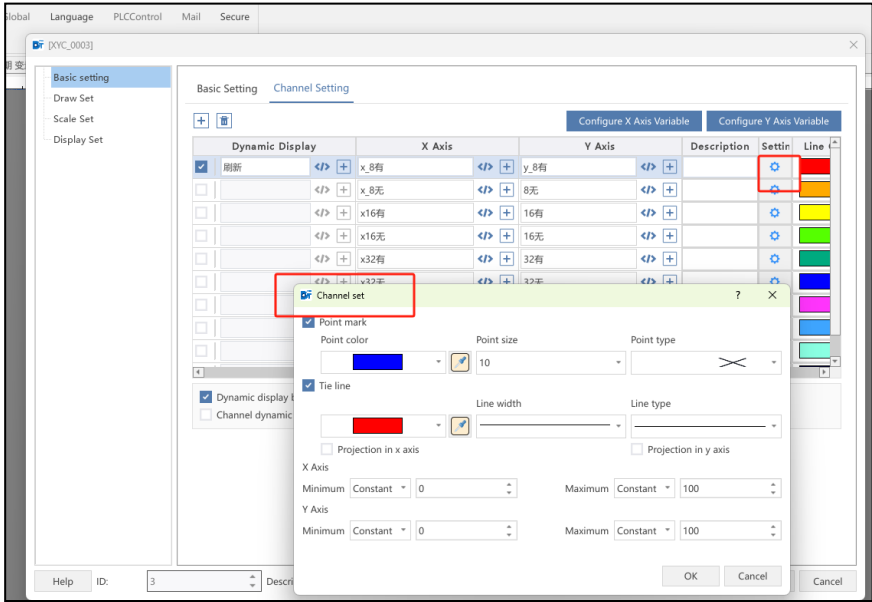
☐ Clear Variable | </> +

Help | ID: 5 | Describe: | OK | Cancel

8.6.2.1 Basic Set

Basic set description		
ChartType	Trajectory	Sampling one point at a time, with X and Y components, default trajectory type
	Standard	Sampling multiple points at a time or per cycle with X and Y components
sample	Cycle sample: fixed Cycle	The unit of the parameter can be s or ms, indicating that the interval is sampled once. Period range 1-4294967295; Select variables to select 8-64 unsigned integer variables
	Cycle sample: fixed Time	1. Limit the maximum number of samples only within a given time and sampling period 2. The start time must be smaller than the end time. Both the start time and the end time are time-type data 3. The unit of sampling period is S or MS, and the minimum unit of sampling period is 100ms; The period can also be set as a variable, optionally 8-64 unsigned integer variable 4. The maximum number of samples is (end time - start time)*10,(time is changed to milliseconds).
	Bit state change sample	Optional bit variables (word taking bits is also supported), support OFF->ON, OFF->ON, ON->OFF, OFF->ON automatic reset, ON->OFF automatic reset five ways, meet the trigger sampling once
	Word-value change sample: Collect when changes occur	Specifies that a data collection is performed whenever the word variable changes
	Word-value change sampling:comply with variable range	If the value of the specified word variable changes between two consecutive times within the specified range, a data collection is performed; Word variable, optional 8-64 integer variable; Range:

	acquisition	0- Select the absolute value of the type range; When "Variables" is checked, 8-64 unsigned integer variables can be selected; If it's 0, it's the same as sampling when something changes;
	Expression sample	Bit: ON, OFF, logical not
		Word: equal, less than, greater than, less than or equal to, greater than or equal to, not equal to (variable or constant)
		Note: Multiple conditions can be modified by double clicking the action column AND OR by double clicking the bracket column () 
clean		Optional bit variable, support word taking bits, ON triggers clearing, after clearing automatically reset to OFF
Dynamical display by channel		Use a bit variable to separately control column display, display when 0, hide when 1
Channel Dynamical display		Using the bit control column of the word variable, the first column is displayed when bit0 is 0, hidden when it is 1, bit1 controls the second column, and so on
Channel property setting		1. Set different colors, sizes and types of dots after the dot marker is turned on 2. After the connection line is opened, set the different color, width and type of the line 3. Set the projection to X/Y 4. Set the maximum and minimum value of a channel

		
variable configure	Trajectory y	1.X axis, Y axis separately configure variables, support 8-64, single/double floating point number types, channel variables can be selected non-array variables and array subscripts, structure member variables 2.Trajectory type support X/Y variable configuration, mainly used to configure the array variable, you can set the number and detailed configuration to determine the channel list automatically generate a new channel down the line (not at the bottom of the generation of a new, but on the line under the insertion of generation)
	Standard	1. Number of single-channel samples: set the number of channel samples when selecting [Standard] xy curve. After setting, all channels have the same number of samples. The range can be set from 1 to 65535 (the maximum length can be set by following the array variable) 2. Supports only array type variables

8.6.2.2 Draw Set

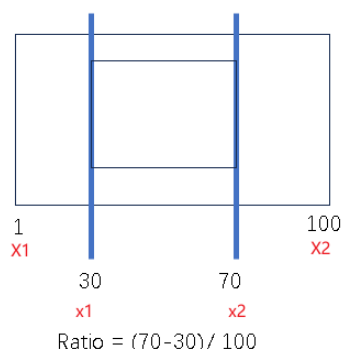
Draw Set property description		
Screen show Point number	Trajectory	Set the number of sampling points that can be displayed on the current page of the curve, and the range can be set from 1 to 999. When [Variables] is checked, 8-64 bit unsigned integer variables can be selected. The range can be set from 1 to 65535, and the minimum value of the number of single-channel samples and the number of display points per screen is taken as the number of curve points to be refreshed in each single sampling period.
	Standard	When [Variables] is checked, 8-64 bit unsigned integer variables can be selected.
Background color	Curve background color Settings	
Use scale	Controls the display size of the XY curve	
	Gesture Zoom: Capacitive screen selects Gesture Zoom by default; after setting Gesture	

Zoom, it displays a button to restore the zoom ratio; resistive screen does not support it by default

One-click recovery: click on the control to return to 100 per cent size reduction, only to restore the ratio, still keep the screen fixed; double-click to restore the sampling

Scale check: This feature only appears when gesture scaling is enabled. After the scaling check function is enabled, the X-axis and Y-axis bound variables are displayed. Variables can only be displayed using single-double precision floating point numbers, and can be viewed by binding the variable with the numerical input element (Note: single-double precision floating point numbers need to be adjusted in the display view of decimal digits in the numerical input - number).

The calculation logic of this function is shown in the figure below:



x1 and x2 select a scaled rectangular area for the box; X1 and X2 are the minimum and maximum values of the xy curve with the channel enabled (if the X-axis is set to 0-100, the minimum value is 0 and the maximum value is 100; The calculation logic for the Y-axis is the same)

8.6.2.3 Scale Set

Scale Set description			
Scale set	X/Y axis		Number of main scales: the number of main scales on the X/Y axis of the curve is set; Main scale length: Set the length of the main scale line
			Number of sub-scales: After checking, you can set the number and length of sub-scales on the X/Y axis of the curve
	Axis Scale Color		Set the color of the X/Y axis
	scale line		Display grid unchecked, do not display X/Y axis scale; After checking, you can set the grid color of the X/Y axis main scale in the curve
Label set	X/Y axis		Mark: Unchecked, XX/ Y-axis label will not be displayed; Check the back curve to display X/Y axis label, set font, size, color, integer/decimal places
		Max min value	Use channel: Select the corresponding channel to control the upper and lower scale values of the X/Y axis, and the maximum and minimum values of the channel can be set to constant/variable control in the channel property Settings
			Custom: Constant/variable can be set to control the upper and lower limits of the X/Y axis scale values: For example, the maximum value of the Y axis scale line is set to 50 and the minimum value is 0, while the

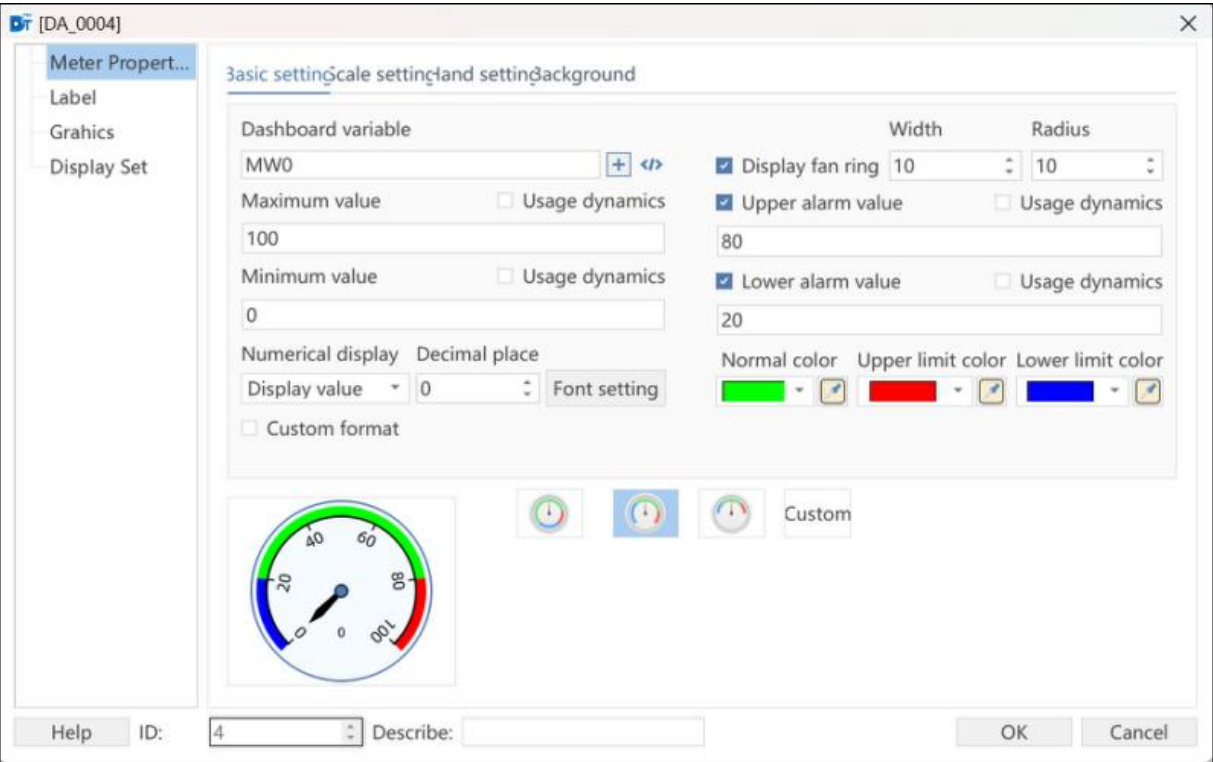
			maximum value of the channel is 100 and the minimum value is 0: When the sampling value of the channel is 40, then the position of the point in the curve occupies 40% of the Y-axis, that is, the scale value of 20; if the sampling value is 60, then it occupies 60% of the Y-axis scale line, that is, the scale value of 30
--	--	--	--

8.6.2.4 Display Set

Meter-Display Setting Descriptions	
Lock	Sets whether the position of the component is locked or not
Fixed ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Aspect Ratio] is ticked
Translucent	Check Enable to set the component's semi-transparency.
Display/Hide	Always display: check to indicate that the current component is always displayed Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect. ①Privilege control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ②Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition ③Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden. ④False state work: Effective in error status

8.6.3 Meter

8.6.3.1 Meter Properties



Meter - Description of Meter Properties		
Basic settings	Dashboard variable	Supports 8-64 bit numeric variables, single/double precision floating point numbers
	Numerical display	Display value: displays the current value of the dashboard variable; you can set the number of decimal places and tick the custom format, (the number of decimal places ranges from 0 to 8, default 0)
		Show percentage: calculates the percentage of the current value between the minimum and maximum values, the pointer points to the corresponding angle of the sector
		Font setting: you can set the font for numerical display
	Minimum and Maximum value	Default input static value, the range of the static value should be within the range of the dashboard variable (judging by the variable type), the maximum value is greater than the minimum value
		Usage dynamics: can be ticked to use dynamic variables (support 8-64 bit numerical variables, single/double precision floating point numbers), the scale changes with the dynamic variable value in real time; dynamic minimum value is greater than the maximum value, the scale label still shows the last time, does not change; if the variable value is entered more than the maximum value, the meter needle points to the maximum value, if you tick the alarm for exceeding the limit, then it will show the corresponding alarm colors (the same with the minimum value)
	Display fan ring	Default tick display, can set fan ring width and radius Width: default 10, range 1-10 Radius: default 10, range 1-10
	Upper/lower limit alarm value	Upper and lower alarm limits can be set by ticking the box, default is not ticked.
		When both are static values, lower limit value < upper limit value < maximum value, minimum value < lower limit value < upper limit value
		Can be set to dynamic variables (supports 8-64 bit numeric variables, single/double precision floating point numbers) Fan ring normal colour can be set, when the corresponding upper/lower limit alarm is ticked, the corresponding alarm colour can be set, otherwise hidden
Scale setting	Scale	Default tick box to show
		Master scale: default 6, range 2-100
		Secondary scale: default 0, range 0-100
		length :
		i. Simultaneous control of the length of the primary and secondary scales
		ii. 60 per cent of the length of the secondary scale to the length of the primary scale.
		iii. Default 6, range 1-10
		Scale color: the colour of the scale can be set
		Outer frame: ticked by default, when ticked, a layer of frame is applied to the outside of the scale.

	Scale label	Default tick box to show
		Label decimal place: Displays the scale label value, default 0, range 0-8
		Radius: default 10, range 1-10
		Font setting: you can set the font of the scale label
Hand Setting	Pointer	Pointer style, pointer colour and frame colour can be set (when a graphic is selected for the pointer style, the pointer colour becomes a graphic selection button, and a graphic from the graphic library can be selected as the pointer).
		Pointer length: default 70%, range 1-137
		Pointer width: default 10%, range 1-10
	Axis	Default check Show Axis, you can set Axis Style, Axis Colour, Frame Colour (when the Axis Style selects a graphic, the colour becomes a graphic selection button, you can select a graphic in the graphic library to be the Axis)
Background	Background color	Background colour can be set; Background colour can be set to transparent
	Frame color	Frame colour can be set; Frame colour can be set to transparent
	Whole circle	Ticked by default; When unchecked, the background colour range is the current angle of the sector; when checked, the background colour range is the whole circle.
	Smooth animation	Default unchecked When unchecked, the dial pointer moves in a jogging motion; when checked, it moves in a sliding motion.
Preview	Preview effect	When the parameters in the dashboard are modified, the preview effect is updated in real time, and when the title or graphic is updated, it is refreshed when it returns to the dial properties (parameters: maximum and minimum values, upper and lower alarm limits, scale related, needle related, title related, graphic related, angle related, background related); if a dynamic variable is ticked, then the preview effect maintains the effect of the last static value)
		Preset 1: Display dashboard 360 degree style
		Preset 2: Display dashboard 270 degree style
	Angle	Preset 3: Display dashboard 180 degree style Custom: Start angle and rotation angle can be modified i. Starting angle range 0-359, rotation angle range 1-360 ii. When the rotation angle is 360, the display will be rounded. iii. Start angle default 225, rotation angle default 270 iv. Clockwise or anti-clockwise selectable

8.6.3.2 Label

Dashboard labeling is consistent with component labeling settings, see [8.1.6](#) for details

8.6.3.3 Graphics

Meter-Graph Setup Descriptions

Enable graphics: check Enable graphic, when checked, it will be displayed under "Background", at the bottom, when using other graphic, the fill range will be square.

Import Graphics	Import the required graphics from the system library
Add Graphics	Adding graphics beyond the system gallery
Original size	Use the original dimensions of the graphic
Batch Import Picture	Batch import external images, supported image formats are .jpg .jpeg .png .bmp.svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are not currently supported)
Delete	Delete the currently selected graphic
Import Image	Import a single external image, support for image formats are .jpg .jpeg .png .bmp.svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are not currently supported)
Shadow Effect	Possibility to add shadow effects to pictures
Modify Fill	Possibility to modify the filling effect of the picture

8.6.3.4 Display Set

Meter-Display Setting Descriptions	
Lock	Sets whether the position of the component is locked or not
Fixed ratio	Set the size of the component, the default check box [Fixed Ratio], the width and height are equal.
Translucent	Check Enable to set the component's semi-transparency.
Display/Hide	Always display: check to indicate that the current component is always displayed Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect. ①Privilege control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ②Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition ③Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden. ④False state work: Effective in error status

8.6.4 Bar Chart

8.6.4.1 Bar Chart setting

BarChart setting

Basic setting | Scale setting | Extend setting

BarChart variable: MW0

Max: 100

Min: 0

Numerical display: Display value

Display position: Middle

Decimal places: 0

Upper limit alarm: ☒ 80

Lower limit alarm: ☒ 20

Dynamic variable: ☐

Normal: Upper limit: Lower Limit:

Background: ☐ Transparent

Border: ☐ Transparent

Font setting

BarChart Type: ☒ Standard ☐ Deviation

BarChart Shape: ☒ Rectangle

Move up

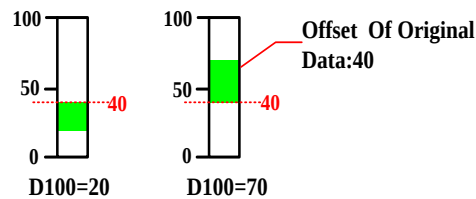
Help ID: 2 Describe: OK Cancel

Bar Chart-Description of bar chart attributes

Basic setting	Bar chart variable	Supports 8-64 bit numeric variables, single/double precision floating point numbers, and array variables
	Numerical display	Display value:Displays the current value of the dashboard variable; static value 50 is displayed on Configuration and Preview; decimal places can be set and custom format ticked, (decimal places are limited to a maximum of 8 according to the type of variable, the default display is 0)
		Display percent:Calculates the percentage of the current value between the minimum and maximum values, 50% is displayed by default on Configuration and Preview, decimal places are hidden, custom formatting is available
		Display none:Hide display position, decimal places, custom formatting, font settings after selection
	Display position	Optional [Middle], [Top], [Bottom], [Left], [Right],default middle, the position will not change with the change of the normal colour of the stick figure
	Font setting	You can set the font of the numerical display
	Max/Min	Default input static value, the range of the static value should be within the range of the bar graph variable (judging by the variable type), the maximum value is greater than the minimum value
		Use dynamic: you can separately tick the use of dynamic variables (need to be consistent with the type of bar graph variables, support for 8-64-bit numerical variables, single/double-precision floating-point numbers), the scale with the dynamic variable value changes in real time; dynamic minimum value is greater than

		the maximum value, the scale labels are still displayed on the last time, does not change; if the value of the variable is entered more than the maximum value, the normal colour of the bar graph is displayed to the maximum value, and if you tick the alarm for the overrun, then the corresponding display of the alarm colour (the same with the minimum value)
	Upper/lower limit alarm	Upper and lower alarm limits can be set by ticking the box, default unchecked
		When both values are static, lower limit value < upper limit value < maximum value, minimum value < lower limit value < upper limit value
		can be set as dynamic variables (must be consistent with the bar graph variable type, support 8-64 bit numeric variables, single/double precision floating point numbers)
		The corresponding alarm colour can be set only after the corresponding upper/lower alarm is checked, otherwise it is hidden
	Normal	Set the normal state colour of the bar graph
	Background	Set the background colour of the bar graph, transparent can be ticked
	Border	Set bar graph frame colour, transparent can be ticked
Scale setting	Scale	Default unchecked
		Number of primary scales: default 3, range 2-100, number of secondary scales: default 5, range 0-100
		Length: i. Control the length of main scale and sub-scale at the same time. ii. The length of the secondary scale is 60% of the length of the main scale. iii. Default 20 (length of main scale), range 1-999
		Scale colour: you can set the colour of the scale
		Display position: when the direction of bar graph drawing is [move up], [move down], the display position can be selected as left or right; when the direction of bar graph drawing is [move left], [move right], the display position can be selected as top or bottom
	Scale label	Default unchecked, only after ticking the scale can tick to show the scale label
		Label Decimal Digits: display the value of the scale label, the number of digits is limited according to the variable type of the bar graph, the maximum number of digits is not more than 8 by default 0
		Font Settings: set the font of the scale labels
		Font colour: you can set the colour of the scale label, the same as the colour in the font settings
Extend setting	smooth animation	Default unchecked
		When unchecked, the normal colour of the bar graph will move in a bouncing motion; when checked, it will move in a sliding motion
	target value	Default unchecked
		Target value: set the target value, the range is limited according to the type of bar graph variable
		Target value colour: ticked by default when target value is selected; indicates the colour of the filled area of the bar chart when the value of the bar chart variable is

		within the range of the target value; at least one of them should be ticked together with the style, and both can be ticked at the same time
		Allowable error: set the range of the target value, the range of error value is limited according to the type of bar chart variable
		Style: default check box when target value is selected, you can set the style and colour, used to indicate the target value range; at least one of the target value and the target value colour can be checked at the same time
	Preview effect	When the parameters in the bar graph are modified (parameters: basic settings, scale settings, extended settings), the preview effect will be updated in real time, if the dynamic variables are ticked, the preview effect will keep the effect of the last static value
previews	BarChart type	Standard: shows the relationship between the current value of the bar graph variable and the set range
		Deviation: display the offset between the current value of the bar graph variable and the original data, check the deviation type to display the input box of the original data, and the range of the original data is restricted according to the maximum and minimum values, the display effect is as follows:
	BarChart shape	Drawing direction can be selected [Move Up], [Move Down], [Move Left], [Move Right], default [Move Up]



8.6.4.2 graphics

Bar Chart-Graphic Description

Enable Graphics: unchecked by default, check Enable Graphics, the graphic is displayed in the upper layer of the bar graph (excluding the outer frame), when the graphic is similar to the boiler this kind of middle skeleton graphic, the sliding change of the colour of the bar graph is only displayed in the skeleton, the effect is as follows:



Import Graphics	Import required graphics from the system library
Add Graphics	Adding drawings outside of the system library
Original size	Use the original size of the graphic
Batch Import Picture	Batch import of external images in .jpg .jpeg .png .bmp format
Delete	Delete the currently selected graphic
Import Picture	Import a single external image, supported image formats are .jpg .jpeg .png .bmp

Shadow Effects	Add a shadow effect to a picture
Modify Fill	Modify the fill effect of a picture

8.6.4.3 Display Set

Meter-Display Setting Descriptions	
Lock	Sets whether the position of the component is locked or not
Fixed ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Aspect Ratio] is ticked
Translucent	Check Enable to set the component's semi-transparency.
Display/Hide	Always display: check to indicate that the current component is always displayed Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect. ①Privilege control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ②Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition ③Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden. ④False state work: Effective in error status

8.6.5 Pipe

8.6.5.1 Pipe setting

Pipeline - Pipeline Property Description		
Pipe Setting	pipe caliber	Default 26, pipe caliber must be greater than or equal to [block width + (pipe wall * 2)].
	pipe colour	Pipe colours can be set, and colours can be modified using the colour picker.

		The Transparent tick box for pipe colour is greyed out by default, when the wall colour is ticked Transparent, it is allowed to set the tick box for Pipe Colour Transparent.
	Pipe wall	Default 2, pipe wall must be less than or equal to [(pipe caliber- flow block width)/2].
	Pipe wall colour	Possibility to set the colour of the tube wall, colour can be modified using the colour picker
		Transparency can be ticked
Block Setting	length	Default 32, range 1-255
	width	Default 16, block width must be less than or equal to [pipe caliber - (pipe wall * 2)].
	spacing	Default 8, range 1-255
	style	Available in 3 styles
	color	Flow block colours can be set and colours can be modified using the colour picker.
		Transparency can be ticked
	dynamic Colour	Default unchecked, ticked to allow the setting of 5 dynamic colours
		When the value of a dynamic variable is equal to the index value, the flow block fills with the colour corresponding to the index of the table.
	reverse flow	Default unchecked, defines the default flow direction based on the direction of drawing
		Static reverse and dynamic reverse selectable
		When [Static Reverse] is selected the flow block flows in the opposite direction.
		Select [Dynamic Reverse], the variable can be associated with Bit, Boolean, Word Fetch, Byte Fetch, Double Word Fetch, Quad Word Fetch, and reverse flow when set to ON.
Speed Setting	flow velocity	This drop-down box is for static flow rate, divided into 1-10 levels, the larger the level, the faster the flow rate
	dynamic stop flow effect	It is unchecked by default, and when unchecked, flows according to the static flow rate or the dynamic flow rate by default;
		Check to select bits and expressions
		When bit type: can be associated with Bit, Boolean, Word Fetch, Byte Fetch, Double Word Fetch, Quad Word Fetch.
		When ticked, the flow block will flow at static or dynamic flow rate when OFF or the expression is false, and will stop flowing when ON or true.
	dynamic flow velocity	Default unchecked. When checked, set the current flow rate and maximum flow rate. Flow rate level=[current flow rate]/[maximum flow rate]*10
preview	Preview effect	When the parameters in the pipeline are modified (parameters: pipeline, flow block, flow rate), the preview is updated in real time.
		Show only a section of the horizontal pipeline to preview the effect of the parameters

8.6.5.2 Explanation of pipeline drawing in the configuration window

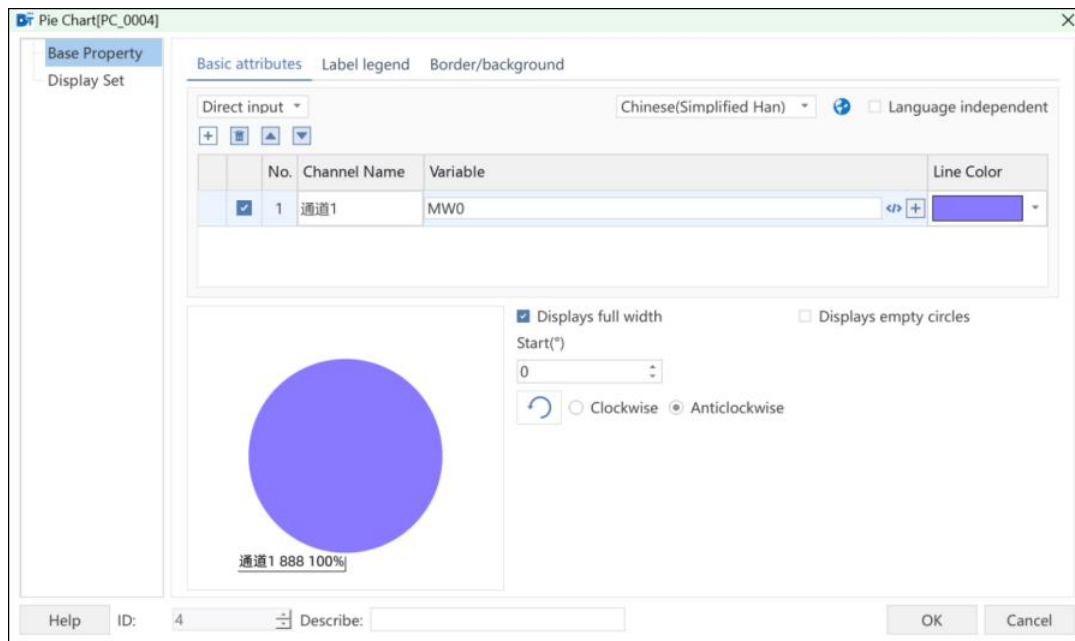
Pipeline-Configuration Window Pipeline Drawing Descriptions		
Individual pipeline drawing	After selecting the pipeline, the mouse becomes cross-shaped, click on the canvas to generate nodes, nodes connected into a line, the right mouse button to click on the first to open the properties window, complete the attribute settings click on the OK button to close the window, the line becomes the default pipeline-like (to create a component success)	
	The angle of pipe corners should not be less than 90°.	
	Drag nodes to change pipe direction and length	
Multi-stage pipeline mapping	Move the mouse to the node (at the intersection of the mouse and the centre line) and right-click: "Add Vector Graphic" and "Add Component" are displayed:	1) Add pipes: ① The mouse becomes the drawing state, automatically defines the cross node as the first node of the new pipeline, and the node where the mouse clicks for the first time is the second node of the new node. ② Added piping elements: default property parameters remain the same as those of the piping being added ③ "New pipeline" moves with cross nodes
		2) Add other components: ① Place the component with the node as the coordinate centre ② Elements can be moved in the central axis of the pipeline where the nodes intersect
		Move the mouse to the axis, right click: "Add Vector Graphic" and "Add Component" are displayed: add as many as you like and insert the component at the vertical intersection of the mouse and the axis.
Other	Each pipe is a separate pipe element, and the nodes of the pipes form cross nodes when they are close together (adsorption relationship)	
	There is also an adsorption relationship between the pipe and the element, which is automatically vertically centred when the element is close to the pipe node or central axis (allowing movement out of adsorption)	
	Only the picture, switch/light element can form an adsorption relationship with the pipe	
	When there is an adsorption relationship between the element and the pipe, the element loses its locking function, the locking is ineffective and the grey is placed.	

8.6.5.3 Display Set

Piping-Display Setup Descriptions	
Translucent	Check Enable to set the component's semi-transparency.
Display/Hide	Always display: check to indicate that the current component is always displayed
	Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect.
	① Privilege control: checking indicates that the operator needs to have the set privileges to display the current component.
	② Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition
	③ Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden.
	④ False state work: Effective in error status

8.6.6 Pie Chart

8.6.6.1 Base Property



Pie Chart - Description of Pie Chart Properties

Base Property	Direct input	Option to enter directly or use a text library	
	language type	You can set the content under the corresponding language, and you can also set the language independent	
	channel	Channel name, variable and color can be set, the name can not be empty, can be associated with integer and floating-point variables, multi-line channel variables in the first line of the variable type shall prevail; move up and down the channel number remains unchanged, the other changes with the move	
Label legend	Use pie chart labels	The Pie Chart tab is checked by default	
		Label position	Default is external, can be changed to internal and external, selecting external will show leads
		Channel name	You can set whether to display the channel or not, and you can set the name in the channel name
		Numeric value	You can set whether to display numerical values, and you can set the number of integer and decimal places respectively
		percentage	You can set whether to display a percentage or not, and you can also set the number of decimal places for the percentage
		format	Numeric and customize options are available, and omitted bits can be set under customize
		Font setting	Label fonts can be set individually
	Use legend tags	Legend tab is unchecked by default	
		Legend location	Defaults to top, with options for top, bottom, left and right
		Same font as	The same font as the pie chart label can only be ticked when the

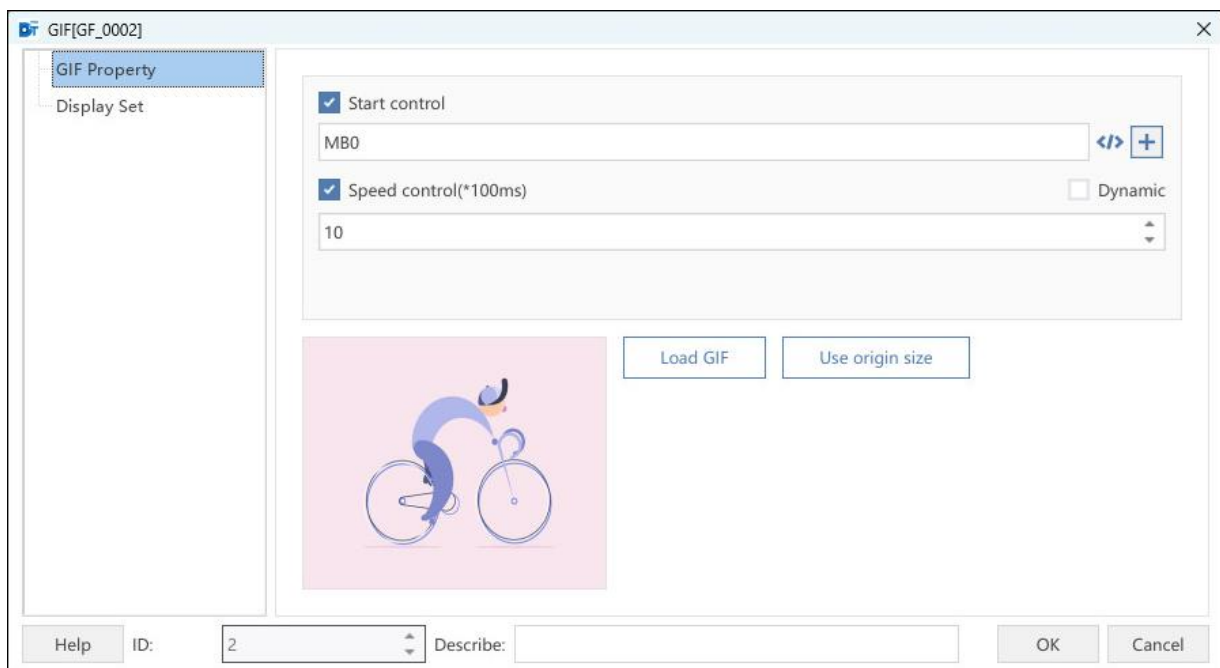
		pie chart labels	pie chart label is ticked for use, if it is not ticked, the legend label font can be set separately
Border/background	Border color	Border colour can be set or transparent can be selected	
	border	Border thickness can be set	
	Component background	You can set the background colour of the component, or you can tick the Transparent box	
previews	Displays full width	Default selection [Full Angle], and set [Start Point], the user can set the cancellation of [Full Angle], cancellation by [Half Angle] settings, can be customize to set the start point end point angle	
	Displays empty circles	Default unchecked, empty circle can be set range unit %, can be set range [0 ~ 90%], the default setting 0%	
	Show clockwise and counterclockwise	The default choice is [Counterclockwise], when selected, starting from channel 1, channel 2/3... Pie charts are displayed in counterclockwise order, when the user selects [Clockwise], the reverse is still true	
		Corresponding with rotating icon prompts	

8.6.6.2 Display set

Pie Chart - Display Setup Descriptions	
lock	Sets whether the position of the component is locked or not
Fixed ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Aspect Ratio] is ticked

8.6.7 GIF

8.6.7.1 GIF Property



GIF -GIF property description		
Start control	Default unchecked: after going to the current page, automatically load the animation effect, after switching to other pages, automatically close and log out of the GIF picture	
	After checking: need to associate variables, can associate bit variables/bool variables, 0-closed, 1-start loading	
Speed control	Default unchecked: when the screen starts, display the animation speed according to the original picture frame rate	
	When checked, you can set the animation speed statically/dynamically, meaning the time between two frames (the larger the time, the slower the animation speed) i. Static - Setting range [1-65535], unit 100ms, default value is 10*100ms ii. Dynamic-association variable type int type, can set the range [0-65535], beyond the limit range, according to the last correct value, the default value of 0, according to the original speed execution	
Image Loading	Load GIF image	GIF files can be imported here to show animation effects in the preview when loading is complete
		When not loaded/loaded, [Load GIF] is displayed, and [Stop Loading] is displayed when loading is overloaded.
	Use original size	The image keeps the original size of the GIF

8.6.7.2 Display Set

GIF-Display Setting Descriptions	
Lock	Sets whether the position of the component is locked or not
Fixed ratio	Set the size of the component, the default check box [Fixed Ratio], the width and height are equal.
Display/Hide	Always display: check to indicate that the current component is always displayed Conditional display: Includes permission control, expression control, no communication when element is hidden and False status in effect. ①Privilege control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ②Expression control: check to indicate that the current component can be displayed only when the state of the specified bit variable or word variable satisfies the set condition ③Do not communicate when hidden: when the variable used by the component is an external variable, check this option and the component will not communicate when it is hidden. ④False state work: Effective in error status

8.7 Information

8.7.1 Communication

The “communication” here refers to editing the communication prompt information window, as shown in the following figure. There are three sections: list property, table property, and display set.

Communication[CT_0001]

List property
Table property
Display Set

List Display set

☐ Language independent

☒ Show title bar Title font set ☐ List font same as title List font set ☐ Set font by column

Preset text set: ☒ Input direct ☐ Use Text lib Display language: Chinese(Simplified Han)

☐ Data column dynamic show </> + (tip: bit0 is Off show first column, else hide,etc.)

☐ Dynamic set by column

☐ Output select row data to var Trigger variable: </> + trigger type: off->on

Use	Name	Title name set	Column width
☒	No.	No.	34
☒	Date	Date	46
☒	Time	Time	48
☒	Device name	Device name	129
☒	Serial/IP	Serial/IP	86
☒	Station/Port	Station/Port	122
☒	State	State	51
☒	Varname	Varname	91

MoveUp
MoveDown
DefaultSort

Communication State Display Set

Unknown exception
Label: Text lib: Text lib

Timeout
Label: Text lib: Text lib

Error
Label: Text lib: Text lib

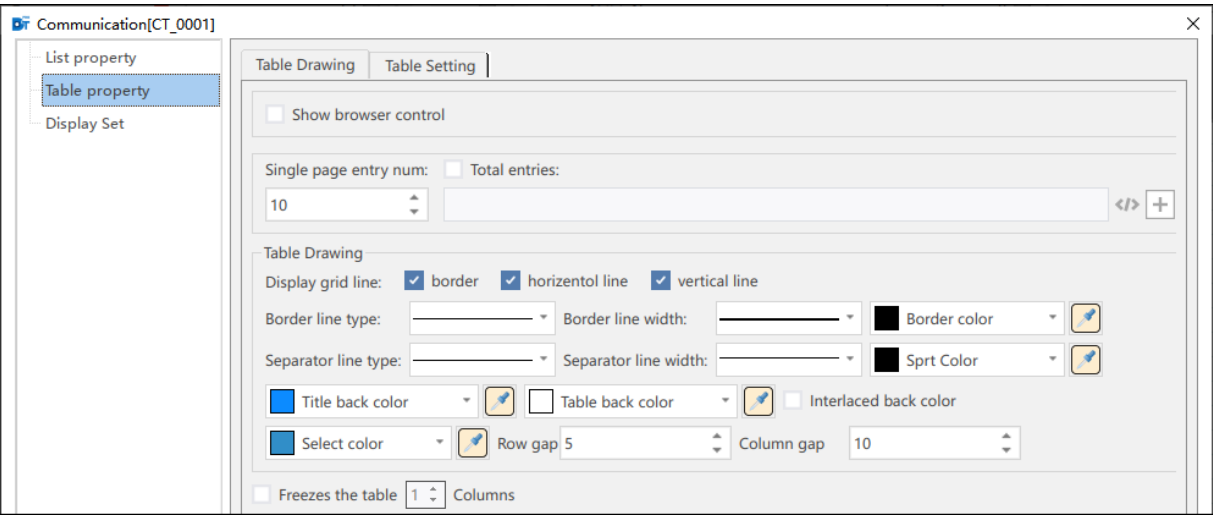
Disconnect
Label: Text lib: Text lib

Help ID: 1 Describe: OK Cancel

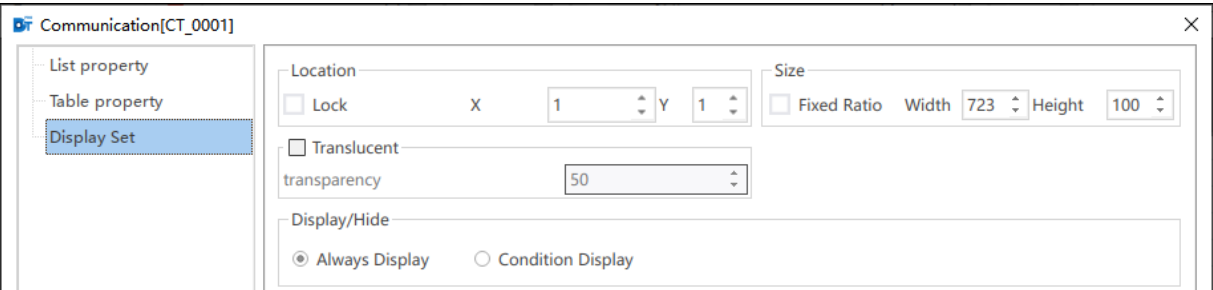
List Property Description

List Display set	Language independent	Effective after checking. Table title bar does not change with language switching
	Show title bar	Effective after checking. Show Title Bar Content
	List font same as title	Effective after checking. Keep the font in the table consistent with the title bar
	Set font by column	Effective after checking. Set fonts separately for each column
	Preset text set	You can choose to directly input text labels. If you want to use a text library label, you need to check the text library
	Data column dynamic show	Using the bit control of a word variable to display the column, the first column is displayed when bit0 is 0, hidden when bit1 is 1, bit1 controls the second column, and so on
	Dynamic set by column	Use bitwise variables to individually control column display. Display when variable is 0, hide when variable is 1
	Output select row data to var	Respectively correspond to column bind variables and output the selected row data to the bind variables
Communicate State Display Set	Unknown	Label setting when unknown exceptions occur in communication. Text library is available
	Timeout	Label setting when communication timeout occurs. Text library is available
	Error	Label setting in case of communication error. Text library is available
	Disconnect	Label setting when communication is not connected. Text library is

		available
--	--	-----------



- Table Property: mainly used to set table drawing, cell display, etc.
Check whether to display the browsing control box, whether to display the border, row and column split lines, as well as the types, width and color of the line.
Set the background color of the title bar, table, selected color, row spacing, and column spacing. If the interlaced background color is checked, you can also set the interlaced background color;
Table setting variables, including total number of entries, number of displayed entries per page, etc.



- Display set: modify the position and size of the table, etc.

8.7.2 User

Components that display user information in a table format during configuration

The screenshot shows the 'List property' tab for 'User[UT_0001]'. The 'List Display set' section includes options for 'Language independent', 'Show title bar' (checked), 'Title font set', 'List font same as title', 'List font set', and 'Set font by column'. The 'Preset text set' is set to 'Input direct'. The 'Display language' is 'Chinese(Simplified Han)'. There are checkboxes for 'Data column dynamic show', 'Dynamic set by column', and 'Output select row data to var'. A table lists 7 items with columns 'Use', 'Name', 'Title name set', and 'Column width'. To the right of the table are 'MoveUp', 'MoveDown', and 'DefaultSort' buttons. The 'Display Property Set' section has 'Disable' and 'Enable' sections with 'Label' and 'Text lib' fields. The 'Not show hidden user' checkbox is checked. The 'Show user set' section has radio buttons for 'All' (selected), 'Only enable', 'Only disable', and 'Dynamic set'.

	Use	Name	Title name set	Column width
1	☒	No.	No.	34
2	☒	User name	User name	108
3	☒	Permission ...	Permission group	175
4	☒	User State	User State	102
5	☒	Auto logoff ...	Auto logoff time	162
6	☒	User ...	User information	168
7	☒	Card number	Card number	131

8.7.2.1 List Property

This screenshot is identical to the one above, showing the 'List property' tab for 'User[UT_0001]'. It displays the same configuration options and table for user information display.

	Use	Name	Title name set	Column width
1	☒	No.	No.	34
2	☒	User name	User name	108
3	☒	Permission ...	Permission group	175
4	☒	User State	User State	102
5	☒	Auto logoff ...	Auto logoff time	162
6	☒	User ...	User information	168
7	☒	Card number	Card number	131

List Property Description	
Language independence	Effective after checking. List title bar does not change with language switching
Show Title Bar	Effective after checking. Show Title Bar Content
List font same as title	Effective after checking. Keep the font in the list consistent with the title bar
Set Font by Column	Effective after checking. Set fonts separately for each column
Preset Text Set	You can choose to directly input text labels. If you want to use a text library label, you need to check the text library
Data column dynamic show	Use the bit control column display of word variables. When bit0 is 0, the first column is displayed, when it is 1, it is hidden, bit1 controls the second column, and so on
Dynamic set by column	Use bitwise variables to individually control the column display. Display when the variable is 0, hide when the variable is 1
Output selected row data to var	Respectively correspond to column bind variables and output the selected row data to the bind variables

List Display Property Description	
Disable	Set the status label for disabled users. Text library labels can be used.
Enable	Set the status label of the enabled users. Text library labels can be used.
Not show hidden user	Effective after checking. Do not display hidden user information
Show user set	Select the category for displaying user information. When "only enable" is checked, only users with enabled status will be displayed. "All" are checked by default

8.7.2.2 Table Property

Table drawing and cell display

Table drawing and cell display description

Show browser control	Tick Default to display a browse control box with the settings icon on the user's element, and Custom to use variables to represent the current and total number of pages in the user's element
Total entries	Display the total number of users for the user component. Effective after checking the 【Display browsing control box】
Current/Total page	Display the current page and total number of pages of the user component. Effective after checking the 【Display browsing control box】
Page down/up button	Users on each page can be displayed by clicking the up and down switch button. Effective after checking the 【Display browsing control box】
Display grid line	Set display borders, row separators, and column separators
Border line type	Set the border line type
Border line width	Set border line width
Border line color	Set the outer frame color. The color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Separation Line type
Separator line color	Set the color of the separator line. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Check to take effect. Set the background color for separating rows between two rows

Select color	Set the color of the selected user information, and the color picker can absorb all colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Content exceeds table width	Truncation: Exceeding content is truncated
	Scroll: Content scrolling displays all

Table Set and Export Set Descriptions	
Total entries	Display the current total number of users using word variables
Single page entry num	Set the number of users displayed on each page
Export device	Export and save the displayed user components to an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the sub folder name for exporting user information. User information is saved by default in the "data/doc" folder of the project root directory
Use dynamic subfolder	Using string variables to dynamically set sub folder names
Trigger variable	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for the exported user, and the default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name not export time	If checked, the exported file name does not include the export time
Export file format	Set the file format for exporting recipes, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component

File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encrypt】 is not checked, the exported file format is the file format set in the 【Export File Format】 option. Simply open the file
Password	Use string variables to dynamically set the password for file encryption, which is valid when 【File Encryption】 is checked

8.7.3 Database table

The database table component displays the content in the database in the form of reports. Used in conjunction with [Chapter 8.3.1.11 Database Action Settings](#) and [Chapter10.1 Network Database](#).

8.7.3.1 List property set

- Font Set

List Property Set- Font Set description

Database name	table	Select the required database tables in both local and remote databases
Trigger set		When the set bit variable meets the conditions, query the data.

	off->on	Only when the state of the positioning variable changes from off to on will the query data be triggered
	on->off	Only when the state of the positioning variable changes from on to off will the query data be triggered
	off<->on	Only when the state of the positioning variable changes, will the query data be triggered
	off->on (automatic reset)	The query data is only triggered when the state of the positioning variable changes from off to on. Automatically reset the positioning variable state after triggering
	on->off (automatic reset)	The query data is only triggered when the state of the positioning variable changes from on to off. Automatically reset the positioning variable state after triggering
Language independent	Effective after checking, the table title bar does not change with language switching.	
Title font set	Effective after checking, displaying the content of the title bar	
List font set	List font same as the title	Effective after checking. Keep the font in the table consistent with the title bar
	Set Font by Column	Effective after checking. Set fonts separately for each column
Preset text	You can choose to directly input text labels. If you want to use a text library label, you need to check the text library	

● Column Set

Font Set

Column Set

Database table name

newtable1

Trigger set

off->on

Trigger variable

Title set

☒ Show title bar

Title font set

List font set

☐ List font same as title

☐ Set font by column

List font set

Preset text

☒ Input direct ☐ Use Text lib

Display language

Chinese(Simplified Han)

☐ Language independent

☒	Name	Title name set	Num format	Column width
☒	No.	No.	Set	34
☒	column1	column1	Set	87

MoveUp

MoveDown

DefaultSort

List Property Set-Column Set Description

Dynamic set (Data column)	Use the bit control column display of word variables. Display the first column when bit0 is 0, and hide it when bit0 is 1; Bit1 controls the second column, and so on
Dynamic set (Column)	Use bitwise variables to individually control column display. Display when variable is 0, hide when variable is 1
Output select row data to var	Respectively correspond to column bind variables and output the selected row data to the bind variables

Num format	Field types include 8-bit signed numbers, 8-bit unsigned numbers, 16-bit signed numbers, 16-bit unsigned numbers, 32-bit signed numbers, 32-bit unsigned numbers, 64-bit signed numbers, 64-bit unsigned numbers, single precision, and double precision. Support setting numerical format display separately. Please refer to 8.4 Data Display for details of the numeric format
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8.7.3.2 Table Property

- Item Set

Font Set		Column Set	
Database table name		newtable1	
Trigger set		off->on	Trigger variable
Title set	☒ Show title bar	Title font set	
List font set	☐ List font same as title	☐ Set font by column	List font set
Preset text	☒ Input direct	☐ Use Text lib	Display language Chinese(Simplified Han) ☐ Language independent

☒	Name	Title name set	Num format	Column width
☒	No.	No.	Set	34
☒	column1	column1	Set	87

MoveUp
MoveDown
DefaultSort

☐ Item Set description	
Show browse	Tick Default to display a browse control box with the settings icon on the user's element, and Custom to use variables to represent the current and total number of pages in the user's element
Total entries	The total number of entries in the current database table. Valid when [Show Browsing Control Box] is checked
Current/Total page(s)	The current page of the table and the total number of pages are displayed.
Page down/up	Pages can be scrolled up and down
Table set – Total entries	When the variable is checked and associated, the total number of entries is output to the variable.
Single page entry num	Set the number of entries per page to be displayed
Trigger select type	It is divided into select by row and select by cell
Row variable	A numeric variable, that holds the number of rows
Column variable	A numeric variable that holds the number of columns

- Table Drawing

Item set	Table Drawing	Dynamic Color
Display grid line: ☒ border ☒ horizontal line ☒ vertical line		
Border line type:		Border line width:
Separator line type:		Separator line width:
☐ Title back color	☐ Table back color	☐ Interlaced back color
☐ Select color	☐ Trans.	Row gap:
		Column gap:
☐ Freezes the table Columns		
Cell Display		
Date Format:		Date Separator:
Time Format:		☐ Show 4 digit year

Table Drawing description	
Display grid line	Set display borders, row separators, and column separators
Border line type	Set the border line type
Border line width	Set border line width
Border line color	Set the outer frame color. The color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Separation Line type
Separator line width	Setting separator line width is currently not supported
Separator line color	Set the color of the separator line. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Check to take effect. Set the background color for separating rows between two rows
Select color	Set the color of the selected user information, and the color picker can absorb all colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Date format	Format the date contained in the field
Date separator	Set the separator for the date contained in the field
Show 4-digit year	After checking, the year can be displayed in 4 digits, otherwise it will be displayed in 2

	digits. For example, for the year 2008, it displays "2008" if 【Show 4-digit year】 is selected; If 【Show 4-digit year】 is not selected, only 2 digits will be displayed, i.e. '08'
Time format	Format the time contained in the field

● Dynamic Color

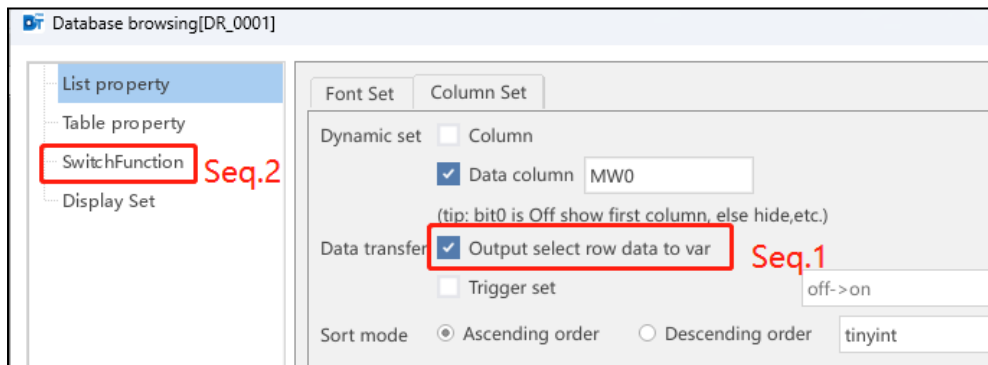
Dynamic Color description	
Allow Dynamic color Settings	If this parameter is selected, dynamic colors are allowed
Display Dynamic colors by row	Display the dynamic colors of the Settings by row
Mode	state mode
Field Selection	The field cannot be empty. The field type can be bits, 8-64 bits, or floating point. Other types of the above types cannot be selected
State Counts	1. If the field is a bit, there are 2 rows by default. The number of states is 1 and 2; The status values are 0 and 1; 2. Floating-point and word, the default has 1 line, the number of states is 1; The status value is 0; Change the number of states, the default state value is [state ID-1], the range is determined according to the field type;
State ID	The default value cannot be modified
State Value	1. If the field is a bit, there are 2 rows by default. The number of states is 1 and 2; The status values are 0 and 1; 2. Floating-point and word, the default has 1 line, the number of states is 1; The status value is 0; Change the number of states, the default state value is [state ID-1], the range is determined according to the field type;
Color	When the data in a field is equal to the status value, the corresponding status value color is displayed in the row to which the field belongs

8.7.3.3 Switch Function

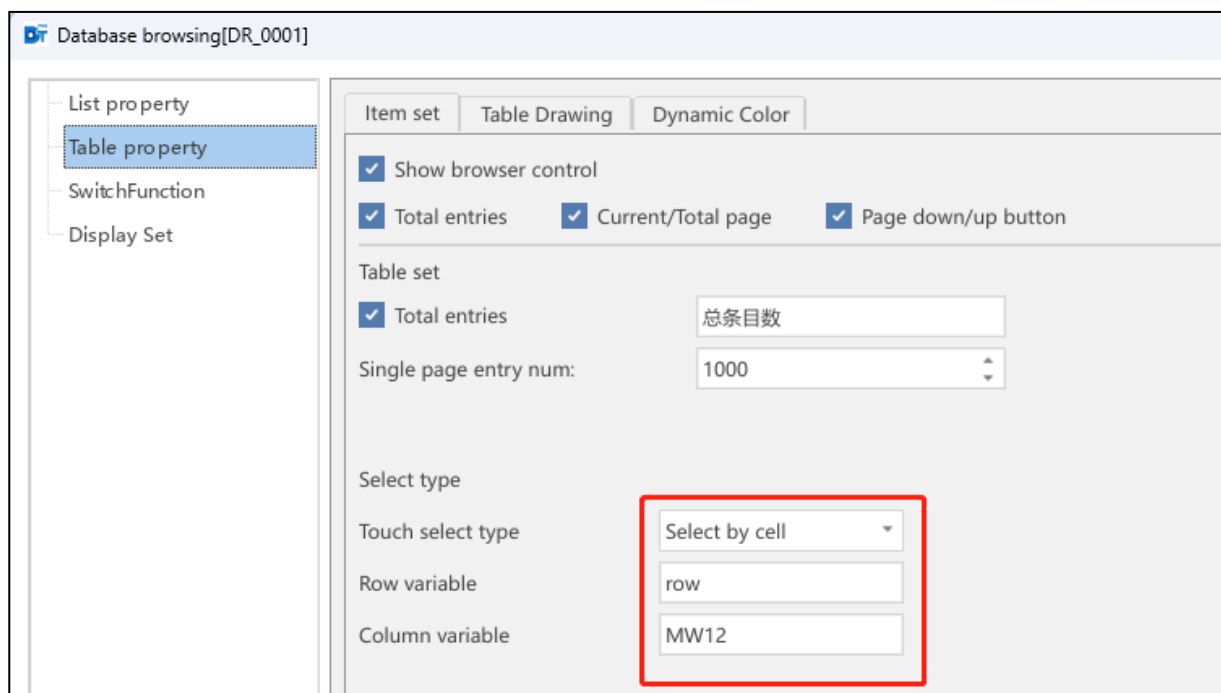
Touching any area of the database table component can trigger the actions set in the touch "SwitchFunction" attribute, and can execute corresponding bit trigger actions, database actions, etc., including complete switch functions.

Note :

1. When using 'Output Selected Row Data to Variables' at the same time, priority is given to executing the action of outputting the selected row, followed by executing the switch function action



2. When selecting by row/by cell, assign values to the row and column variables. When the variable values change, automatically selecting the row and column will also trigger the switch action of the touch database table browsing component



For the introduction of "Switch Functions", refer to the directory "8.1.4 Switch Functions". [Click to jump to the introduction of "8.1.4 Set switch functions"](#)

8.7.3.4 Display Set

State ID	State Value	Color	transparency
1	0	color	☐
2	1	color	☐

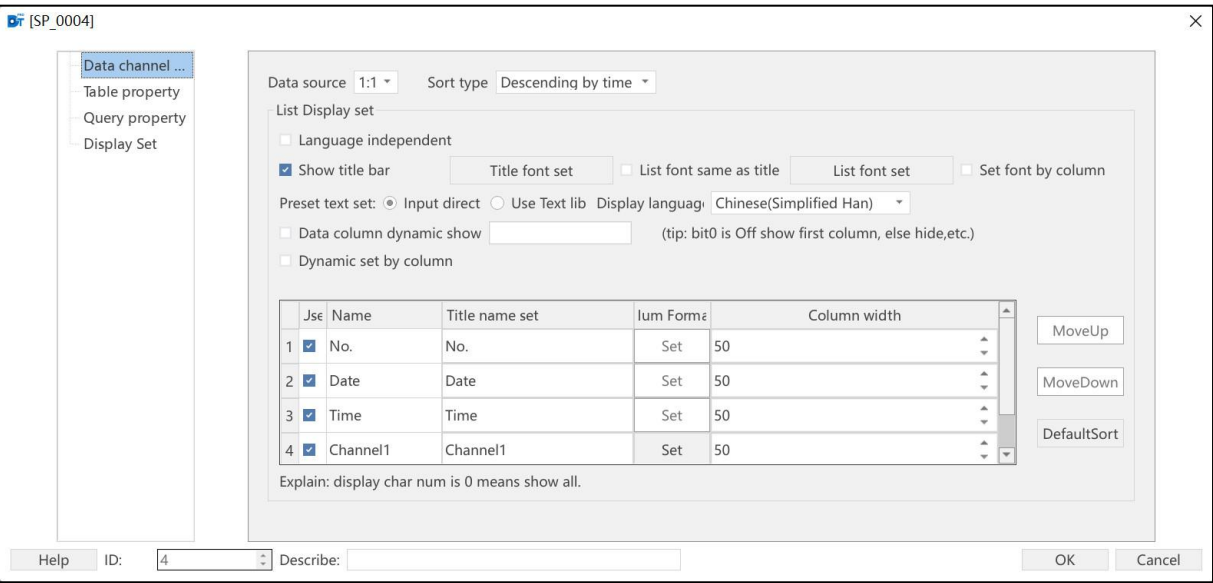
Display set description

Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.7.4 History data

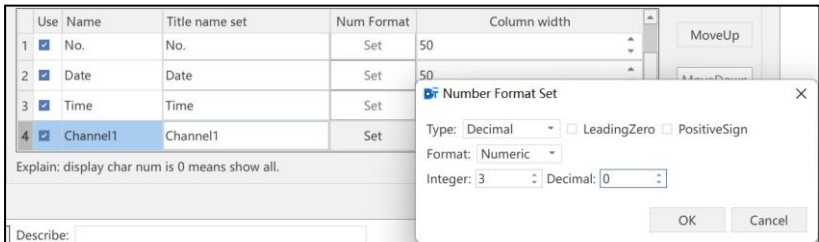
History data is used to display the data of the data sampling background, which can be set up for real-time data reading, historical data query reading, data export and other functions.

【Historical Data Components】 screen



8.7.4.1 Data Channel Properties

Historical Data - Description of Data Channel Properties	
Data source	Select the sample entry added to the data sample
Sort type	Set the sorting method for historical data display on the current component
Language independent	The checkbox is valid, the selection box after "Show language" is invalid and the component shows the default language
Show title bar	Check to take effect, the component displays the content of the title bar, the default check
Title font set	Set the title bar font related properties, this is only valid when 【Show Title Bar】 is checked
list font as title	Checked to take effect, the list font properties and title bar font properties consistent
List Font Set	Set the properties related to the list font
Set font by column	Check to take effect, the event properties of the data table will appear in the "column font settings" content, you can set the font properties of each column separately

Preset text set	You can choose to enter the text label directly, if you want to use the text library label need to check the text library
Display Language	Set the title bar language, 【Language is not relevant】 is unchecked, 【Show title bar】 is valid when checked
Dynamic columns dynamic show	Use the bits of the word variable to control the column display, bit0 is 0 to show the first column, 1 to hide, bit1 to control the second column, and so on
Dynamic set by column	Use bit variables to individually control column display, show when 0, hide when 1
Move up	When the data table row is selected, click 【Move Up】 to move up the selected row. Except for the first row of the data table is selected, the 【Move Up】 button is valid
Move down	When a data table row is selected, click 【Move Down】 to move down the selected row. Except for the last row of the data table is selected, the 【Move Down】 button is valid
Default Sort	Restore to the original sorting of the data table
Numerical format	Set the display format of the channel 
Display characters	The number of characters displayed can be set

8.7.4.2 Table Property

HistoryData[SP_0001]

Data channel ...
Table property
 Query property
 Display Set

Table Drawing Table Setting Export Setting

☒ Show browser control

Control style: ☐ Default ☐ Custom ☒ Total entries ☒ Current/Total page ☒ Page down/up button

Single page entry num: Total entries:

Table Drawing

Display grid line: ☒ border ☒ horizontal line ☒ vertical line

Border line type: Border line width: ☒ Border colc ☒

Separator line type: Separator line width: ☒ Sprt Color ☒

☒ Title back col ☐ Table back co ☐ Interlaced back color

☒ Select colc ☒ Row gap 9 Column gap 37

Historical Data - Table Property Description

Table Drawing	Show Control	Browse	When the default is ticked, the alarm element will display a browse control box with the settings icon, including the total number of entries, the current
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		page/total number of pages, and the content of the page up/down switch button (if all three options are ticked); when the customisation is ticked, the content of the current page and the total number of pages can be displayed using a variable corresponding to the content of the current page and the total number of pages (if the current page/total number of pages is ticked)
	Current Page/Total Pages	The current page and the total number of pages of current data information displayed in the history data element are valid when 【Show Browse Control】 and 【Paging Display】 are checked.
	Page up/down switch button	Used to page up and down the history data, effective when 【Show Browse Control】 and 【Paging】 are checked
	Show Spacer	Set the display outer frame, row dividers and column dividers
	Border line type	Set the outer frame line type
	Border line width	Set the outer frame line width
	Border color	Set the color of the outer frame, the color picker can absorb all the colors on the computer screen at this time
	Separator line type	Set separator line type
	Separator line width	Set separator line type
	Separator color	Set the separator color, the color picker can absorb all the colors on the computer screen at this time
	Title background color	Set the background color of the title bar, the color picker can absorb all the colors on the computer screen at this time
	Table background color	Set the table background color, the color picker can absorb all the colors on the computer screen at this time
	Interlaced background color	Set the background color of the line separating two rows
	Selected colors	Set the color of the selected history data, the color picker can absorb all the colors on the computer screen at this time
	Row spacing	Set data table row spacing
	Column spacing	Set data table column spacing
Table setting	Date Format	Set the format of the sampling information date
	Date separator	Set the separator for the date of the sampling information
	Display 4-digit year	Check the year to display 4 digits, otherwise display 2 digits. Such as 2008, then display "2008"; unchecked, then only display 2 digits, that is, "08"
	Time Format	Set the format of the historical data time
	Display content beyond the table width	When the content of historical data exceeds the width of the table, you can check Truncate or Scroll. If set to scroll, you can set the scrolling step and speed
	Total number of entries	Use the word variable to display the total number of data entries for the current historical data

	Number of entries per page	Use constants to set the number of entries per page to display historical data
export setting	Export Devices	Export and save the data displayed by the current historical data element to an external storage device
	Using dynamic devices	Dynamically set the export device using string variables
	Export subfolder	Set the name of the subfolder for exporting history data, if this item is empty, the history data will be saved in the "data" folder in the project root directory by default.
	Using dynamic subfolders	Set subfolder names dynamically using string variables
	Trigger variables	Set the variables that trigger the export
	Trigger Ty	Set the trigger type of the trigger variable
	Export file name prefix	Set the file name prefix for exporting historical data, the file name defaults to a combination of date and time
	Use dynamic file name prefixes	Dynamically set file name prefixes using string variables
	File name does not include export time	Check this box to exclude the export time from the export file name
	Export file format	Export historical data in file format, including CSV and PDF
	Show Export button	The Export button will be displayed on the component if it is checked
	File Encryption	If 【File Encryption】 is unchecked, the exported file format is the file format set in the 【Export File Format】 option, and you can open the file directly.
	Dynamic Password	Dynamically set the password for file encryption using string variables

8.7.4.3 Query Function

☐ Query Function

☐ Query status variable:

Query trigger variable: Trigger type:

Explanation

While the search variable not be checked, element always be wait for search status, execute once search operator after search trigger variable be triggered; while the search variable be checked, if the search variable's value is OFF, element is in browse state, the is invalid; if the search variable's value is ON, element be in wait for search status.

Historical data-query setting Descriptions

Using the query function	Check the historical data query function as needed Unchecked: all historical data can be displayed without query, real-time data is displayed Check: Open the query function, and display the corresponding historical data after the query is triggered
Query status variables	The query status variable can be used to toggle whether the query is enabled or not, ON to enable, OFF to display all
Query Trigger Variables	The query status variable is unchecked, and a query is executed after the query trigger variable meets the trigger method.

The query status variable is checked, and when the status variable is ON, the query trigger variable will execute a query after meeting the trigger mode; when the status variable is OFF, the query function is disabled, and all the historical data will be displayed

8.7.4.4 Display Set

Historical data - Display setting Description

Location	Set whether the position of the component is locked or not
Size	Set the size of the component to calculate the corresponding width or height in proportion. The ratio is the ratio of width and height before 【Fixed Ratio】 is checked
Display/Hide	Show all the time: Check to keep the current component displayed all the time Conditional display: including permission control, expression control, no communication when the component is hidden and False state is in effect ① Permission Control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Expression control: Checking indicates that the current component can be displayed only when the state of the specified bit variable or word variable meets the set conditions. ③ No communication when the component is hidden: When the variable used by the component is an external variable, check this option, the component will not communicate when it is hidden. ④ False status takes effect: When the error status takes effect

Off-line simulation effects:

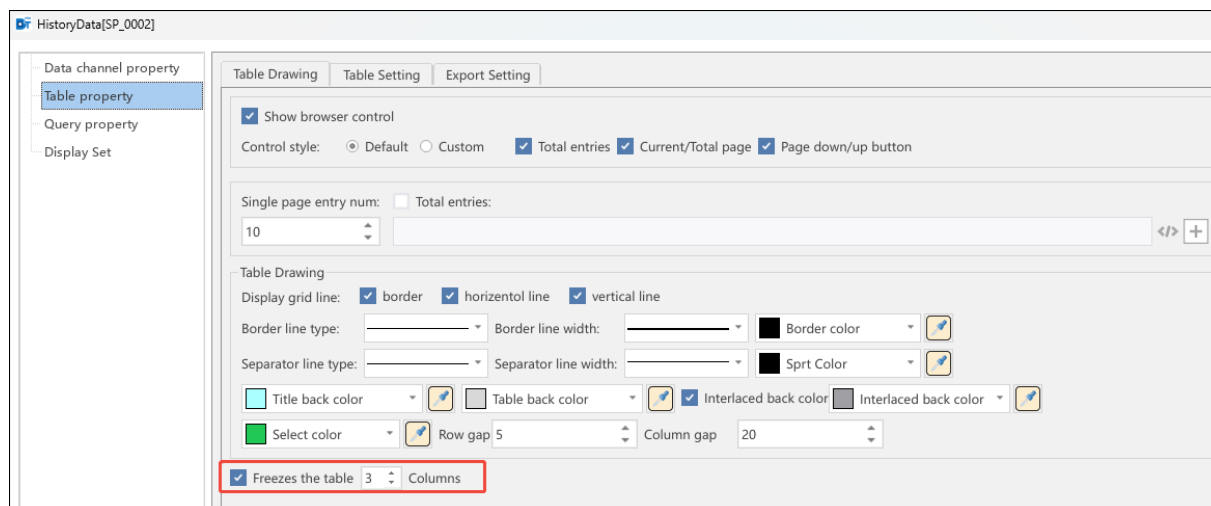
	Date	Time	Channel1
69	23-06-13	15:10:24	66
68	23-06-13	15:10:24	66
67	23-06-13	15:10:24	66
66	23-06-13	15:10:24	66
65	23-06-13	15:10:23	66
64	23-06-13	15:10:23	66
63	23-06-13	15:10:23	66

Variable period

Channel1

8.7.4.5 Freeze the table columns

In the table properties of the table component, check and set to freeze the first 3 columns (up to 15 columns supported). When sliding the scroll bar of the table left or right, the first 3 columns will be locked and will not slide along



The effect is shown in the picture

Sequence	Date	Time	ch1	ch2	ch3	ch4	ch5	ch6	ch7	ch8	ch9	ch10	ch11
127	25-05-28	13:56:50	65	3	0	0	0	93	100	0	0	0	0
126	25-05-28	13:56:50	65	3	0	0	0	93	100	0	0	0	0
125	25-05-28	13:56:49	64	3	0	0	0	90	90	0	0	0	0
124	25-05-28	13:56:49	64	3	0	0	0	90	90	0	0	0	0
123	25-05-28	13:56:48	63	3	0	0	0	87	80	0	0	0	0
122	25-05-28	13:56:48	63	3	0	0	0	87	80	0	0	0	0
121	25-05-28	13:56:47	62	3	0	0	0	84	70	0	0	0	0

Dragging the scrollbar left and right will not scroll along with the Sequence, date, and time columns

Sequence	Date	Time	ch9	ch10	ch11	ch12	ch13
252	25-05-28	13:57:53	0	0	0	0	0
251	25-05-28	13:57:52	0	0	0	0	0
250	25-05-28	13:57:52	0	0	0	0	0
249	25-05-28	13:57:51	0	0	0	0	0
248	25-05-28	13:57:51	0	0	0	0	0
247	25-05-28	13:57:50	0	0	0	0	0
246	25-05-28	13:57:50	0	0	0	0	0

8.7.5 Recipe

As shown in the following figure, the recipe in the information list is a recipe display component that needs to be used in conjunction with the recipe setting function in the project. The recipe group in the figure below is set by yourself in the recipe setting in the project list. This control is only for recipe display. Select the desired recipe group to set accordingly. Please refer to [Chapter 17: Recipe](#) for the recipe settings.

The recipe components mainly include four sections: list display, recipe query, table property, and display set.

8.7.5.1 List Property

Recipe browsing[RT_0001]

List Display

Recipe group: Default Recipe

Sort Order: Recipe Serial Number ☒ Ascending ☐ Descending

List Display set

☐ Language independent

☒ Show title bar Title font set ☐ List font same as title List font set ☐ Set font by column

Preset text set: ☒ Input direct ☐ Use Text lib Display language: Chinese(Simplified Han)

☐ Data column dynamic show (tip: bit0 is Off show first column, else hide,etc.)

☐ Dynamic set by column

	☒	Name	Title name set	Num Format	Column width
1	☒	Recipe No	Recipe No	Set	100
2	☒	Recipe Name	Recipe Name	Set	132
3	☒	sd	sd	Set	24

MoveUp

MoveDown

DefaultSort

List Property description

Language independent	Effective after checking. The table title bar does not change with language switching
Show title bar	Effective after checking. Display the content of the title bar
List font same as title	Effective after checking. Keep the font in the table consistent with the title bar
Set font by column	Effective after checking. Set fonts separately for each column
Preset text set	You can choose to directly input text labels. If you want to use a text library label, you need to check the text library
Data column dynamic show	Use the bit control column display of word variables. When bit0 is 0, the first column is displayed, when it is 1, it is hidden, bit1 controls the second column, and so on
Dynamic set by column	Use bitwise variables to individually control the column display. Display when the variable is 0, hide when the variable is 1
Output the data of the selected row to variable	Respectively correspond to column bind variables and output the selected row data to the bind variables

8.7.5.2 Recipe query

☐ Query Function

☐ Query status variable:

Query trigger variable: Trigger type: Off->On

Explanation

1:When the query trigger variable changes from off to on, a query is executed according to the set conditions. When it is off, the query setting is invalid.

Recipe query description

Query function	Check the formula query function as needed Unchecked: Display all recipe data without querying Check: Enable query function
Query status variable	The query status variable can be used to switch whether to enable the query. It is enabled when it is ON and all are displayed when it is OFF

Query trigger variable	When the query status variable is not checked, execute a query once the trigger variable meets the trigger method
	Check the query status variable, and when the status variable is ON, execute a query once the trigger variable meets the trigger method. When the status variable is OFF, the query function fails and all recipe data is displayed

8.7.5.3 Table Property

Recipe browsing[RT_0001]

List Display
Recipe Query
Table property
Display Set

Table Drawing | Table Setting | Export Setting

☒ Show browser control
Control style: ☒ Default ☐ Custom ☐ Total entries ☐ Current/Total page ☒ Page down/up button
Single page entry num:

Table Drawing

Display grid line: ☒ border ☒ horizontal line ☒ vertical line
Border line type: Border line width:
Separator line type: Separator line width:
☒ Title back col ☐ Table back co ☐ Interlaced back color
☒ Select colc

Table Drawing description

Show browser control	Tick Default to display a browse control box with the settings icon on the user's element, and Custom to use variables to represent the current and total number of pages in the user's element
Total entries	The total number of recipes for the current recipe element. Effective when checking 【Show browser control】 box.
Current /Total Page	If this parameter is selected, the current page count and total page count are displayed
Page down/up button	if this parameter is selected, the up-down switch button is displayed
Display grid line	Set Displaysof the outer frame, row divider, and column divider
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the color of the outer frame, and the color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Separator line width	Set Split Line type
Sprt Color	Set the split line color. The color picker can absorb all the colors on the computer screen at this time
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Set the background color for separating rows between two rows

Select color	Set the color of the selected event information. The color picker can absorb all the colors on the computer screen at this time
Row gap	Set data table row spacing
Column gap	Set data table column spacing
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freeze the table columns for an example
Total entries	Use word variables to display the total number of recipes for the current recipe component
Delete Selected Rows	Use the state control of bit variables to delete the currently selected event information. When checked, the 【Trigger Type】 is valid
Export device	Export and save the displayed recipe of the current recipe component in an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the name of the sub folder for exporting event information. If this option is blank, the event information will be saved in the "data" path of the project root directory by default during offline simulation. On screen, it is saved in the "disk/hmi" path by default
Use dynamic subfolder	Dynamically setting the name of a subfolder using string variables
Trigger var	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for exporting the recipe, with a default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name do not include export time	If checked, the exported file name does not include the export time
Export file format	Set the file format for exporting recipes, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component
File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encrypt】 is not checked, the exported file format is the file format set in the 【Export File Format】 option and can be opened directly
Dynamic password	Dynamically setting the password for file encryption using string variables

● Table setting

Table setting description

Total Entries	When checked, the total number of recipes for the current recipe component is displayed ;
Single page entry num	Number of recipe data pieces displayed per page
Edit status	bit variable, enter the edit state when it is 1, click the cell to change the table content; Exit edit status for 0 to restore cell content and clear edit content;
Save trigger variable	bit variable, when the trigger condition is met, save the change table content and exit the editing state;

● Export Setting

Export Setting description

Export device	Export and save the displayed user components to an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the name of the subfolder to which the recipe data is exported. If this parameter is empty, it will be saved in disk/hmi for offline simulation. On the screen, it is saved under /hmi_data/disk/hmi
Use dynamic subfolder	Using string variables to dynamically set sub folder names
Trigger variable	Set variables that trigger export

Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for the exported user, and the default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name not export time	If checked, the exported file name does not include the export time
Export file format	Set the file format for exporting recipes, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component
File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encrypt】 is not checked, the exported file format is the file format set in the 【Export File Format】 option. Simply open the file
Dynamic password	Use string variables to dynamically set the password for file encryption, which is valid when 【File Encryption】 is checked

8.7.5.4 Display Set

Display set description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.7.6 Event

Events can be recorded and displayed in the form of a table to display the user's actions on the HMI. The types of event display include operation logs, alarms, and electronic signatures. For specific registration settings, please refer to [Chapter 14 Event/Alarm](#), [Chapter 18 Operation logs](#), and [Chapter 19 Electronic signature](#).

1. In the **【Event Property】** dialog box of the Event component, corresponding properties can be set.

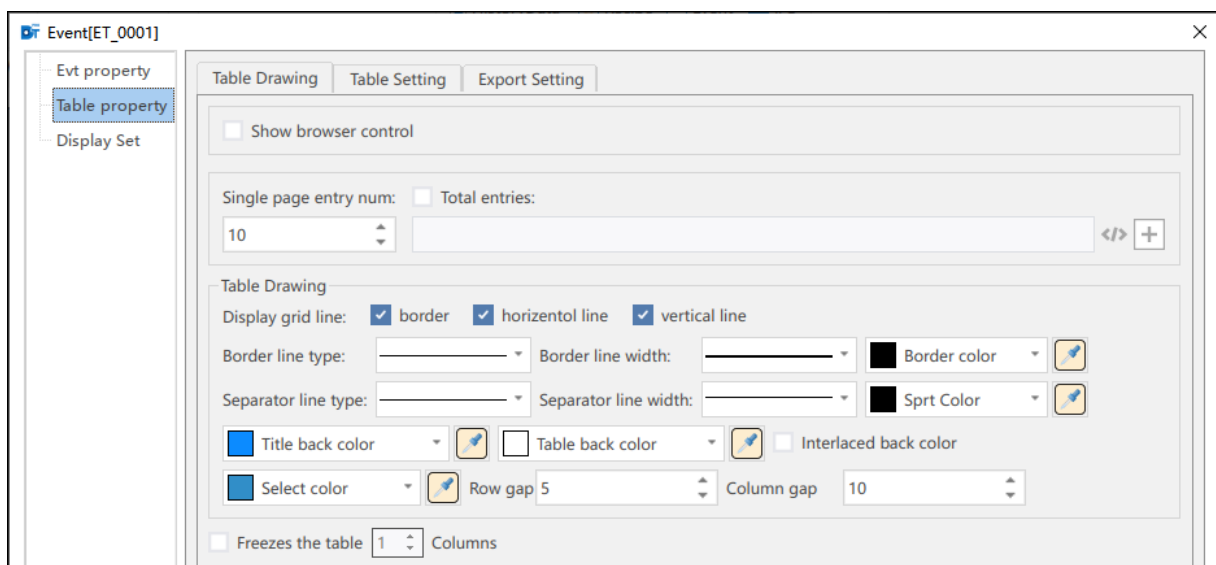
	Use	Name	Title name set	Column width
1	☒	No.	No.	34
2	☒	Type	Type	47
3	☒	Date	Date	46
4	☒	Time	Time	48
5	☒	Device	Device	67
6	☒	Window	Window	82
7	☒	Element/...	Element/Alarmid	171
8	☒	Status	Status	62
9	☒	Description	Description	113

Event - Event Property Description

Event Type	Can select current or historical events
Event show	Effective after checking. To set the category for event display, it is necessary to open the corresponding record in the corresponding category
Sort type	Set the sorting method for event display on the current component
Language independent	Effective after checking. The selection box after 'Display Language' is invalid, the component displays the default language
Show Title Bar	Effective after checking. The component displays the title bar content. Checked by default
Title Font Set	Set the relevant properties of the title bar font, which is only valid when 【Show Title Bar】 is checked
List font same as title	Effective after checking. The font properties of the list are consistent with those of the title bar font
List Font Set	Set the relevant properties of the list font
Set Font by Column	Effective after checking. The data table in the event attributes will display the "Column Font Settings" content, and font attributes can be set separately for each column
Preset text set	You can choose to directly input text labels. If you want to use a text library label, you need to check the text library

Display Language	Set the language of the title bar. When 【Language Independent】 is not checked and 【Show Title Bar】 is checked, it is valid
Data column dynamic show	Use the bit control column display of word variables. When bit0 is 0, the first column is displayed, when it is 1, it is hidden, bit1 controls the second column, and so on
Dynamic set by column	Use bitwise variables to individually control the column display. Display when the variable is 0, hide when the variable is 1
Output select row data to var	Respectively correspond to column bind variables and output the selected row data to the bind variables. The display of variables takes effect based on the 【trigger type】 set by the 【trigger variable】 .
Move Up	When selecting the row in the data table, click 【Move Up】 to move the selected row up. The 【Move Up】 button is valid except for selecting the first row of the data table
Move Down	When selecting a row in the data table, click 【Move Down】 to move the selected row down. The 【Move Down】 button is valid except for selecting the last row of the data table
Default sort	Restore to the original sorting of the data table
Event Type Display Set	Set the text content displayed in the "Type" column of the event table. When the "Type" column of the event table is checked, it is valid. You can modify the label content or use a text library

2. In the "Table Property" dialog box of the "Event" component, corresponding properties can be set.



Event - Table Property Description	
Show browser control	Tick Default to display a browse control box with the settings icon on the user's element, and Custom to use variables to represent the current and total number of pages in the user's element
Total entries	The total number of event information for the current event component. Effective when checking 【Show browser control】
Display grid line	Set display borders, row split lines, and column split lines
Border line type	Set the border line type
Border line width	Set border line width
Border color	Set the outer frame color. The color picker can absorb all the colors on the computer screen at this time
Separator line type	Set Split Line type
Sprt Color	Set Split Line type
Title background color	Set the background color of the title bar. The color picker can absorb all the colors on the computer screen at this time
Table background color	Set the table background color. The color picker can absorb all the colors on the computer screen at this time
Interlaced background color	Effective after checking. Set the background color for separating rows between two rows
Select Color	Set the color of the selected event information. The color picker can absorb all colors on the computer screen at this time
Row gap	Set the row spacing of the data table
Column gap	Set column spacing for data tables
Freeze the table columns	Input a number less than or equal to 15, such as 2, the first two columns of the table will be fixed. When sliding the scroll bar horizontally, the first two columns will be locked and will not slide along with the scroll bar. For details, refer to 8.7.4.5 Freez the table columns for an example
Date Format	Format the date of event information
Date Separator	Set the date separator for event information
Show 4-digit year	After checking, the year can be displayed in 4 digits, otherwise it will be displayed in 2 digits. For example, for the year 2008, it displays "2008" if 【Show 4-digit year】 is selected; If 【Show 4-digit year】 is not selected, only 2 digits will be displayed, i.e. '08'
Time format	Format the time of event information
Content exceeds table width	When the event content exceeds the width of the table, truncation or scrolling can be checked. When set to scroll, the step size and speed of scrolling can be set
Total entries	Use word variables to display the total number of event information for the current event component
Delete selected row	Use the state control of bit variables to delete the currently selected event information. When checked, the [Trigger Type] is valid

Export device	Export and save the event information displayed by the current event component in an external storage device
Use dynamic device	Dynamically setting export devices using string variables
Export subfolder	Set the sub folder name for exporting event information. If this item is blank, the event information will be saved in the "data/doc" folder of the project root directory by default
Use dynamic subfolder	Dynamically setting the name of a subfolder using string variables
Trigger var	Set variables that trigger export
Trigger type	Set the trigger type of the trigger variable
Export file name prefix	Set the file name prefix for exporting event information, with a default combination of date and time for the file name
Use dynamic file name prefix	Using string variables to dynamically set the file name prefix
File name do not include export time	If checked, the exported file name does not include the export time
Export file format	Set the file format for exporting event information, including CSV and PDF
Show export button	If checked, the export button will be displayed on the component
File encrypt	If checked, the exported file format is a compressed package, and a password is required to successfully extract the file. If 【File Encrypt】 is not checked, the exported file format is the file format set in the 【Export File Format】 option and can be opened directly
Dynamic password	Dynamically setting the password for file encryption using string variables. Effective when selecting 【file encrypt】

3. When the event type is a historical event, corresponding properties can be set in the "Event" component - "Evt search" dialog box.

Description of Historical Event Query

Use search function	Select the event type as Historical Event to have this feature as needed
Search state variable	The query status variable can be used to switch whether query is allowed, and is allowed when it is ON
Search trigger	Bind variables. Execute the query after the variable meets the triggering method

variable	
----------	--

4. In the "Display Set" dialog box of the "Event" component, corresponding properties can be set.

Evt property

Evt search

Table property

Display Set

Location

☐ Lock

X

1

Y

1

☐ Translucent

transparency

50

Display/Hide

☒ Always Display

☐ Condition Display

Size

☐ Fixed Ratio

Width

569

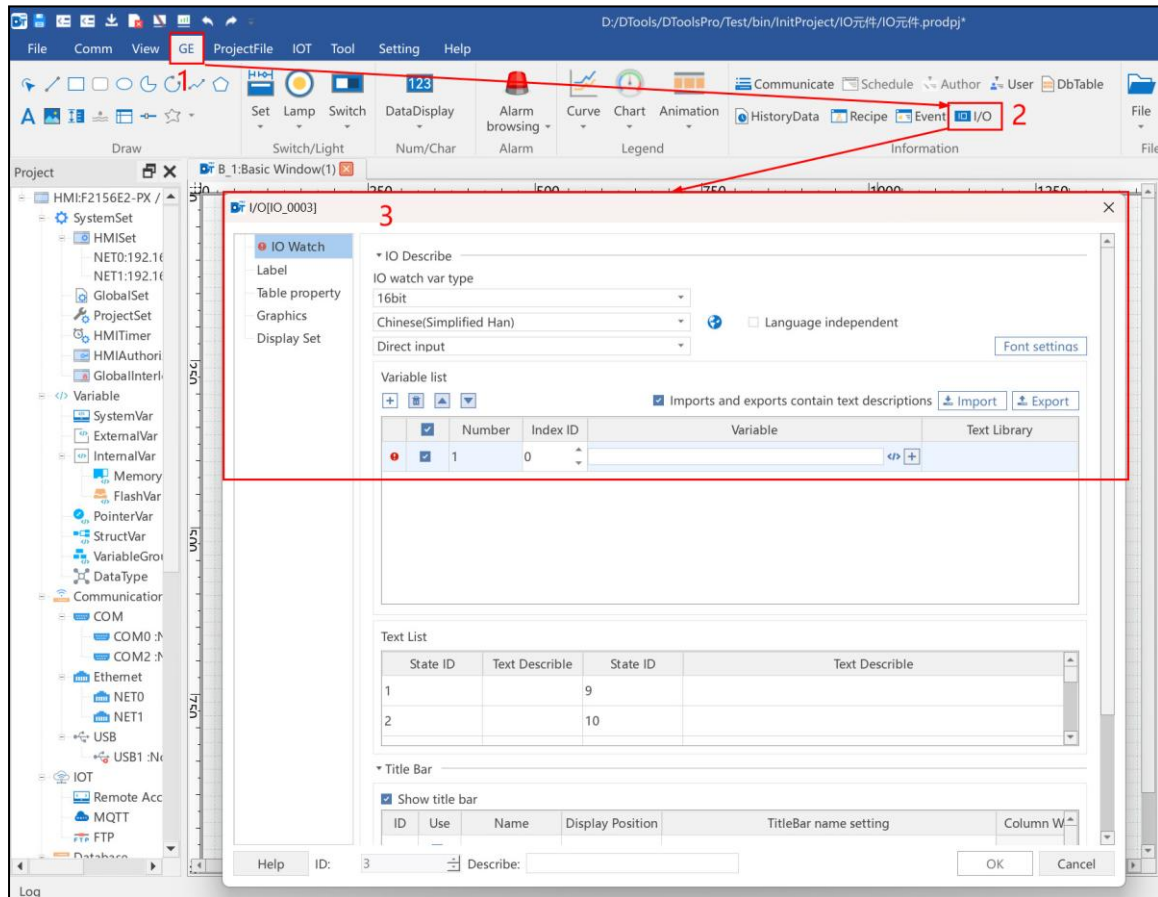
Height

100

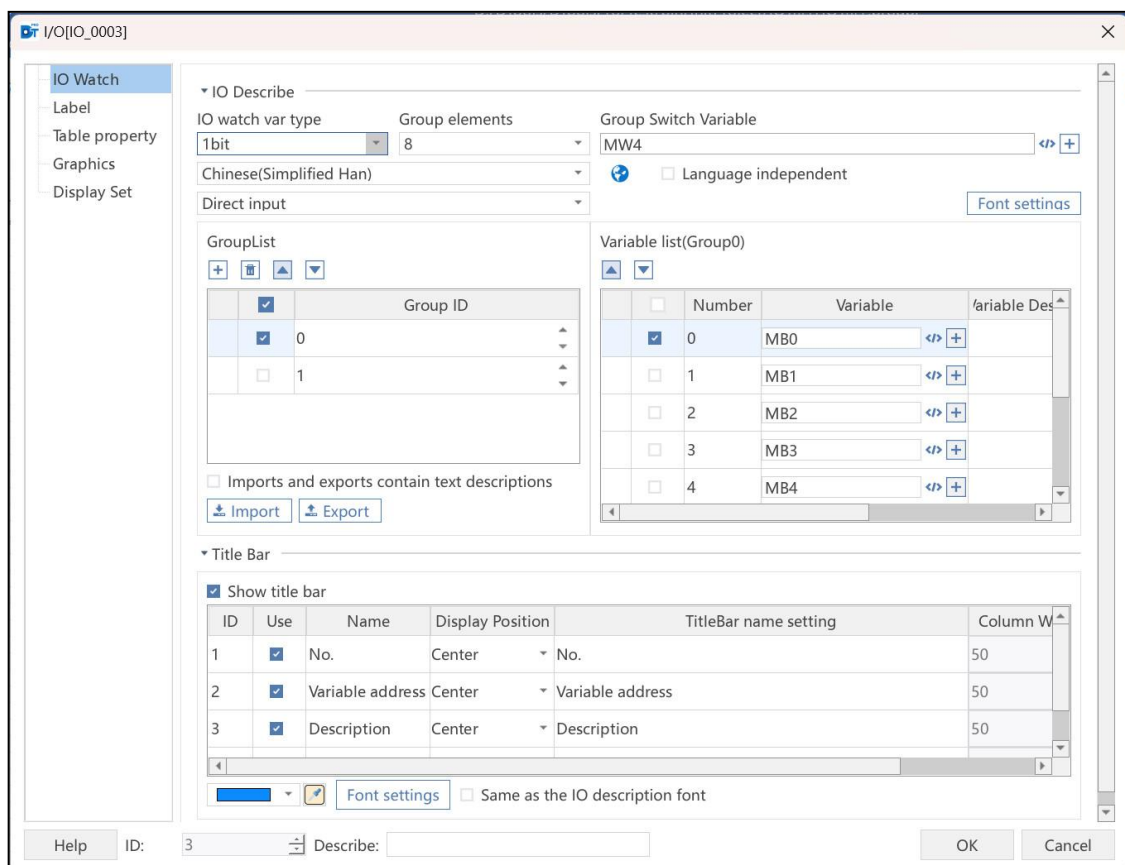
Event - Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control:Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.7.7 I/O

I/O components are controls to view the bit status and description of label variables of byte or word length type. It is often used to monitor the status of PLC input and output points and their corresponding functions, and it is also possible to add multiple variables and switch the displayed content by modifying the value of the index variable. When configuring, you can use "Component"(GE) → "Information" → "I/O" to set the component.



8.7.7.1 I/O Display

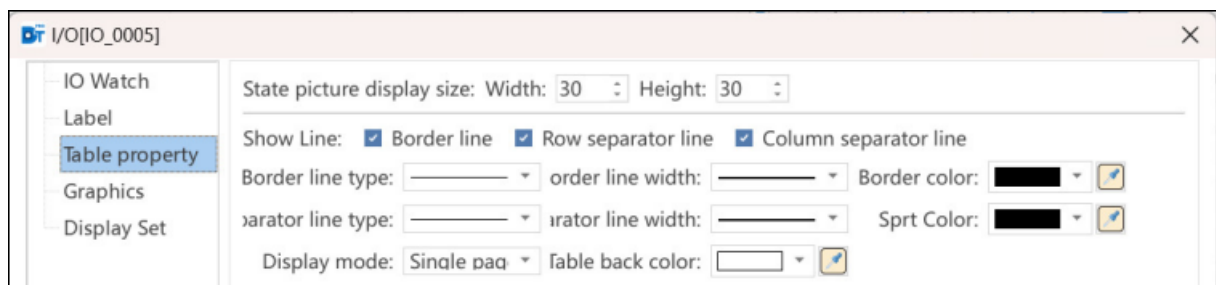


IO display description

IO display description		
IO watch variable type		Set monitoring data type, support 1-bit, 8-bit, 16-bit, 32-bit integer type
1-bit	Group elements	When the monitor data type is 1 bit, the number of group elements can be set, and the number of group elements can be selected as follows: 8, 16, or 32.
	Group Switching Variables	The value of the monitored variable corresponds to the group ID of the variable.
	Group list	The number of group limits ranges from 1 to 1024.
	Variable list	Bind the monitored variable and set the description of the corresponding bit of the variable.
8-32 位	IO Watch switching index variables	When monitoring multiple variables, it is used to switch the display contents, and the value of the monitored variable corresponds to the index ID of the variable.
	Variable list	Binding of monitored variables
	Text list	Setting the description of the corresponding bit of the variable, supporting the export of CSV files, and then importing them after modifying the format.
Language independent		Not checked by default. Variable description changes with language switching
Directly input/Use text library		Manually input variable description content or use text to display description content

Font Settings	Setting the text description font
Import Export Include Text Description	Ticked by default, when ticked, import/export includes variable descriptions, when unchecked, import/export does not include text descriptions.
Title bar	Optional whether to display the title bar, the default check box; do not display the title bar, the column settings inside the description of the column is not displayed
Title bar font settings	You can set the title bar font separately; you can also tick the box to make the font consistent with the description; after ticking the box, the title font setting button disappears, and the title bar font is consistent with the variable status description font.

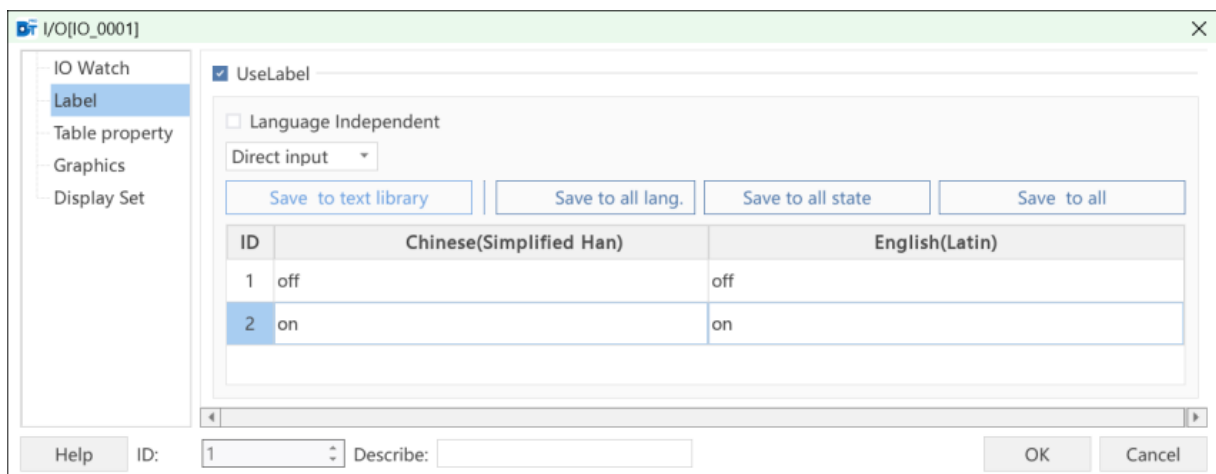
8.7.7.2 Table property



1. When **【Enable graphics】** is checked in the **【graphic】** property page, the width and height of the graphic can be adjusted. The minimum value is 1, the maximum value does not exceed the list width. if it exceeds, it is displayed as maximum.
2. Set control table properties, line color, and background color. You can also switch between single/double page display modes

8.7.7.3 Label

The label setting page is used to set the content in the "Status" column and supports the use of a text library.

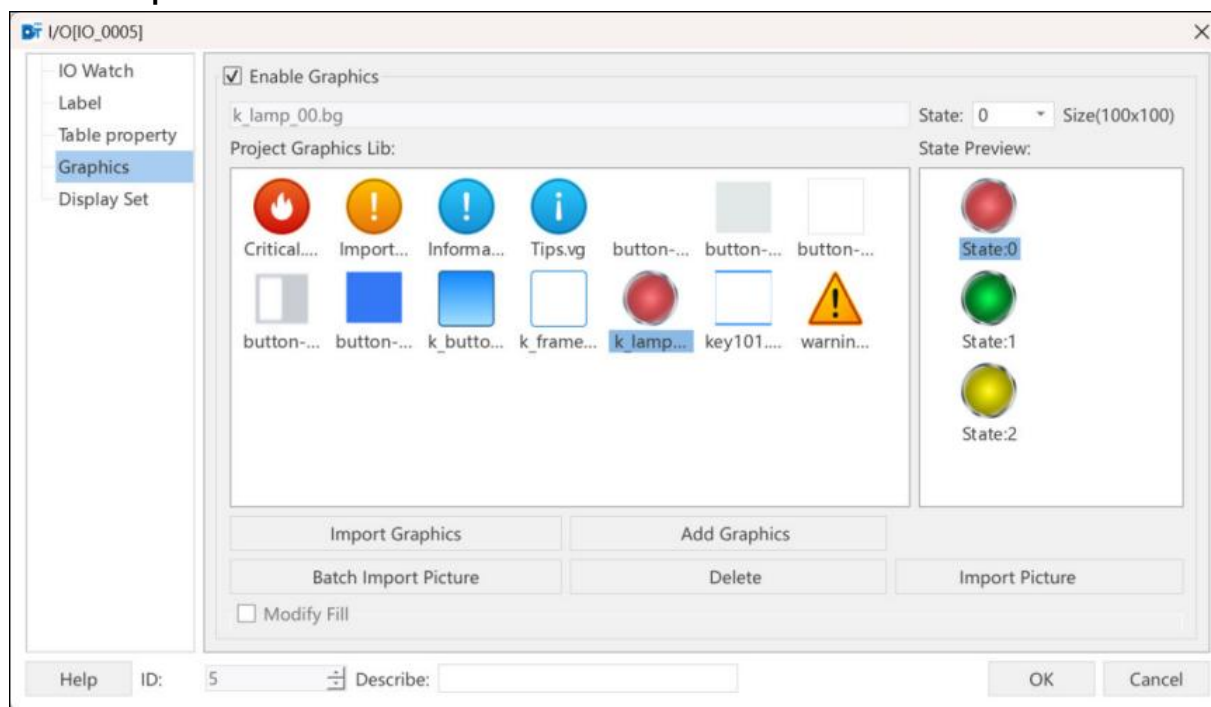


Label set description

Enable Label after checking **【Use Label】**

Text Edit	Language independent	After checking, it does not change with language switching. It is not checked by default. When unchecked, different languages can be selected for text input
	Use Text Lib	Not checked by default, input directly using text. After checking, select the content of the text library to use
	Direct input	1. Directly input content; 2. Shortcut Descriptions: ① Alt+Enter: Line break editing in the current cell; ② Enter: Confirm input and move to the next line for editing; Note: When editing the last line, it means confirming the input and exiting the edit mode; ③ Esc: Undo the current edits and exit the edit mode;
Content	Save Content To	All state: Synchronize the current text content to all states All language: Synchronize the current text content to all languages All: Synchronize the current text content to all states and languages
	Save content to text lib	: Save the currently set text to the text library for easy access when using it next time

8.7.7.4 Graphics



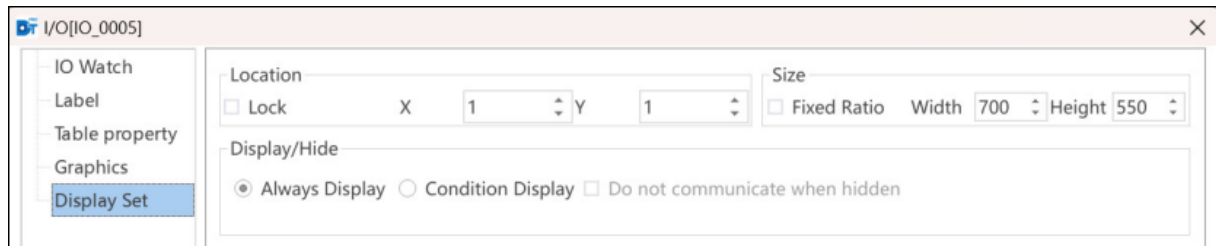
Description for using graphic settings

Use Graphics: Check **【Enable graphics】**

Import Graphics	Import the required graphics from the system library
Add Graphics	Add graphics outside of the system library

Batch Import Picture	Batch import of external images, supporting image formats such as. jpg. jpeg. png. bmp.svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are not currently supported)
Delete	Delete the currently selected drawing
Import Picture	Import a single external image, supporting image formats such as. jpg. jpeg. png. bmp.svg (complex svg formats such as text-based, animated, gradient fills, shadows, blurs, etc. are not currently supported)

8.7.7.5 Display Set



Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.8 File

8.8.1 File List

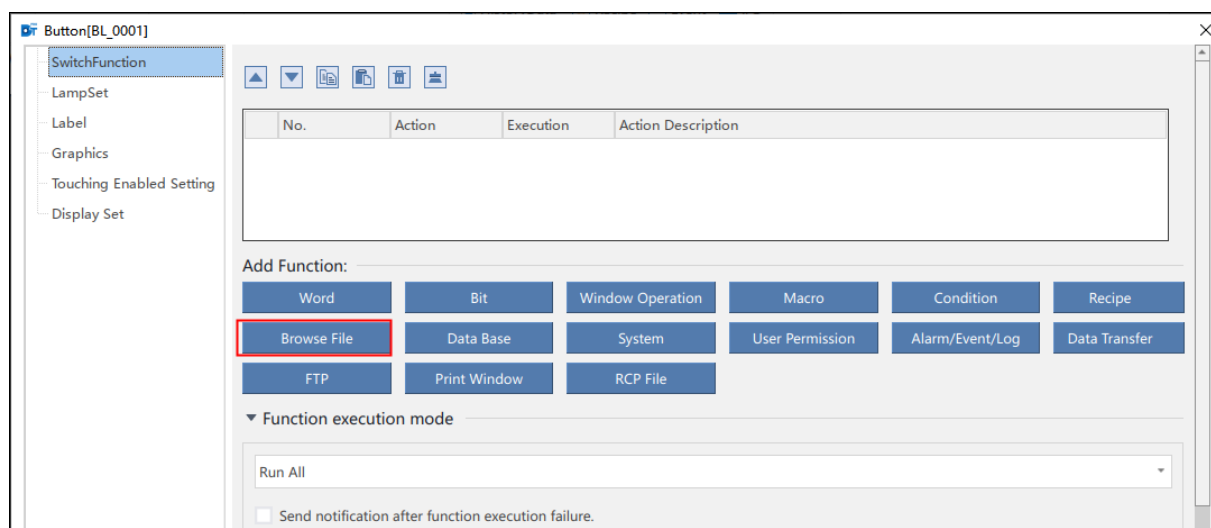
8.8.2 File In/Out

8.8.3 FTP

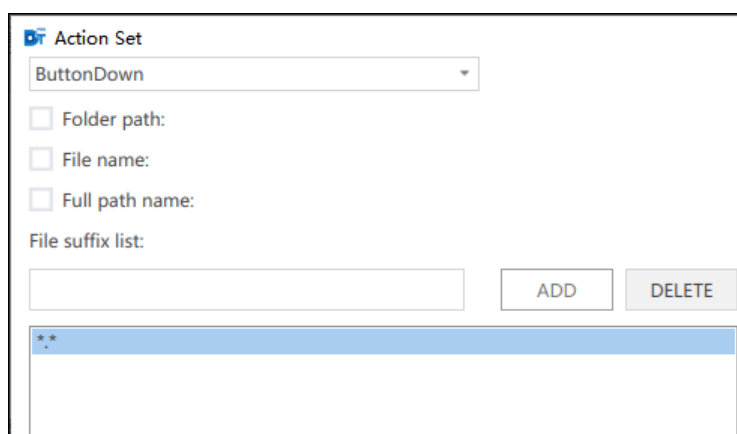
Can be used to access FTP files from other screens or computers, supports offline simulated access

8.8.4 Browse File

File browsing can be directly selected in the switch function, and then the corresponding triggering method can be set



As shown in the following figure, corresponding variables can be established to display folder path, file name, and full path. File suffixes can be added and removed according to requirements. If you want to view CSV files, add the suffix of the *.csv file. *. * indicates that all file types can be displayed by default. The browsing function facilitates users to search for imported and exported files.



8.8.5 Browse PDF File

Browse PDF File is used to display PDF documents in external storage devices, according to the screen model to support HMI, U disk, SD card documents, to facilitate the user to view PDF files; can be used with the FTP transfer function and document browsing to open the file.

PDF[PDF_0001]

Base Property

Display Set

Store device ☐ Dynamic File path ☐ Dynamic

HMI 1.pdf

☐ Show mode ☐ Page Turning ☐ Scale ☐ Show file name

☐ Show mode variable ☐ Current page variable

☐ Scale variable ☐ Total page variable

Please note that variables and controls are mutually exclusive

Background color

☐ Transparent

Browse PDF File - Base Property Description

Store device	Read the corresponding device under the pdf file, note: the PDF document has a password protection or permissions, does not support the browsing
	Dynamic storage device can be set, 1 for HMI; 2 for SD card; 3 for USB1; 4 for USB2
File path	Input the complete path of the file under the device, support the input of multi-level path (need to input the file name suffix, example: file / 1.pdf)
	Support dynamic full path, variable input the correct path to read and open the device under the pdf file, the variable is a string type Note: Dynamic full path and display file name controls are mutually exclusive.
Show mode	Show actual size fit, width fit and height fit controls
	Support to check the display mode variable. Note: 0 means size fit; 1 means height fit; 2 means width fit;
Page Turning	6 / 20 Display up/down page, current page number and total page number controls, support manual input of the current page number;
	Support checking current page and total pages variables, the current page and total pages are read automatically after the file is opened;
Scale	100% Scaling display of pdf files, range: 100%~300%
	Supports checking the scaling variable, range: 100~300; inputting a value beyond this range is invalid;
Show file name	Show the current open file name, click on the drop-down box to display other pdf files under the same level path;
Background color	Set the background area color, support check transparent color

Browse PDF File - Display Set Description

Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state

8.8.6 Browse Image File

The image browsing component is used to browse images stored on storage devices. Supported image formats include: .png, .jpg, .jpeg, .bmp, .svg, and .gif.

Browse Image File-Basic property Description

Store device	Browse image files on the corresponding device
	Dynamic storage devices can be set: 1 indicates HMI; 3 indicates USB1; 4 indicates USB2.

Subfolder	Enter the folder path under the input device. Supports entering multi-level paths.
	Supports dynamic subfolders. After entering the correct path in the variable, the image files are automatically refreshed and displayed. The variable is of string type.
File name	Only the latest file is supported (determined based on the last modification time).
Refresh	Supports automatic or manual refresh display
Browser state	None: No image; Refreshed: Refreshed

Browse Image File - Display Set Description

Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component. ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden ④ False state work: Takes effect when in an error state



1. Folders and images created after downloading the project must be manually refreshed to display;
2. When placing images in the storage path folder via FTP or other methods, it is recommended not to immediately power off and restart the HMI, as the images may not have been fully written to the disk at that time, resulting in the images not displaying after restart;
3. This feature is not supported on standalone desktops, which will only display placeholder images;

8.9 Other

8.9.1 Time

The time component is used to display the date, week, and time of the touch screen/controller.



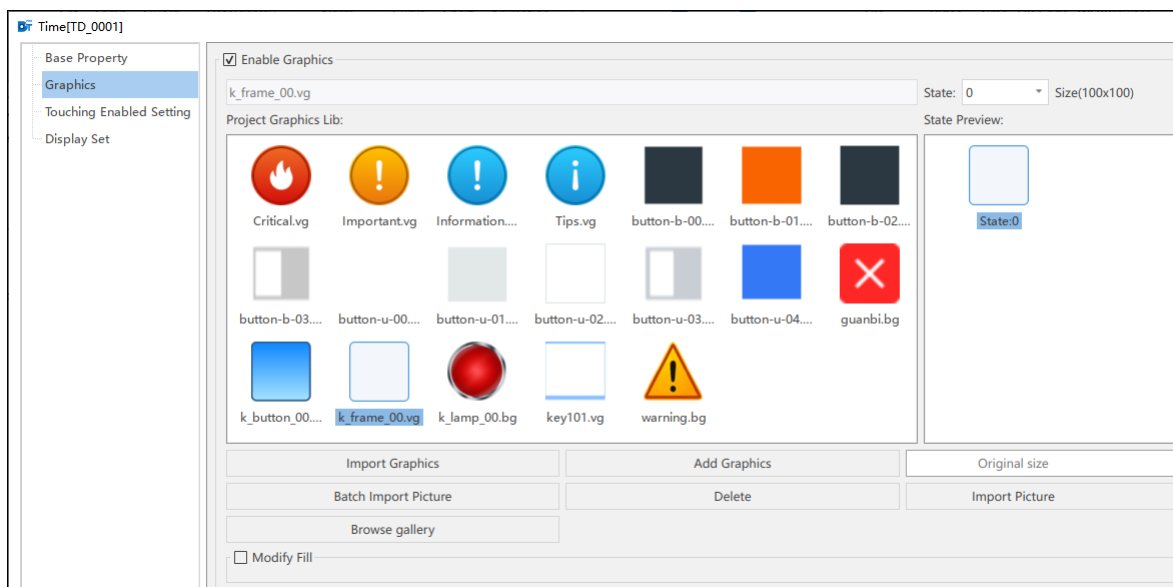
1. Check at least one of the three options: display date, display week, and display time.
2. You can only check the week when selecting **【system time】**.

1. In the Basic Property dialog box of the Time component, corresponding properties can be set.

Time - Basic Property Description

Operator Property	It includes two options: 【system time】 and 【variable time】. Selecting system time displays the system time, and selecting variable time selects the variable for time
Display Date	Set whether to display dates
Show Week	1. 【Date Format】: Five formats are available. Where DD represents the day, MM represents the month, and YY represents the year
Display time	Set whether to display time 1. 【Time Format】: Three formats are available. Where HH represents hour, MM represents minute, and SS represents second 2. 【12-hour system (AM/PM)】: The selected time is displayed in 12 hour format. If the time is 8pm and the time format is "HH: MM: SS", then "08:00:00 PM" will be displayed; If this box is not selected, it will display as '20:00:00 '
Date/Time Branch Display	Set whether the date and time are displayed separately, including 【Display Date in the First Line】 and 【Display Time in the First Line】
Text Edit	Used to edit the text content of the week, valid when 【Display Week】 is checked
Font Property	Used to set the relevant properties of the font of the time component. For specific attribute descriptions of font templates, please refer to Chapter 20.2 Font Library .

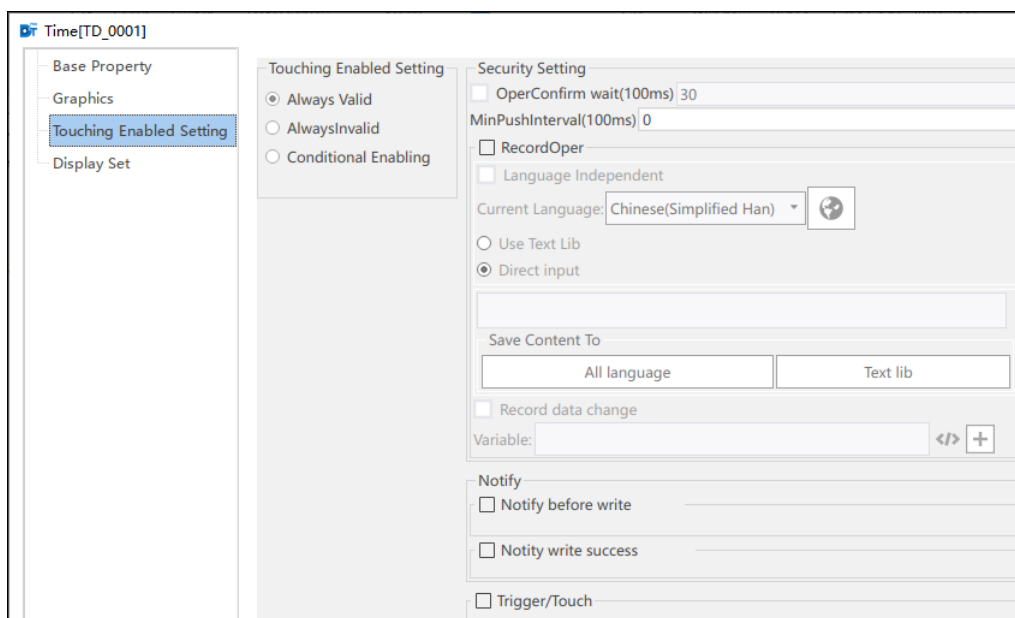
2. In the "Graphics" dialog box of the "Time" component, corresponding attributes can be set.



Time - Graphics Description

Enable Graphics	Set whether the time component uses graphics. If there are no required graphics, click 【Import Graphics】 to import external images. Please refer to Chapter 19.2 Font Library for specific attribute descriptions of the images.
Modify Fill	You can choose three fill types: color, pattern, and gradient to set the background color

3. In the "Touching Enable Setting" dialog box of the "Time" component, corresponding properties can be set.



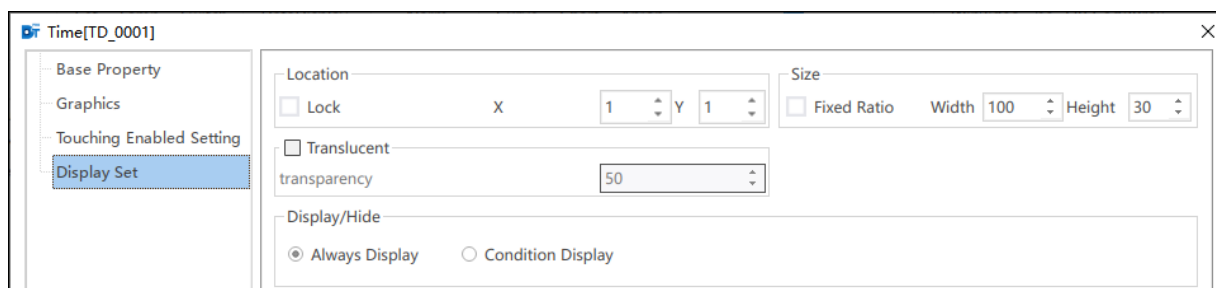
Time – Touching Enable Setting

Touching Enable	1. 【Always valid】 : If checked, it means that the data can be effectively written to the
-----------------	---

Setting	specified register by touching the active area of the current component 2. 【Always Invalid】 : If checked, it means that even if the current component touches the valid area, the data cannot be effectively written to the specified register 3. 【 Show Invalid Flag 】 : If checked, it indicates that the current component is in a touch invalid state, and the component displays an invalid flag. This function is only available when 【Always Invalid】 or 【Conditional Enabling】 is checked. The color of the invalid touch mark can be set in the 【Global Set】 . For specific attribute descriptions of global settings, please refer to Chapter 3.2 Global Set. 4. 【 Display grayscale font 】 : If checked, it indicates that the grayscale font will be displayed when the current component is in a touch disabled state. This function is only available when 'Always Invalid' or 'Conditional Enabling' is checked. 5. [Condition Enable]: Check to indicate that the current component can only be touched and data written to the specified register when the state of the positioning variable or word variable meets the set conditions 6. [Automatic Display of Login Window]: If checked, it means that when the current user's permissions do not meet the set permissions, a user login window provided by the system will automatically pop up for the user to enter their password for login. Please refer to Chapter 6 for specific attribute descriptions of the user login window
Security Setting	1. 【Minimum Push Time (100ms)】 : It is necessary to continuously press the current component for no less than the set time before the data can be effectively written to the specified register. The minimum unit is 100ms. A value of 0 indicates that the minimum pressing time is not set 2. 【Operator confirmation wait (100ms)】 : If checked, the HMI will automatically pop up an operation confirmation window when touching the current component. Click "OK" to write the data to the specified register. Click "Cancel" or if the user has not clicked "OK" after the set waiting time, the operation will be automatically canceled 3. 【 Minimum Push interval (100ms) 】 : The minimum pressing time interval between two operations of the same component, with a minimum unit of 100ms. When it is 0, it indicates that the minimum pressing interval for the operation is not set
Record Operation	To use 【Record Operation】 , you need to first enable the operation log. For specific descriptions of the operation log, please refer to Chapter18 – Operation log 1. 【Language Independent】 : If 【Language Independent】 is checked, the selection box after "Display Language" will be invalid, and the component defaults to using the first

	language. 2. 【Current Language】 : The currently displayed language 3. 【Use Text Lib】 : If checked, the operation record of the current component will use the text content of the text library 4. 【Direct Input】 : If checked, the text content of the input box will be used for the operation record of the current component 5. 【Record Data Change】 : If checked, the operation log can monitor the changes in data or the status of variables.
Notify	1. 【Notify before write】 : If checked, the operation must be notified of completion before the actual action can be triggered 2. 【Notify write success】 : If checked, the notification will only be triggered if all actual actions are successfully executed
Trigger/Touch	1. 【Keyboard】 : By setting the keyboard buttons, it takes effect when the touch setting button is pressed 2. 【 Register 】 : Set bit variables and trigger types to achieve touch operation

4. In the **【Display Set】** dialog box of the Time component, corresponding attributes can be set.



Time - Display Set Description	
Lock	Set whether the position of the component is locked
Fixed ratio of width and height	Set the size of the component and calculate the corresponding width or height proportionally. The ratio is the ratio of width to height before selecting 【Fixed Ratio】 .
Translucent	Effective after checking. The component will display the transparency level based on the translucency value
Display/Hide	Always display: Check to indicate that the current component remains displayed Condition display: Includes permission control, expression control, no communication when

components are hidden, and false status takes effect

- ① Authority control: Support multiple permissions control, check that the operator needs to meet the multiple permissions of the component to display the current component.
- ② Express control: Check to indicate that the current component can only be displayed when the state of the specified bit or word variable meets the set conditions
- ③ Do not communicate when hidden: When the variables used by components are External variable, check this option, and components will not communicate when they are hidden
- ④ False state work: Takes effect when in an error state

8.9.2 Window

The Window element allows you to choose between direct or indirect windows, and can display other windows within a specific area of the current window;

8.9.2.1 Directwin

Direct Window - Basic Property Description

Setting	Choice of direct or indirect window
Specified Window	Specify the target window to be displayed in the direct window area, and the drop-down box can be filtered to select the basic window in the project
Trigger Setting	Split into on and off, default is on
Trigger Variable	Variables can be added or selected; supports bit variables, bool variables, fetch bits (8, 16, 32, 64)
Show title bar	1. Display the title bar and close button of the window component, and the title bar can be set by yourself. 2. Drag the title bar to move the component position. 3. Close the window with the close button without affecting the state of the variable.

8.9.2.2 InDirectwin

Indirect Window - Basic Property Description

Setting	Choice of direct or indirect window
Dynamic Window	Selected variables can set the corresponding pop-up window, can add or select variables; support word variables (8-64 bits)
Window Type	Select pop-up window or embed in parent window
Monopolize	By default, this option is unchecked; once checked, elements outside this pop-up window cannot be clicked.
Show title bar	1. Display the title bar and close button of the window component, and the title bar can be set by yourself. 2. Drag the title bar to move the component position 3. Close the window with the close button without affecting the state of the variable.

Note: When the window type is set to "Embedded in Parent Window", neither exclusive use nor the display of a title bar is supported.

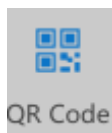
8.9.2.3 Display Set

Display Setting Description

Lock	Sets whether the position of the component is locked or not
Fixed Ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Ratio] is ticked.

8.9.3 QR code

The QR code component displays characters in the form of a QR code, and users can view the corresponding characters by scanning the QR code.



The QR code component displays the generated characters in the form of a QR code, and users can scan the QR code to view the corresponding characters

8.9.3.1 Base Property

QRCode[QR_0009]

Base Property

Display Set

Data

Read ⓘ
{NET0:设备1}4X1_0 </> +

Action

Error Correct Level
H (30%)

Appearance

QR code color

Help ID: 9 Describe: OK Cancel

QR code-Base Property Description	
Data	Used to select variables associated with QR codes, with a maximum length support of 512 bytes
Action	By default, it is the highest and divided into L (low: 7%) M (medium: 15%) Q (high: 25%) H (high: 30%). The error correction level gradually increases from L to H, and the fault tolerance level gradually increases
Appearance	Set the color for displaying QR codes

8.9.3.2 Display Set

QRCode[QR_0001]

Base Property

Display Set

Location

☐ Lock X 1 Y 1

Size

☒ Fixed Ratio Width 100 Height 100

Display/Hide

☒ Always Display ☐ Condition Display

Help ID: 1 Describe: OK Cancel

QR code-Display Set Description	
Location	Set whether the position of the component is locked
Size	There is no fixed aspect ratio, any value of width/height is modified, and the other value is modified synchronously; Dragging components on the screen proportionally zooms in and out
Display/Hide	Check to indicate that the current component remains displayed continuously Condition display: includes permission control, expression control, no communication when components are hidden, and false status takes effect ① Permission Control: Checking indicates that the operator needs to have the set permissions in order to display the current component ② Expression control: Check to indicate that the current component can only be displayed

- when the state of the positioning variable or word variable meets the set conditions
- ③ No communication when component is hidden: When the variable used by the component is an external variable, check this option to prevent communication when the component is hidden
 - ④ False state takes effect: takes effect when in an error state

8.9.4 Video

8.9.4.1 Web camera



Web camera components, like camera components, can be used for real-time image monitoring in industrial sites, but network camera components are used for video input from Ethernet cameras

1.Base Property

Web Camera[WC_0003]

Base Property

Display Set

RTSP address

☒ Enable address input

☐ Dynamic IP

IP address

0 . 0 . 0 . 0

☐ Enable address scanning

User information

☐ Anonymous user access

☐ Dynamic User

Username

admin

Dynamic Password

kinco123

Display control

	Name	Component type
☒	Open control	☒ Default ☐ Custom
☒	Connection status	☒ Default ☐ Custom
☒	Zoom control	☒ Default ☐ Custom
☒	Adaptive display	☒ Default ☐ Custom

☐ Show window title bar

Toolbar background color

Web camera-Base Property Description		
RTSP address	Specify RTSP address, or select RTSP address by scanning the list of cameras that can be added within the LAN	
	[Enable address input]	[IP address] : Not allowed to be empty; Default display 0.0.0.0; Support dynamic variables (string variables)
	[Enable address scanning]	[Enable scan control]: Associate bit and boolean variables, 0=Unscan/Scan End, 1=Start Scan. Scan the IP information of available network cameras in the current local area network when turned on, and automatically turn off after scanning is completed. After a network interruption, it is necessary to reset the ON scan.
		[Scan output]: Associate string array, string length must be>=15 (IP address length). Each element stores the scan results: target device IP address; You can use a list component to display the IP addresses of network cameras that have been scanned and are in the same network segment as the HMI IP; When empty, it means that there are no available

	network cameras or the IP address of the HMI has not been recognized yet.
	[Number control]: Associate unsigned number variables and confirm the RTSP address of the device that needs to enable the screen by writing the specified scan result number; When the input value is 0, it indicates that the first camera scanned is selected; When the input value is 1, it indicates that the second camera scanned is selected, and so on.
User information	Note: 1. It can be used to associate scanning output and number control through a list of components, combined with the address scanning function of the network camera 2. There are two RTSP address setting methods: [Enable Address Input] and [Enable Address Scanning]. At least one of them should be checked and cannot be unchecked at the same time, but can be checked at the same time 3. RTSP address execution priority: a. When scanning is not enabled (the output result is empty), the target address defaults to the input address. After enabling it, open the network camera and save the IP address of the network camera. The next time you open the page, you will automatically log in to the network camera b. When the user executes the scan result (the output result is not empty), the default target address points to the 0th element of the scan output result list.
	According to the camera user password settings, the configuration can choose anonymous login or login using username and password
	[Anonymous user access]: When selected, the camera can be accessed anonymously without a password.
	[Anonymous user access]: Unchecked by default, static user password input: default display admin (username) and admin (password), red exclamation mark when empty. After setting the static username and password, there is no need to manually fill in the username and password on the HMI. The username and password are the accounts with access permissions configured for the network camera.
Display Control	[Anonymous user access] : If not checked and the variable is checked, the dynamic user password input will display a red exclamation mark when empty. After setting the dynamic username and password, the HMI will need to manually fill in the username and password, which are the accounts with access permissions configured for the network camera.
	[Open control]:default check; Do not uncheck, click once to turn on, click again to turn off, customize to associate bit and boolean variables, 0=off, 1=on, after turning on the screen, connect to the target IP device and display the corresponding screen
	[Connection status]: Unchecked by default; Display device connection status, customizable to associate unsigned variables, 0=offline, 1=online, 2=connecting. After the user clicks the 'Enable' button, the displayed fields are judged based on the actual online status. If the online connection fails, it is in a disconnected state.
	[Zoom Control]: Unchecked by default, click to zoom in, the component will fill the

	window with a large size, and when zoomed out, it will be the default size of the component. Custom associated bit and boolean variables, 0=reduced state (default component size), 1=full screen state (component size fills the window) be careful: 1. After full screen zoom in, the screen hold and screensaver events are disabled. After canceling full screen zoom in, according to the screen hold settings, the screen will automatically shut down, pause the video stream acquisition, and automatically acquire the video stream after waking up Automatically hide the toolbar and title bar after 2.3 seconds; Click on the screen to bring up the toolbar and title bar display
	[Adaptive Scale]: default unchecked, button, click to enable adaptive, click again to disable, customize associated bit and boolean variables, 0=not enabled, the actual display size on the screen is the size of the component, and there is a scrollbar when the display exceeds the component; 1=Enabled. If the original image resolution is different from the component size, the image will automatically adjust. During the image adjustment, there may be distortion;
Show Window title bar	After selecting, the title bar of the window component can be set with its own title properties (font color, font size, whether to use text, language, etc.);
Toolbar background color	default black, toolbar background color can be set

2.Display Set

Web camera-Display Set Description	
location	Sets whether the position of the component is locked or not
Fixed Ratio	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Ratio] is ticked.



1. Only supports G2 and F2 models;
2. Does not support offline simulation or independent desktop operation;
3. Please use a network camera that complies with ONVIF specifications. Video encoding support H.264 and H.265;
4. The network camera needs to be connected to the internet (LAN only);
5. Simultaneously activate the limit on the number of screens: Multiple screens can be placed in the project, and only one set of devices can activate the screens;
6. When switching pages, all camera screens under that page will be automatically closed. After switching again, the last opened screen will be automatically connected (depending on whether the actual user operation has enabled the screen); When a camera screen is turned on, the system

needs to determine whether other camera screens under the project page are turned on. If so, the other screens will be automatically turned off before turning on the current screen;

7. Open a child window (direct window/indirect window/pop-up window) in the parent window (current window). If there are network camera components in both the parent window and child window, and they are both in the open screen state, it is considered a window switching operation:

a. When opening a child window, the child window camera automatically refreshes the opening screen, while the parent window pauses the camera screen refresh

b. When closing a child window, the child window camera pauses the refresh of the image, and the parent window reopens the video frame.

8. Dahua cameras require screen time and camera time to be similar, and users can set ONVIF users; Hikvision requires [Network] - [Device Access] - **[Open Network Video Interface] mode** to be enabled and [Common Settings] - [Video Parameters] - [Custom Mode] to set **H264 mode**;

3.Application

Taking the F2100E screen as an example, monitor the footage of network cameras (such as Hikvision network camera address 192.168.210.59)

3.1 Account and password for activating and configuring camera access permissions (see instructions for the network camera), username: adminrtsp, password: admin, using Dahua camera settings as an example, ONVIF user must be set up

3.2 Open DTools Pro software and select the network camera component

3.3 The network camera components are set as follows (in this case, a static+scanning method is used to ensure that a static address can be connected in case it cannot be scanned):

Web Camera[Wc_0001]

Base Property

Display Set

RTSP address

☒ Enable address input

IP address ☐ Dynamic IP

192 . 168 . 210 . 59

☒ Enable address scanning

Enable scan control

Scan output

视频扫描 <>+ 扫描输出 <>+

Number control

地址编号 <>+

User information

☐ Anonymous user access

Username ☐ Dynamic User Password ☐ Dynamic Password

adminrtsp kinco666

Display control

Name	Component type
☒ Open control	☒ Default ☐ Custom
☒ Connection status	☒ Default ☐ Custom
☒ Zoom control	☒ Default ☐ Custom
☒ Adaptive display	☒ Default ☐ Custom

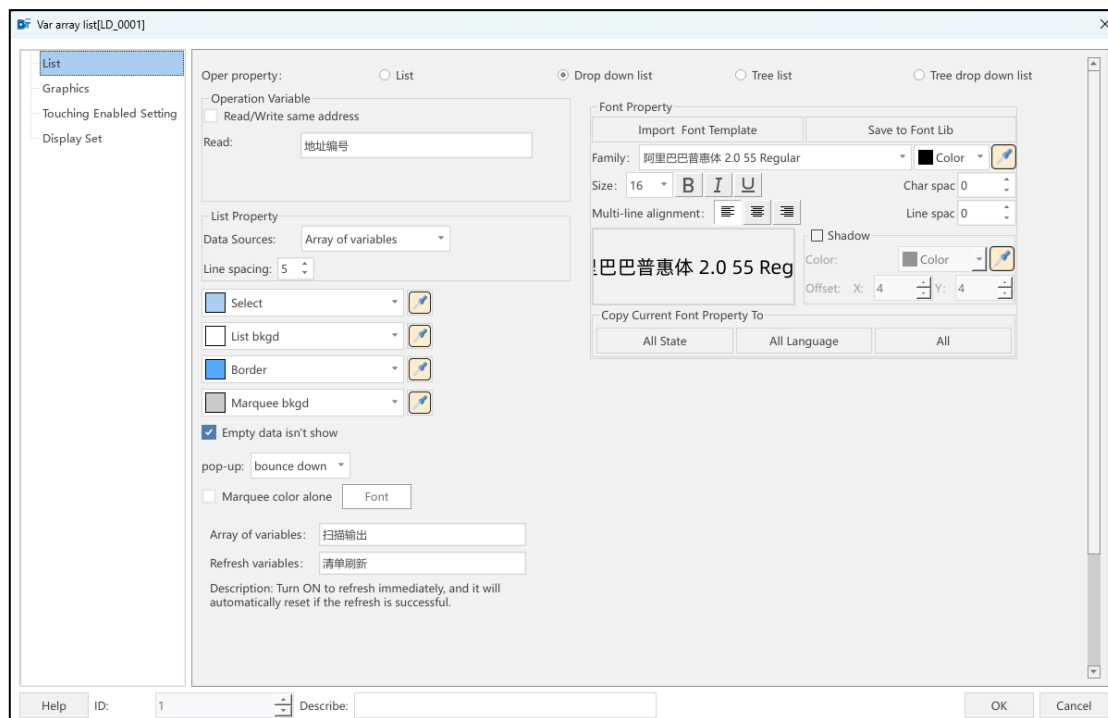
☐ Show window title bar

Toolbar background color

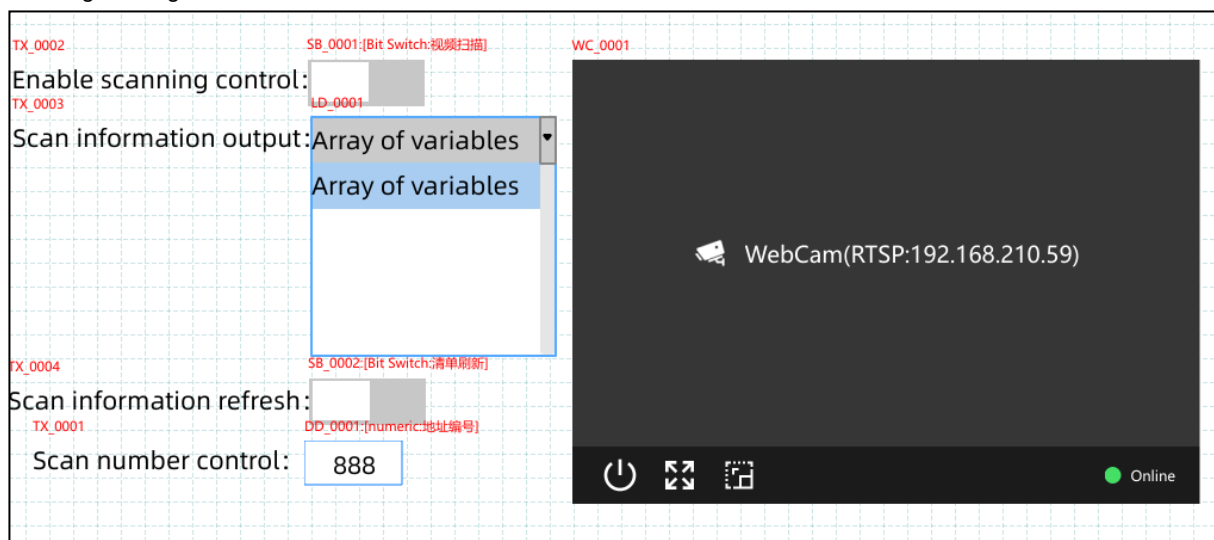
Help ID: 1 Describe: OK Cancel

3.4 Based on the information in the network camera components, select component settings and establish corresponding components (scanning needs to be used in conjunction with the list of components):

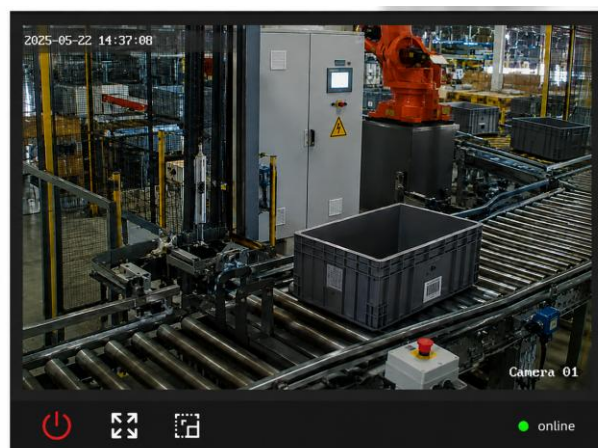
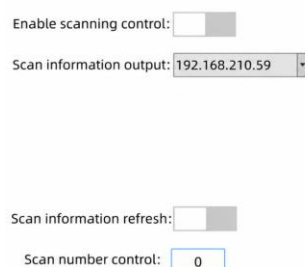
The list interface settings are as follows:



The engineering interface is as follows:

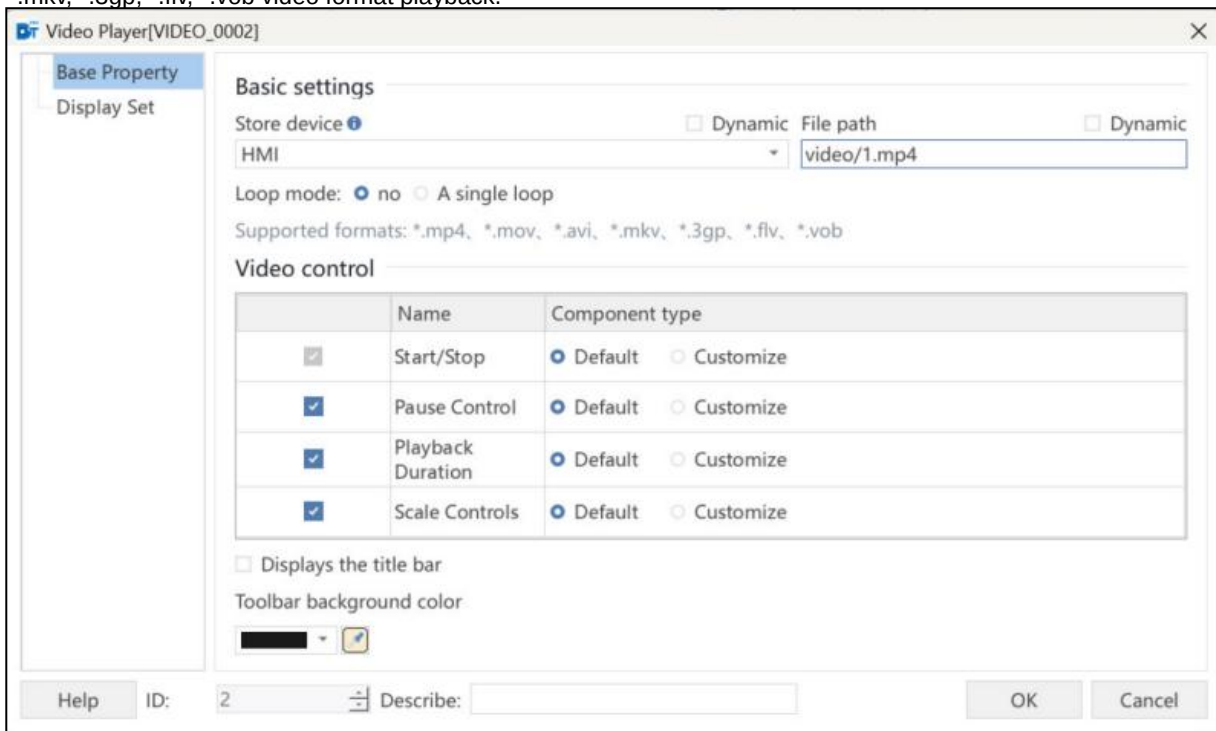


3.5 The running effect is as follows:



8.9.4.2 Video Player

The video player component can call HMI files or external device video files, and can support *.mp4, *.mov, *.avi, *.mkv, *.3gp, *.flv, *.vob video format playback.

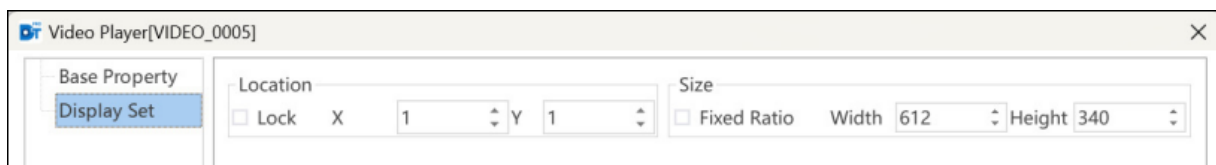


1. Basic Property

Video Player - Base Property Description		
Store device	Read the video file under the corresponding device	
	Dynamic storage device can be set, 1 for HMI; 3 for USB1	
Full path of the file	Input the full path of the file under the device, support input multi-level path (need to input the file name suffix, example: video/1.mp4)	
	Support dynamic full path, variable input the correct path to read and open the video file under the device, the variable is a string type	
Recurrent mode	No(default selection): playback stops automatically at the end of the current video	
	A single loop: after playing the end of the current video, revert back to the starting time to play automatically	
Video Control	Start/Pause	Default ticked; disable unchecked, optional custom, associated variable type bit type, bool type, 0 = pause, 1 = start
		Start: manually triggered, or automatically triggered at the end of playback (single song loop)
		Pause: manually triggered, or automatically triggered at the end of playback (no loop), or playback failure triggered pause
	Stop Control	User selectable customization, associated variable type bit type, bool type, 0=continue playing, 1=stop (auto reset)
	Playback Duration	Displays total time and current time, display time format (current time: hour: minute: second/ total time: hour: minute: second) Optionally customisable, variable type uint, corresponding to the unit of

		seconds
	Scale Control	Button click to zoom in (full screen display according to project screen size), click again to zoom out (default setting for component size)
		Optionally customisable, associated bit, bool variables, 0=reduced state, 1=full screen state
		Full-screen zoom disable backlight, screen saver
		Click to zoom in full-screen, automatically hide the toolbar and title bar after 3s
		Click on the screen to bring up the toolbar, title bar Double-click the screen to exit full screen
Displays the title bar	Display the title bar of the video player component and open the title property to set the content by yourself.	
Toolbar background colour	Default black, toolbar background colour can be set	

2. Display Set



Video Player - Display Set Description	
Location	Set whether the position of the component is locked
Size	Set the size of the component to calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Aspect Ratio] is ticked; the component is dragged on the screen to zoom in and out proportionally; after ticking the box, it is zoomed in and out in the same proportion.



1. Only supports G2 and F2 models;
2. Does not support offline simulation or independent desktop operation;

8.9.4.3 USB camera



USB camera component can be used for real-time image monitoring in industrial sites, and is used to connect the video images input by the USB interface camera

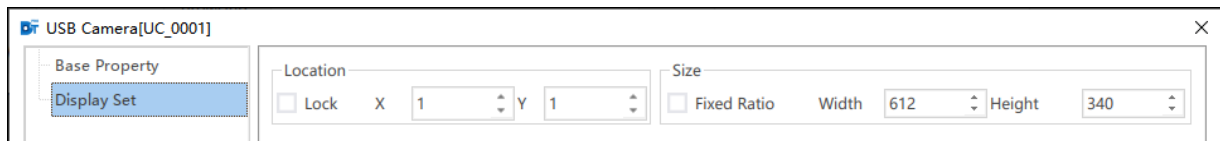
1. Basic property

USB Camera - Base Property Description

Camera config	Camera interface: Support static and dynamic; Dynamic setting: Associated unsigned number type variable: 0= invalid; 1= Built-in usb (depending on whether the model has a built-in camera)/External device usb1; 2 = By analogy external usb* ;
Picture control	[Open control]: Check by default, default as toolbar control; Disable uncheck, click once to turn on, click again to turn off, or customize to associate bit and bool variables, 0=off, 1=on, after turning on the screen, connect to the target IP device and display the corresponding screen. [Screenshot control] : Unchecked by default, once checked, it defaults to a toolbar control; Or customize to associate bit and bool variables, 0=no screenshot, 1=screenshot, if the value is set to 1, the value is automatically reset to 0. Export JPG format. [Export device] : According to the screen model, select [HMI]/[SD card]/[USB1]/[USB2] from the dropdown menu, default selection HMI; Support dynamic device : 1-HMI, 2-SD card, 3-USB1, 4-USB2 ; [Export folders] : Set the folder name of exported screen capture file; It can not be an empty field, support dynamic folder, associated variable type string ; [Export file name] : Set the file name of exported screen capture file, it cannot be empty. Support dynamic file name, associated variable type string ;

	[Export state] : Unselected by default, if it is selected, the export state can be viewed : 0-Initial state , 1-Export successfully , 2-No external memory , 3-Write error ; associated numerical type variable;
	[Connection status] : Unchecked by default , once checked, it defaults to a toolbar control ; Display USB camera connection status, custom can be associated with uint variable, 0= not connected, 1= connected, 2= connection failed;
Show title bar	Display the title bar of the window element, if checked, you can set the title properties (font, color, size, whether to use text library, language, etc.);
Toolbar background color	[Toolbar background color] : Default color is black. The toolbar background color can be set

2.Display set



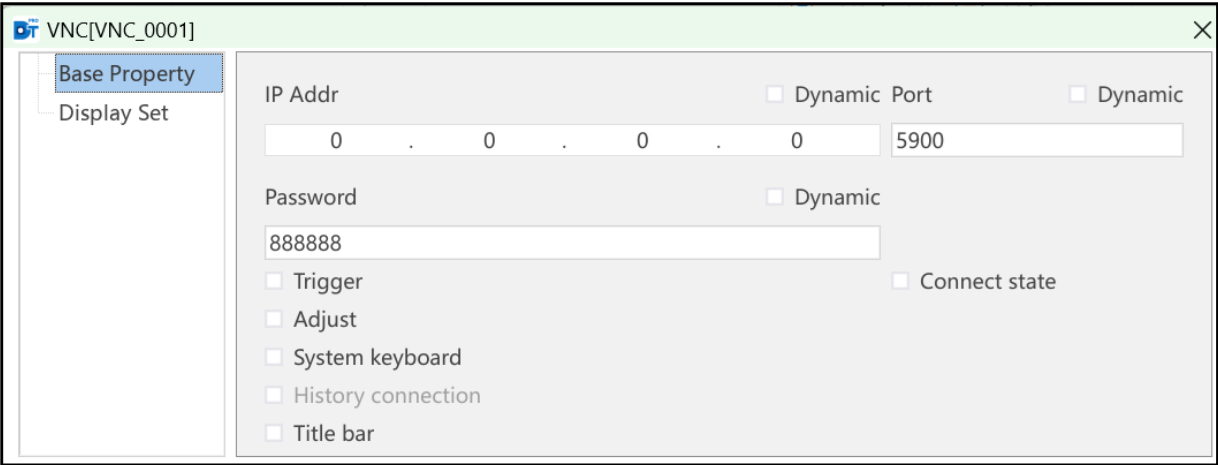
USB Camera - Display Set Description	
Location	Set whether the position of the component is locked
Size	Set the size of the component and calculate the corresponding width or height in proportion. Proportion is the ratio of width and height before [Fixed Ratio] is selected. The component is dragged on the screen to zoom in and out according to the proportion; After [Fixed Ratio] is selected, component will same proportion to zoom in and out.



- 1.Only support G2 and F2 models.
- 2.Offline simulation and independent desktop operation are not supported.
- 3.Limit the number of screens opened at the same time: multiple can be placed in the project, and only 1 group of devices can open the screen.
- 4.When switching pages, all camera screens under that page will be automatically closed. After switching again, the last opened screen will be automatically connected (depending on whether the actual user operation has enabled the screen); When a camera screen is turned on, the system needs to determine whether other camera screens under the project page are turned on. If so, the other screens will be automatically turned off before turning on the current screen.
- 5.Open a child window (direct window/indirect window/pop-up window) in the parent window (current window). If there are usb camera components in both the parent window and child window, and they are both in the open screen state, it is considered a window switching operation:

- a.When the child window is opened, the child window camera automatically refreshes the open screen, and the parent window pauses the camera screen refresh.
 - b.When the child window is closed, the child window camera pauses to refresh the screen, and the parent window opens the video frame.
- 6.Supports hot plug.When the physical port is disconnected and plugged in again (if the USB number is not changed after plugging in), the camera picture is automatically obtained if the camera is turned on.
- 7.It is best not to cross download HMI static camera interfaces with or without built-in cameras, as they may identify abnormalities. It is recommended to switch models before downloading.

8.9.4.4 VNC Client



1. Base property

VNC Client-Basic Property Description	
IP addr	Null is not allowed; default display 0.0.0.0; support for dynamic variables (string variables)
Port	Null is not allowed; default display 5900; range 0-65535; supports dynamic variables (8-64 bits)
Password	Null is allowed; maximum 15 characters; numeric input only; support for dynamic variables (string variables)
Trigger	Unchecked by default; when unchecked, entering the screen of client components with VNC will enable client connection to the server by default; When checked, it can be associated with bit variables (bit, bool, take bit from word, etc.);can be associated with the check box; 1: enable, 0: disable.
Connect state	Unchecked by default; can associate numeric variables (8-64); =0, indicates initialization and shutdown =1, indicates connection error =2, indicates wrong password =3, indicates running error

	=4, indicates normal connection When disconnected, the client displays the preview background image of the upper computer, and the connection status changes to 0. In the case of unchecked [Trigger] and the value of [Trigger] is 1, reconnection is always performed. When reconnecting, the client refreshes the server interface and the connection status changes synchronously; When the password does not match, the connection status also changes.
Adjust	Unchecked by default; When unchecked, the original size of the server-side HMI resolution is displayed, and there is a scroll bar when the display exceeds the component; When checked, the server-side HMI is adaptively displayed within the component, and there is no scroll bar.
System keyboard	Unchecked by default; When unchecked, the pops up keyboard by clicking on numerical input and other operations are equal proportional display in the VNC client component; When checked , the VNC client component in the suspension of the system keyboard icon, click on the icon in the HMI pop-up system keyboard
History connection	Gray by default, can only be checked when dynamic IP or dynamic password is checked; Record the IP, password and port number of the current HMI connection to the VNC client successfully; When checked , the VNC client of the lower machine will display a floating button for historical connections, click on the floating button to pop up a list of historical connections; When selecting one option, close the current connection first, then switch connections and display it; Display up to 10 records, if exceeded, delete the earliest record.
Title bar	Displays the title bar of the VNC client component and opens the title properties to set its own content.

2.Display set

VNC Client-Display Setting Description	
Location	Set whether the position of the component is locked
Size	Set the size of the component and calculate the corresponding width or height in proportion. Proportion is the ratio of width and height before [Fixed Ratio] is selected. The component is dragged on the screen to zoom in and out according to the proportion; After [Fixed Ratio] is selected, component will same proportion to zoom in and out.

8.9.5 Web browser

The web browsing component is often used for compatibility with other three-way monitoring systems, such as PLC control systems, equipment monitoring systems, etc. The advantages are fast system monitoring and reduced development cycles. The advantages are fast system monitoring and reduced development cycles. With web browsing components, a preset URL address can be embedded in the component, or the user can specify a URL to go to.

8.9.5.1 Base Property

Web browser[WB_0001]

Base Property

Display Set

Network address

URL defaults

https://en.kinco.cn

Access Security

Standard protection

Web page control

Function	Component type
☒ Forward/Backward	☒ Default ☐ Custom
☒ Load control	☒ Default ☐ Custom
☒ URL	☒ Default ☐ Custom
☒ Scale	☒ Default ☐ Custom
☒ Load state	☒ Default ☐ Custom
☒ Input keyboard	☒ Default

☐ Show title bar

Toolbar background color

Web Browse-Basic Property Description

Network address	URL defaults	Enable the default web address to be opened after loading; null is not allowed; default is: https://www.altus.com.br/
	Access Security	【Standard protection】: default selection, based on standard web https security access certificate visa; 【No protection】: After selected, when HMI accesses the "Self owned Visa" web server, the security level is lowered to allow normal access
Web page control	Forward/Backward	According to the history list, control the web page forward and backward to the target url address;
		Can be associated with a custom variable control: associated variable type uint: 0 - not triggered, 1 - forward, 2 - backward;
		If loading is turned off, the forward/backward buttons are grayed out and touch control is invalid; custom variable control modifications are invalid; The history list length is reserved for 10. That is, up to 10 address records can be saved; Notes: 1. If you enter the same address or empty address, it is not recorded in the history list. 2. Power off and restart, clear the history list; 3. Project page turn does not affect list records;
	Load control	When turned on, it initiates web page loading and triggers an automatic loading action based on the target URL address;

		Can be controlled with custom variables: association variable bit, bool type, 0=off loading, 1=start loading.
	URL	Used to display url address, can edit and modify the target address;
		Can be controlled using a custom variable: associated string type; Note: When a custom variable is associated, the load page event is triggered only if its variable value changes;
		For outbound/inbound links, the same page window is shared (no extra tabs are created) and the search bar shows the corresponding link URL address;
	Scale	Used to display the current web page display ratio;
		Use the default built-in controls: display range [25%~500%], each plus or minus, the fixed adjustment ratio is as follows (default 100% display): 25% (minimum value), 50%, 75%, 100% (default value), 125%, 150%, 175%, 200%, 300%, 400%, 500% (maximum value)
		1. Optional customized variable control: associated variable uint type, according to the user input the actual value of the display of the corresponding ratio (adjustable ratio interval 1% count) Note: 1. When displaying the ratio customized associated variable, if the write exceeds the extreme value, it will be displayed according to the maximum/minimum value, and the null value (0) = 100% by default;
	Load state	Used to display the current state when loading;
		Custom variables can be used to control: joint variable uint, according to the loading event corresponds to the loading state below the assignment, the user manual input is invalid. 1. not started: no start = 0, shown when the switch is not started. 2. ready: ready = 1, displayed when the switch has been turned on, but did not trigger the loading event, or has completed loading. 3. loading: loading = 2, displayed when the loading process is executed. 4. loading error: error = 3, the page failed to load.
	Input keyboard	Once enabled, only the default style (i.e. the system keyboard) may be selected. When a webpage triggers an input control to enter input mode, the system keyboard window will appear.
Display window title	Display the title bar of the window element, check it to set the title properties (font color, font size, whether to use text, language, etc.).	
Toolbar background color	Setting the toolbar background color	

8.9.5.2 Display Set

Web Browsing-Display Set Descriptions

Location	Sets whether the position of the component is locked or not
Size	Set the size of the component and calculate the corresponding width or height proportionally. Proportion is the ratio of width and height before [Fixed Aspect Ratio] is checked; the component is dragged on the screen to zoom in and out according to the proportion; after checking the same proportion to zoom in and out.



1. Only supports F2 models.
2. Offline simulation and independent desktop operation are not supported.
3. Web browsing components are prohibited in the public window;
4. Only one web component is allowed on one screen;
 - ① Altus DToolsPro uploader restricts the number of components so that when an overlapping window is set, only one web browser component is allowed to exist on that screen or overlapping screen;
 - ② If the lower computer pop-up window exists web browsing components, the current window and the pop-up window only one web browsing allowed to open the load;
5. When using the web function, you need to make sure that the screen and the server time are almost the same, otherwise it may lead to loading failure;
6. When using the web function, the screen needs to be configured with a dynamic IP or use a static IP to configure DNS;
7. It is normal that more complicated web pages may load slowly due to the performance of the screen;

9 IOT

Note: The VPN service supports up to 10 simultaneous HMI connections.

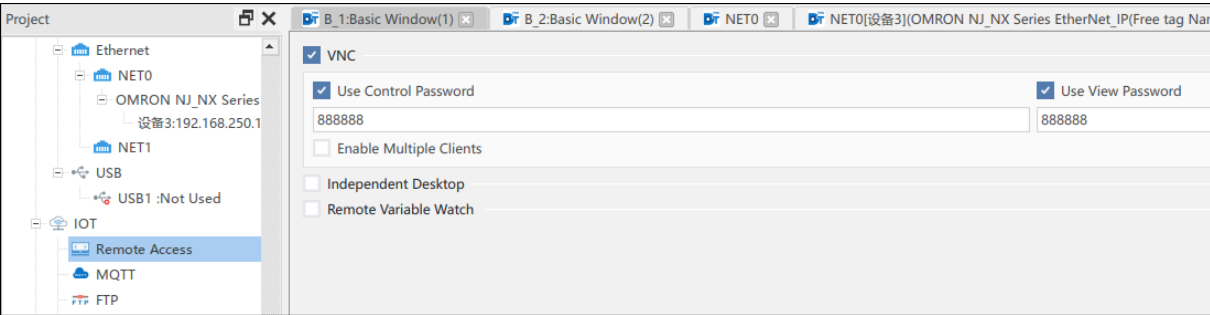
9.1 VNC

VNC is an abbreviation for Virtual Network Computer, which is a screen sharing and remote operation software that uses the RFB protocol. This software can transmit keyboard and mouse movements and real-time screen images through the network.

The VNC system consists of a client, a server, and a protocol. The server's purpose is to share the screen of the machine it is running on. The server passively allows the client to control it, while the VNC client (or Viewer) observes and controls the server, interacting with it.

VNC is independent of the operating system, so it can be used across platforms. Altus enables the VNC function by using the touch screen as a server, which can be remotely accessed by remote devices (such as PCs, mobile phones, etc.) to obtain images or data.

Note: F1 series screens do not currently support this feature.



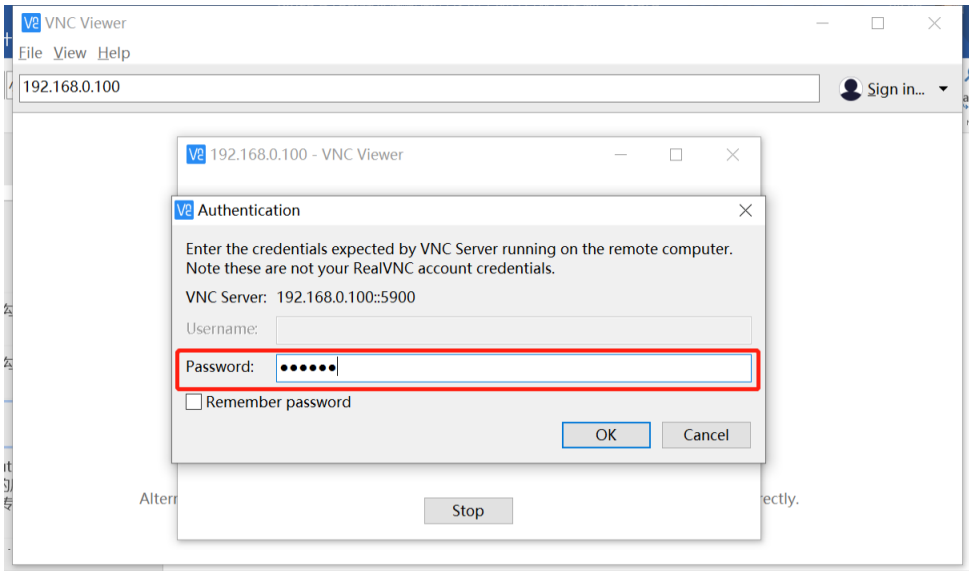
VNC Setting Descriptions

Check VNC to enable VNC function (support client and web function):

- 1. Client port number is 5900 by default
- 2. Browser port number is 5800 by default (just enter: screen IP:5800 at the browser web address)

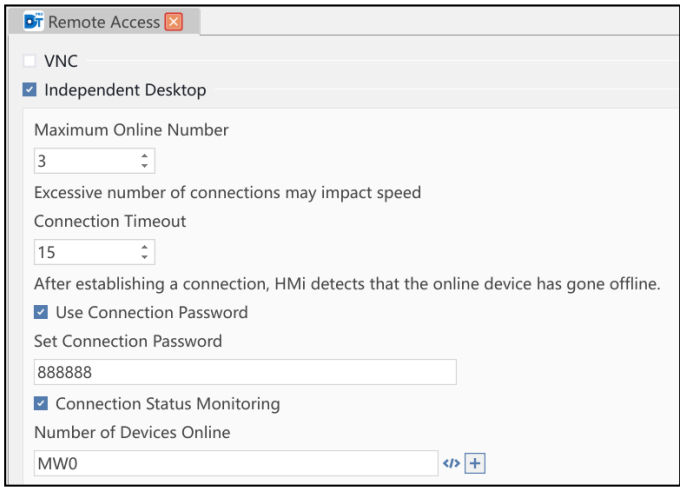
Use Control Password	Can operate and view HMI
Use View Password	Can monitor HMI but cannot operate it
Enable Multiple Clients	Using multiple client connections simultaneously. Attention: Too many clients can affect the operation of HMI

As shown in the following figure, you can use VNC client to bind the IP address of the screen during operation. Enter the password to achieve screen monitoring and operation.



9.2 Independent Desktop

The independent desktop is different from VNC. It supports mobile phone and tablet client APP to connect with the screen. It can operate the interface independently and independently from the screen operation. It is asynchronous. It can be understood that the mobile phone or tablet is regarded as an independent touch screen device. After setting the number of connections and connection password, download DTPView.apk and install it

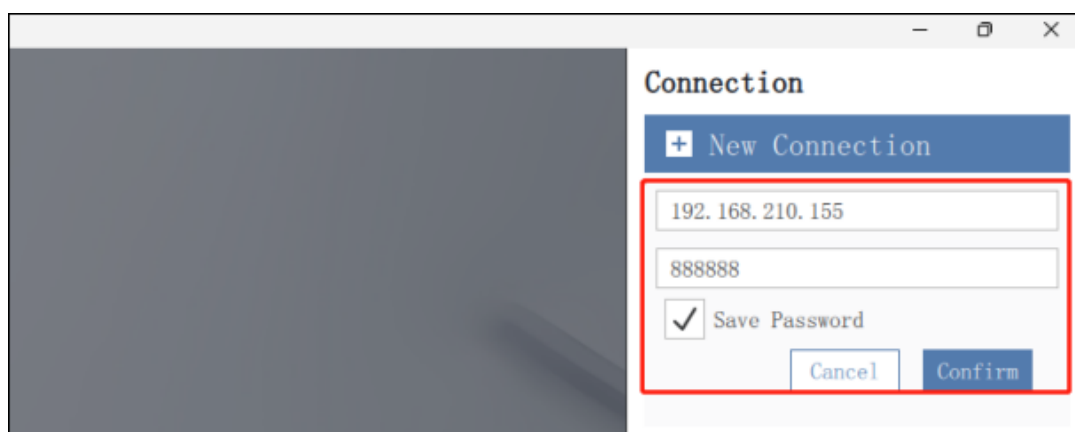


Individual Desktop Setup Descriptions		
Maximum Number	Online	The range is 1-7, too many connections will affect the speed
Connection Timeout		Range is 3-3600, default is 15s
Connection Password		Default unchecked, unchecked means no password
Connection Monitoring	Status	Default unchecked, after checking the need to associate variables, readable and writable, but write the value does not take effect, statistics on the number of real-time online devices

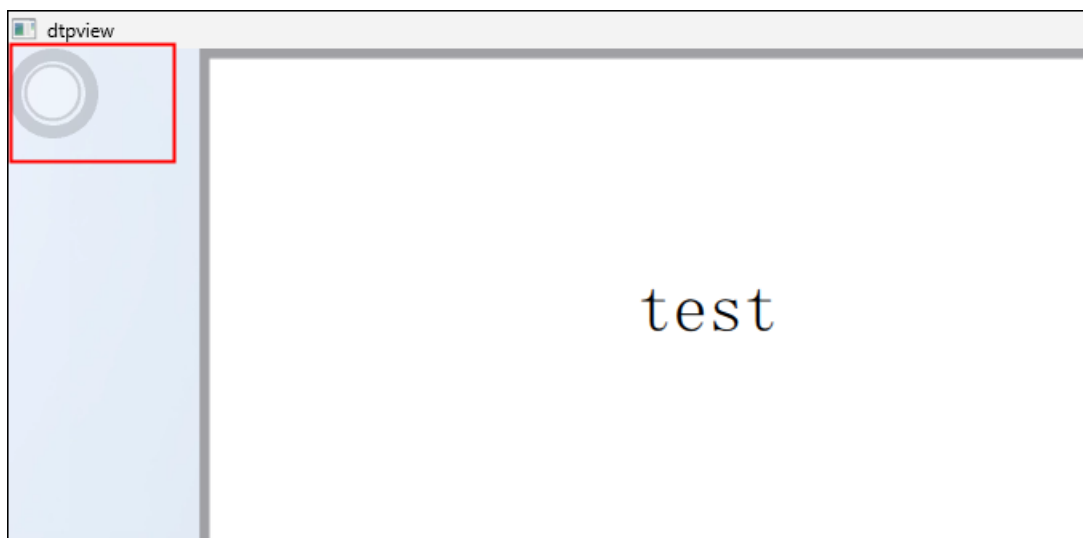
When installing an APP, please make sure to enable the background running permission of the APP and turn off the power saving mode. If it is a Redmi tablet, it is best to turn off the power saving strategy.

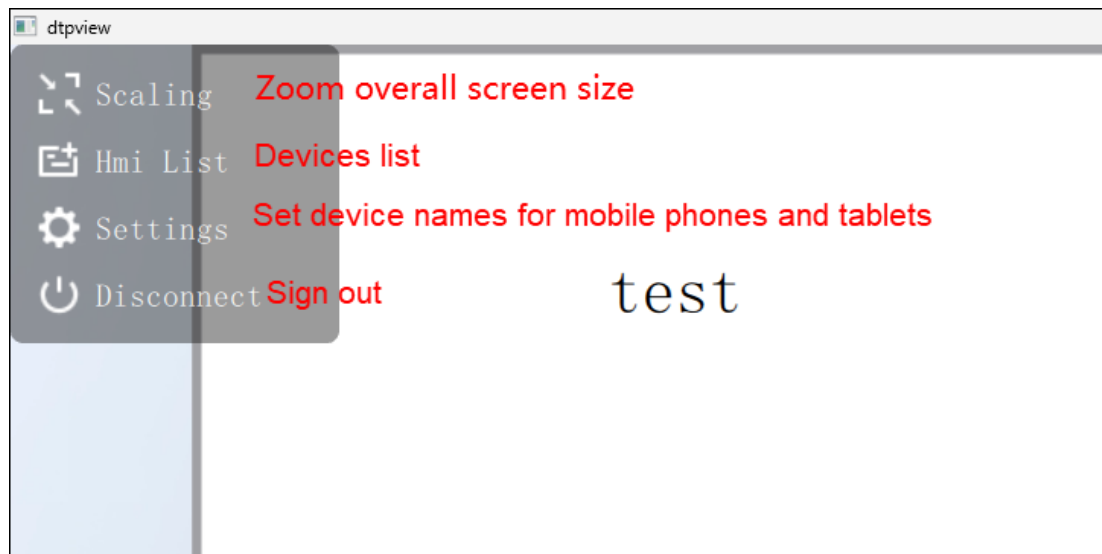


Enter the IP address and online password on the screen



Click on the floating ball in the upper left corner to perform the following operations

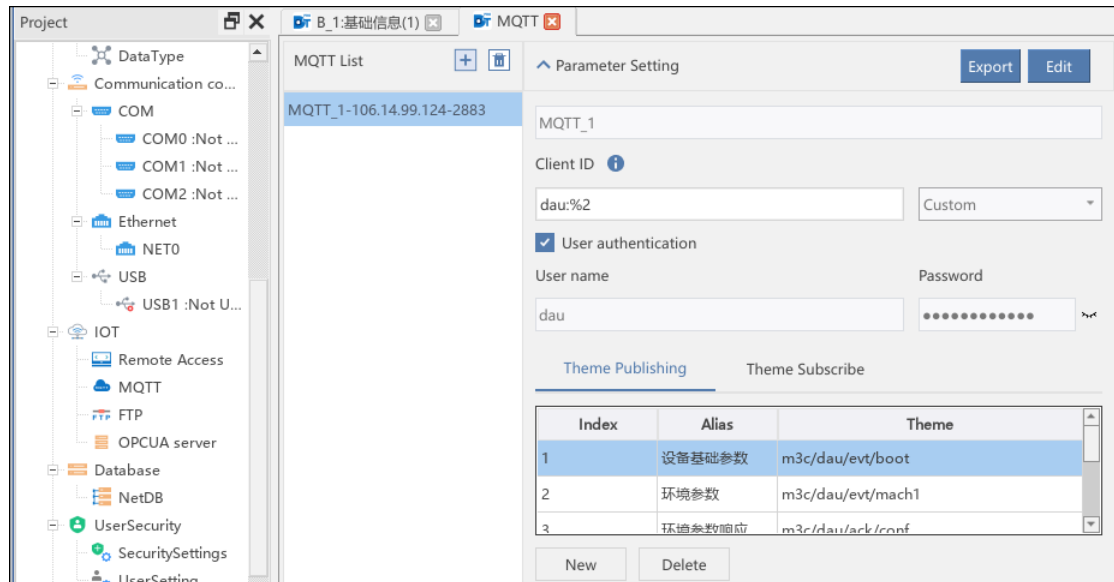




Attention: After zooming in and out, the screen cannot be touched. You need to click on the hover ball again to restore touch

9.3 MQTT

MQTT (Message Queuing Telemetry Transport) is a lightweight message protocol based on the publish/subscribe paradigm. It is suitable for remote devices with low hardware performance and environments with poor network conditions. Therefore, MQTT protocol has a wide range of applications in IoT (Internet of Things), small device applications, mobile applications, and other fields. Advantages: Low code volume, low overhead, low bandwidth usage, instant messaging protocol



9.3.1 MQTT Configuration

The screenshot shows the 'Edit MQTT' configuration window. The settings are as follows:

- MQTT Name:** MQTT_1
- Standard MQTT:** Standard MQTT
- MQTT V3.1.1:** MQTT V3.1.1
- IP Address:** 106 . 14 . 99 . 124
- Use domain name:** ☐
- Port:** 2883
- Client ID:** dau:%2
- Custom:** Custom
- User authentication:** ☒
- User name:** dau
- Password:** [Masked]
- Extension Settings:**
 - Time stamp:** HMI time
 - Server heartbeat cycle (s):** 60
 - Automatic online idle time:** ☒
 - Maximum idle time (s):** 60
- Message format:**
 - Default:** ☐
 - Customize:** ☒
 - Buttons:** Publish, Subscribe
 - The publish/subscribe format is the same:** ☐
- Server state:**
 - Server state:** ☒
 - 连接状态:** [Text field]
 - Error notification:** ☒
 - 错误码:** [Text field]

MQTT Setting Descriptions		
describe	Describe the server and can be modified	
Standard MQTT	Select the corresponding MQTT protocol version to support MQTT V3.1, V3.1.1, V5	
IP address	Set the IP address/domain name of the MQTT server that receives the information. If the input IP address is 127.0.0.1, the local HMI will be used as the server.	
Port	Set the MQTT server port number that receives information, default 1883	
Client ID	The default is random code %3; user can customize it, and %2 represents the device serial number when customizing it. Note: 1.%%: character %; when entering a static identifier, there must be % before the content. 2. Please confirm whether the server supports more than 23 characters	
User Authentication	Consistent with the server's username and password settings	
Extended settings	Timestamp	Optional HMI local time, UTC time
	Server heartbeat cycle	Access the server's connection status according to the set period
	Automatic online idle	Disconnection and reconnection time should mean that the

	time	connection is disconnected due to network fluctuations and other conditions, and the connection is reconnected after a certain period of time. Unit: s, default 60s
Message format	Default	The standard json message format is used by default, and the values corresponding to "d" and "ts" are used, as follows: <pre>{ "d":{ "Item Value 1":50, }, "ts": }</pre>
	Customize	The message format can be customized, and the published and subscribed messages can also be set separately. The publish/subscribe format is the same: after checking, you can only set the publishing message, and the subscription message format is the same as the publishing message.
Server State	Bind variables to monitor online status. =0, stop the online MQTT server; =1, the MQTT server is disconnected; =2, the MQTT server is online	
Error notification	The binding variable displays the execution result. =0, no errors; =1, the protocol version is not supported; =2, the client ID is rejected; =3, server or network problem; =4, the user name or password is wrong or the user is not authorized; =5, the agreement is violated; =6, unknown error; =7, MQTT5 specific error;	

9.3.2 MQTT theme publish

MQTT Theme Release Notes

Theme property	The topic description can be modified arbitrarily, equivalent to an alias, default to topic1,2,3		
	theme	Message sending, topics received by MQTT server	
		Notice: 1. Enter static % and the format needs to enter "%%"; 2. Enter dynamic string, content format %(DYNAMIC). When %(DYNAMIC) is entered into the topic, dynamic string control address settings will appear on the edge of the topic attributes; 3.%2 (device name)	
	Send mode	Trigger alarm	Send a message to the server when the selected alarm is triggered
		Trigger variables	The contents of the monitoring address are sent when the bit register is triggered
Triggered when data changes		Automatically send when the content of the register address in the parameter list changes	
Triggered after successful connection		Send message once when the server connection is successful	
Transfer settings	Standard MQTT has three types of message publishing service quality, namely: to ensure the number of messages delivered. 0: "At most once", that is: <=1, message publishing completely depends on the underlying TCP/IP network. Messages may be lost or duplicated. This level can be used in the following situations: it doesn't matter if the environment sensor data is lost once, because there will be a second sending in the near future. 1: "At least once", i.e. >=1, ensure that the message arrives, but message duplication		

		may occur. 2: "Only once", i.e.: =1, make sure the message arrives once. This level can be used in cases where duplication or loss of messages can lead to incorrect results in billing systems.
	Content format	Json
		Default Json format
		Contain time stamp
		Using Json format, you can choose whether the published information should contain a time stamp
		Message format use character "d"
		You can choose whether the information you publish should include the "d" symbol
		Use customize message format
		Users can set the content of the message they want
Parameter list	Show all defined topic addresses	

9.3.3 MQTT theme subscribe

MQTT Theme Subscription Descriptions

Theme property	The topic description can be modified arbitrarily, equivalent to an alias, default to topic1,2,3	
	theme	Subscribed from MQTT server topics
		Notice: 1. Enter static % and the format needs to enter "%%"; 2. Enter dynamic string, content format %(DYNAMIC). When %(DYNAMIC) is entered into the topic, dynamic string control address settings will appear on the edge of the topic attributes; 3.%2 (device name)
	Transfer settings	Standard MQTT has three types of message publishing service quality, namely: to ensure the number of messages delivered. 0: "At most once", that is: <=1, message publishing completely depends on the underlying TCP/IP network. Messages may be lost or duplicated. This level can be used in the following situations: it doesn't matter if the environment sensor data is lost once, because there will be a second sending in the near future.

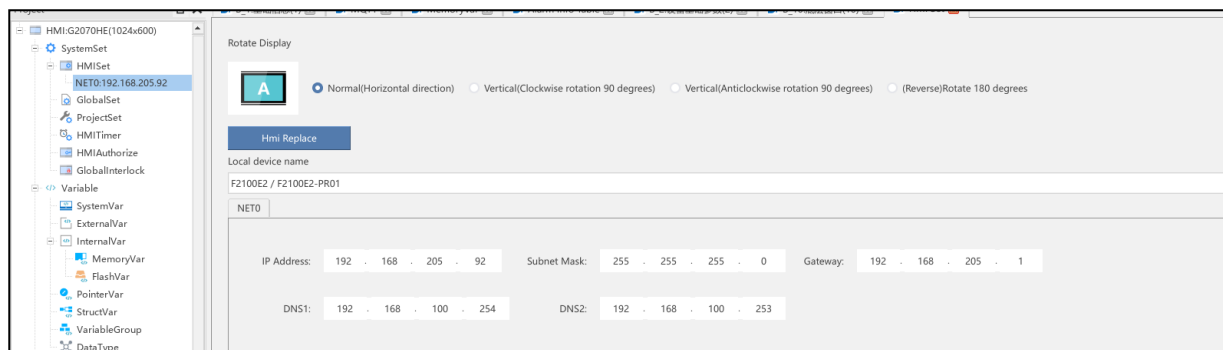
		1: "At least once", i.e. ≥ 1, ensure that the message arrives, but message duplication may occur. 2: "Only once", i.e.: $=1$, make sure the message arrives once. This level can be used in cases where duplication or loss of messages can lead to incorrect results in billing systems.	
	Content format	Json	Default Json format
		Check time stamp	Under the custom message settings, the user can decide whether to verify the timestamp. This function will take effect only if the message has a timestamp, otherwise it will be deemed to be unchecked. The check mark indicates that the received data must be strictly incremented before it will be updated, otherwise it will be judged to be outdated and not updated.
		Use customize message format	Users can set the content of the message they want
Parameter list	Show all defined topic addresses		

9.3.4 For Example

Take G2070HE and MQTTX software communication as an example

HMI settings:

1) Set up the HMI network, set up the gateway, and make sure the screen can connect to the external network normally. If you use a domain name to connect to the server, you need to set up DNS



2) Click the menu bar [Internet of Things]-[MQTT], click Create New MQTT, and set the IP and port number of the MQTT server. The IP of the server in this example is: 192.168.205.43, the port number is: 1883,username:admin,password:admin

Edit MQTT

MQTT_1

Standard MQTT

MQTT V3.1.1

IP Address: 192 . 168 . 205 . 43

Port: 1883

Client ID: %3

Random code

☒ User authentication

User name: admin

Password: admin

3) Add corresponding topic information in the topic publishing. Taking the trigger variable sending mode as an example, add the desired published parameters in the parameter list.

MQTT theme publish

Theme property | Parameter list

触发发布

Theme: mqtt/%2

Send Mode: Trigger variable

Trigger type: OFF->ON

Trigger variable: 主题发布

Transfer settings: QoS: 0

Content Format: Data format: JSON

☒ Contain time stamp

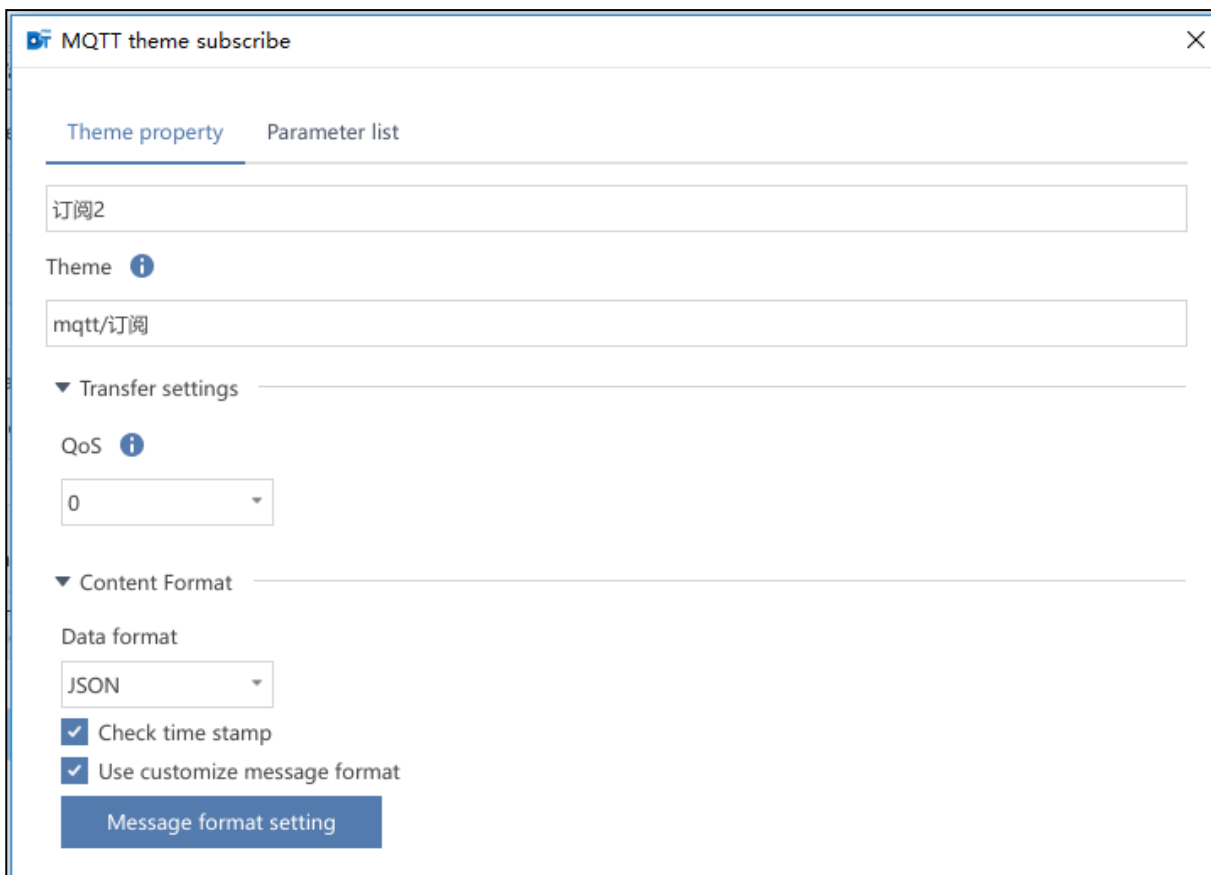
Seconds starting from 1970-01-01

☒ Message format use character "d"

☐ Use customize message format

Message format setting

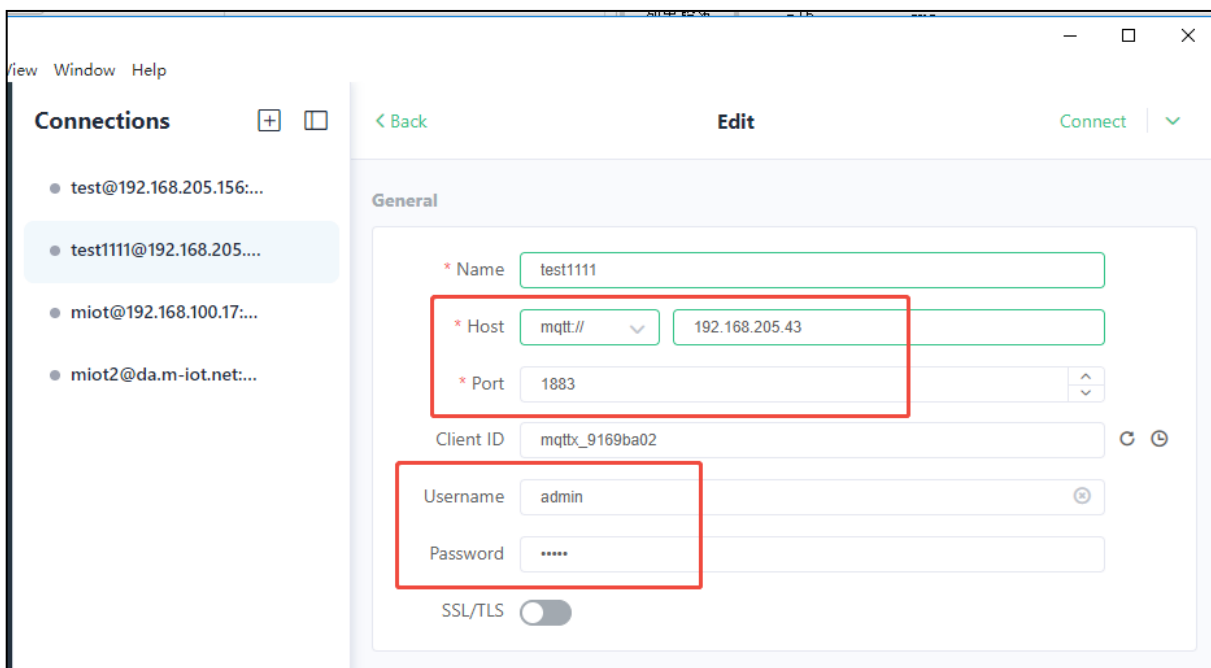
4) Add corresponding topic information to the topic subscription, topic name: mqtt/subscribe, add the parameters you want to subscribe in the parameter list



The image shows a dialog box titled "MQTT theme subscribe". It has two tabs: "Theme property" (selected) and "Parameter list". Under "Theme property", there is a text input field containing "订阅2". Below it is a "Theme" label with an information icon and a text input field containing "mqtt/订阅". There are two expandable sections: "Transfer settings" and "Content Format". Under "Transfer settings", there is a "QoS" label with an information icon and a dropdown menu set to "0". Under "Content Format", there is a "Data format" label and a dropdown menu set to "JSON". Below the dropdowns are two checked checkboxes: "Check time stamp" and "Use customize message format". At the bottom is a blue button labeled "Message format setting".

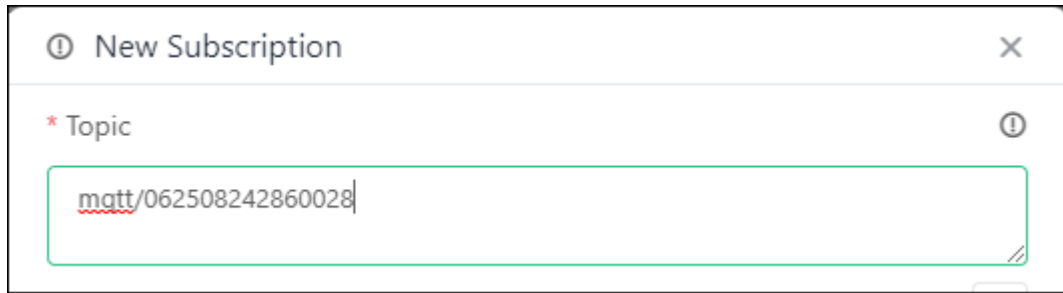
Configuring MQTTX software

1) Enter the server IP: 192.168.205.43, port number: 1883, user name: admin, password: admin, and click Connect

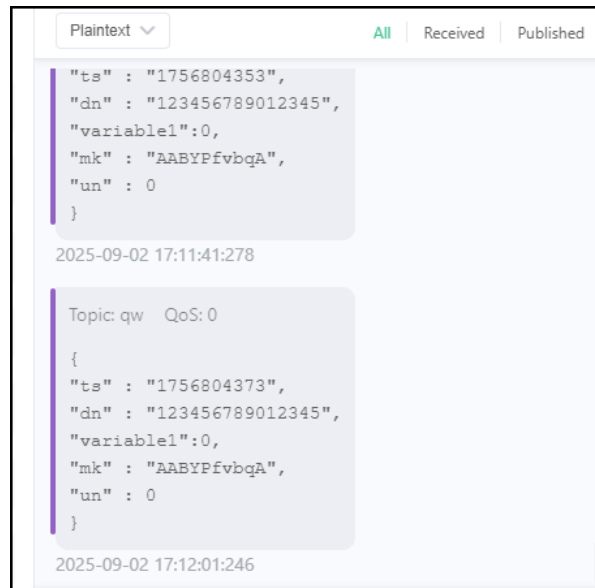


The image shows the MQTTX software configuration window. On the left is a "Connections" list with four entries: "test@192.168.205.156...", "test1111@192.168.205...." (selected), "miot@192.168.100.17...", and "miot2@da.m-iot.net:...". The main area is titled "Edit" and has a "General" tab. It contains several fields: "Name" (test1111), "Host" (mqtt:// 192.168.205.43), "Port" (1883), "Client ID" (mqtx_9169ba02), "Username" (admin), and "Password" (masked with dots). There is an "SSL/TLS" toggle switch at the bottom. Red boxes highlight the "Host", "Port", "Username", and "Password" fields.

2) Add a subscription and enter the topic. Note: The topic is consistent with the topic name published by the topic in the HMI software, and modify %2 to the device name that is actually corresponding to the measured G2070HE. If the device name of the screen is 062508242860028, then the Topic input here: mqtt/062508242860028

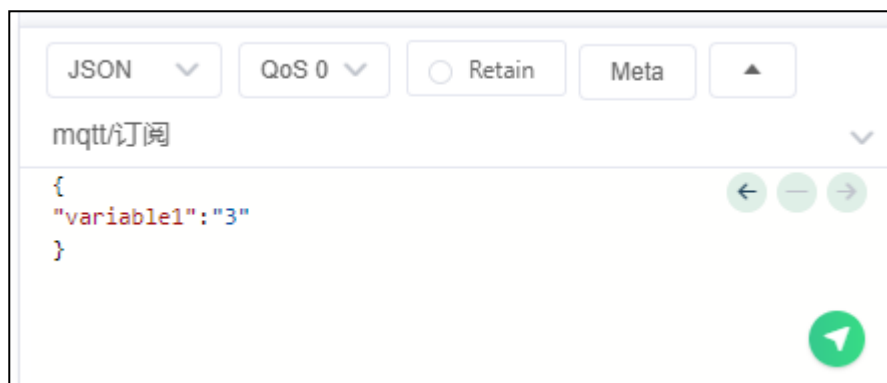


After the addition is completed, the MQTTX software will receive data when the release trigger is released in HMI.



3) MQTTX software sends topics, note that Topic is consistent with the subscription settings in HMI software. The topics for topic subscriptions in DTools Pro software: mqtt/subscribe, then the topics published in MQTTX software must also be set to: mqtt/subscribe. The sent format supports the standard json format, as follows:

```
{
  "variable1": "3"
}
```



9.4 FTP

FTP (File Transfer Protocol) is one of the protocols in the TCP/IP protocol group. The FTP protocol consists of two components, one is the FTP server, and the other is the FTP client. The FTP server is used to store files, and users can use the FTP client to access resources located on the FTP server through the FTP protocol. The following describes the settings for accessing other servers using the touch screen as an FTP client

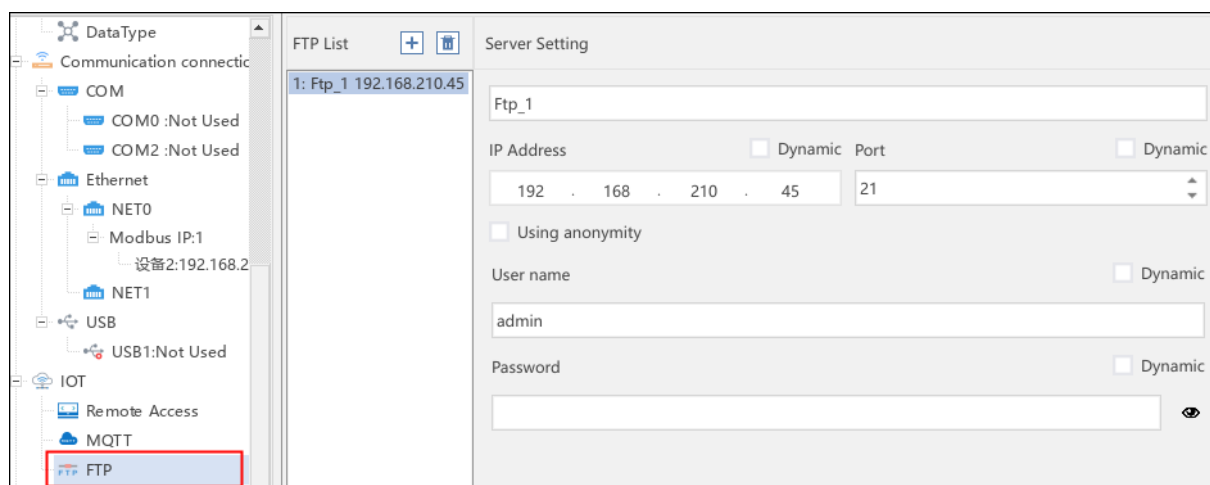
FTP Server Setting Descriptions

The description can be edited arbitrarily, the port number defaults to 21

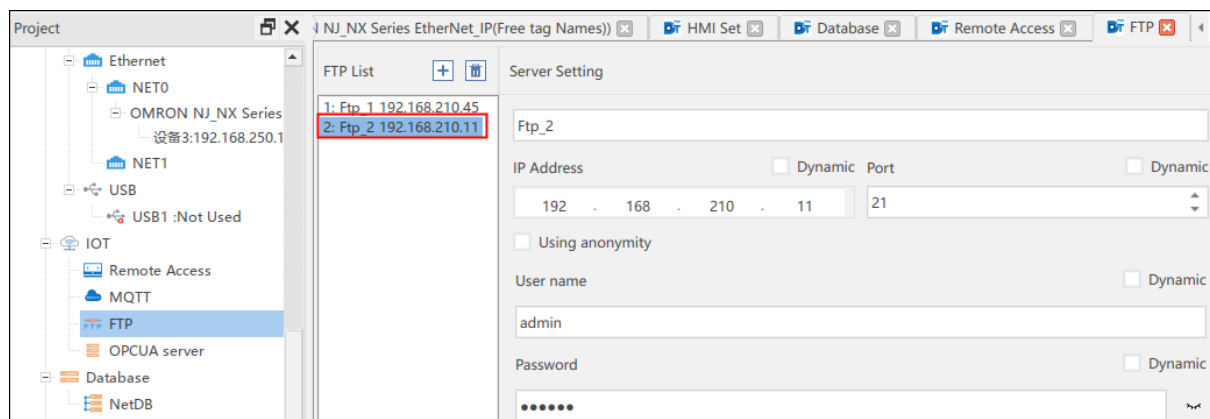
IP Address	Consistent with the IP of the server, check to modify the IP by using the value of a dynamically settable string variable
Using anonymity	For servers with anonymous access, you can check this option for anonymous access
User Name	Consistent with the username set by the server, check to modify the username by using the value of a dynamically settable string variable
Password	Consistent with the password set by the server, check the option to modify the password using the value of a dynamically settable string variable

Example of scenario application:

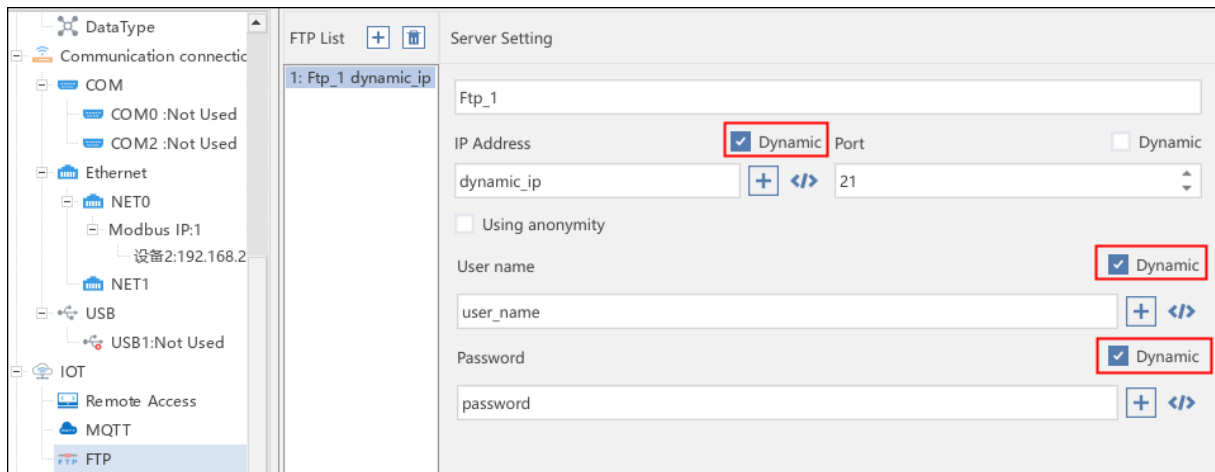
As shown in the figure, edit the IP, port number, username, and password to match the server settings



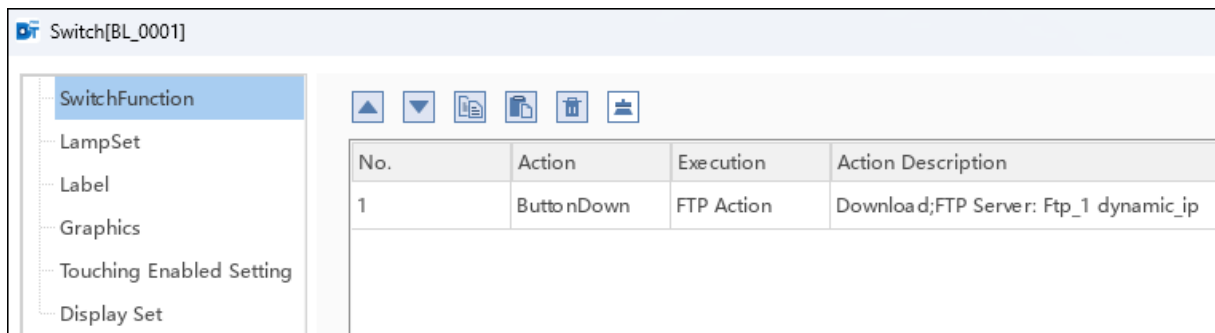
If you want to access multiple servers, you can create a new one in the FTP list



You can also switch servers for access through dynamic IP/username/password, all of which have string variables



When switching server access, after modifying these three variables, trigger the FTP transfer action to access the new server



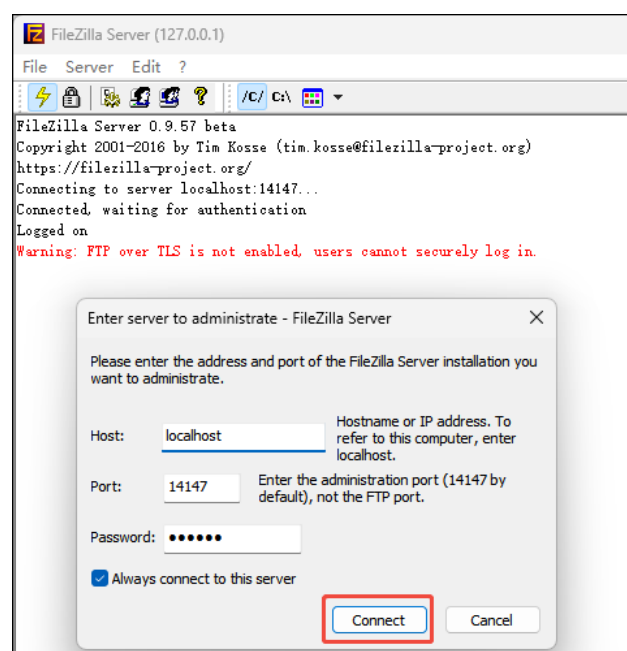
Please refer to ["8.3.13 FTP Action Set"](#) for detailed Descriptions on FTP action upload/download settings

Example of accessing server computer

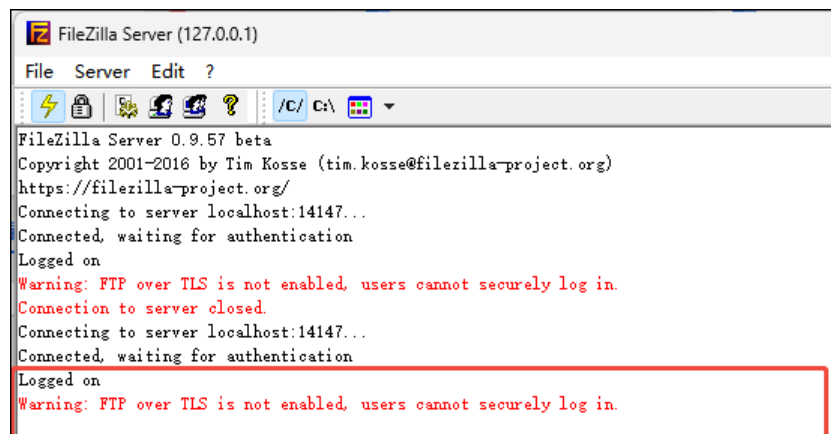
Recommend installing Filezilla Server Interface visualization server on the computer

9.4.1 Server configuration

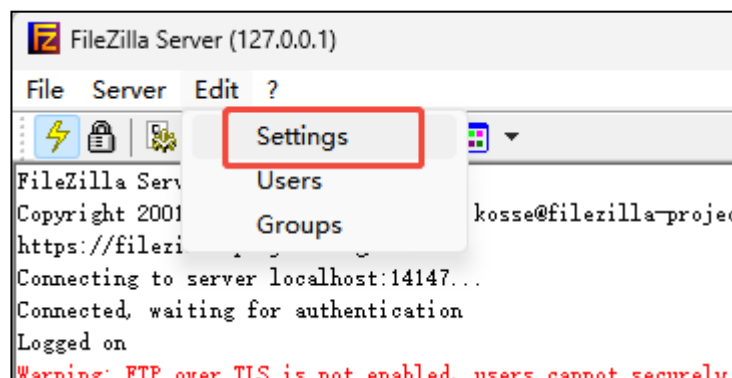
1.No need to set a password, just the default one. Click connect



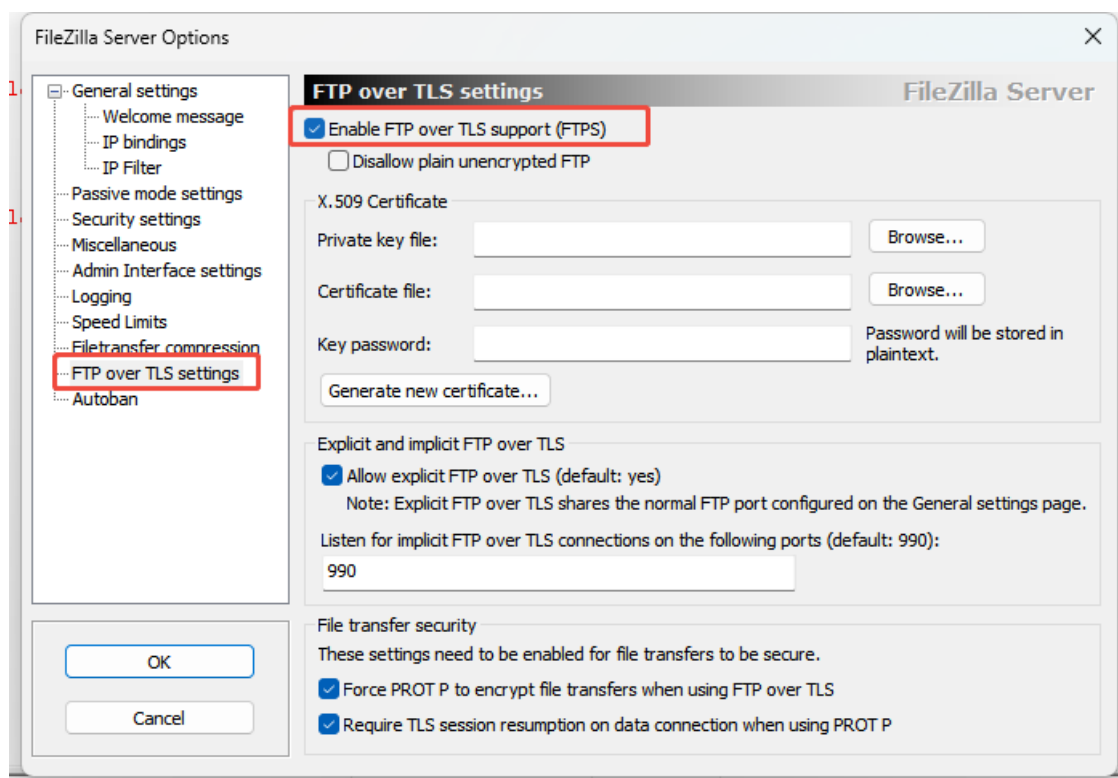
2.Red error prompt, no need to worry, continue configuring



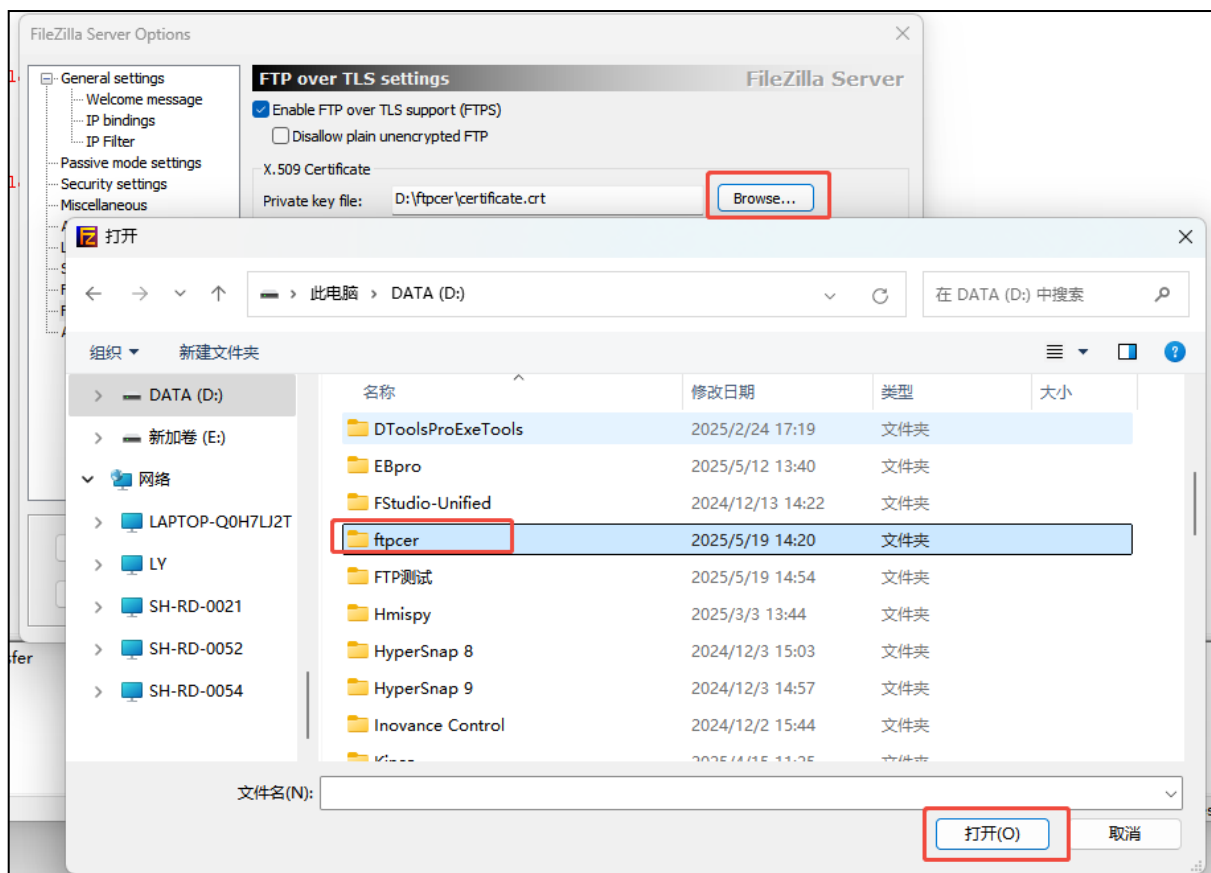
3.Click Edit--Settings



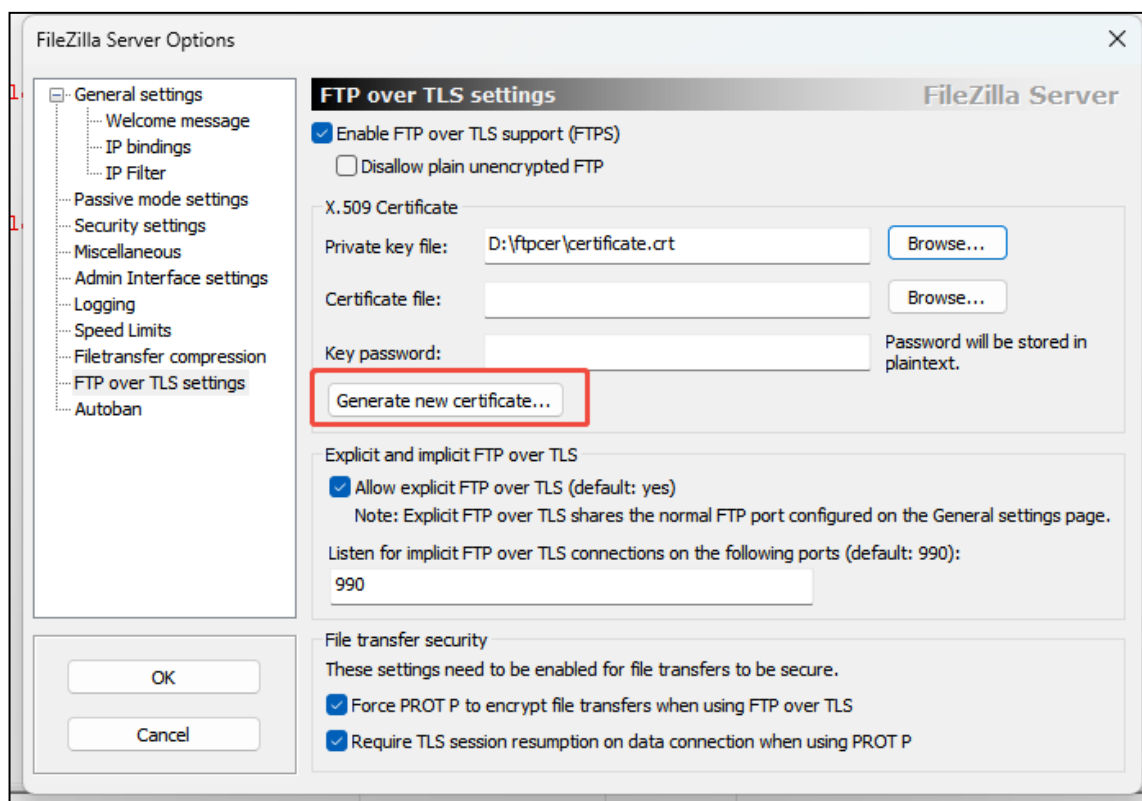
4.SSL/TSLsettings

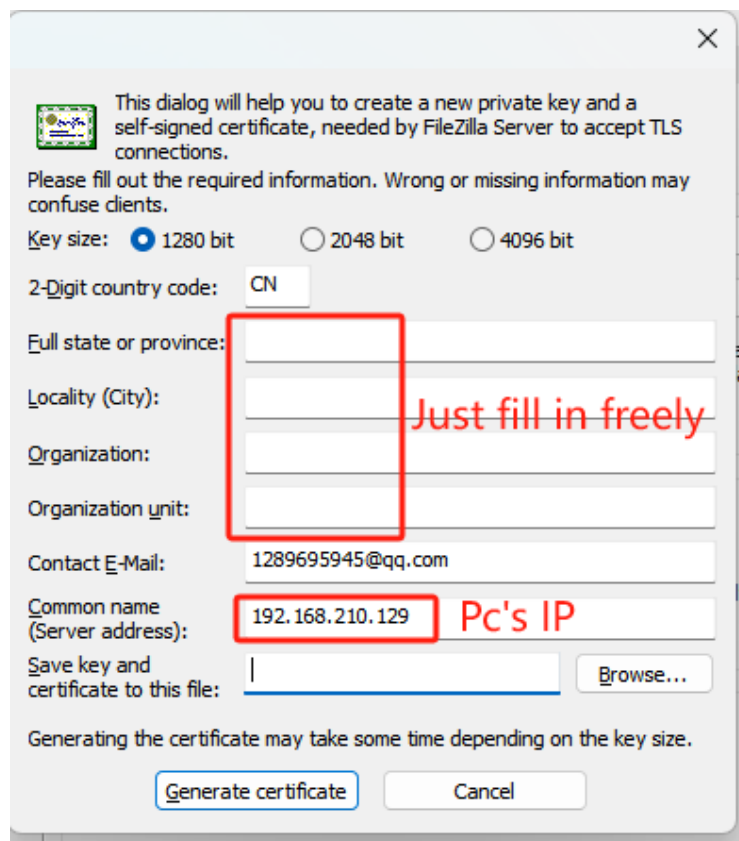


5.Click Browse and create a new folder to store the private key, please note that the folder name cannot contain Chinese characters



6. Click Generate new certificate





This dialog will help you to create a new private key and a self-signed certificate, needed by FileZilla Server to accept TLS connections.

Please fill out the required information. Wrong or missing information may confuse clients.

Key size: ☒ 1280 bit ☐ 2048 bit ☐ 4096 bit

2-Digit country code: CN

Full state or province:

Locality (City):

Organization:

Organization unit:

Contact E-Mail: 1289695945@qq.com

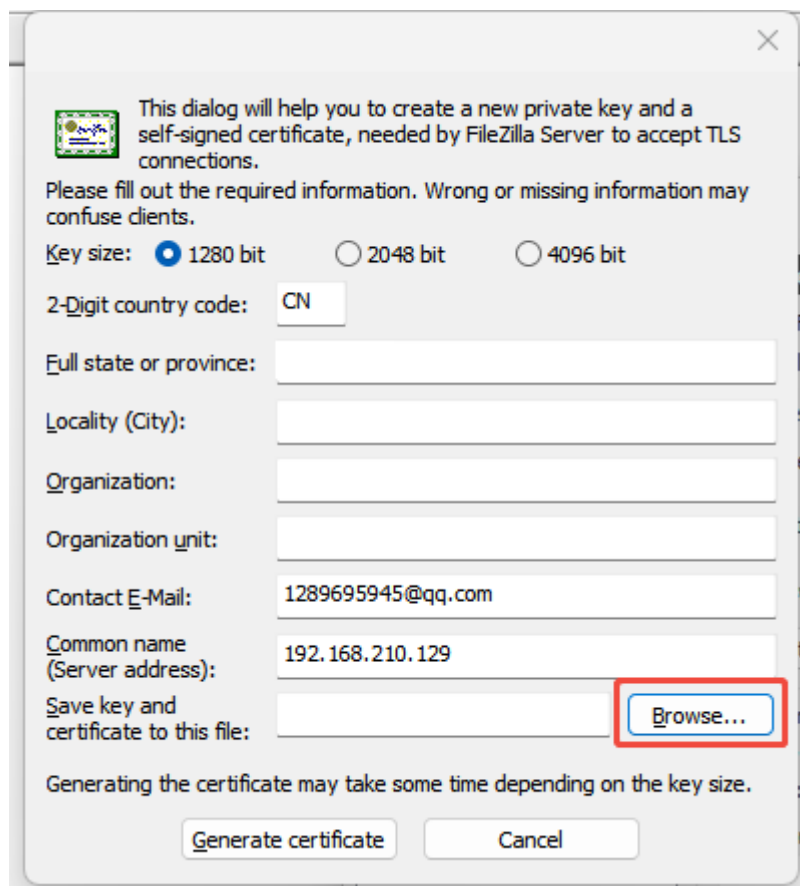
Common name (Server address): 192.168.210.129

Save key and certificate to this file: Browse...

Generating the certificate may take some time depending on the key size.

Generate certificate Cancel

7. Click Browse to associate with the previously set folder for storing certificates



This dialog will help you to create a new private key and a self-signed certificate, needed by FileZilla Server to accept TLS connections.

Please fill out the required information. Wrong or missing information may confuse clients.

Key size: ☒ 1280 bit ☐ 2048 bit ☐ 4096 bit

2-Digit country code: CN

Full state or province:

Locality (City):

Organization:

Organization unit:

Contact E-Mail: 1289695945@qq.com

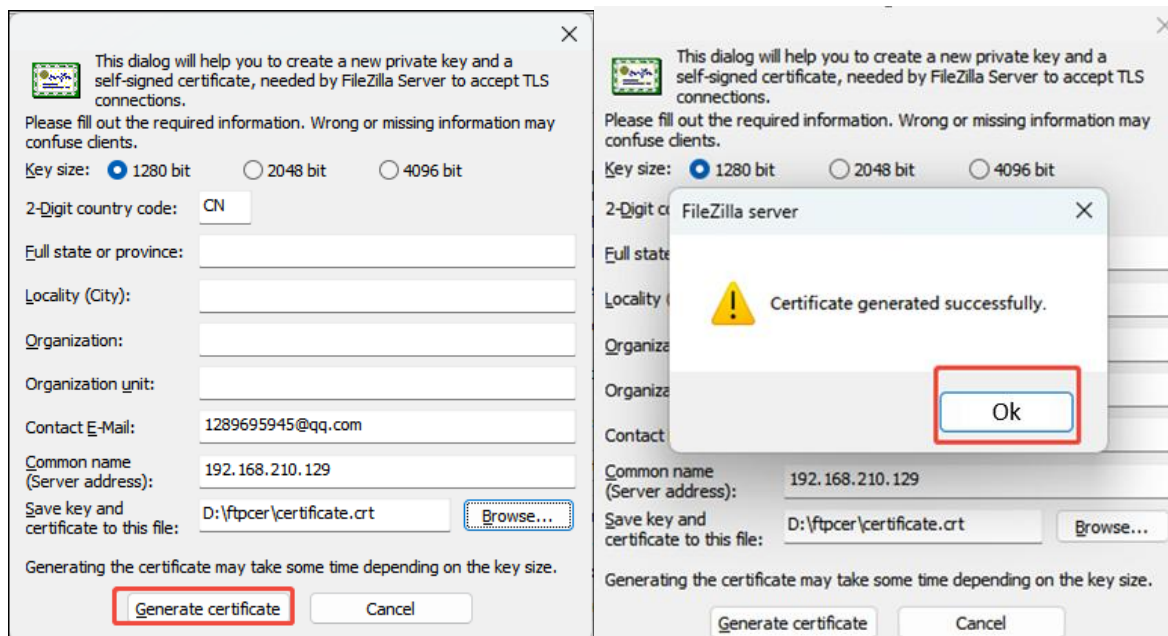
Common name (Server address): 192.168.210.129

Save key and certificate to this file: Browse...

Generating the certificate may take some time depending on the key size.

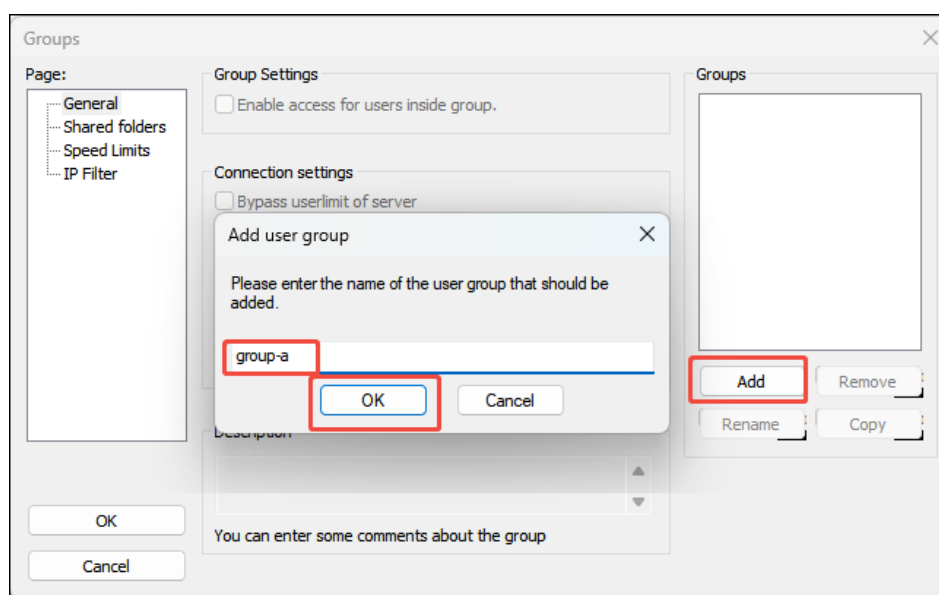
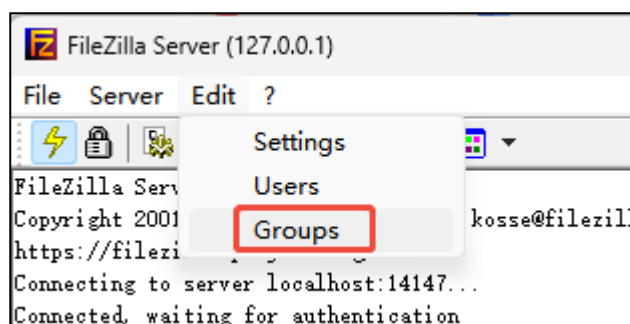
Generate certificate Cancel

8. Click Generate new certificate

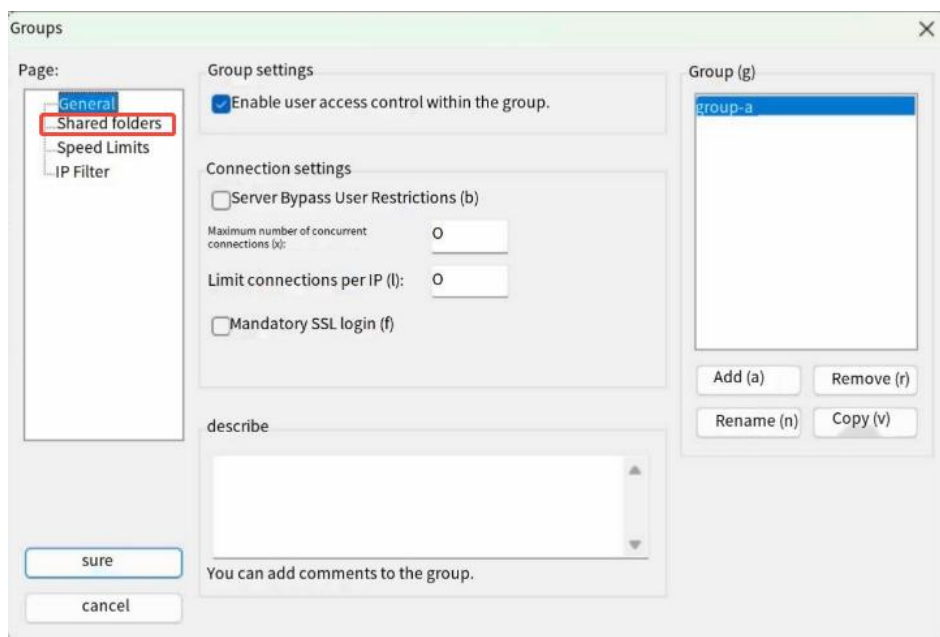


9. Create user groups and their shared file paths

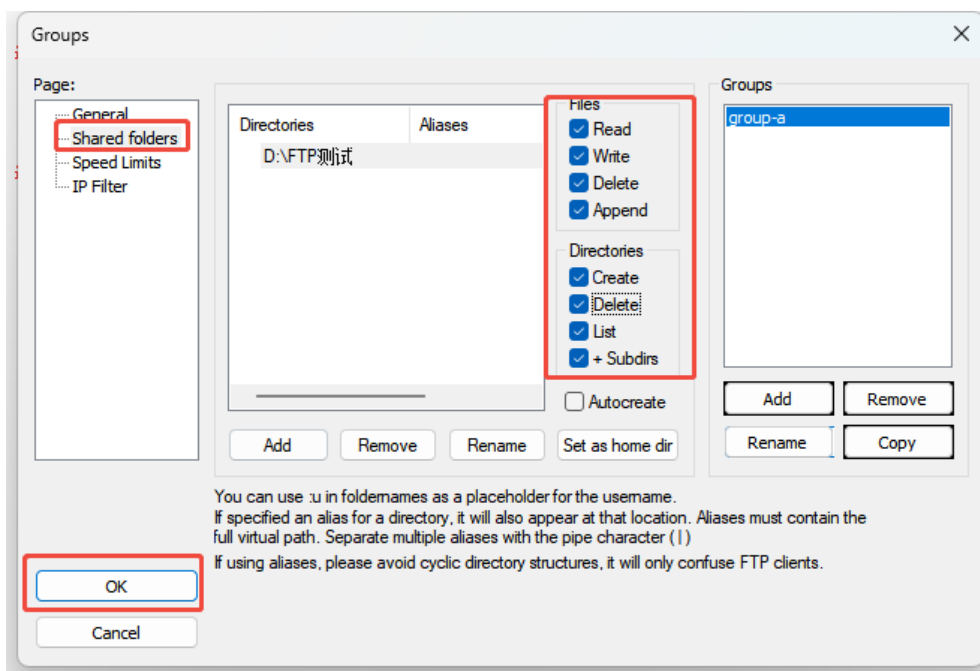
Click Edit-Groups to create groups for users



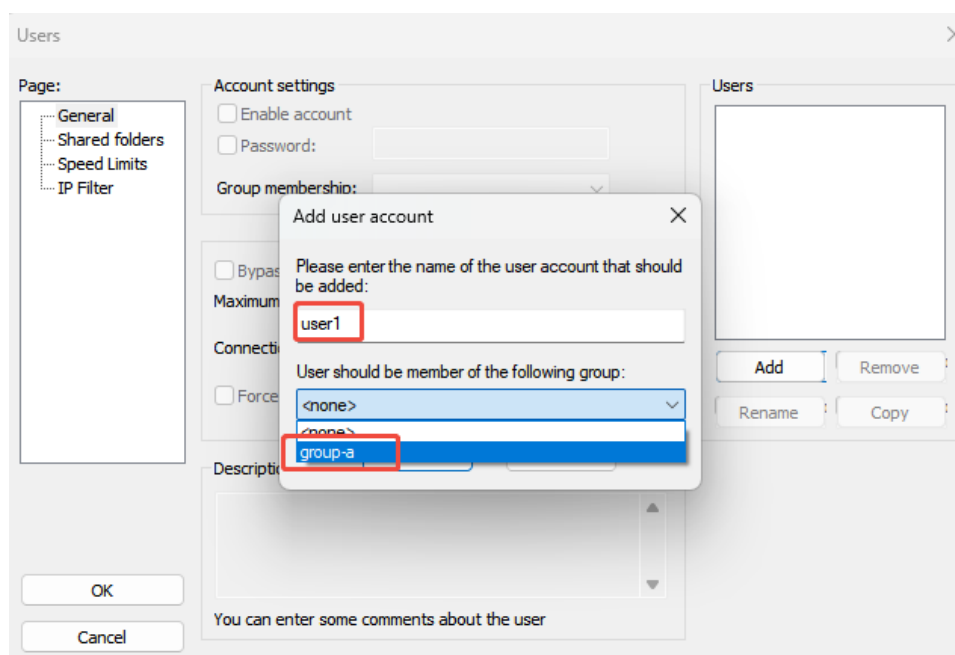
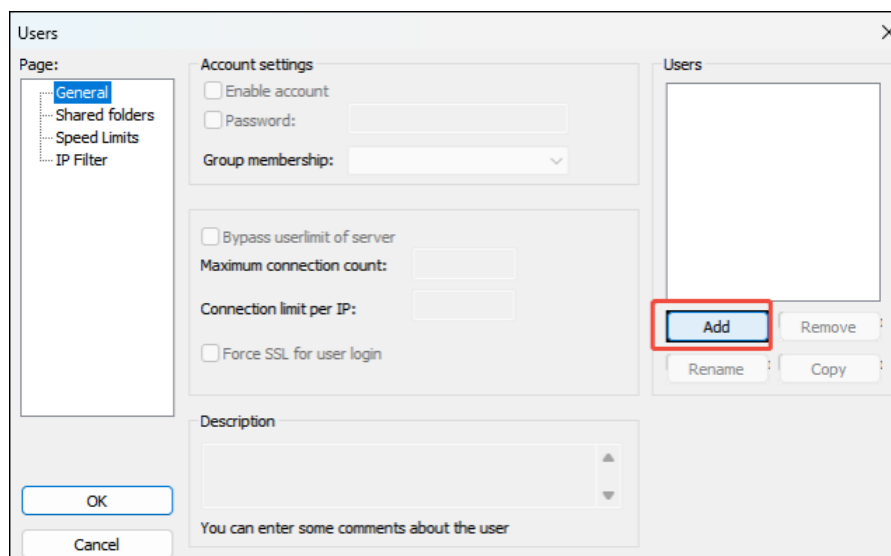
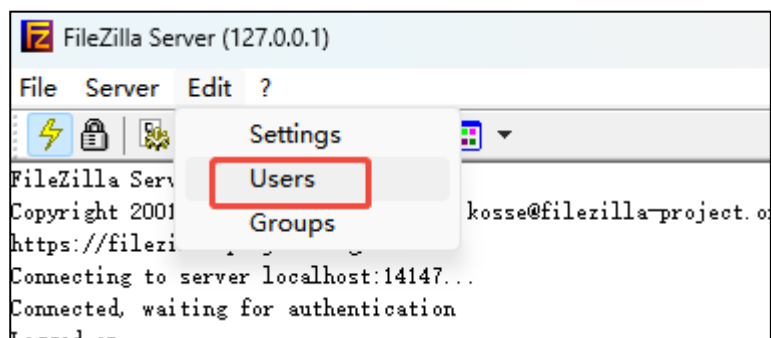
Set shared folders for users in this group



After setting up the folder, set the access permissions for the files, and the users in this group are entitled to these permissions



10. Add users to groups



Users

Page: General Shared folders Speed Limits IP Filter

shared folders

Directories Aliases

document

☐ Read (e)

☐ Write (m)

☐ Delete (t)

☐ add to

catalogue

☐ Create (c)

☐ delete

☐ tabulation/listing

☐ +subdirectories

Add (d) Remove (m) Rename (m) Set as home directory (h) Add (a) Remove (r) Rename (n) Copy (y)

User (u)

user 1

Directory aliases will appear at the specified location. Aliases must include complete local paths. Multiple aliases of the same directory are separated by a pipe symbol (|). If you use aliases, please avoid circular directory structure, because it will confuse FTP clients.

sure

cancel

If the password is checked, user1 needs to enter the password to access the file

Users

Page: General Shared folders Speed Limits IP Filter

Account settings

☒ Enable account

☐ Password:

Group membership: group-a

☒ Bypass userlimit of server

Maximum connection count: 0

Connection limit per IP: 0

☒ Force SSL for user login

Description

You can enter some comments about the user

OK

Cancel

Users

user 1

Add Remove Rename Copy

Users

Page:

- General
- Shared folders
- Speed Limits
- IP Filter

Account settings

☒ Enable account

☒ Password:

Group membership: group-a

☐ Bypass userlimit of server

Maximum connection count: 0

Connection limit per IP: 0

☒ Force SSL for user login

Description

You can enter some comments about the user

Users

user1

Add Remove

Rename Copy

OK Cancel

9.4.2.FTP Client's settings in HMI

FTP List

1: Ftp_1 192.168.210.129

Server Setting

Ftp_1

IP Address ☐ Dynamic Port ☐ Dynamic

192 . 168 . 210 . 129 21

☐ Using anonymity

User name ☐ Dynamic

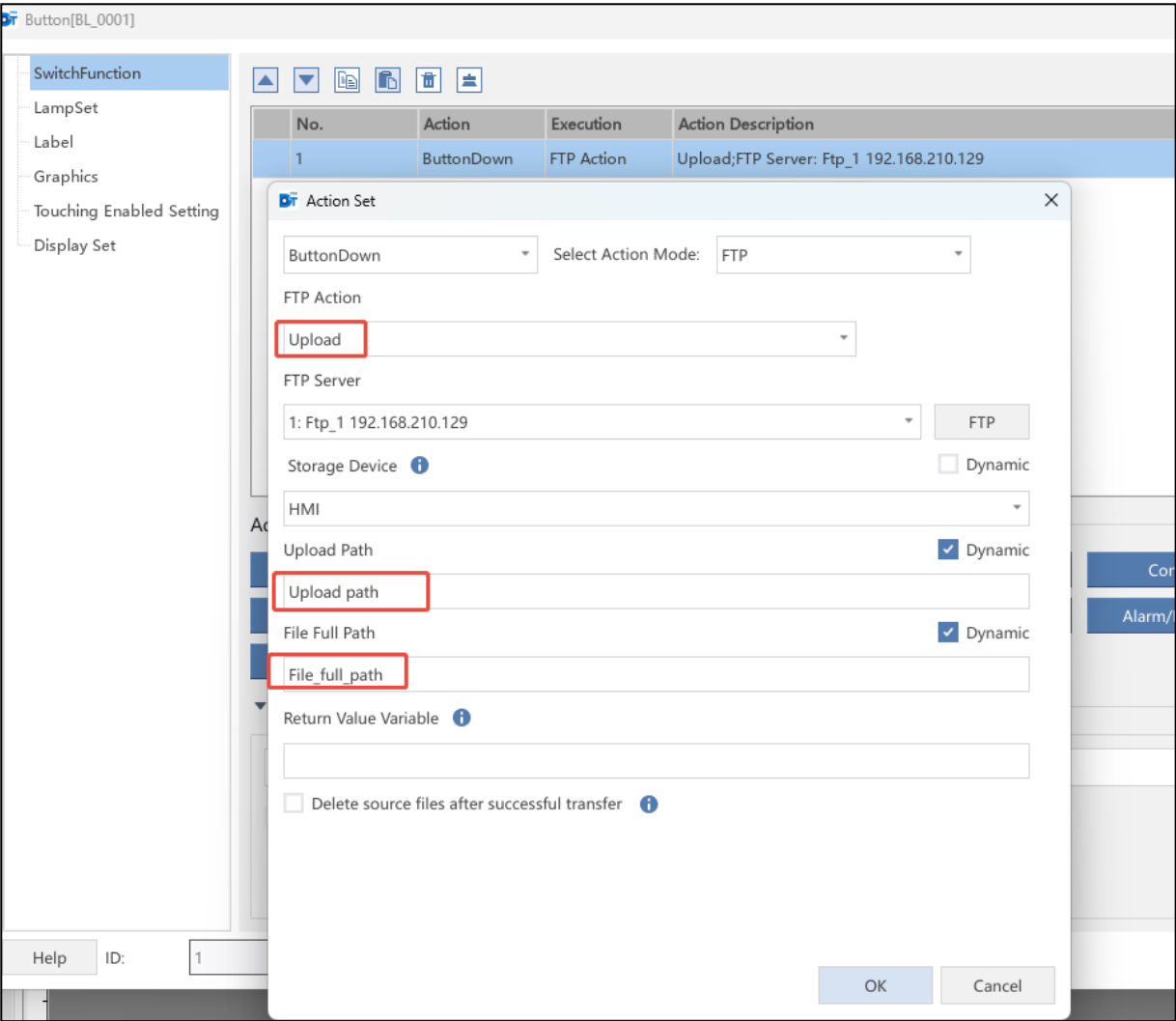
user1

Password ☐ Dynamic

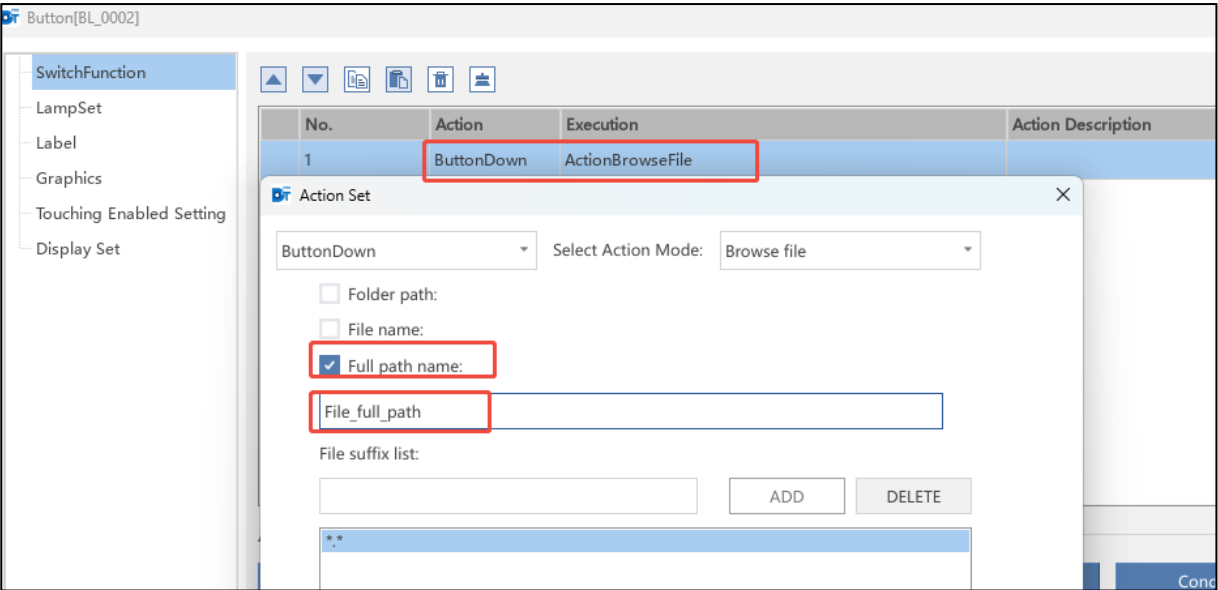
.....

9.4.2.1 Upload screen file to computer

If the upload path is empty, it will be uploaded to the root path of the shared folder on the computer



Place file browsing component, associate file full path



Operations in HMI:

Upload

Browse file

Upload path

File full path

192.168.210.131 (guipro) - RealVNC Viewer

Routing ☒ HMI ☐ USB1 ☐ USB2

Filename	Size	Type	Modified
11.csv	623	csv	2025-05-15 16:12:32
db_event	4608000		2025-05-20 11:19:32
db_event-shm	32768		2025-05-21 14:26:42
db_event-wal	4379592		2025-05-21 14:26:42
db_recipe	4096		2025-05-19 18:02:12
db_recipe-shm	32768		2025-05-20 10:19:26
db_recipe-wal	8272		2025-05-19 18:02:12
db_sample0	4096		2025-05-15 16:17:47
db_sample0-shm	32768		2025-05-15 16:54:33
db_sample0-wal	12392		2025-05-15 16:17:47

Full Path:

11.csv

Enter

Files of type:

.

Exit

Upload

Browse file

Click upload

Upload path

input the path to upload to computer
aa

File full path

11.csv

You can see that the upload was successful (note that the folder 'aa' must already exist for the upload path to be successful).

When uploading and downloading files to a shared folder, there will be a log record, and the IP address of the screen currently accessing the server will also be displayed below

FileZilla Server (127.0.0.1)

File Server Edit ?

/C:/ C:\

```

(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 230 Logged on
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> TYPE I
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 200 Type set to I
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> PASV
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 227 Entering Passive Mode (192,168,210,129,207,153)
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> ALLO 623
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 202 No storage allocation necessary.
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> STOR aa/11.csv
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 150 Opening data channel for file upload to server of "/aa/11.csv"
(000002)2025/5/21 14:31:25 - user1 (192.168.210.131)> 226 Successfully transferred "/aa/11.csv"

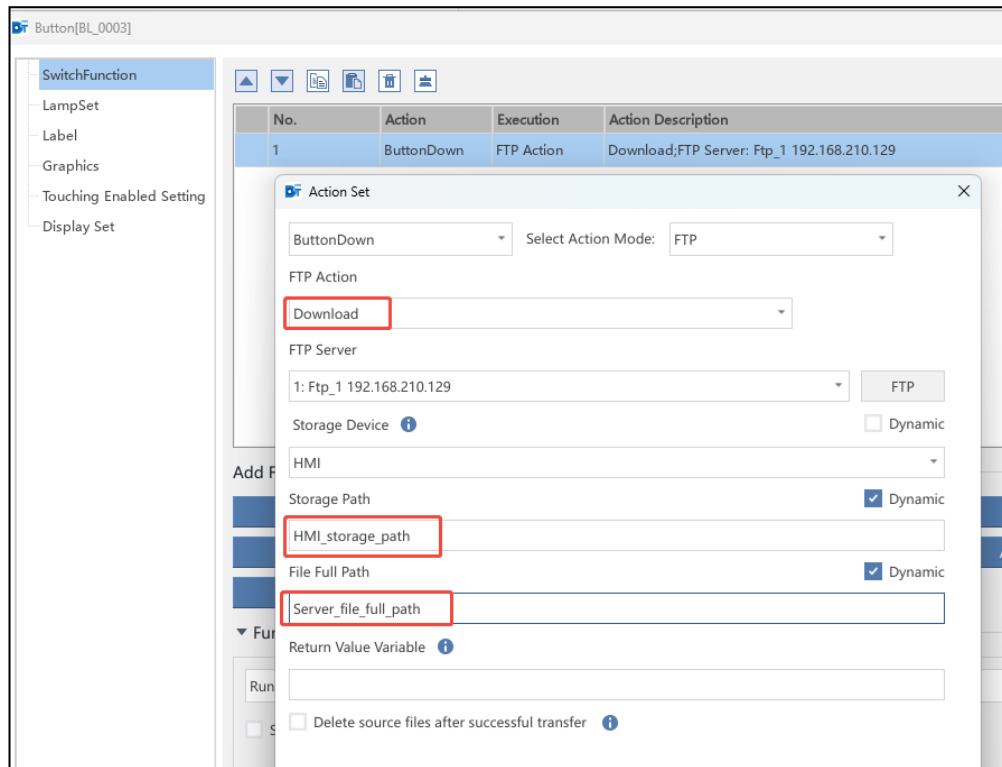
```

ID	Account	IP	Transfer	Progress	Speed
000003	user1	192.168.210.131			

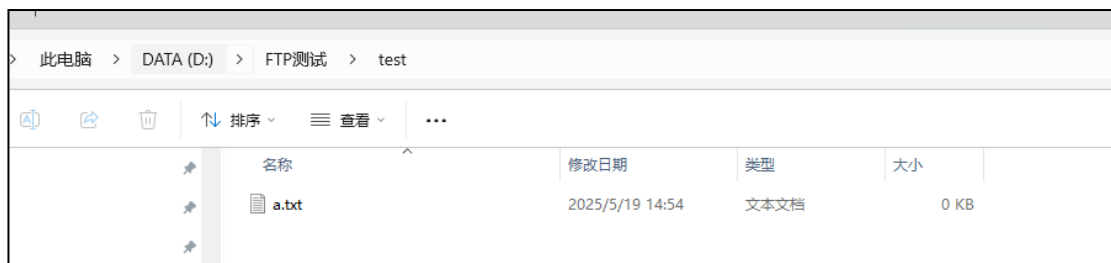
HMI IP

9.4.2.2 Download computer's file to HMI

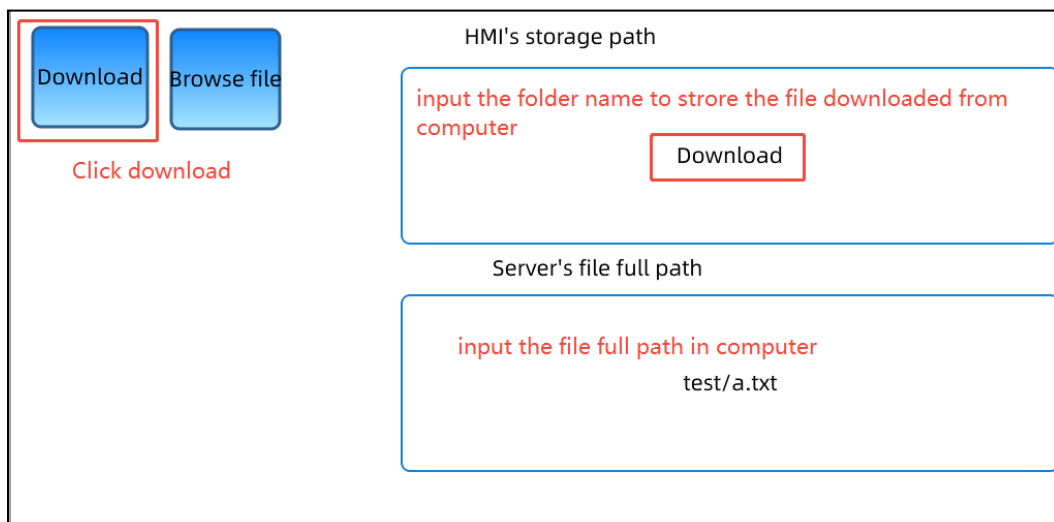
Same as uploading screen files to computer



Download "a.txt" from the test folder to the screen



Operations in HMI



Click on file browsing, and you will see that the "Download" folder has been created on the screen, and the file a.txt has been downloaded here

Download

Browse file

HMI's storage path

Download

Server's file full path

test/a.txt

Routing ☒ HMI ☐ USB1 ☐ USB2

Filename	Size	Type	Modified
11.csv	623	csv	2025-05-15 16:12:32
Download			2025-05-21 14:46:08
db_event	4608000		2025-05-20 11:19:32
db_event-shm	32768		2025-05-21 14:26:42
db_event-wal	4379592		2025-05-21 14:26:42
db_recipe	4096		2025-05-19 18:02:12
db_recipe-shm	32768		2025-05-20 10:19:26
db_recipe-wal	8272		2025-05-19 18:02:12
db_sample0	4096		2025-05-15 16:17:47
db_sample0-shm	32768		2025-05-15 16:54:33

Full Path:

Enter

Files of type:

Exit

Filename	Size	Type	Modified
 a.txt		txt	2025-05-21 14:46:08

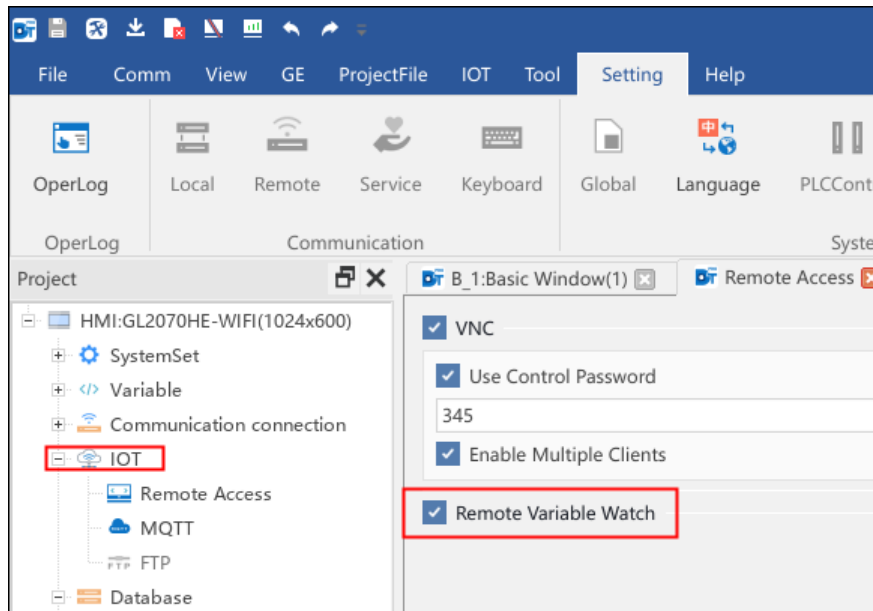
Full Path:

Files of type:

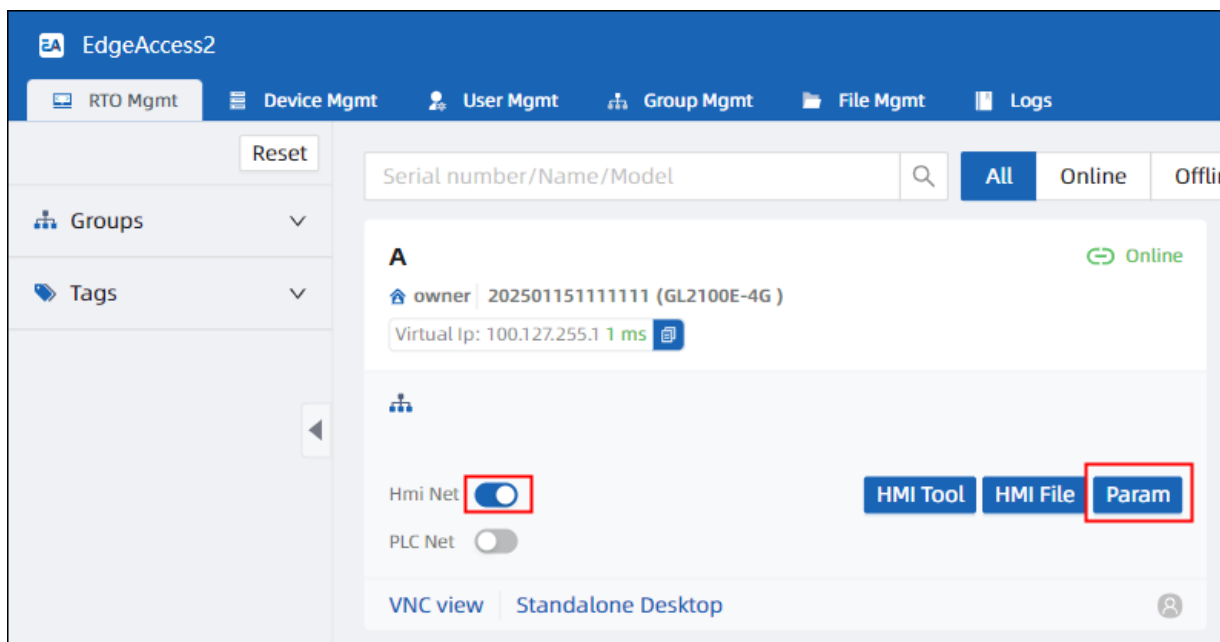
9.5 Remote Variable Watch

It can be paired with EA Desktop Assistant to achieve VPN remote monitoring of variables on the screen

Note: The GL2 series can monitor up to 64 variables, while the F2/G2 series can monitor up to 256 variables. It supports one-dimensional arrays, but does not currently support multidimensional arrays



After enabling VPN on the screen, open the EA Desktop Assistant installed on the computer



Click "Parameter editing"

Param Online

Refresh Frequency 1 Seconds

Parameter editing

Monitor all

Pause all

Remove all

Serial number	Variable name	Variable value	Data type	Data length	Array length	Read/Write permission	Operation
No data							

Chose parameter

Parameter editing

Update parameter list

Refresh frequency 1 Seconds

Remain 250

2

	Variable name	Data type	Data length	Read/Write permission
☒	[NET0:设备 5]4X278	unsigned short	2	Read/Write
☐	[NET0:设备 5]4X277	unsigned short	2	Read/Write
☐	[NET0:设备 5]4X275	unsigned short	2	Read/Write
☐	[NET0:设备 5]4X274	unsigned short	2	Read/Write
☐	[NET0:设备 5]4X273	unsigned short	2	Read/Write
☐	[NET0:设备	unsigned short	2	Read/Write

Selected 4

Search here

	Variable name	Data type	Data length	Read/Write permission
☐	[NET0:设备 5]4X280	unsigned short	2	Read/Write
☐	[NET0:设备 5]4X279	unsigned short	2	Read/Write

Cancel

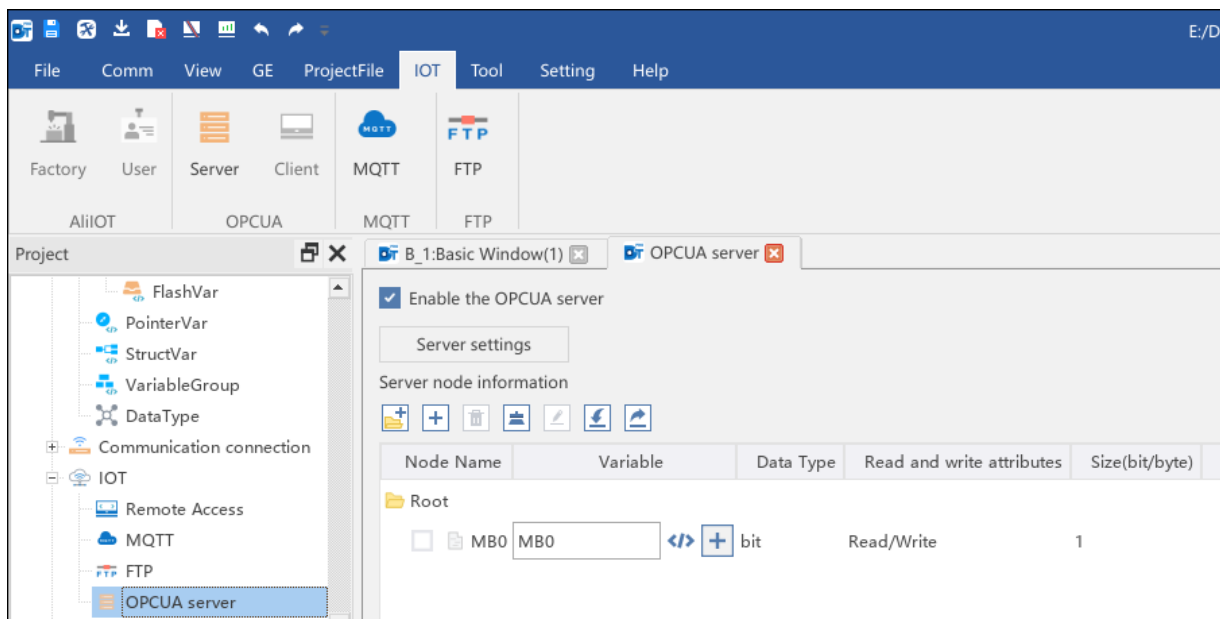
Confirm

9.6 OPCUA server

OPC UA has all the features of OPC Classic and reduces many restrictions. Flexibility and scalability are the main characteristics of OPC UA. Most importantly, OPC remains an open international standard that supports reliable interoperability and data exchange. The function of OPC server is to exchange data with the upper computer, which includes a large number of communication programs and data, and then provide standard OPC interfaces for other software to use. The client accesses the OPC UA server by identifying the IP of the HMI.

9.6.1 Enable OPC UA Server

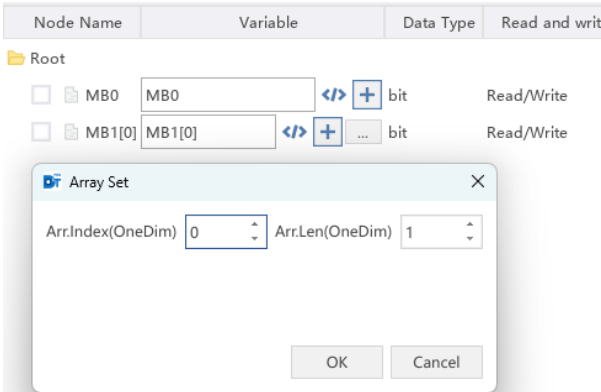
After selecting, OPC UA function can be used



OPC UA Server Setup Descriptions	
Server address	The address format is "opc.tcp://<HMI IP>: 4840". The IP address format is fixed and cannot be modified; Note: When the port number changes, the IP address port number field changes accordingly
port	Set the port number for the current client to read, default is 4840; Attention: Port number 21\ 3323\ 21846 is not supported. This port number HMI is already occupied
Server name	Default is empty, supports user input modification, field format and length are unlimited
Security policy	Security policies can be selected from the following options. Currently, only no security policies are available, and other encryption methods are not supported at the moment.
Access method	There are two options in the access method dropdown menu, namely [Anonymous] and [User Password] (currently not supported). Choose anonymity and set the access permissions for the current client to log in anonymously; The OPC UA client does not require a username or password to access the HMI OPC UA server.
Access control	Access Control: Unchecked by default, automatically online by default; Check to control the connection between OPC UA server and client through variables; The corresponding controls for different values are as follows: automatic power on=0; Manual stop=1; Manual start=2.

	Server status: Unchecked by default; After selecting, the connection status of OPC UA server can be checked; The meaning of OPC UA connection status corresponding to different values: stopped=0; Started=1.
	Status error code: not checked by default. After checking, you can view the server status error code. Different values correspond to OPC UA connection error codes. Status meaning: Success=0; Other=Error code.

9.6.2 Server node information

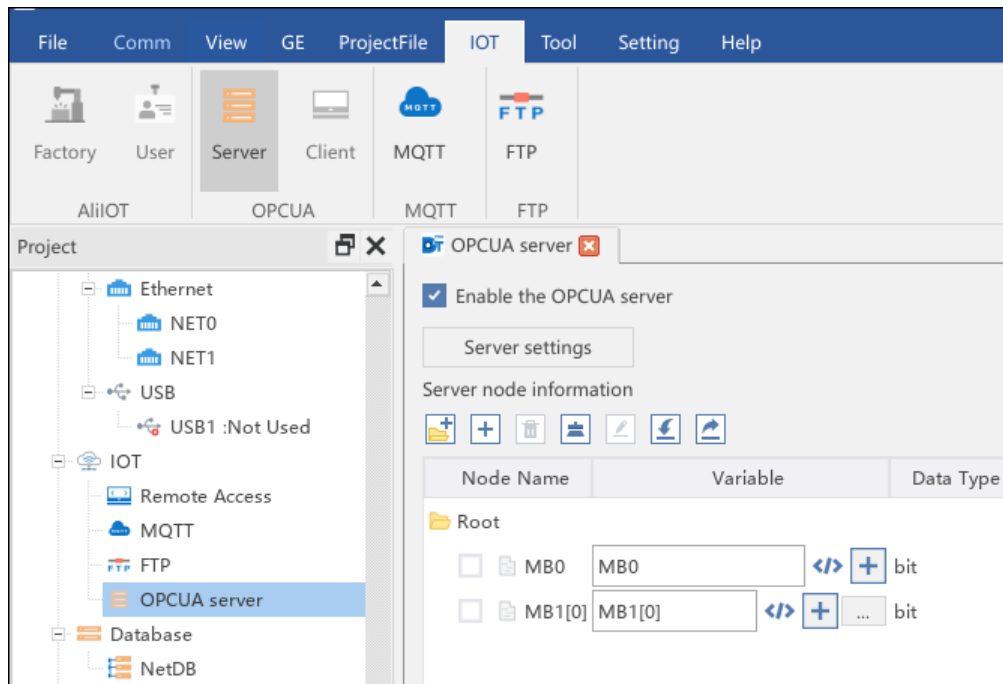
Server Node Description	
Add group node	Add an OPC UA server group node
Add data nodes	Add data nodes for the addresses to be monitored, supporting the length setting of multidimensional arrays; 
Delete Node	Delete the selected group node or data node
Clear nodes	Clear all nodes, including group nodes and data nodes
Set nodes	Set the selected group node or data node. When [Group Node] is selected, the group node can be renamed; Select [Data Node] to set its name, address type, and other related attributes
Import	the .xlsx file of the OPC UA group node into the OPC UA server
Export	the files of the group nodes of the OPC UA server and save them in xlsx format

9.6.3 Give an example

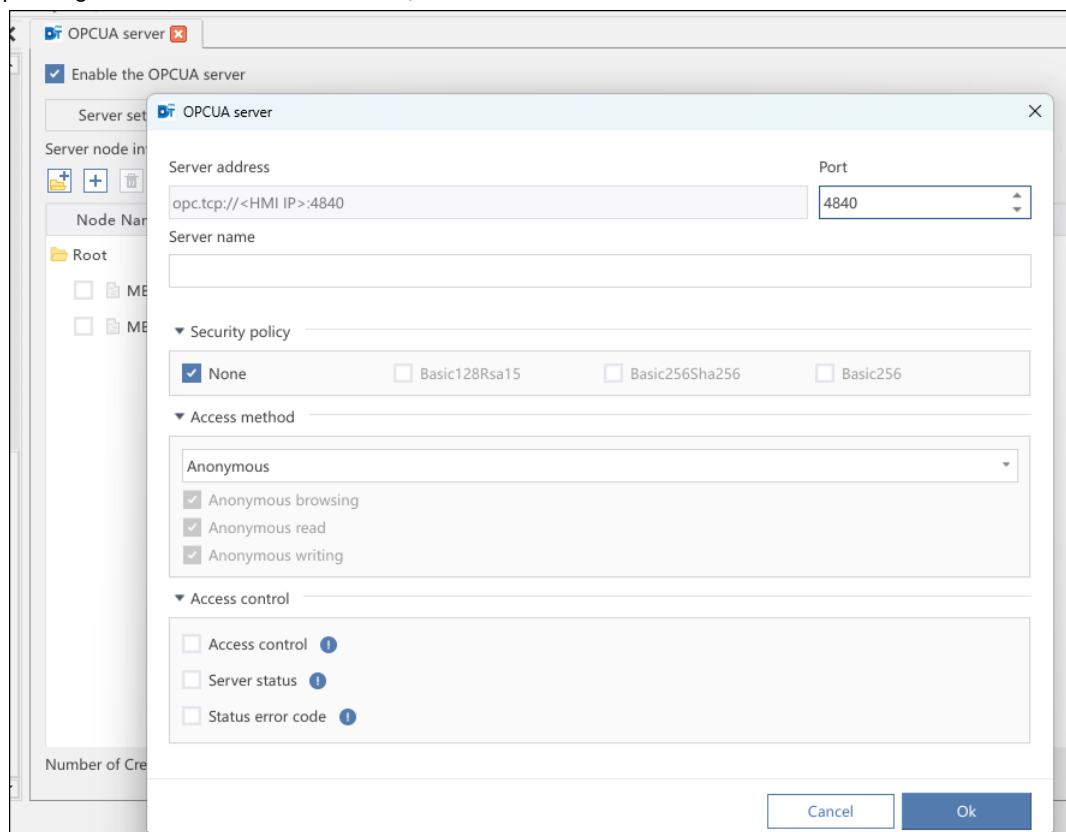
Taking F2100E2 and UaExpert software communication as an example

HMI Settings

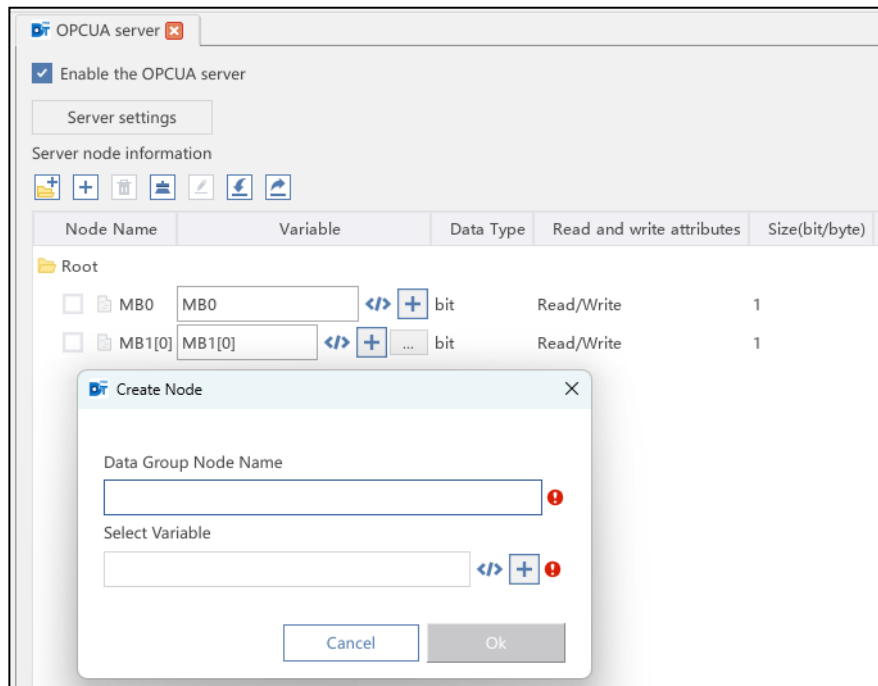
1) Click on Project - [Internet of Things] - [OPC UA Server], and select [Enable OPC UA Server] in the pop-up box



2) Keep the server settings as default. When manually controlling or viewing server status, check the corresponding information for access control;

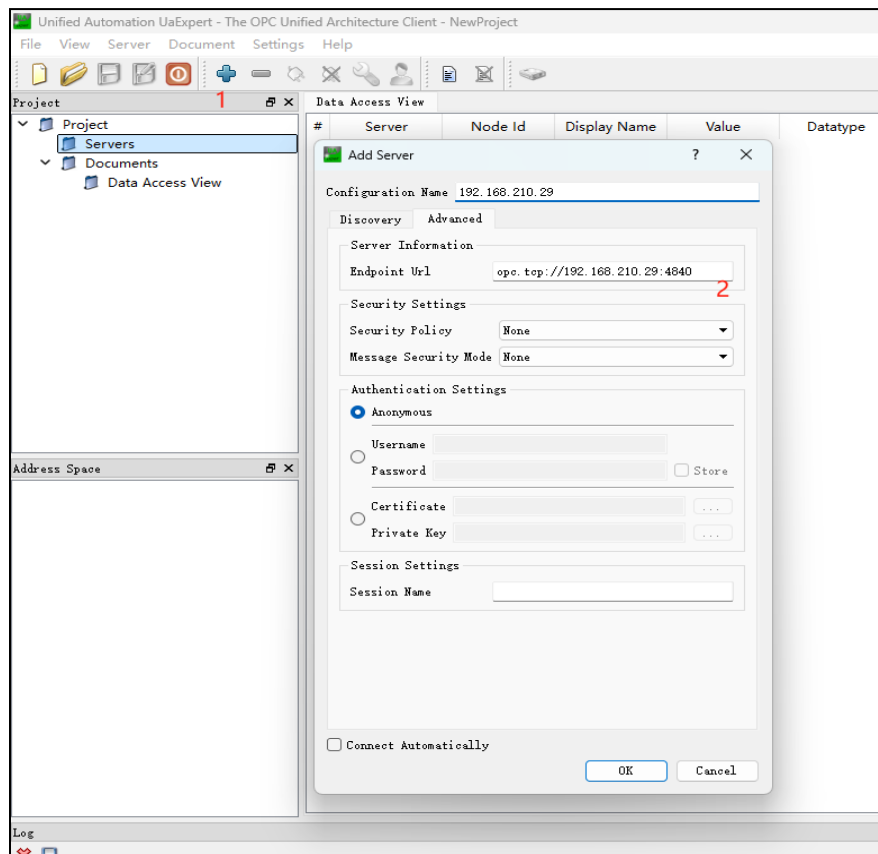


3) Server node information is mainly used to add group nodes and data nodes. After adding group nodes, data nodes can be added.



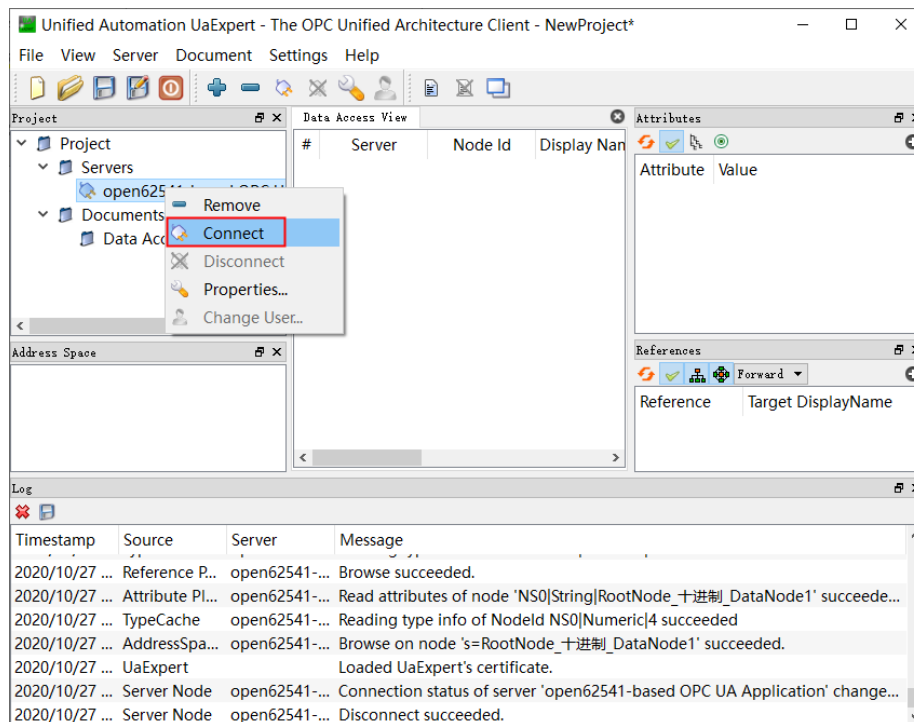
OPC UA Client Settings (The OPC UA client used here is UaExpert)

1) Add the IP address of the screen and connect to the screen

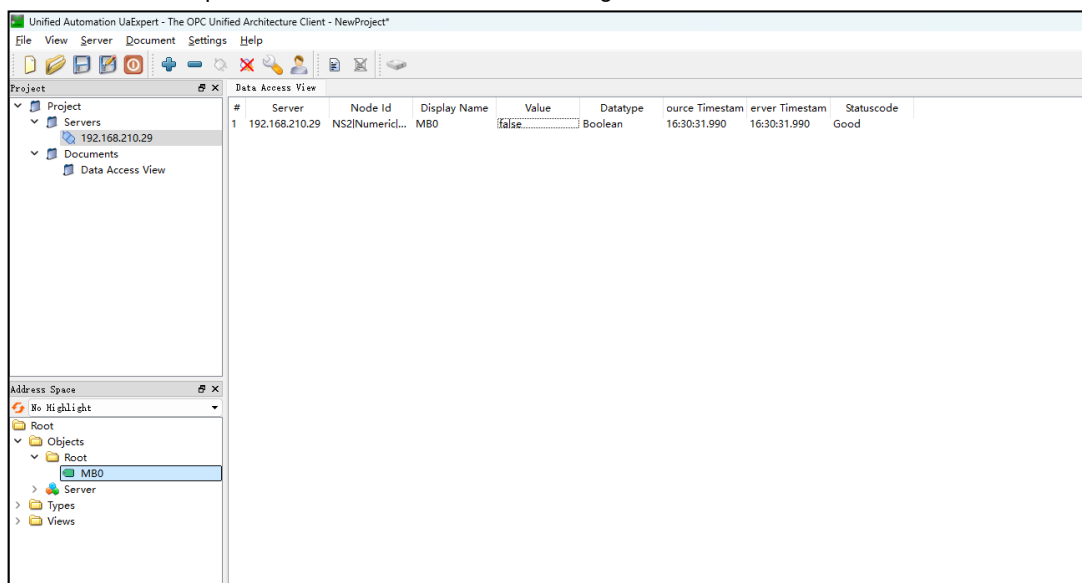


2) If "Enable Access Control" is checked in the HMI configuration, the configuration engineering screen of the screen needs to set the variable to 2 to enable OPC function, and then perform operations 4 and 5

3) Select the server entry, right-click and choose 'connect'



4) After the client is connected to the screen, it can automatically read the data nodes inside the screen and perform read and write operations on the data nodes according to the set read and write attributes



9.7 Email

The email function is a message notification feature based on network port communication, which enables real-time email notifications for abnormal alarms and operation actions in industrial scenarios, meeting the remote notification needs of equipment operation and maintenance as well as fault diagnosis. Its core functions are as follows:

1. Email Backend Configuration: Supports configuration of SMTP servers, sender information, contacts and contact groups. It also supports importing and exporting contact information in CSV format for convenient batch management.

2. Alarm Email Notification: Emails can be automatically sent at three points: alarm triggering, alarm recovery, and alarm acknowledgment. It supports attaching screenshots of HMI windows to intuitively display on-site status.

3. Action: Send Email

Emails can be triggered manually or automatically via actions configured in the configuration software, such as buttons, global controls, scheduling, and window controls. It supports adding files from specified paths or window screenshots as attachments.

4. Send Status Feedback: Can be associated with HMI variables to view email sending status (no status, sending, sent successfully, sending failed), sending error codes and error notifications in real time, facilitating quick troubleshooting of sending exceptions.

9.7.1 Email Backend

Before using the email function, you must complete the backend configuration first. Otherwise, functions such as alarm linkage emails and action-triggered emails will not work properly. The configuration steps must be completed in the following order to ensure that the parameter configurations are accurate and error-free.

☒ Enable Email

SMTP Settings

Server ⓘ
smtp.qq.com

Port
25

Username
123456@qq.com

Password ⓘ
dftxyrjakwjvbfhf

☒ Encrypt Connection
TLS

Sender Information

Name
Custom
wxw123¥%¥中文

Mail
123456@qq.com

Email Status

☒ Send Status ⓘ
MW0 </> +

☒ Error Code ⓘ
MW1 </> +

☒ Error Notification ⓘ
MB15 </> +

Contact Information

Contact infos

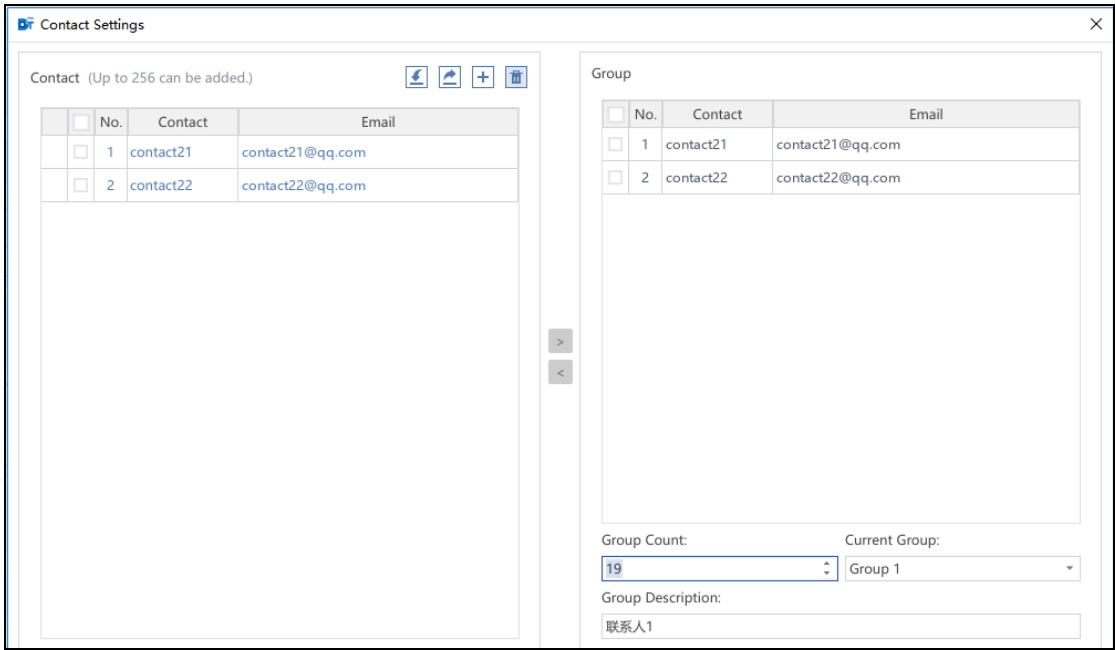
Recipient Group
This Device Name

Test SMTP

Email Backend Settings		
SMTP Settings	server	Please enter the SMTP server address corresponding to the sender's email. The configuration software provides prompts for commonly used servers. For example, the SMTP server for QQ Mail is: smtp.qq.com, and the SMTP server for Gmail is: smtp.gmail.com, etc.
	username	Please enter the username for the SMTP server, which must match the sender's email address.
	password	Please enter the SMTP authorization code for the sender's email (Note: You need to enter the SMTP authorization code here, not the email login password, to avoid login permission exceptions).
	encrypted connection	Not checked by default. After checking, you can select SSL (default) or TLS encryption method, which must match the SMTP server port.
	Port	It is used with encrypted connections. For example, when SSL is selected for a Gmail account, the port number is 465; when TLS is selected, the port number is 587. When SSL is selected for a QQ Mail account, the port number is 465; when TLS is selected, the port number is 25. You can search for the settings on the web version.
Sender	Name	(Default) Use local device name: The sender name is the local device name set in the project. Custom: After selecting "Custom", you can manually enter the sender's name.
	Email	Please enter the sender's email address, which must be consistent with the username. The configuration software will automatically verify the email format. If the format is incorrect or the field is left blank, an error prompt will pop up. You need to modify it before saving the configuration.
Usage Status Address	Sending Status	Not checked by default. If checked, you need to associate it with an HMI word variable. The corresponding meanings of variable values are as follows: 0: No status (Email sending not triggered) 1: Sending (Email is in the process of being sent) 2: Sent successfully (Email has been successfully sent to the recipient) 3: Failed to send (An exception occurred during email sending. You can troubleshoot the cause with the error code)
	Error Code	Not checked by default. When checked, you need to associate it with an HMI word variable. If the email fails to send, the system will automatically obtain the sending error code and display it in the variable. For the error causes corresponding to specific error codes, please refer to Section 9.7.4 Error Codes in the manual.
	Error Notification	Not checked by default. Once checked, you need to associate it with an HMI bit variable/bool variable; Before sending an email, the variable value is automatically set to 0/off; If the sending fails, the variable value is set to 1/on, and will be automatically reset to 0/off after being set to 1. You can use this variable to implement an alarm prompt for sending failures.
Smtptest		After configuring the SMTP server, sender, and contact group information, it is recommended to verify the correctness of the configuration using the test

function to avoid subsequent email sending failures.

Contact Settings: Configure email recipient information, supporting individual contact management and group management for convenient batch selection of recipients and improved configuration efficiency. The specific configurations are as follows



Contact Settings		
Contact Settings	Contact	The contact names refer to the names of the recipients and carbon copy recipients in the email.
	email	Static: Enter the recipient's email address directly Dynamic: Associate with string variables to dynamically set the recipient address.
Group Settings	Number of Groups	1 (default). Groups can be added or edited, with the number ranging from 1 to 32.
	Current Group	"Group 1" is set as default. Each newly added group will be named in an auto-incrementing sequence (Group 2, Group 3, ...). Group names cannot be modified.
	Group Description	Similar to group remarks, it is recommended to fill in the group's purpose, such as "Equipment Operation and Maintenance Group" or "Technical Support Group", to facilitate identification of the group's function.
move into	Please select contacts on the left, then click the [Move In] button to add the selected contacts to the current group.	
move out	Multi-select the added contacts on the right, then click the [Remove] button to remove the contacts from the current group.	
Export	Click the [Export] button to export contact and group-related information to a CSV file, which can be used for backup or import into other projects after export.	
import	Click the [Import] button, select the CSV file, and import the contact and group information after the CSV file passes validation.	

9.7.2 Alarm Email Notification

If the email backend is not enabled, the alarm email sending action will not be displayed. After enabling the email backend, you can configure the email sending function in Alarm Information Table - Alarm Item Settings. This allows automatic email sending when an alarm is triggered, cleared, or acknowledged, so that relevant personnel can be notified promptly to handle device exceptions. The specific settings are as follows:

Alarm Email Notification Settings

Contact	Recipient	The recipient(s) of the email cannot be left blank.
	Carbon Copy (C/Cc)	The carbon copy (CC) recipients for email sending can be left blank.
Email Subject	Custom Title (Default)	Direct input: Directly enter the subject of the email you want to send Using text library: Select the pre-edited content from the text library as the email subject.
	Dynamic Title	Associate the HMI string variable. When sending an email, the current value of this variable will be referenced as the email subject. This applies to scenarios where dynamic display of alarm information is required.
	Use the alarm content	Use the alarm text as the subject of the email to be sent.
Email content	Custom Content	Direct input: Directly enter the content of the email you want to send Use Text Library: Select pre-edited content from the text library as the body of the email to be sent.
	Dynamic	Link the HMI string variable. When sending an email, the current value of this

	content	variable will be referenced as the email content. This applies to scenarios where dynamic display of alarm information is required.
	Use alarm content (default)	Use the alarm text as the content of the email to be sent.
Attachment	After checking "Screenshot of Attachment Window", you can specify a specific basic HMI screen as the screenshot source. When the email sending is triggered, the specified window screen will be automatically captured and sent as an attachment, allowing the recipient to intuitively view the on-site status of the device when the alarm occurs.	

9.7.3 Send Email Action

If the email backend is disabled, the email sending action will not be displayed. After the email backend is enabled, you can add the "Send Email" action in features such as switch functions, global control, task scheduling, and window control to send emails manually or automatically. This applies to scenarios such as proactive notifications and regular reports. The specific settings are as follows:

EmailAttachment

Contact

Recipient

Group 1

CC

Group 2

Email Subject

Custom Subject

☒ Language Independent

Shortcut key prompt

Use Text Lib

1:noname1

Tt

☐ Text state switching

Chinese(Simplified Han)

1122

Email Content

Custom Content

☒ Language Independent

Shortcut key prompt

Direct input

Save to text library

Save to all lang.

Chinese(Simplified Han)

开

Settings for Sending Emails		
Contact	Recipient	The recipient(s) of the email cannot be left blank.
	Carbon Copy (C/Cc)	The carbon copy (CC) recipients for email sending can be left blank.
Email Subject	Custom Title (Default)	Direct input: Directly enter the subject of the email you want to send
		Using text library: Select the pre-edited content from the text library as the email subject.

	Dynamic Title	Associate the HMI string variable. When sending an email, the current value of this variable will be referenced as the email subject. This applies to scenarios where dynamic display of alarm information is required.
Email content	Custom Content (Default)	Direct input: Directly enter the content of the email you want to send
		Use Text Library: Select pre-edited content from the text library as the body of the email to be sent.
	Dynamic content	Link the HMI string variable. When sending an email, the current value of this variable will be referenced as the email content. This applies to scenarios where dynamic display of alarm information is required.
Attachment	Attached file	After checking "Attachment File", the specified file will be sent as an attachment when you send the email.
		Device: Select statically from the drop-down list or set dynamically by associating with HMI variables to specify the device where the file is located (e.g., HMI, USB1)
		Folder: Enter the static folder path or dynamically set it by associating with an HMI variable to specify the folder where the file is located.
		File Name: Set statically or dynamically by associating with HMI variables. Specify the file name to be sent, noting that the file extension must also be entered.
	Screenshot of the attachment window	After checking "Screenshot of Attachment Window", you can specify a specific basic HMI screen as the screenshot source. When the email sending is triggered, the specified window screen will be automatically captured and sent as an attachment, allowing the recipient to intuitively view the on-site status of the device when the alarm occurs.

9.7.4 Email Error Code

Error Code	Instructions
0	Success
1	The queue is full
2	Invalid sender address
3	Recipient address is invalid
30-49	Internal System Error (for debugging purposes only)
50-199	Transmission error
211-555	Email response

— . Transport Layer Error Codes (50-199)

1. SMTP Test

Error Code	Instructions
50	Connection refused or timed out
51	The remote server actively disconnected the connection.
52	The specified host address cannot be resolved. Please check the domain name spelling or DNS configuration.
53	The operation failed because the application lacks necessary permissions (e.g., binding to a

	non-privileged port)
54	Insufficient local system resources (e.g., excessive number of open file descriptors or sockets)
55	The socket operation timed out. Please check network latency or server response speed.
56	The sent data packet exceeds the operating system limit.
57	A fault occurs in the underlying network (e.g., network cable unplugged, WiFi disconnected)
58	The address specified by bind() is in use and set to exclusive mode. Please change the port or check for process conflicts.
59	The address specified by bind() does not belong to the current host (for example, an incorrect network card IP is bound)
60	This operation is not supported by the local operating system (e.g., IPv6 support is not enabled on the system)
61	The operation from the last attempt is still running in the background and has not been completed yet.
62	The socket is using a proxy that requires a username and password.
63	Connection closed due to SSL/TLS handshake failure
64	Failed to connect to the proxy server; the connection request was rejected.
65	The connection to the proxy server was unexpectedly disconnected before connecting to the final destination.
66	Connection to the proxy server timed out, or the proxy server did not respond during the authentication phase
67	Failed to parse the proxy server address set by setProxy()
68	Failed to negotiate the connection due to inability to understand the proxy server's response.
69	This operation is not allowed in the current socket state (e.g., sending data when not connected)
70	The SSL library in use reports an internal error. This is usually caused by a corrupted library installation or improper configuration.
71	The provided SSL data (certificate, key, encryption algorithm, etc.) is invalid, causing the library to report an error.
72	A temporary error has occurred (e.g., the operation should have blocked, but the socket is in non-blocking mode)

2. Offline/Online Simulation and On-Screen Testing

Error Code	Instructions
51	The specified URL protocol is not supported by the current compiled version (the protocol module may not be enabled)
52	Internal initialization process failed, usually a critical error in the early stage
53	The provided URL does not conform to standard syntax specifications and cannot be parsed.
54	The requested feature is not enabled or supported in the current build version.
55	Failed to resolve the specified proxy server hostname
56	Failed to resolve the hostname of the remote target server (DNS query failed)
57	Failed to establish a network connection with the remote server.
58	The server returned unreadable or unexpected response data.
59	The server explicitly rejected the access request (usually related to permission or configuration

	issues)
68	Only some files were successfully transferred, and the operation was not completed.
73	Failed to write data to the local file system, or the write callback function returned an error
76	Failed to read local source file, or the read callback function returned an error
77	System memory exhausted, unable to allocate the required buffer.
78	The entire operation has exceeded the set total timeout period.
83	The server does not support or refuses the file range (Range) request.
85	An error occurred during the SSL/TLS handshake or connection establishment process
86	Previous download cannot be resumed (usually due to file size mismatch or server unavailability)
87	Cannot open or read the local file (insufficient permissions or the file does not exist)
88	LDAP Server Authentication (Bind) Failed
89	LDAP query or search operation failed
92	The user-defined callback function returned an error, actively aborting the transmission.
93	The parameter passed to the function is invalid or incorrect.
95	Cannot bind to the specified local network interface
97	The number of followed redirects exceeds the set maximum limit
98	An unrecognized option is set.
99	The set value has an incorrect format or type mismatch.
102	Connection successful but no data received from the server
103	The specified external SSL encryption engine does not exist
104	Failed to configure or initialize the specified SSL encryption engine
105	An underlying error occurred when sending data to the network socket
106	An underlying error occurred while receiving data from the network socket
108	There is an issue with the local client certificate file (incorrect format, corruption, etc.)
109	The specified password cannot be used (possible encryption algorithm mismatch)
110	The SSL/TLS certificate verification of the peer (server) failed
111	The content encoding returned by the server (such as gzip, deflate) is not supported or corrupted
113	The size of the transmitted file exceeds the preset maximum limit.
115	Data sending requires rollback but the operation failed
116	An error occurred during the initialization of the external SSL engine.
117	The server rejected the login credentials (invalid username/password)
120	The remote server has insufficient disk space to write the file.
123	The file you attempted to create already exists on the remote server (and overwriting is not allowed)
127	Failed to load the CA bundle file used to verify the server certificate
128	The requested file was not found on the remote server (HTTP 404, etc.)
129	An error occurred at the SSH protocol layer (such as key exchange failure, version mismatch)
130	SSL/TLS session secure shutdown process failed
131	The socket is not ready for reading or writing and needs to wait (usually used in non-blocking mode)

132	Failed to load the Certificate Revocation List (CRL) file
133	The verification of the SSL certificate issuer has failed.
138	The chunked transfer callback function reported an error.
139	No available connections in the connection pool, and new connections cannot be created.
140	The public key fingerprint provided by the server does not match the preset value (Pin Public Key failed)
141	OCSP stapling or other certificate status checks return invalid results
143	An API was illegally called in the callback function, causing a recursive conflict.
144	An error was returned by the authentication callback function provided by the user.
146	Failure to establish or maintain the underlying QUIC transport connection
147	The handshake process failed when establishing a connection with the proxy server.
148	The server requires a client certificate, but none was provided or is unavailable.
149	The underlying poll() or select() system call returned a fatal error.
150	The value set for a certain option exceeds the maximum allowed limit.
151	Failed attempt of the Encrypted Client Hello (ECH) extension

二 . SMTP Response Codes (211-555)

Error Code	Instructions
211	Return the system's overall status information or help text
214	Provide instructions on how to use the receiving end or specific non-standard commands (this response is mainly for reference by human users)
220	<Domain Name> service is ready for communication. (HMI time not synchronized)
221	<Domain Name> service is closing the transmission channel (usually returned after receiving the QUIT command)
235	Response to the AUTH command, indicating that authentication has been successfully completed and the session has been established
250	The requested email operation has been successfully completed without any issues.
251	The user is not on the local server, and the system will forward the email to <Forwarding Path>
252	The VRFY command cannot be used to verify the existence of a user, but the server will still receive the email and attempt delivery.
354	Start entering the email content, with <CRLF>.<CRLF> (i.e., a single line with a dot) as the end marker
421	The <Domain Name> service is currently unavailable, and the transmission channel is being closed.
432	Indicates that the user needs to transition to the selected authentication mechanism
454	Indicates that authentication failed due to a temporary server error.
450	The requested email operation has not been performed because the mailbox is unavailable (e.g., the mailbox is busy or temporarily locked due to policy reasons).
451	The requested operation was aborted due to a local server processing error.
452	The requested operation has not been performed due to insufficient system storage space.
455	The server cannot support or process the parameters provided in the request.
500	Authentication failed because the length of the [BASE64] response sent by the client exceeds

	the maximum buffer size allowed by the currently selected SASL mechanism.
501	The syntax of the command itself is correct, but there are syntax errors in the attached parameters or arguments.
502	The server does not support this command.
503	Incorrect command sending sequence (e.g., sending RCPT TO directly without sending MAIL FROM first)
504	The command itself is supported, but the specified parameters are not supported or implemented.
530	Returned when the server policy requires authentication before performing a certain operation, but the current session is unauthenticated.
534	The selected authentication mechanism is weaker than the server's policy requirements for this user.
535	Indicates that authentication failed due to invalid or insufficient credentials (e.g., incorrect username/password)
538	Indicates that the selected authentication mechanism is only allowed when the underlying SMTP connection is encrypted (e.g., TLS/SSL).
550	The requested operation has not been performed because the email address is unavailable (e.g., the email does not exist, there is no access permission, or access is denied due to policy reasons).
551	The user is not local. Please try sending to <Forwarding Path>
552	The requested mail operation has been aborted because the storage allocation limit has been exceeded.
553	The requested operation has not been performed because the email name is not allowed (e.g., incorrect email address format)
554	The entire email transaction failed. (If returned during connection establishment, it means "No SMTP service available here")
555	The parameter in the MAIL FROM or RCPT TO command is not recognized or implemented

9.7.5 Examples

Take configuring the QQ Mail server on HMI to send emails as an example

1. Enabling QQ Mail SMTP Service and Obtaining Authorization Code:

- 1). Log in to the web version of QQ Mail (mail.qq.com), click [Settings] in the upper right corner → [Account and Security] → [Security Settings].
- 2). Locate "POP3/IMAP/SMTP/Exchange/CardDAV Services" and enable the [SMTP Service] (the enabled status will show "Enabled").
- 3). Click [Generate Authorization Code], complete identity verification as prompted (e.g., SMS verification), obtain the 16-digit authorization code (example: abcdefghijklmnop), and copy and save it (required for subsequent configuration).



2.HMI Email Backend Configuration:

1). SMTP Settings

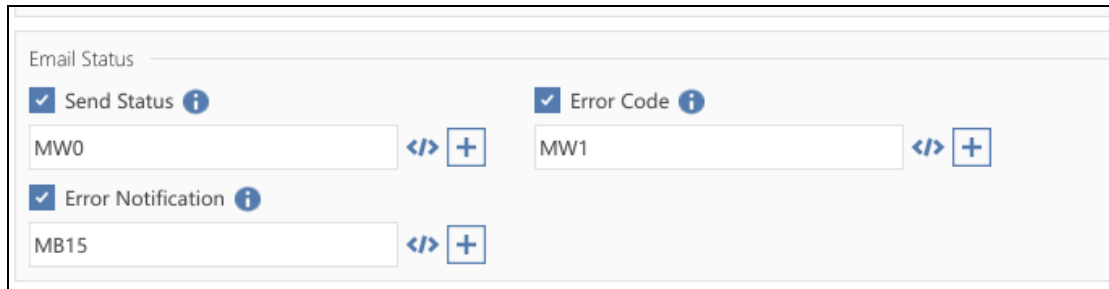
- Server: Enter smtp.qq.com
- Username: Enter the full QQ email address (e.g.: 123456@qq.com)
- Password: Paste the 16-digit SMTP authorization code obtained in Step 1 (e.g.: abcdefghijklmnop)
- Ports and Encrypted Connections: Port number 465 with "SSL" encryption, or port number 25 with "TLS" encryption

2). Sender Information:

- Name: Customize the settings or use the HMI device name (e.g.: F2070E)
- Email: Same as the username (123456@qq.com)

3). Status Callback URL (Optional configuration for monitoring sending status):

- Transmission Status: Associated with HMI word variable MW0 (0 = No Status, 1 = Transmitting, 2 = Successful, 3 = Failed)
- Error Code: Associated with HMI word variable MW1
- Error Notification: Associated HMI bit variable MB15 (1 = Send Failure Alarm)



Email Status

☒ Send Status ⓘ

MW0 </> +

☒ Error Code ⓘ

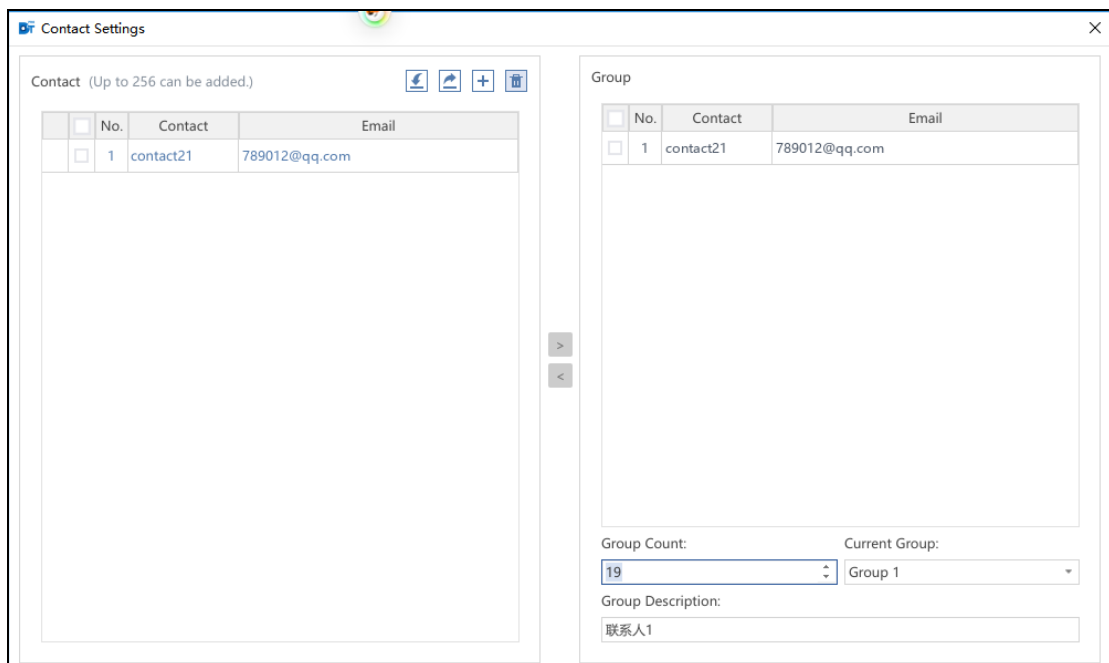
MW1 </> +

☒ Error Notification ⓘ

MB15 </> +

4). Contact Settings:

- a) Click [Add Contact], enter the recipient's information, and then import the contact into the group (Example: Recipient 1: 789012@qq.com, Group 1)
- b) Batch import support: Click [Import] and select the contact file in CSV format



Contact Settings

Contact (Up to 256 can be added.)

No.	Contact	Email
1	contact21	789012@qq.com

Group

No.	Contact	Email
1	contact21	789012@qq.com

Group Count: 19

Current Group: Group 1

Group Description: 联系人1

5). SMTP Test:

Select the recipient group, click [Test SMTP], and a prompt of "Sent Successfully" indicates that the SMTP configuration has taken effect.



Test SMTP setting

Send success ✓

Email title: test

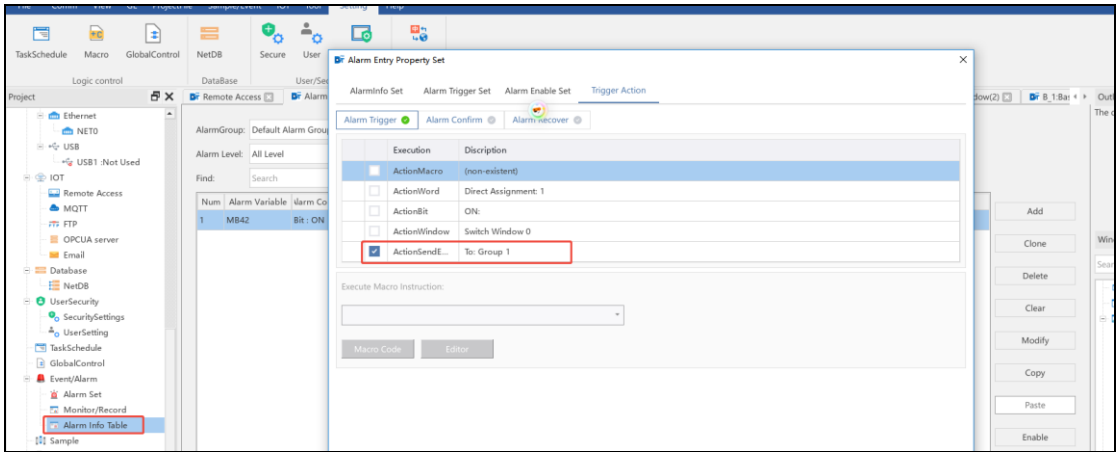
Email content: test

3. HMI Alarm Email Notification Configuration

Operation Steps:

- 1). In the configuration software, enter the [Alarm Information Table], select the alarm entry to be associated with email (e.g., "Equipment Temperature Exceeds Limit" alarm), click [Trigger Action] → [Check "Send Email on

Alarm"]



2). Email Settings: Includes configuration of contacts, email subject and email content



3). Attachment Configuration: You can select the basic window to take a screenshot and send it as an email attachment.



4).Simulate or download to trigger an alarm on the screen to realize email sending. A sending status of 2 indicates successful delivery.

Note: When sending emails via HMI, please ensure the time and DNS settings are correct. An incorrect time will cause encryption certificate authentication to fail, while incorrect DNS settings will prevent connection to the mail server.



Send status

2

error code

0

Error notification

Email action

Alarm trigger

No.	Alarm content	Trigger date	Trigger time	Alarm cumulative number
2	Off to On	26-03-26	12:56:32	1
1	LowLow	26-03-26	12:56:26	1

10 Database

The database is mainly used to control data reports and set the function of saving and then exporting them

10.1 Net Database

Database Table

Database table list

+

☐	No.	Name	Description	ID
☒	1	newtable1		1

Database table use enviroment

Property
☒ local database
☐ remote database

Database type

SQLite

Database name

kinco

Field list

+

Capacity set

☐	No.	Name	Description	Type	CharLength	Property
☒	1	column1		bit	1	Allow blank

Description for Database Table				
Database table list	Database Table List	Name		Set the name of the data report to a maximum of 128 characters
		Description		Description of table attributes, up to 128 characters
	Field list	+		Adding, deleting, moving up and down fields
		Name		Set the field name of the database table to a maximum of 128 characters
		Description		Description of field attributes, up to 128 characters
		Property	Null	Do not set field properties
			Allow Blank	Allow empty data, display empty data as blank
			Major Key	Used to identify each record, the data in the primary key field cannot be empty
			Major Key: Auto Increment	It is possible to increment the data of a certain field as the record is inserted (without inserting data for this field). The prerequisite for automatic increment is that this field must be a major key, and there can only be one automatic increment in a table. Only 8 bits, 16 bits, 32 bits, and 64 bits have this feature
		Char Length		When the field type is string, the length of the string field can be set
		Type	SQLite	Supports all data types.
			MySQL	
			PostgreSQL	64-bit unsigned numbers are not supported.

			SQL Server	Unsupported 32-bit unsigned numbers, 64 bit signed/unsigned numbers, time, long time, time of day and date
	Capacity set	Record filled operator	Automatically delete the oldest record	
			No longer saving records	
		Capacity unit	Number of records	
		Entries capacity	The default capacity is 1000 units, with a maximum of 65535 units	
Property		Local Database	Database on the local machine. Currently only SQLite, PostgreSQL are supported Note: PostgreSQL is not support G2 series HMI	
		Remote Database	Set database types: MySQL, SQL Server, PostgreSQL	
			Set the IP address, port (MySQL default port 3306, SQL Server default port 1433, PostgreSQL default port 5432), username and password, and then update the database	
Database use environment		Select a database table to view the usage environment of the database table		



1.  These three actions represent replication, addition, and deletion, respectively. Copy can be copied from both local and remote databases.
2.  Must be checked to delete database tables/fields
3. Collaborate with "Database Action Settings" in [Chapter 8.3.1.12 – Database Action Set](#) and [Chapter 8.7.3 -Database Table](#).

11 User Security

User security function refers to the ability to define specific authorization and access permissions for specific users.

Anyone who wants to use HMI functions needs to log in with a specified username and user password.

User permissions involve two types of objects: user groups and users.

User group: Set a certain type of user group to have specific permissions, and a user group can contain multiple users.

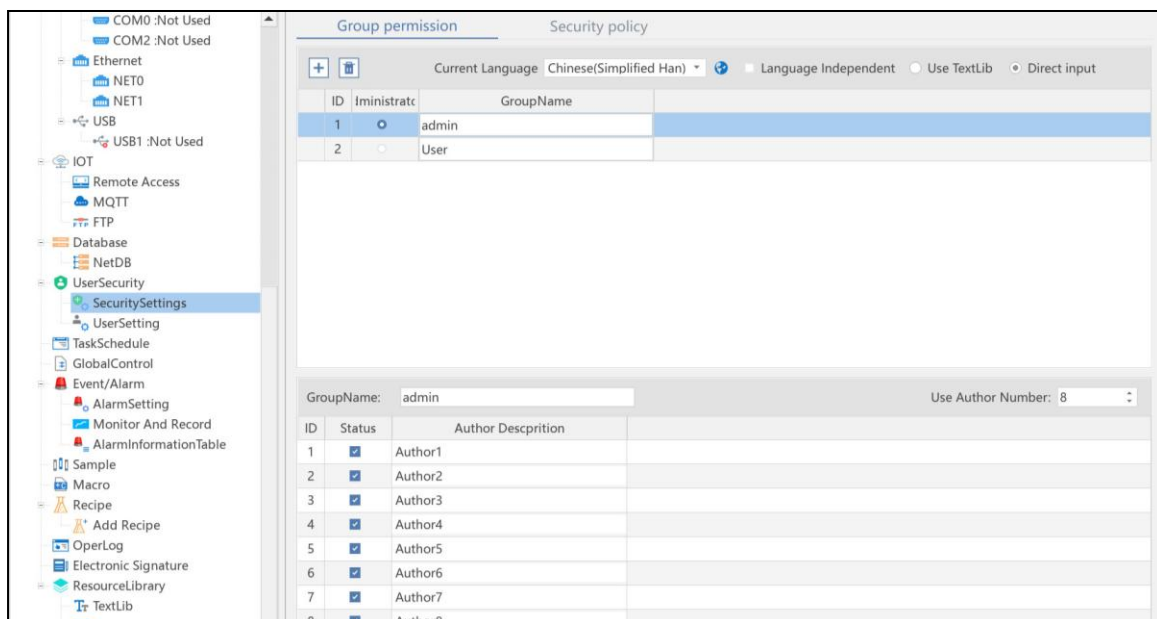
User: Belongs to a specific user group. A user can only be assigned to one user group.

In practical applications, access permissions are not directly assigned to users, but rather to specific user groups.

A specific user is assigned to a specific user group to obtain permissions, which separates the management of a specific user from the configuration of permissions and facilitates management. Information about user groups and users is stored in the HMI's internal database.

11.1 Security Settings

The security settings are preconfigured in the Project Menu Window. Clicking the "Security Settings" option in "User Security" in the "Project" window will automatically open the User Group Management Settings page in the design area. This page is used to configure and manage user groups and users. The configuration page mainly contains the "User" tab setting page and "Group" tab setting page. By clicking the button of the "Security Settings" tab, you can open the "Properties" parameter configuration dialog box.



11.1.1 Group Permission

- **Group Name List**

Group Name List Description

Open the "Group permission" tab in the Security Settings edit page and the button to create a new permission group and configure it. By default, two types of user groups, "admin" and "User" have been pre-defined in the system.

Add Group	Add permission groups, up to 32 permission groups can be added	
Delete Group	Delete permission groups	
Current Language	Permission group names can be set for different languages.	
Language Independent	When checked, the checkbox for the current language will be invalid, and the first language will be used by default for the permission group name.	
Use Text Lib	Permission group names use text lib content	
Direct input	Used to modify the permission group name	
Permission settings	ID	Permission Group Number
	Group Name	Customizable user group name
	Administrator	Set a unique administrator permission group. Check the box to take effect

- **Group Permission Setting**

Group Permission Setting Description		
Group Name	Edit Setting Permission Group Name	
Use Author Number	Set the number of privileges of the current privilege group, the maximum number is 32.	
Setting Parameters	ID	Authority number
	Status	Set the permissions of the permission group, check the box to take effect, unchecked by default.
	Author description	Customizable permission descriptions, e.g. 'Operator', 'Engineer', etc.

11.1.2 Password Setting

Password Setting

☐ Password must contain the letters
 ☐ Password must contain numbers
 ☐ The new password can't be identical to the last one

 Minimum length of password:

Password Setting Description	
Password must contain the letters	The user password set must contain letters
Password must contain numbers	The user password set must contain numbers
The new password can't be identical the last time	The new password for modifying password settings cannot be the same as the old password
Minimum length of password	Set the minimum character length of the password. The default length is 8, and up to 15 digits can be set

11.1.3 Lock Setting

Lock Setting

Account lock threshold:
 Lock time(minutes):

Lock Setting Description	
Account Lock Threshold	The number of times you are allowed to enter the wrong password for the same account. After the set number of times, the account will be locked and cannot be used.
Locking time (minutes)	Set the time when the account will be locked. The account will be unlocked when the set time is reached. The time is in minutes.

The default account lock threshold is 3 and the default lockout time is 60, which means that after 3 incorrect passwords are entered, the account will be locked out for 60 minutes.

11.1.4 Swiping Setting

Swipe card to logon

☐ Support swipe card to logon
 ☐ Usb port swipe card automatic login 
☐ Card swipe failure automatically pops up user login window

Swiping Setting description	
Support swipe card to login	After checking, you can set the user's card number and support entering the card number to log in. It is not checked by default
USB port swipe automatic login	After checking, you can use an RFID reader to swipe your card and log in directly. It is not checked by default
Card swipe failure automatically pops up user login window	After selecting "swipe card to login", this option can be set. If the swipe card fails after selecting this option, a user login window will pop up
Cannot be Deleted Configuration Admin User	Check to restrict the deletion of initial administrator users through user management. It is not checked by default

Note: Only after checking 'Support swipe card to login' can the USB port card swiping automatic login be checked. To use the card swiping function, you need to set the card number in the user settings, where one card number corresponds to one user. Using an RFID card reader for card swiping login is valid at any screen and time.

11.2 User Setting

Open the "Users" tab in the User Rights Management Editor. You can modify the number of users, create new users, and configure them. By default, "User1" and "User2" users have been predefined in the system.

11.2.1 User Name List

Username List 2  
Current Language English(Li 
☐ Language Independent
☐ Use TextLib
☒ Direct input

	ID	Enable	UserName	GroupName	Hide	UserInfo
	1	☒	User1	admin	☐	
	2	☒	User2	User	☐	

User Number : Set the total number of users, with a maximum of 1024

Parameter	Description
Current Language	User names can be set for different languages
Language Independent	When checked, the checkbox for the current language will be invalid, and the username uses the first language by default.
Use TextLib	Username to use text library content
Direct input	Used to change the username

User Number	User serial number
Enable	If checked, the user becomes effective. It is not checked by default
User name	Customizable User Name
Group Name	Set the permission group to which the user belongs and get the corresponding permission
Hide User	Check to hide the user in the user list. It is not checked by default
User Info	Set user information, such as engineers and operators. The system variable '\$User Description' can be used to display the current user information
Import Users	Import a user data table with a default file name of "User List. xlsx" and a type of xlsx; The pop-up window is named "Import User" (the file name can also be imported without the input suffix. xlsx)
Export Users	Export the current project user data table, and the exported file name defaults to "UserList", which can also be named by oneself. The file type is xlsx. The exported file exists in the software installation directory



These two actions represent import users and export users, respectively.

11.2.2 User Authority Information

- Conventional

User1[admin]

Conventional

Group permission

Password validity

UserName: User1

Password: 88888888

GroupName: admin

LogoutTime(minutes): 10 (0 indicate never logout)

CardID:

Setting items	Description
User Name	Customizable User Name
Password	Configure the user password for the corresponding username in string format
Group name	Set the permission group to which the user belongs and obtain the corresponding permissions for the permission group
Logout time (minutes)	Set the automatic logout time to start counting from the last operation after logging in to the user. 0 indicates that the identity has not been unregistered
CardID	After enabling card swiping login, the user card number can be bound. The system variable '\$Employee Card Number' can be used to display the current user information

- Group permission

User1[admin]			
Conventional	ID	AuthorDesc	
Group permission	1	Author1	
Password validity	2	Author2	
	3	Author3	
	4	Author4	
	5	Author5	
	6	Author6	
	7	Author7	
	8	Author8	

Setting items	Description
Group Author	Display the permission content of the permission group set by the user

- Password validity

User1[admin]	
Conventional	
Group permission	Password validity period Setting(Unit:day)
Password validity	☒ allow change password at running ☐ prohibit change password ☐ prohibit change pwd. in named date ☐ Exceed the specified date setting

Setting items	Description
Allow change password at running	The user password can be modified by configuring the function on the HMI, which is checked by default
Prohibit change password	Prohibit modifying user passwords by configuring functions on HMI
Prohibit change pwd in named date	Set the number of days to not allow modification. The default is unchecked, and the default value is 1. The setting range is 1-3650 and the unit is "days".
Exceed the specified date setting	The user is automatically prompted to change the password after the specified number of days. The default is unchecked, and the default value is 1. The setting range is 1-3650, and the unit is "days".

11.3 User Variable

If users do not use the system's own user window, they can create their own user-related operations through user variables.

11.3.1 Current User Variable

Variable Name	Data Type	Data Length (bit/byte)	Read/Write	Description
\$User_Name	String	31	Read only	Used to display the current username. It is blank when not logged in
\$User_Password	String	15	Read/Write	Enter user password when logging in
\$User_Group	String	31	Read only	Used to display the user group to which the current user belongs. It is blank when not logged in
\$User_Description	String	31	Read only	Used to display the description information of the current logged in user
\$Employee_card_ID	String	31	Read only	Used to display the user card number of the current logged in user
\$User_edit_status	Bit	1	Read/Write	User editing status enable
\$Logout_Time	16-bit unsigned	2	Read only	Used to display the current user's logout time, which is 0 when not logged in
\$Employee_Card_Login	Bit	1	Read only	Used to display whether the user supports card swiping login. 1 indicates support, 0 indicates no support

11.3.2 Set Relevant User Variable

Variable Name	Data Type	Data Length (bit/byte)	Read/Write	Description
\$Set_User_Password	String	15	Read/Write	Used to enter a password when adding a new user or modifying a password
\$Set_Employee_Card_ID	String	31	Read/Write	Used to input card numbers when adding new users or modifying card numbers
\$Set_User_Description	String	31	Read/Write	Used to enter a description when adding a new user or modifying a user description
\$Set_Password_Retention	16-bit unsigned	2	Read/Write	Used to set the maximum number of days a password can be used. After exceeding the set number of days, the user will be prompted to modify the password without forcing it to be modified. When the variable is 0, there will be no prompt
\$Set_Modify_Password_Status	Bit	1	Read/Write	Set whether password modification is allowed. 1 indicates allowed, 0 indicates not allowed
\$Set_Confirm_Pass	String	15	Read/Write	Used to enter a confirmation password

word				when adding a new user or modifying a password
\$Set_User_Account_Status	Bit	1	Read/Write	Used to set user account status when creating new users or modifying user parameters. 1 indicates disable, 0 indicates enable. The current user account status cannot be modified
\$Set_Logout_Time	16-bit unsigned	2	Read/Write	Used to set the logout time when adding new users or modifying user parameters
\$Set_User_Group_ID	String	31	Read/Write	Used to set user groups when adding new users or modifying user parameters
\$Set_User_Name	16-bit unsigned	2	Read/Write	Used to set the username when adding new users or modifying user parameters
\$Set_Password_Retention_Date	16-bit unsigned	2	Read/Write	Used to set password retention days when adding new users or modifying user parameters

11.4 User Window

11.4.1 User Authority Browse

This screen is used to display user information. Administrator users can add, delete, modify, and restore default user properties for project configurations.



11.4.2 User Property Configuration

Property configuration window for 'Add User'/'Modify User'

11.4.3 User Password Modification

Users can perform password modification operations through this screen

11.4.4 User Authority Login

You can log in by entering a username and password. When checking "swipe card login" in the security settings, you can also log in directly by entering the card number.

11.5 User Operation

11.5.1 Introduction to Operation

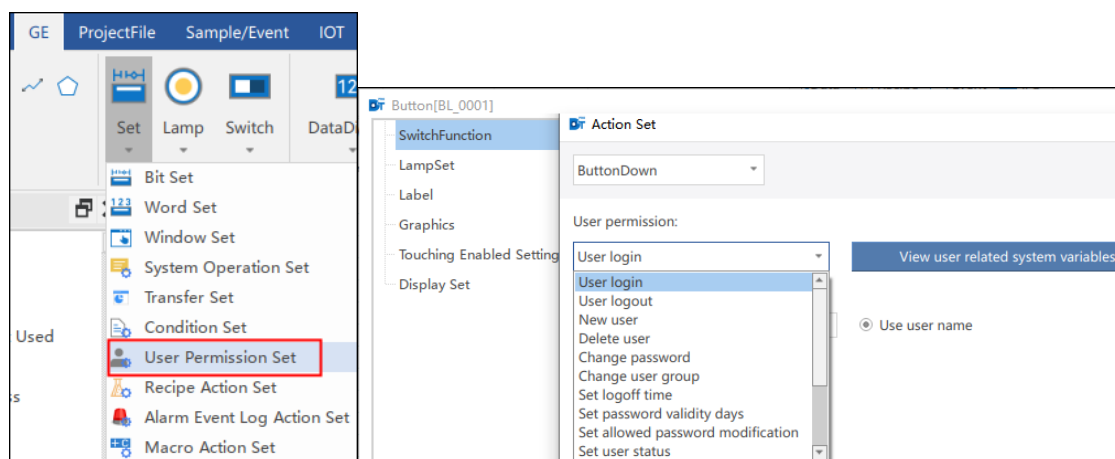
Except for login/logout, all other operations require the operation permissions of the administrator account. All operations are executed based on the bound system variables and their contents.

Operation Name	Operation Name
User login	Perform user login operations
User logout	Perform the operation of logging off the current user
New User	Execute the action of adding a new user
Delete User	Delete specified user
New Password	Modify the specified user password
User Group	Modify the user group of the specified user
Logout time	Set the specified user logout time
Set password validity days	Set the number of valid days for the specified user password
Set whether password modification is allowed	Set whether specified users are allowed to modify passwords
Set User Status	Set whether the specified user is enabled
Set all user parameters	Set specified user parameters
Restore project default user	Restore default user attributes for project configuration
Modify User Card ID	Modify the specified user card number
Modify User Description Information	Modify the specified user description information

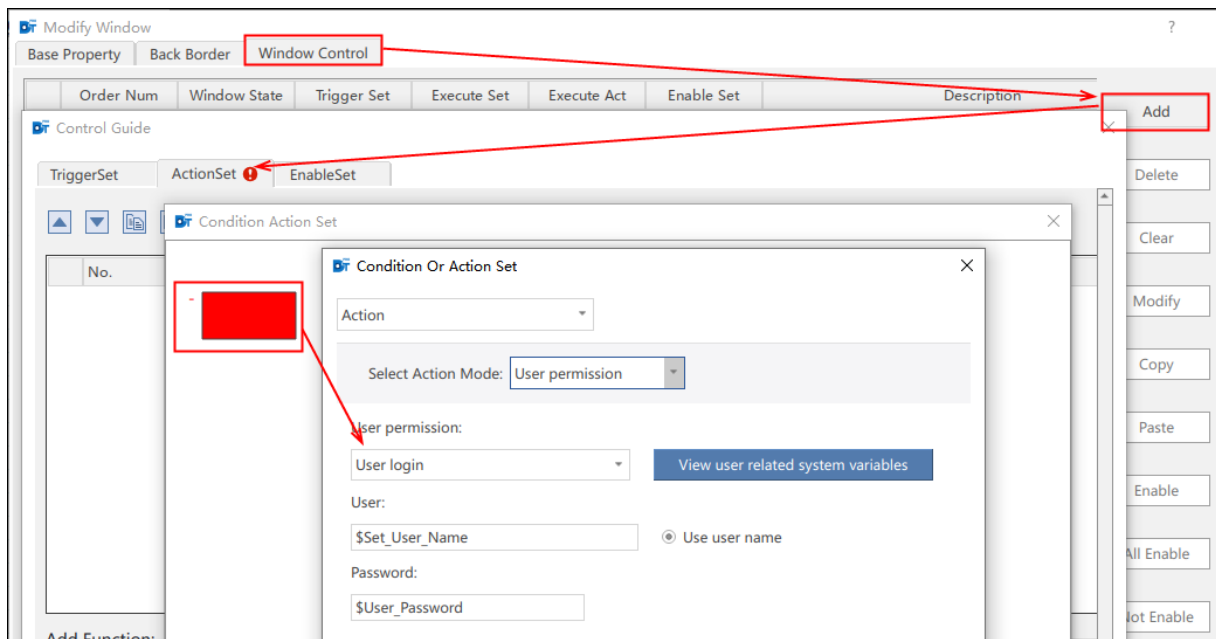
11.5.2 Introduction to Function

The following functions all support performing user actions

1. Set Function



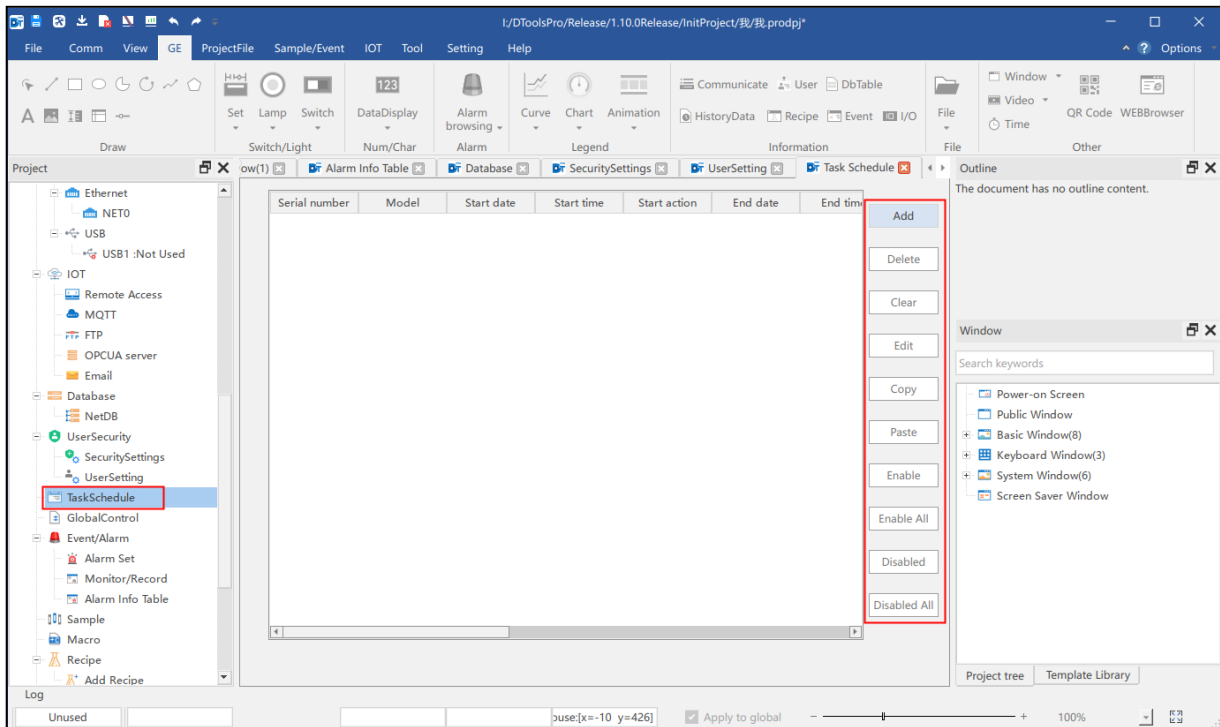
2. Window Control



12 Task Schedule

The task schedule list is used to register HMI to perform pre scheduled operations at a specified time, change the state of bit registers or the value of word registers. It is suitable for planning routine programs within a specified time frame.

- 【Task Schedule】 interface



Setting the scheduling operation Description

Add	Add scheduling operation items
Delete	Delete the currently selected scheduling operation item
Clear	Delete all scheduling operations for the current project
Edit	Modify the currently selected scheduling operation item
Copy	Copy the currently selected schedule operation item
Paste	Paste the copied schedule operation item
Enable	Enable the currently selected scheduling operation item
Enable All	Enable all scheduling operations for the current work
Disabled	Disable the currently selected scheduling operation item
Disabled All	Disable all scheduling operations for the current work

12.1 Schedule Set

Click on 'Add' and a pop-up will appear as shown in the following figure:

Schedule Setting Descriptions		
Execute settings	Not checked by default. Execute when power is turned on	
	Checked	1. If the HMI starts after the scheduled time, execute the start action first. 2. If the HMI starts before the scheduled time and the end action is checked, the end action will be automatically executed first.
	Unchecked	If the power is turned on later than the scheduling start time and the end action is checked, the start action will not be automatically executed, but the end action will be automatically executed. If the end action is not set, the scheduling interval cannot be correctly determined, so the action will not be executed. 2. If the HMI starts before the scheduled time and the end action is checked, the start action will be automatically executed first.
Date mode	The trigger method for scheduling execution is specified date/year/month/week (using a single date)	
Time setting	Set the scheduling time. If the end action is enabled, the end time must be greater than the start time	
Use Variable	Check the option to use variables, set variables directly, and assign values to the variables to set the triggering time (data is an array, which can be automatically assigned)	

Use variable time: Users do not need to modify and download the project through configuration. They can directly set the start/end action execution time online, and trigger the modification to take effect.

12.2 Action Set

Start Action: The action performed when the condition is met.

Action settings can be set to execute multiple actions. Execution can choose between sequential execution and full execution. Sequential execution refers to strict execution in the order in which actions are added, while full execution results in an uncertain order of execution.

Action Set

Start Action

Execute Setting:
Direct Assignment

Variable:

</> + !

Value:

End Action: Enable 'End Action' to take effect.

Action Set

End Action

Execute Setting:
Direct Assignment

Variable:

</> + !

Value:

12.3 Enable Set

Schedule Setting

Schedule Setting ! ActionSet ! EnableSet !

Touching Enabled Setting

Always Valid

AlwaysInvalid

Conditional Enabling

Express Control

False state work

express

+ !

ID	Operation	Express	Parentheses
----	-----------	---------	-------------

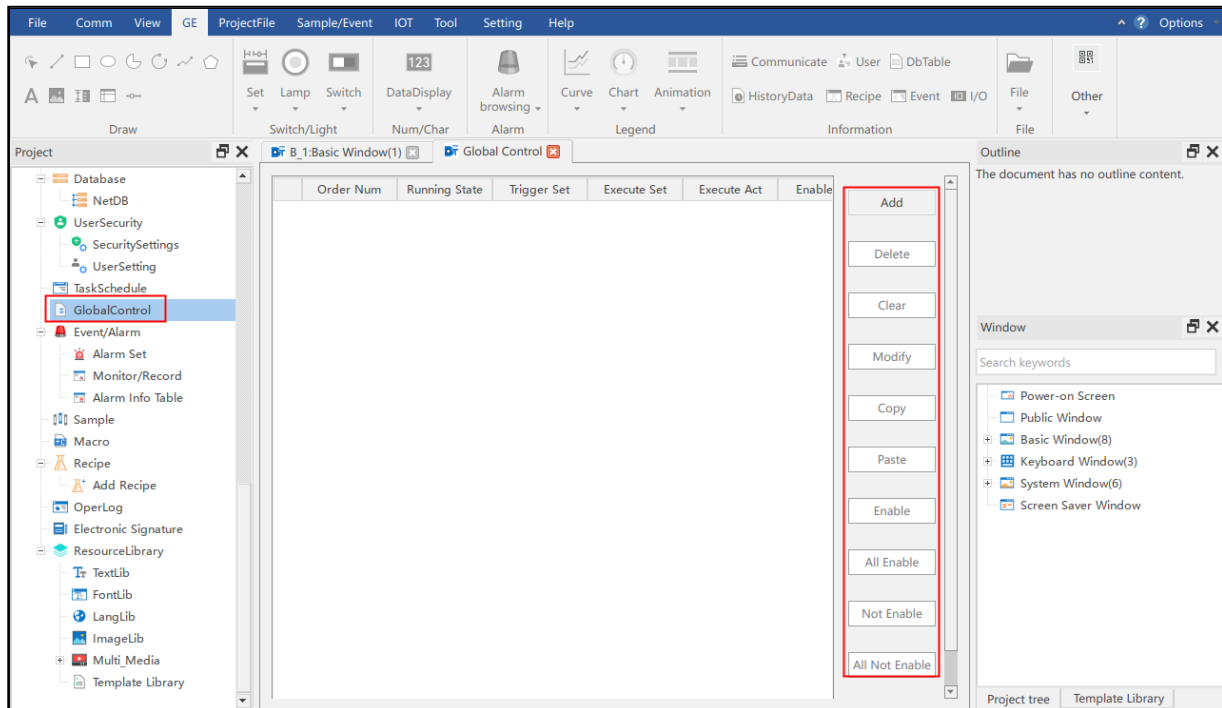
Enable Set Description	
Always Valid	Action always in effect
Always Invalid	Action Inhibit
Conditional Enabling	Effective when conditions are met

13 Global Control

Global control is used to execute global judgment actions of HMI, which can be executed periodically and predetermined actions can be executed according to certain conditions.

13.1 Operation Panel(Global Control)

As shown in the following figure, you can “add”, “delete”, “modify”, “copy”, “paste”, and “enable”.



Description of the operation panel (for global control)

Add	Add global control operation items
delete	Delete the currently selected global control action item
Clear	Delete all global control operation items for the current project
Modify	Modify the currently selected global control action item
Copy	Copy the currently selected global control action item
Paste	Paste the copied global control action item
Enable	Enable the currently selected global control operation item
All Enable	Enable all global control operation items for the current work
Not Enable	Set “not enable” for the currently selected global control operation item
All Not Enable	Set “not enable” for all global control operation items in the current work



Right click on the selected item to select Mobility Control Data

13.2 Trigger Set

Control Guide

TriggerSet
ActionSet
EnableSet

Trigger Set

Running State:
☐ At Start Up
☒ At Running Time

Trigger Condition:
Always Trigger

Trigger Response:
☒ Prompt Response
☐ Delay Response
1
*100ms

Execute Set

Execute Mode:
☐ Execute Once
☐ Execute Multi Times
☒ Execute Always

Execute Interval:
1
*100ms
☐ Variable
Execute Times:
1
☐ Variable

Control Description:

Trigger Set Description			
Running State	At Start Up : Only execute once during HMI startup		
	At Running Time :	Always Trigger : Periodic execution during HMI runtime	
		Bit State Change : ON->OFF , OFF->ON , ON<->OFF , ON->OFF(automatic reset) , OFF->ON(automatic reset)	
		Word Value Change : Trigger execution when the word value changes, and the range of changes can be set. The default value is 1	
		String Change : Trigger execution when the string content changes	
	Execute when the triggering condition is met during HMI operation	Express Condition	Bitwise Logic : ON、OFF、Logic NOT
			Word Logic : Equal to, less than, greater than, less than or equal to, greater than or equal to, not equal to (variable or constant)
			Note: 1. Double click on the operation column to modify AND OR for multiple conditions, and double click on the parentheses column to modify () 2. The false status can be set to take effect, and the execution can be stopped if the conditions are not met (in conjunction with the execution method)

			Trigger Set Running State: ☐ At Start Up ☒ At Running Time Trigger Condition: Express Condition + ✖ (MB0==ON)&&(MW0==1) <table><thead><tr><th>ID</th><th>Operation</th><th>Express</th><th>Parentheses</th></tr></thead><tbody><tr><td>1</td><td></td><td>MB0==ON</td><td></td></tr><tr><td>2</td><td>AND</td><td>MW0==1</td><td></td></tr></tbody></table> ☐ False state work ☐ Stop execute at condition dissatisfy Trigger Response: ☒ Prompt Response ☐ Delay Response 1 *100ms	ID	Operation	Express	Parentheses	1		MB0==ON		2	AND	MW0==1		Window Switch	Execute when the current window changes
ID	Operation	Express	Parentheses														
1		MB0==ON															
2	AND	MW0==1															
Trigger Response	Prompt Response : Execute immediately when conditions are met																
	Delay Response : Execute according to the set time delay, and the Unit of time is 100ms																
Execute Mode	Execute Once: If the condition is met, execute once																
	Execute Muti Times: When the conditions are met, execute the preset number of times, in conjunction with the execution cycle and execution times																
	Execute Always: If the condition is met, execute continuously: in conjunction with the execution cycle																
Control Description	Explanation of the current global control operation																

13.3 Action Set

Multiple actions or single actions can be executed in sequence, consistent with button execution actions

Control Guide

TriggerSet

ActionSet

EnableSet

▲

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🗑️

🏠

No.	Execution	Action Description
1	ActionWord	Direct Assignment:MW0 1

Add Function:

Word

Bit

Window Operation

Macro

Condition

Recipe

Browse File

Data Base

User Permission

Alarm/Event/Log

Data Transfer

FTP

Print Window

RCP File

Send Email

▼ Function execution mode

Run All

☐ Send notification after function execution failure

13.4 Enable Set

Enable Set Description	
Always Valid	Action always active
Always Invalid	Action disabled
Conditional Enabling – Express Control	Effective when conditions are met

Control Guide

TriggerSet

ActionSet

EnableSet 

Touching Enabled Setting

☐ Always Valid

☐ Always Invalid

☒ Conditional Enabling

☒ Express Control

☐ False state work

express







ID	Operation	Express	Parentheses

14 Alarm/Event

Event/Alarm contains alarm settings, data monitoring and statistics, and alarm information tables for registering event/alarm information to be recorded, as well as alarm levels, variables to be recorded when an alarm occurs, and settings for action response.

14.1 Alarm Set

Alarm settings are primarily used to configure alarm list attributes and export alarm records

14.1.1Alarm List

Alarm Set

Alarm list

Export Record

English(Latin)

Alarm Group

Default Alarm Group(0)

Alarm Level

Value	Description	Level diagram
0	Critical	
1	Important	
2	Tips	

Alarm Type

Value	Type	Description
0	Alarm	Alarm
1	Confirm	Confirm
2	Recovery	Recovery

Capacity Setting

Record Save

Record Retention Reached

Number

10000

Delete oldest record

Record Type

☒ Alarm

☒ Confirm

☒ Recovery

Alarm ID

☒ Auto Generate Alarm ID

☒ ID Display Leading Zero

Alarm ID digits

3

Alarm set - Alarm list description	
Language column	It allows for quick switching between alarm groups, alarm level descriptions, and alarm type descriptions in both Chinese and English
Alarm Group	In the "Alarm Group" dialog box, you can set the corresponding attributes. Alarms can be grouped and their priorities can be indicated; a "Default Alarm Group (0)" alarm group has been preset in the alarm group, and the serial number in the name is the exported alarm group ID; this alarm group is the root node, and there is only one root node in the alarm group; The alarm group supports up to 5 levels of nodes, with a maximum of 99 nodes at the same level;
	: Edit the currently selected alarm group, and you can set up the text library function individually;
	: Add the next-level node of the currently selected alarm group
Alarm Level	: Delete the currently selected alarm group
	In the "Alarm Level" dialog box, you can set the corresponding attributes. Alarms can be categorized into different levels to indicate their importance. The system defaultly has three alarm levels: urgent, important, and tips.

	Value: ID of the alarm level, non-editable, with a maximum value of 99; Level Description: Name of the alarm level; Level Icon: Graphic representation of the alarm level  : 1.Edit the level description and level icon of the currently selected alarm level. 2.You can set the font color and background color of the alarm line for the alarm level: the background color is valid for the real-time alarm table and the historical alarm table; the font color is valid for the alarm bar, real-time alarm table, historical alarm table, etc., and only valid for the triggered state. Alarm description: You can use a text library  : Add alarm levels, with a maximum support of 100;  : Delete the currently selected alarm level;  : Move the currently selected alarm level up  : Move the currently selected alarm level downwards
Alarm Type	In the "Alarm Type" dialog box, you can set the corresponding attributes. Alarms can be categorized to indicate their types. The system has three default alarm types: system alarm, confirmed alarm, and restored alarm. Value: ID of the alarm type, non-editable Type: Type of the alarm, non-editable Description: Description of the alarm type, editable, displayed in the "Alarm Status" column on the alarm component Edit the alarm description of the currently selected alarm type
Capacity setting	Record Retention: Set the retention rules for alarm records. 1.Record save: Set the attributes to be retained in the exported alarm information table. The unit can be selected as "days" or "records". When "days" is selected, the minimum is 1 day and the maximum is 365 days; when "records" is selected, the minimum is 1 record and the maximum is 100,000 records. 2. Record Retention Reached: When the alarm information table reaches the "record retention" limit, new data will be recorded according to the set "reached record retention limit" method, which includes "deleting the oldest records" and "not retaining new records" Record Type: The alarm information table for export settings includes three record types for alarm information: alarm, confirmation, and recovery. By default, all three are checked. If a particular item is not checked, the alarm type for that item will not be included in the exported alarm information table. Alarms cannot be cancelled; Alarm ID: Set the properties of the alarm ID. 1. Auto-generate Alarm ID: Checking this indicates that an alarm ID will be automatically generated when an alarm occurs. 2. ID Display Leading Zero: Checking this means that the alarm ID on the alarm component will be displayed with a leading zero. For example, if the alarm ID is 1 and

- the number of digits displayed for the alarm ID is 2, checking this will display 02.
3. Alarm ID Display Digits: The default is 5. Set the number of digits displayed for the alarm ID, with a minimum of 1 digit and a maximum of 5 digits

14.1.2 Export Record

After checking "Enable Export", you can set the corresponding attributes.

The alarm record is used to store the alarm information generated during the project's operation, facilitating subsequent viewing and problem analysis.



The difference between record export in alarm settings and export settings in alarm components is as follows:

- 1.Record export in alarm settings refers to exporting background alarm information.
- 2.The export setting in the alarm component is to export the alarm information displayed by the current component.

Alarm Set

Alarm listExport Record

☒ Export

Exported Device

HMI

Exported Folder

alarm

☐ Dynamic

Export data processing

Export All

Exporting Files

☐ Dynamic☒ Timestamp

Exported File Format

CSV

Export Data Sorting

Sorted by time ascending

☐ Encrypt

Export Method

☒ Fixed-cycle export

☐ Daily Scheduled Export

1

Minute

☐ Triggered Export

Export Report Format

Export different alarm types of the same alarm by branch

☐ Export State

Channel Setting

Input directly

English(Latin)

☐ Language Independent

☒ Export title bar

☐ Export time contains milliseconds value

Move up

Move down

Restore to default

Filter channel

Name	Title Name Set
序号	No.
报警等级	Alarm level
报警内容	Alarm content
报警ID	Alarm ID

Alarm Set- Record Export Description	
Exported Device	To export and save alarm information in a storage device, you can choose between HMI and USB1
Exported Folder	Default setting: alarm. Set the subfolder name for exporting alarm information. If this item is empty, the alarm information will be saved in the "data" folder of the project root directory by

	default	
Dynamic Folder	Dynamically set subfolder names using string variables	
Export data processing	Export All	Export all data
	Append Data	Remember the timestamp of the last data in the last exported file, and only export the data after the previous timestamp for the next export (regardless of whether the folder and file name have been modified, only export the data after the previous timestamp)
Export File	Set the name of the exported file. If the export is successful, a file with the corresponding name will be generated in the subfolder. You can check the option for timestamps when exporting all files. If you check the option for using dynamic files, you can dynamically set the file name using string variables	
Export File Format	Set the file format for exporting data sampling information, including CSV and PDF; append export does not support PDF format;	
Export Data Sorting	Set the sorting method for exported data, including "Sort by Time in Ascending Order" and "Sort by Time in Descending Order"; appending export does not support the descending time order format;	
Encrypt	If checked, the exported file format will be a zip file, which requires a password to be entered for successful decompression. If "File Encryption" is not checked, the exported file format will be the one set in the "Export File Format" option, and the file can be opened directly. If "Dynamic Password" is checked, a string variable can be used to dynamically set the password for file encryption, which is valid when "File Encryption" is checked	
Export Method	Fixed-cycle export (min)	Automatically export according to the set cycle
	Daily Scheduled Export	Set the export time to export data sampling record information on a daily basis.
	Triggered Export	Export of data sampling log information by state triggering of bit variable
		Trigger Type Setting the trigger type for triggering exported bit variables
		trigger variable Triggering an export with a bit variable
		Start time To set the start time of export, use the time element setting for configuration , time element Please refer to subsection 8.9.1 Time
	End time	Set the end time of the export, and use the time element to set it during configuration , time element Please refer to subsection 8.9.1 Time
Export Report Format	Set the record format for exporting alarm information, including "exporting different alarm types for the same alarm in separate rows" and "exporting all alarm types for the same alarm in a single row". When "exporting different alarm types for the same alarm in separate rows" is selected, the data table in the "Export Channel Settings" will have a "Alarm Status" header column. For example, if an alarm message has three states: triggered, confirmed,	

	and recovered, and "exporting different alarm types for the same alarm in separate rows" is selected, the exported data table will display the three states (triggered, confirmed, and recovered) in separate rows. Otherwise, it will not
Export Status	The state is derived by reflecting the value of the word variable. 0 indicates the initial state; 1 indicates successful derivation; 2 indicates no external memory; 3 indicates write error; 4 indicates insufficient storage space
Channel settings	The export channel setting is used to configure the properties of the exported alarm information table.
	Direct input/using text library: Whether to use direct input or a text library for the "Title Bar Name Settings" column item in the "Export Channel Settings" data table, for modifying the title bar name
	Display Language: Preview or set the language of the title bar. When [Language Irrelevant] is checked, it is invalid
	Export title bar: Checked by default. If checked, the exported alarm information table will include a title bar. Checked by default
	Export time includes millisecond value: Checking this option will cause the time in the exported alarm information table to include millisecond values
	Move Up: When a row in the data table is selected, clicking [Move Up] will move the selected row up. Except for the first row of the data table, the [Move Up] button is always effective
	Move Down: When a row in the data table is selected, clicking [Move Down] will move the selected row downwards. The [Move Down] button is functional except when the last row of the data table is selected
	Restore default sorting: Restore to the original sorting of the data table
	Filter channel: By default, all options are selected. You can manually filter/cancel the corresponding export channels;
	Note: The name of the exported channel is set according to the title bar name;

14.2 Monitor and Record

Data monitoring and recording are used to configure variable data that needs to be displayed in alarm information. There are two situations: the first is to display real-time data of certain variable values when the alarm is triggered in the alarm text, and the second is to monitor the historical changes of alarm related variables. Monitoring changes in data is the second situation.



1. Only when monitoring variables are added to "Monitor and Record " can monitoring variables be associated with the alarm entries in the "Alarm Information Table".
2. Insert up to 8 monitoring variables into an alarm message.

1. In the " Alarm Data Monitor " dialog box, corresponding properties can be set.

Alarm Data Monitor - Export Channel Setting Description	
Add	Add monitoring variables
Clone	Clone the current monitoring variable. Clicking the 【Clone】 button will pop up the "Set Monitoring Variable" window, where the attributes of the variable are consistent with the currently selected variable attributes
Delete	Delete the currently selected variable
Clear	Clear all variables
Modify	Edit the properties of the currently selected variable
Copy	Copy the currently selected variable
Paste	Paste the currently selected variable
Import	Import Monitoring Variable Table
Export	Export the current monitoring variable table

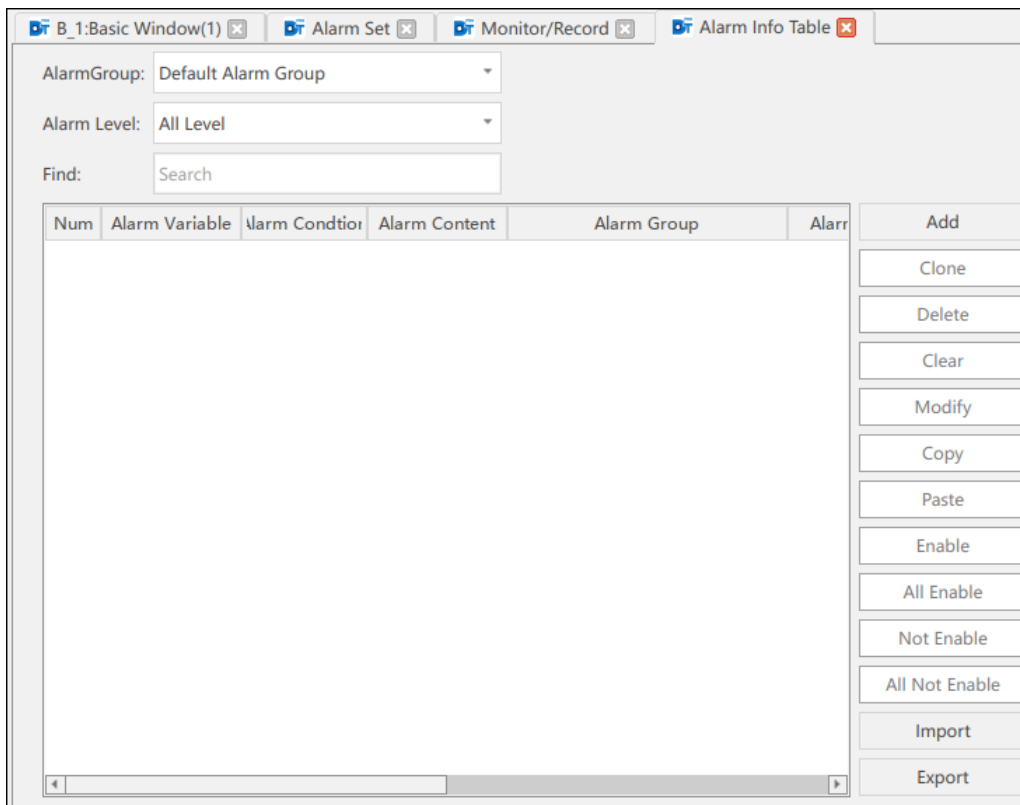
2. In the "Alarm Statistics" dialog box, corresponding properties can be set.

Monitor and Record - Alarm Statistics Description	
Report the current alarm count [All group]	Display the current alarm count through word variables
Report the cumulative alarm count [All group]	Display the cumulative number of alarms that have occurred through word variables
Current alarm status [All group]	Determine whether there is currently an alarm triggered by the status of the bit variable. As long as an alarm is triggered, the current alarm status variable will be set to 1

14.3 Alarm Information Table

A library component used to register alarm information. It is possible to register alarm information triggered by bit variables, word variables, and expression conditions.

1. In the "Alarm Info Table" dialog box, corresponding properties can be set.



Alarm Information Table Description	
Alarm Group	Filter alarm information by alarm group
Alarm Level	Filter alarm information by alarm level
Find	Search for alarm information
Add	Add alarm information
Clone	Clone the current alarm information. Clicking the 【Clone】 button will pop up the "Alarm Entry Attribute Settings" window. The attributes of the alarm information are consistent with the currently selected alarm information attributes
Delete	Delete the currently selected alarm information
Clear	Clear all alarm messages
Modify	Edit the properties of the currently selected alarm information
Copy	Copy the currently selected alarm information
Paste	Paste the currently selected alarm information
Enable	Set the currently selected alarm information to be valid
All Enable	Set all alarm information to be valid

Not Enable	Invalid setting of the currently selected alarm information
All Not Enable	Set all alarm information invalid
Import	Import Alarm Information Table
Export	Export the current alarm information table

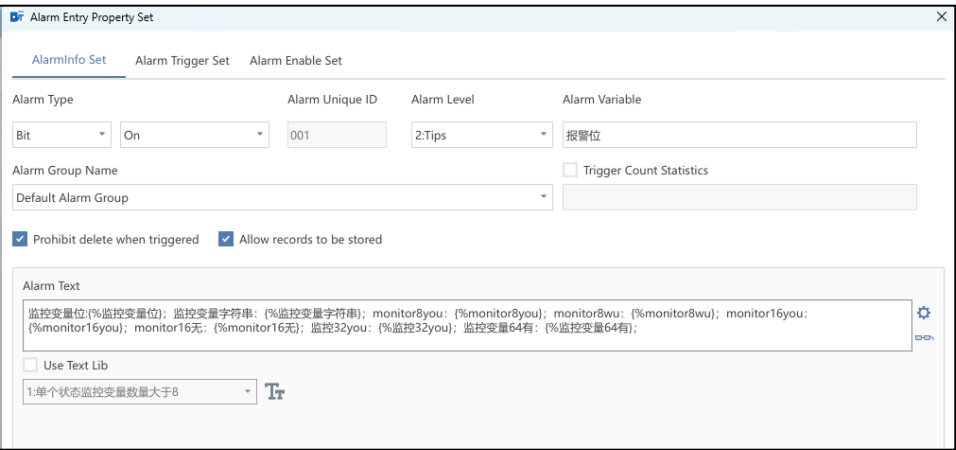
2. Click the "Add" button to set the properties of alarm information in the "Alarm Entry Property Set" dialog box. The following is a description of bit variable alarm types.

The screenshot shows the 'Alarm Entry Property Set' dialog box with the 'AlarmInfo Set' tab selected. The 'Alarm Type' is set to 'Bit'. The 'Alarm Unique ID' is '00001'. The 'Alarm Level' is '2:Tips'. The 'Alarm Variable' field is empty. The 'Alarm Group Name' is 'Default Alarm Group'. The 'Trigger Count Statistics' checkbox is unchecked. The 'Prohibit delete when triggered' and 'Allow records to be stored' checkboxes are checked. The 'Alarm Text' field contains 'On'. The 'Use Text Lib' checkbox is unchecked. The 'Description' field contains 'Please input description'.

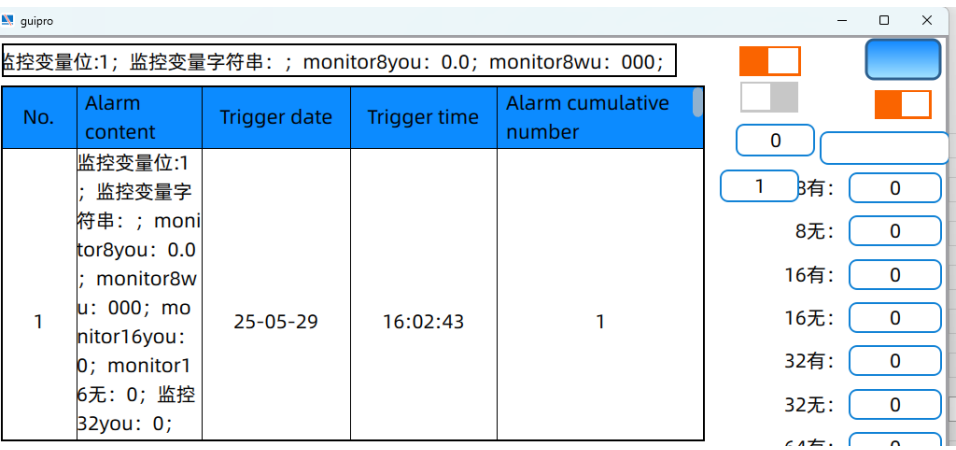
Alarm Information Table - Bit Variable Alarm Entry Properties Description	
Alarm Type	Set alarm information for alarm information, including bits, words, and expressions
Alarm Unique ID	The ID of the alarm message. Modification is not allowed, system automatically assigns
Alarm Group Name	Set the group name for alarm information
Alarm Level	Set the level of alarm information
Alarm Variable	Set trigger variables for alarm information
Accumulated number of triggers	Record the cumulative total number of triggers
Prohibit delete when triggered	Check to indicate that deletion on the alarm component is not allowed when this alarm message is triggered
Allow records to be stored	Check to indicate that this alarm information is allowed to be stored
Switch value alarm	The triggering conditions for bit variable alarm information, including ON, OFF, and Change. There are two types of Changes: ON ->OFF and OFF ->ON
Alarm Text	The text content displayed after the alarm information is triggered. Click the [Settings] button to add monitoring variables (format: {% monitoring variables}). The added monitoring variables will be displayed in the alarm text. When the alarm is triggered, the current status or data of the monitoring variables will also be displayed. The specific

usage is as follows

1. Set the trigger type, alarm text, and add monitoring variables in the alarm information table as follows



2.When an alarm is triggered, the monitoring variables can be displayed in real-time based on the monitoring variable data, as shown in the following figure



No.	Alarm content	Trigger date	Trigger time	Alarm cumulative number
1	监控变量位:1; 监控变量字符串: ; monitor8you: 0.0; monitor8wu: 000; monitor16you: 0; monitor16无: 0; 监控32you: 0;	25-05-29	16:02:43	1

0

1 3有: 0

8无: 0

16有: 0

16无: 0

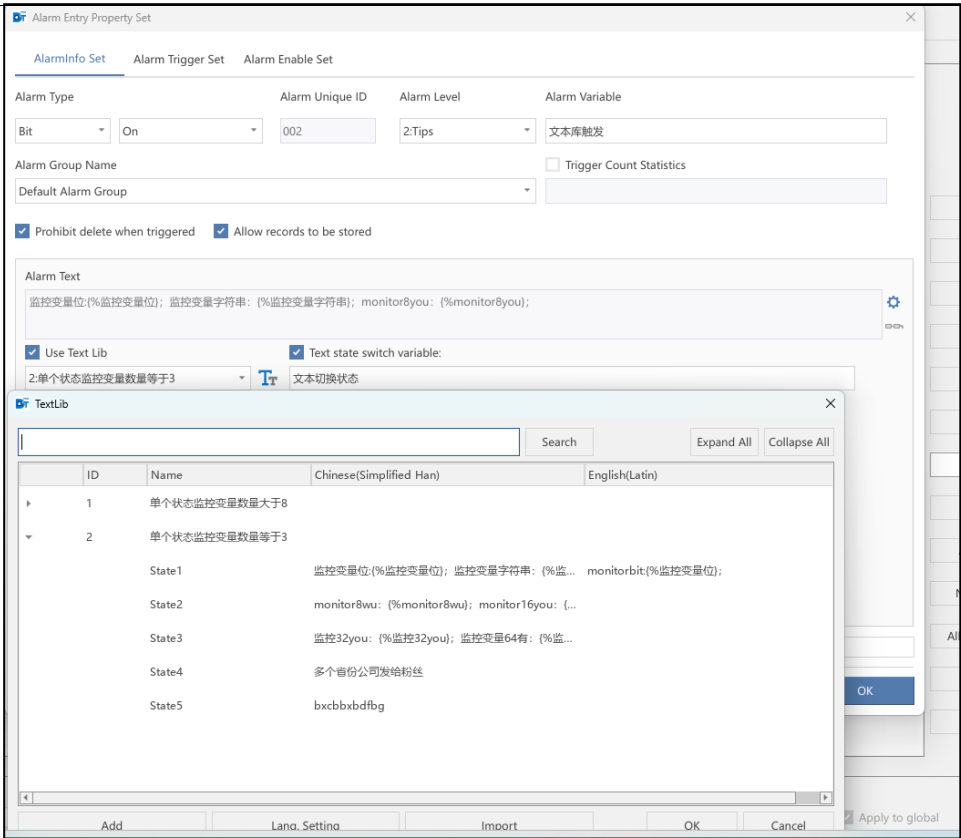
32有: 0

32无: 0

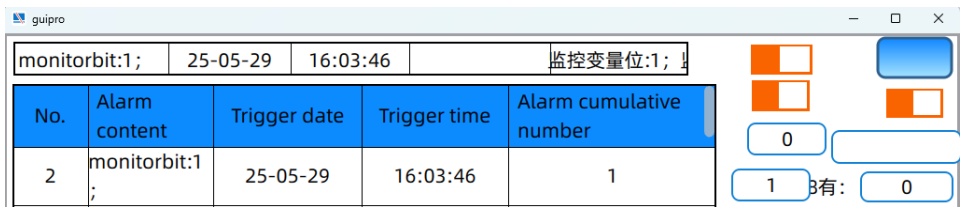
Action Set the actions to be executed during alarm triggering, confirmation, and recovery

Use Text Lib Alarm information is displayed using a text library; The text library supports monitoring variables, and just like direct input, monitoring variables can be used using the correct format; Format: {% Monitoring Variables}; Note: The number of monitoring variables in multiple states of the text library cannot exceed 8, and they will not be displayed if exceeded; The software must use a version higher than 1.8.0;

1. Set the trigger type in the alarm information table, use a text library for alarm text, add monitoring variables, and set them as follows



2.When an alarm is triggered, the monitoring variables can be displayed in real-time based on the monitoring variable data, as shown in the following figure



Text state switch variable

Switch the state of text through word variables. Valid when checking 【Use Text Lib】

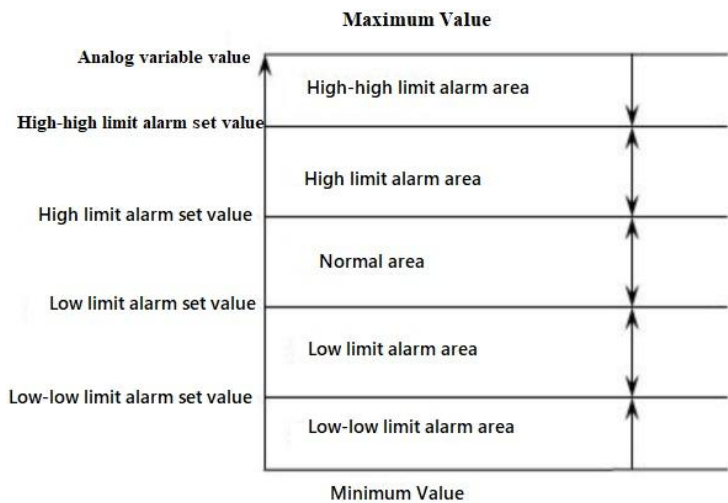
3. Click the 【Add】 button to set the properties of alarm information in the 【Alarm Entry Property Set】 dialog box. The following is a description of the alarm types for word variables.

➤ Word Variable Off-limit alarm



When a variable value changes, if it crosses a certain limit value, an "Off-limit alarm" will immediately occur. At a certain moment, there may only be one type of out of limit alarm for a variable, so only one type of out of limit alarm is generated. For example, if the value of a variable exceeds the high-high limit, a high-high limit alarm will be generated instead of a high limit alarm. In addition, if the limit is exceeded twice, it is necessary to check whether the two limits are of the same type. If so, no new alarm will be generated, but it does not mean that the alarm has been restored. If not, the original alarm will be restored first and then a new alarm will be generated. The schematic diagram is shown

in the following figure:



Alarm Entry Property Set

AlarmInfo Set

Alarm Enable Set

Alarm Type

Word

Off-limit alarm

Alarm Unique ID

001

Alarm Level

2:Tips

Alarm Variable

Alarm Group Name

Default Alarm Group

Trigger Count Statistics

Prohibit delete when triggered

Allow records to be stored

Alarm delay(second)

5

Low low

Limit value

50

Dynamic limit value

Alarm Text

LowLow

Use Text Lib

Low

Limit value

150

Dynamic limit value

Alarm Text

Low

Use Text Lib

Please input description

Alarm Information Table - Word Variable Off - Limit Alarm

Alarm Type	Set alarm information for alarm information, including bits, words, and expressions
Alarm Unique ID	The ID of the alarm message. Modification is not allowed, system automatically assigns
Alarm Group Name	Set the group name for alarm information
Alarm Level	Set the level of alarm information
Alarm Variable	Set trigger variables for alarm information
Over limit or	Set the overrun or deviation alarm delay time, which is in seconds. The default is 5

deviation alarm delay	seconds, and the range is 1-60 seconds. The alarm delay is only valid when triggered, but invalid after the alarm is recovered. If a new alarm is triggered within the delay time, the timing will restart
Prohibit delete when triggered	Check to indicate that deletion on the alarm component is not allowed when this alarm message is triggered
Allow records to be stored	Check to indicate that this alarm information is allowed to be stored
OFF - limit alarm	When defining the limit value, it should be: low-low limit value<low limit value<high limit value<high-high limit value. If it is not correct, it will prompt an error; If there is an error in the dynamic limit value, the alarm will not be triggered. The over limit alarm includes four types: low-low, low, high, and high-high ① Low-low: An alarm is generated when the value of the alarm variable is lower than the low limit value, and the low limit alarm is restored when it is greater than the low limit value ② Low: When the value of the alarm variable is lower than or equal to the low limit value, an alarm is generated, and when it is greater than the low limit value, the low limit alarm is restored ③ High: When the value of the alarm variable is greater than the high limit value, an alarm is generated, and when it is less than the high limit value, the high limit alarm is restored ④ High-high: When the value of the alarm variable is greater than or equal to the high-high limit value, an alarm is generated, and when it is less than the high-high limit value, the high-high limit alarm is restored
Dynamic limit value	Using variables to dynamically modify boundary values
Action	Set the actions to be executed during alarm triggering, confirmation, and recovery
Alarm Text	The text content displayed after the alarm message is triggered. Click the 【Set】 button to add monitoring variables. The added monitoring variables will be displayed in the alarm text. When the alarm is triggered, the current status or data of the monitoring variables will also be displayed
Use Text Lib	Alarm text using text library
Text state switch variable	Switch the state of text through word variables. Valid when checking 【Use Text Lib】

➤ Word Variable Deviation Alarm



Deviation alarm is an alarm generated when the fluctuation of the analog value relative to the target value exceeds the specified range of change. During the process of variable changes, if a certain limit value is crossed, an alarm will be immediately generated. However, there will not be two types of deviation alarms generated at the same time.

The schematic diagram is shown below.

The deviation alarm limits are calculated as follows:

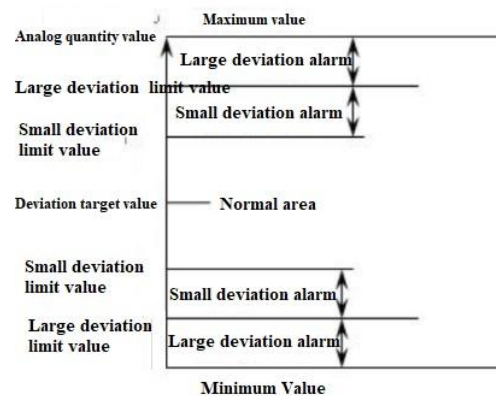
- ① Small deviation alarm limit value = deviation target value + - defined small deviation value;
- ② Large deviation alarm limit value = deviation target value + - defined large deviation value;

The deviation alarm has the following four cases:

- ① Small deviation alarm is generated when it is greater than or equal to the small deviation alarm limit
- ② The large deviation alarm is generated when it is greater than or equal to the large deviation alarm limit
- ③ Small deviation alarm is generated when it is less than or equal to the small deviation alarm limit
- ④ Generate a large deviation alarm if it is less than or equal to the large deviation alarm limit

For example, if the target deviation value is 100, the small deviation value is 20, and the large deviation value is 80, then the small deviation alarm limit = deviation target value + - defined small deviation value = 80,120, and the large deviation alarm limit = deviation target value + - defined large deviation value = 20,180.

Assuming that the minimum value of the variable is 0 and the maximum value is 255, the small deviation alarm is generated when the value of the variable is in the range of [120,180]; the large deviation alarm is generated when the value of the variable is in the range of [180,255]; the small deviation alarm is generated when the value of the variable is in the range of [80,20]; the large deviation alarm is generated when the value of the variable is in the range of [20,0]; and the large deviation alarm is not generated when the value of the variable is in the range of (80, 120). When the value of the variable is within the range of (80, 120), no alarm is generated, i.e., the normal area.



Alarm Information Table - Word Variable Deviation Alarm	
Alarm type	Set alarm information for alarm information, including bits, words, and expressions
Alarm Unique ID	The ID of the alarm message. Modification is not allowed, system automatically assigns
Alarm Group Name	Set the group name for alarm information
Alarm Level	Set the level of alarm information
Alarm Variable	Set trigger variables for alarm information
Over limit or deviation alarm delay	Set the overrun or deviation alarm delay time, which is in seconds. The default is 5 seconds, and the range is 1-60 seconds. The alarm delay is only valid when triggered, but invalid after the alarm is recovered. If a new alarm is triggered within the delay time, the timing will restart
Prohibit delete when triggered	Check to indicate that deletion on the alarm component is not allowed when this alarm message is triggered
Allow records to be stored	Check to indicate that this alarm information is allowed to be stored
Deviation alarm	The value of small deviation must be smaller than the value of large deviation, and the preset value is used when the dynamic deviation value is incorrect. Deviation alarms include two types: small deviation and large deviation
Deviation setting usage percentage	Check to indicate the percentage of deviation value used
Dynamic value	Using variables to dynamically modify deviation and target values
Action	Set the actions to be executed during alarm triggering, confirmation, and recovery

Alarm Text	The text content displayed after the alarm message is triggered. Click the 【Set】 button to add monitoring variables. The added monitoring variables will be displayed in the alarm text. When the alarm is triggered, the current status or data of the monitoring variables will also be displayed
Use Text Lib	Alarm text using text library
Text state switch variable	Switch the state of text through word variables. Valid when checking 【Use Text Lib】

➤ **Word Variable Change Rate Alarm**



Change Rate alarm refers to an alarm generated when the value of an analog quantity changes faster than a specified value over a period of time, that is, when the variable changes too quickly. During system operation, whenever a variable undergoes a change, the system automatically calculates the speed of the variable change to determine whether an alarm is generated.

Alarm Information Table - Word Variable Change Rate alarm

Alarm Type	Set alarm information for alarm information, including bits, words, and expressions
Alarm Unique ID	The ID of the alarm message. Modification is not allowed, system automatically assigns
Alarm Group Name	Set the group name for alarm information
Alarm Level	Set the level of alarm information
Alarm Variable	Set trigger variables for alarm information
Over limit or deviation alarm delay	Set the overrun or deviation alarm delay time, which is in seconds. The default is 5 seconds, and the range is 1-60 seconds. The alarm delay is only valid when triggered, but invalid after the alarm is recovered. If a new alarm is triggered within the delay time,

	the timing will restart
Prohibit delete when triggered	Check to indicate that deletion on the alarm component is not allowed when this alarm message is triggered
Allow records to be stored	Check to indicate that this alarm information is allowed to be stored
Change Rate	Set the limit value for the rate of change alarm. There are three types of rate of change alarms (in units of time): seconds, minutes, and hours
Dynamic change rate	Using variables to dynamically modify the rate of change
Action	Set the actions to be executed during alarm triggering, confirmation, and recovery
Alarm Text	The text content displayed after the alarm message is triggered. Click the 【Set】 button to add monitoring variables. The added monitoring variables will be displayed in the alarm text. When the alarm is triggered, the current status or data of the monitoring variables will also be displayed
Use Text Lib	Alarm text using text library
Text state switch variable	Switch the state of text through word variables. Valid when checking 【Use Text Lib】

4. Click the **【Add】** button to set the properties of alarm information in the **【Alarm Entry Property Set】** dialog box. The following is an explanation of the expression alarm type.

Alarm Entry Property Set

AlarmInfo Set Alarm Enable Set

Alarm Type Alarm Unique ID Alarm Level

Express None 001 2:Tips

Alarm Group Name Trigger Count Statistics

Default Alarm Group

☒ Prohibit delete when triggered ☒ Allow records to be stored ☐ Alarm delay(second) 5

Alarm Text

On

☐ Use Text Lib

Please input description

Cancel OK

Alarm Information Table - Expression Alarm	
Alarm Type	Set alarm information for alarm information, including bits, words, and expressions
Alarm Unique ID	The ID of the alarm message. Modification is not allowed, system automatically assigns
Alarm Group Name	Set the group name for alarm information
Alarm Level	Set the level of alarm information
Alarm Variable	Set trigger variables for alarm information
Over limit or deviation alarm delay	Set the overrun or deviation alarm delay time, which is in seconds. The default is 5 seconds, and the range is 1-60 seconds. The alarm delay is only valid when triggered, but invalid after the alarm is recovered. If a new alarm is triggered within the delay time, the timing will restart
Prohibit delete when triggered	Check to indicate that deletion on the alarm component is not allowed when this alarm message is triggered
Allow records to be stored	Check to indicate that this alarm information is allowed to be stored
Add	Click the 【Add】 button to add expressions for bit or word variables
Alarm status	The alarm status includes two types: ON and OFF. ON indicates that the expression is valid, OFF indicates that the expression is not valid
Alarm Text	The text content displayed after the alarm message is triggered. Click the 【Set】 button to add monitoring variables. The added monitoring variables will be displayed in the alarm text. When the alarm is triggered, the current status or data of the monitoring variables will also be displayed
Action	Set the actions to be executed during alarm triggering, confirmation, and recovery
Use Text Lib	Alarm text using text library
Text state switch variable	Switch the state of text through word variables. Valid when checking 【Use Text Lib】

5. Click the **【Add】** button to set the properties of alarm information in the **【Alarm Entry Property Set】** dialog box. The following is an explanation of alarm enable settings.

Used to configure whether the current alarm information is valid (default is always valid). When the alarm enable is set, if the alarm variable only meets the triggering conditions but does not meet the enabling conditions, then this alarm is also invalid.

Alarm Entry Property Set

AlarmInfo Set Alarm Trigger Set Alarm Enable Set Trigger Action

Touching Enabled Setting

Always Valid

Always Invalid

Conditional Enabling

Express Control

False state work

express

ID

Operation

Express

Parentheses

Description

Please input description

Alarm Information Table - Alarm Entry Property Set - Alarm Enable Set Description	
Always Valid	Check to indicate that the current alarm information is always valid
Always invalid	If checked, it indicates that the current alarm information has been invalid and the current alarm is disabled
Display invalid flag	If checked, the alarm message will display an invalid flag. Valid when checking 【Always Invalid】 and 【Conditional Enabling】
Show grayscale font	If checked, the font color of the alarm information will be displayed in grayscale. Valid when checking 【Always Invalid】 and 【Conditional Enabling】
Conditional Enabling	Check to indicate that the current alarm information is only valid when the specified bit or word variable meets the set conditions
False status work	Switch the state of text through word variables. Valid when checking 【Use Text Lib】

Alarm Entry Property Set

AlarmInfo Set Alarm Trigger Set Alarm Enable Set

Trigger Beep

Trigger Sound

Beep Duration

5

Second(s)

Continuous beeping

Beep Stop Condition

Until Event Resumes

Until Event Resumes Or Confirm

Until Event Resumes

Short

Alarm Entry Property Set

AlarmInfo Set Alarm Trigger Set Alarm Enable Set

Trigger Beep

Trigger Sound

Sound

Alarm01

Sound lib

Cycle Mode

Loop Count

1

Time(s)

Sound Stop Condition

Until Event Resumes Or Confirm

Until Event Resumes Or Confirm

Until Event Resumes

341

Alarm Information Table - Alarm Entry Property Set -Alarm Trigger Set		
Trigger Beep	Beep Duration	After the alarm is triggered, the duration of the buzzer response, in seconds, and the buzzer will end
	Continuous beeping	After triggering the alarm, keep buzzing until the 'beep stop condition' is met, and then the buzzing will end
	Beep Stop Condition	Until Event Resumes Or Confirm: After the alarm recovery or alarm confirmation operation, the buzzer ends Until Event Resumes: When the alarm is restored, the buzzing ends
	Beep Frequency	Set the frequency of buzzing to short beep/long beep
Trigger sound (only supports F1 series)	Sound	After importing the sound library, you can select the corresponding sound library file from the drop-down menu, and click the play button to play the current sound
	Cycle Mode	Loop Count:The number of times the audio is played after the alarm is triggered No Loop:After the alarm is triggered, it will continue to play until the 'sound stop condition' is met, and then the playback will end
	Sound Stop Condition	Until Event Resumes Or Confirm: After the alarm recovery or alarm confirmation operation, the sound ends play Until Event Resumes: When the alarm is restored, the sound ends play

15 Sample

Data sampling is mainly achieved by setting the sampling method (sampling time and sampling address) and saving the obtained sampling data to a designated location, such as HMI or USB drive. Data sampling can be used in conjunction with trend charts or historical data display components to display data sampling records.

- [Data Sampling List] interface

ID/Description/Sample Variable

Q

+

🗑

👤

📄

📌

Enable

Enable All

Disable

Disable All

ID	Description	Sample Variable	Method	Cycle/Trigger Addr	Cleared Variable	Status	Occupied Space
1	sample1	MW10	Cycle	1Sec		Always valid	84.38 K

Data Sampling List Setting Descriptions	
+	Add data sampling item
Delete	Delete the currently selected sampling item
Delete All	Delete all data sampling items in the current project
Copy	Copy the currently selected data sampling item
Paste	Paste the copied data sampling item
Enable	Enable the currently selected data sampling item
Enable All	Enable all data sampling items in this list
Disable	Prohibit enabling the currently selected data sampling item
Disable All	Disable all data sampling items in this list

15.1 Basic

Click on  icon and the interface shown in the following figure will pop up

General Property Settings Description

Description	the information of data sampling items, making it convenient for historical data and trend chart components to call data sources		
Contition	Cycle	Fixed Cycle	Set a constant period, in seconds or 100 milliseconds, and sample every other sampling period
		Fixed Time	Sampling is performed every other sampling cycle within a specified time period, in seconds or 100 milliseconds
	Bit	Perform a data sampling according to the specified triggering method (on=>off, on ->off, off ->on, on ->off (automatic reset), off ->on (automatic reset))	
	Word	Collect when changes occur	Perform a data sampling once the specified word variable changes
		Comply with variable range acquisition	Perform a data sampling when the value of the specified word variable changes between two consecutive times within the specified range of changes
	Expression	Bit:ON、OFF、Logical Not	
		Word:Equal, less, greater, less or equal, greater or equal, not equal(variable or constant)	
Note: Double clicking on the operation column for multiple conditions can modify AND\OR, and double clicking on the parentheses column can modify ()			

		ContitionExpression (MB0==ON)&&((MB1==ON)) ((MW0==1)) <table><thead><tr><th>ID</th><th>Operation</th><th>Express</th><th>Parentheses</th></tr></thead><tbody><tr><td>1</td><td></td><td>MB0==ON</td><td></td></tr><tr><td>2</td><td>AND</td><td>MB1==ON</td><td>(</td></tr><tr><td>3</td><td>OR</td><td>MW0==1</td><td>)</td></tr></tbody></table>	ID	Operation	Express	Parentheses	1		MB0==ON		2	AND	MB1==ON	(	3	OR	MW0==1	)
ID	Operation	Express	Parentheses															
1		MB0==ON																
2	AND	MB1==ON	(															
3	OR	MW0==1	)															
Control Setting	Clear control	Bit variable control, when the state is ON, clears all sampling records in memory																
		Execute only when the specified window is open : After checking, data sampling will only be executed in the specified window																
Capacity Setting	Record the same file	Storage device: Supports HMI and USB																
		Path for data storage: Directory setting: sample_data * File setting: db_sample*																
		Storage device selection HMI: You can choose to save sampling records by days (1-65535) and number of records; When the number of records or days reaches the save limit, you can choose to delete the earliest record or stop sampling; Delete earliest records: Set based on the number of days and records, and immediately delete the earliest data that does not match after exceeding the settings																
		Stop sampling: Set based on the number of days and samples, stop sampling immediately after exceeding the set limit																
		Select USB storage device: Data will be saved to external devices according to the set cycle. You can choose to save sampling records by days (1-65535); When the number of days reaches the save limit, you can choose to delete the earliest record or stop sampling; Delete earliest record: Based on the number of days, delete the earliest non compliant data after the sampling time exceeds the number of days Stop sampling: Set according to the number of days, stop sampling immediately after the sampling time exceeds the number of days																
Custom File	File Create: It is divided into automatic creation and triggered creation. Auto Create: When the file name changes, a new file will be generated. Trigger Create: Specify a bit address status change from OFF to ON to generate a new file. After creating the new file, the variable value is automatically set to OFF. When the HMI restarts and a new file is created: After checking, when the HMI restarts, determine whether the file name has changed. If it has changed, automatically create a db file; downloading a new project to the HMI is considered a restart.																	
	When the storage device is HMI or USB, the number of files saved can be set to 1~65535;																	

		Path for data storage: Directory settings: sample_data * File settings: _sample%y% m% d Delete earliest records: Set based on the number of files, delete the earliest non compliant data immediately after exceeding the setting Stop sampling: Set according to the number of files, stop sampling immediately after exceeding the setting File setting: default db_sample%y%m%d%h 1. Supports dynamic/static file names (file name length cannot exceed 200 bytes) 2. After setting, you can click on the example to preview the name display effect 3. The unsupported half-width symbols for db names include V:*? "<> and the space bar; "4.%Y / %y, %M / %m, %D / %d, %H/%h" 5. The files are sorted by their file names (arranged in order of creation time) Example: When the files are generated in the order of db_sample20250907 and db_sample20250908, meaning db_sample20250907 is the oldest file and db_sample20250908 is the latest file, and the file retention limit is set to one file, when a second file is added, the system will delete db_sample20250907 to maintain the number of files at one. 6. When the file name does not contain a date, it is considered to have the same file effect 7. If the dynamic file name is empty, data sampling will not be performed 8. If the newly generated name is the same as a historical name, it will be appended to the original data
	Synchronization rules	The sampled data is first stored in the HMI cache area. After the synchronization mechanism is triggered, the HMI cache data will be automatically cleared by synchronizing it with external devices When the sampled data reaches 10000 or reaches the synchronization cycle, the HMI will automatically write the data to the external storage device, and the cycle will be reset in real-time 2. If the external storage device is removed from HM, data with no more than 10000 newly generated samples will be refreshed into the HMI cache. During the removal of the external storage device, the sampled data will still be saved in the HMI and will not be cleared until the USB drive is inserted again, triggering synchronization in the next cycle and synchronizing the cached data to the peripheral device. If the sampled data exceeds 10000 during the removal of the external device, 10% of the historical data will be automatically deleted. Even if the external storage device is plugged back in later, the deleted data cannot be synchronized. 3. If there is already sampling data in the external storage device, the new sampling data will be attached to the original data during each synchronization. 4. If there is an abnormal power outage during the cycle, the cache data will be automatically synchronized to the peripheral db file after restarting and timing will be restarted;

Occupied space	1. Cycle/timing: occupying storage space for 24 hours; (Number of samples * Sampling variable data, data type 8 bits occupy one byte) 2. Timing (variable time), constant time selection of variables, displayed according to 1000 * data types 3. Trigger/expression: 1000 entries occupy storage space;
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Note:

1. Custom file: When the db file name for saving data samples changes, the old db sampling data will be synchronized to the USB/SD card.
2. Custom file: When a new file is generated from data sampling, if the U/SD card is not connected to the HMI, the old data sampling file will be deleted directly. For example, currently the sampled data is saved in a file of 20161218.db. If a file of 20161219.db is generated at this time and the HMI is not connected to the USB/SD card, the file of 20161218.db will be directly deleted and not retained. Additionally, when using custom file management, the synchronization to the database server feature cannot be enabled.
3. Whether the downloader or USB download program clears the historical sampling records. When checked, all data sampling data files and HMI sampling data in the USB folder with the same name as the current project to be downloaded will be cleared;
4. When the HMI cache is stored/set to save HMI, causing the remaining memory of HMI FLASH to be 10%/200M (minimum value), the redundancy mechanism is triggered to stop sampling

15.2 Channel

- [Channel setting] interface

  			
ID	Channel Name	Variable Name	Description
1	Channel1	MW0	

Channel Setting List Description

	Add a new data sampling channel, supporting up to 256 channels
	Delete the currently selected sampling channel
	Delete all sampling channels

15.3 Export

15.3.1 Export property settings

The screenshot shows the 'Data Sampling' window with the 'Export' tab selected. The interface includes several sections for configuring export settings:

- Export:** A checkbox that is checked.
- Exported Device:** A dropdown menu set to 'HMI'.
- Exported Folder:** A text field containing 'sample'.
- Export data processing:** A dropdown menu set to 'Export All'.
- Exporting Files:** A text field for file names.
- Exported File Format:** A dropdown menu set to 'CSV'.
- Export Data Sorting:** A dropdown menu set to 'Sorted by time ascending'.
- Export Method:**
 - ☒ Fixed-cycle export: Includes a spinner set to '1' and the unit 'Minute'.
 - ☐ Daily Scheduled Export
 - ☐ Triggered Export
 - ☐ Export State
- Channel Setting:**
 - Input directly:** A dropdown menu.
 - Language:** A dropdown menu set to 'Chinese(Simplified Han)'.
 - ☒ Export title bar
 - ☐ Export time contains milliseconds value

Buttons at the bottom include 'Move up', 'Move down', 'Restore to default', 'Filter channel', 'Cancel', and 'Confirm'. A tooltip for 'Export State' is visible, listing codes: 0: Initial state, 1: Export successful, 2: No external storage, 3: Write error, 4: Insufficient storage space.

Data Sampling-Record Export Descriptions

Exported Device	Export and save data sampling information to an external storage device	
Exported Folder	Set the subfolder name of the exported data sampling information, if the export is successful, the subfolder name will be generated in the folder corresponding to the exported device under the path of project directory ".../disk". If the export is successful, the subfolder name will be generated in the folder corresponding to the exported device under the path of project directory ".../disk", and Sample is the default subfolder name.	
Using Dynamic Subfolders	Dynamically setting subfolder names using string variables	
Exporting Files	Set the file name for exporting data sampling information. If the export is successful, a file with the corresponding name will be generated in the subfolder	
Using Dynamic file name	Dynamically setting file name using string variable	
Timestamp	The file name of the exported file will contain a timestamp at the end	
Export data processing	Export All	Export all data
	Append Data	Remember the timestamp of the last data in the last exported file, and only export the data after the previous timestamp for the next export (regardless of whether the folder and file name have been modified, only export the data after the previous timestamp)
Export File Format	Set the file format for exporting data sampling information, including CSV and PDF.	

Export data sorting	Set the sorting method of exported data, including "ascending order by time" and "descending order by time".		
file encryption	Check the exported file format is compressed, decompression of files need to enter a password to successfully decompress, if you do not check the [file encryption], the exported file format is set in the [export file format] option file format, directly open the file can be		
dynamic password	Use string variables to dynamically set the password for file encryption, valid when [File Encryption] is checked.		
Export Method	Fixed-cycle export (min)	Automatically export according to the set cycle	
	Daily Scheduled Export	Set the export time to export data sampling record information on a daily basis.	
	Triggered Export	Export of data sampling log information by state triggering of bit variable	
		Trigger Type	Setting the trigger type for triggering exported bit variables
		trigger variable	Triggering an export with a bit variable
		Start time	To set the start time of export, use the time element setting for configuration , time element Please refer to subsection 8.9.1 Time
		End time	Set the end time of the export, and use the time element to set it during configuratio , time element Please refer to subsection 8.9.1 Time
Export State	The export status is reflected by the value of the word variable. 0 Initial status; 1 Successful export; 2 No external memory; 3 Write error; 4 Insufficient storage space		
Export range	When there are multiple DBs, it can be set that the number of exported files is less than or equal to the number of files in the capacity setting		

Note:



When synchronously exporting the same file cycle, the exported data includes cached data after cycle synchronization;

When exporting custom file cycle synchronization: the exported data does not include cached data after cycle synchronization;

15.3.2 Export Channel Settings

Channel Setting

☐ Language Independent

English(Latin)

Input directly

☐ Export time contains milliseconds value

☒ Export title bar

Move up

Move down

Restore to default

Filter channel

Name	Title Name Set
Date	Date
Time	Time
Channel1	Channel1

Description of data sampling and export channel settings	
Language Independent	Checking this box disables the language selection box and the component defaults to the first language.
Export time contains milliseconds value	Check to include milliseconds in the exported data sampling information table.
Export title bar	Checked if the exported data sampling information form contains a title bar, checked by default.
Input directly	The "Title bar name settings" column in the "Export channel settings" data form uses direct input for modifying the title bar name.
Use TextLib	Use of text libraries for the "Title bar name settings" column in the "Export channel settings" data table
Filter channel	Default select all, can manually filter/cancel the corresponding channel display
Move up	When a data table row is selected, click [Move Up] to move up the selected row. The [Move Up] button is effective except when the first row of the data table is selected.
Move down	When a data table row is selected, click [Move Down] to move down the selected row. The [Move Down] button is effective except when the last row of the data table is selected.
Restore to default	Revert to the original sorting of the data table

15.4 Condition

Data Sampling

Basic

Channel

Condition

☐ Always Valid

☐ Always Invalid

☒ Condition enable

☒ Expression Control

☐ FALSE status takes effect

Expression

+

✖

!

ID

Operation

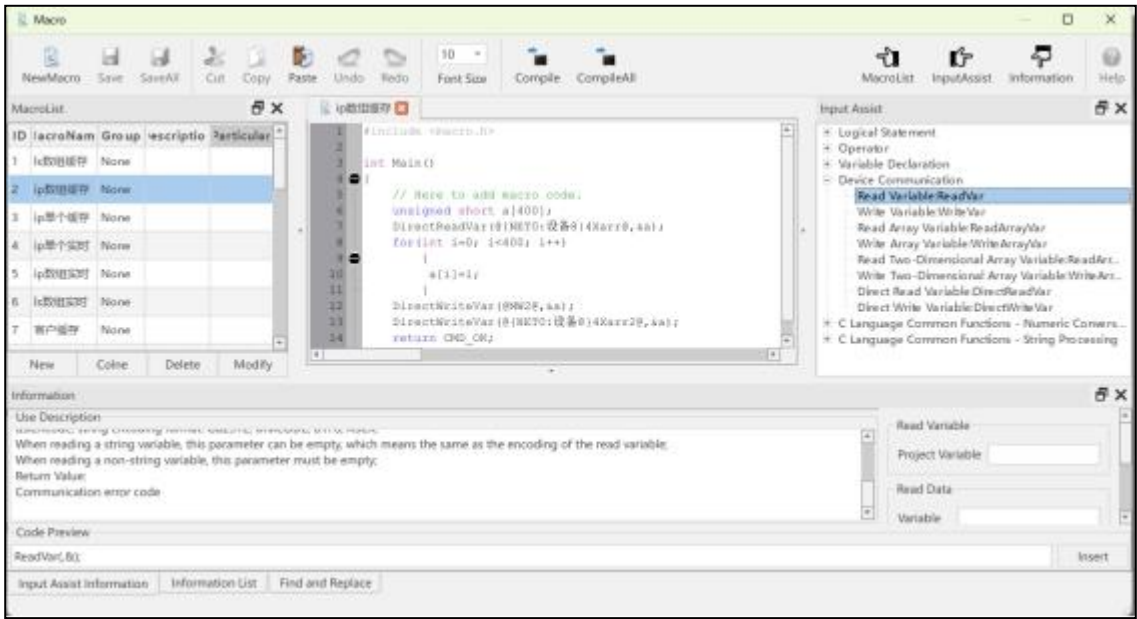
Express

Parentheses

Description of enabling conditions	
Always Valid	Action always in effect
Always Invalid	Action remains invalid
Condition enable	Effective when conditions are met

16 Macro Instruction

Macro instructions use C language source code editing to meet special applications such as user logic and arithmetic operations. The use of macro instructions in conjunction with related components can achieve functions such as computation or logic that cannot be achieved by components, making the programming ability of HMI more powerful.



Using the macro instruction interface description

New	Create a new macro command that can set the macro's name, group, description, encryption, etc
Clone	Copy a macro instruction
Delete	Delete a macro instruction
Modify	Modify macro name, grouping, description, encryption, etc

16.1 The type of macro variable

➤ Constant definition

Constants are fixed values that do not change during program execution. These fixed values, also known as literal values. Constants can be any basic data type, such as integer constants, floating-point constants, character constants, or string literals. Constants are like regular variables, except that their values cannot be modified after they are defined.

➤ Integer constant

Integer constant can be constants in decimal, octal, or hexadecimal. The prefix specifies the base number: 0x or 0X represents hexadecimal, 0 represents octal, and without a prefix, it defaults to decimal.

- ① Decimal integers: 345, -234, 0, 23456
- ② Hexadecimal numbers: 0x3b, 0xffff; Must start with 0x
- ③ Octal numbers: 037, 077; Must start with 0
- ④ Boolean type: true, false;

➤ Float point

Float point constants consist of an integer part, a decimal point, a decimal part, and an exponential part. You can use decimal or exponential form to represent floating-point constants. Floating point number: 3.14159;

➤ Character constant

Character constant are enclosed in single quotes, for example, 'x' can be stored in a simple variable of type char.

String literals or constants are enclosed in double quotation marks. A string contains characters similar to character constants: regular characters, escape sequences, and universal characters.

- ① Character type: 'a'; Characters must use single quotation marks ''
- ② String: "hello, dear" The string must use double quotation marks ""

➤ variable

A variable is actually the name of a storage area that a program can manipulate. Each variable in C has a specific type, which determines the size and layout of the variable storage. Values within this range can be stored in memory, and operands can be applied to variables that change as the result of macro instruction statement execution changes.

The name of a variable can be composed of letters, numbers, and underscore characters, and must start with a letter or underscore. The software supports Chinese names. Capital letters and lowercase letters are different, and the system reserves cache names as variable names because C is case sensitive.

Variables generally have the following basic types:

type	occupied space	range	software variable type	variable declaration
bool	1 bit	0, 1	bit, bool	bool ZSD;
char	8 bits	-128~127	char	signed char a0[200];
Unsigned	8 bits	0 ~ 255	Unsigned Char	unsigned char

Char				a1[200];
short	16 bits	-32768~32767	short	short b0[200];
Unsigned Short	16 bits	0 ~ 65535	Unsigned Short	unsigned short b1[200];
int	32 bits	-2147483648~2147483647	int	int c0[200];
Unsigned Int	32 bits	0 ~ 4,294,967,295	Unsigned Int	unsigned int c1[200];
long long	64 bits	-9223372036854775808~9223372036854775807	Int64	long long d0[200];
unsigned long long	64bits	188446744073709551615	Unsigned Int64	unsigned long long d1[200];
float	32bits		float	float i0[200];
Double	64bits		double	double i1[200];
String	8 bits		String	char str2[20] ;

The following table shows examples of compatibility between data types in MasterTool and DTools Pro. Other combinations of compatible variables can be used depending on the size and format of the data:

Mastertool Variables	Dtools Pro Variables	Data Size	Lower Limit	Upper Limit	Modifiers
USINT	Unsigned Char	8bits	0	255	
SINT	CHAR	8bits	-128	127	
INT	SHORT	16bits	-32768	32767	
UINT	SHORT	16bits	0	65535	
WORD	SHORT	16bits	0	65535	
DINT	INT	32bits	-2147483648	2147483647	Word Swap Select or 4X-DINV Select
LINT	INT64	64bits	2^{63}	$2^{63}-1$	DWord Swap Select And 4X-DINV Select
DWORD	INT	32bits	0	4294967295	Word Swap Select or 4X-DINV Select
REAL	FLOAT	32bits	1,18E-29	3,40E+47	Word Swap Select or 4X-DINV Select

Note: Variables up to 16 bits do not require additional configuration. For 32-bit variables, you must enable the Word Swap option or use the 4X-DINV register type. For 64-bit variables, you must enable both the DWord Swap and 4X-DINV options.

Note: Compatibility between variables can be verified based on the data size and the format expected by the device.

16.2 Device communication function

Function name	sort	detailed description
ReadVar	format	ReadVar(VarName,void *ReadBuf,int dstEncode)/ReadVar(VarName,void *ReadBuf,int dstEncode,unsigned int startAddress,unsigned int length)
	parameter	VarName : Read variables
		ReadBuf : Used to store read data variables, this function does not support individual elements of arrays, similar to a [1]
		dstEncode : String encoding format: GB2312 UNICODE、UTF8、ASCII ; When reading a variable as a string type, this parameter is allowed to be empty, which means that the encoding of the read variable is the same; When reading a variable of non string type, this parameter must be empty;
		startAddress, the address of the starting element of the array to be read; Array variable: Can be empty. When empty, it indicates starting from the first element; Non-array variable: must be empty;
		length, which reads the number of elements in the array; Array variable: Can be empty. When empty, it indicates all elements from the starting address to the end of the array; if the specified length is 0 or not filled in, all data will be transmitted by default Non-array variable: must be empty;
		Return value: Communication error code
	purpose	Read real-time data from the entire array variable, non-array variable, or pointer variable / Read real-time data of a specified array length
	example	short A; ReadVar(@16bit@,&A); Function: Read the software variable "16bit" into the data of variable A
WriteVar	format	WriteVar(VarName,const void * WriteBuf,int dstEncode)/WriteVar(VarName,const void * WriteBuf,int dstEncode,unsigned int startAddress,unsigned int length)
	parameter	VarName , Write variables
		WriteBuf , Data used for writing
		dstEncode , String encoding format: GB2312 UNICODE、UTF8、ASCII ; When writing a variable of string type, this parameter is allowed to be empty, and when empty, it represents UTF8; When writing a variable of non string type, this parameter must be empty;
		startAddress, the address of the starting element of the array to be write;

		Array variable: Can be empty. When empty, it indicates starting from the first element; Non-array variable: must be empty;
		length, which writes the number of elements in the array; Array variable: Can be empty. When empty, it indicates all elements from the starting address to the end of the array; if the specified length is 0 or not filled in, all data will be transmitted by default Non-array variable: must be empty;
		Return value: Communication error code
	purpose	Write real-time data from the entire array variable, non-array variable, or pointer variable / Write real-time data of a specified array length
	example	short A=10; WriteVar(@16bit@,&A); Function: Write the data of variable A into the software variable "16bit"
ReadArrayVar	format	ReadArrayVar(VarName,uint32 index,void *ReadBuf)
	parameter	VarName , Read array variables
		index, Index of array variable
		ReadBuf , Data used for reading
		Return value: Communication error code
	purpose	Read real-time data of array elements of one-dimensional array variables
WriteArrayVar	example	short arr; ReadArrayVar(@20@,1,&arr); Function: Read the data from the software variable "20" with index 1 to arr
	format	WriteArrayVar(VarName,uint32 index,const void * WriteBuf)
	parameter	VarName , Read array variables
		index, Index of array variable
		WriteBuf , Data used for writing
		Return value: Communication error code
	purpose	Write real-time data of array elements for one-dimensional array variables
ReadArray2Var	example	short arr; WriteArrayVar(@20@,1,&arr); Function: Write the data of arr to the software variable "20" with index position 1
	format	ReadArray2Var(VarName,uint32 index1,uint32 index2,void *ReadBuf)
	parameter	VarName : Read two-dimensional array variables
		index1:Array variable row index
		index2:Array variable column index
		ReadBuf:Data used for reading
		Return value: Communication error code

	purpose	Read real-time data of array elements of two-dimensional array variables
	example	short arr; ReadArray2Var(@20@,1,1&arr); Function: Read the data from the software variable "20" with index 1,1 to arr
WriteArray2Var	format	WriteArray2Var(VarName,uint32 index1,uint32 index2,const void * WriteBuf)
	parameter	VarName : Write two-dimensional array variables
		index1:Array variable row index
		index2:Array variable column index
		WriteBuf:Data used for writing
		Return value: Communication error code
	purpose	Write real-time data of array elements for two-dimensional array variables
	example	short arr; WriteArray2Var(@20@,1,1&arr); Function: Write the data of arr to the software variable "20" with index position 1,1
DirectReadVar	format	DirectReadVar(VarName,void *ReadBuf,int dstEncode)/DirectReadVar(VarName,void *ReadBuf,int dstEncode,unsigned int startAddress,unsigned int length)
	parameter	VarName : Read variables
		ReadBuf : Used to store read data variables, this function does not support individual elements of arrays, similar to a [1]
		dstEncode , String encoding format: GB2312 UNICODE、UTF8、ASCII ;
		When writing a variable of string type, this parameter is allowed to be empty, and when empty, it represents UTF8;
		When writing a variable of non string type, this parameter must be empty:
		startAddress, the address of the starting element of the array to be read;
		Array variable: Can be empty. When empty, it indicates starting from the first element;
		Non-array variable: must be empty;
		length, which reads the number of elements in the array;
		Array variable: Can be empty. When empty, it indicates all elements from the starting address to the end of the array; if the specified length is 0 or not filled in, all data will be transmitted by default
		Non-array variable: must be empty;
		Return value: Communication error code
	purpose	Reading the cached data of the entire array variable or non array variable/Read cached data of specified array length can improve the communication speed of PLC variables
	example	short A; DirectReadVar(@16bit@,&A); Function: Read the software variable "16bit"

		into the data of variable A
DirectWriteVar	format	DirectWriteVar(VarName,const void * WriteBuf,int dstEncode)/DirectWriteVar(VarName,const void * WriteBuf,int dstEncode, unsigned int startAddress,unsigned int length)
	parameter	VarName , Write variables
		WriteBuf , Data used for writing
		dstEncode , String encoding format: GB2312 UNICODE、UTF8、ASCII ; When writing a variable of string type, this parameter is allowed to be empty, and when empty, it represents UTF8; When writing a variable of non string type, this parameter must be empty:
		startAddress, the address of the starting element of the array to be write; Array variable: Can be empty. When empty, it indicates starting from the first element; Non-array variable: must be empty;
		length, which writes the number of elements in the array; Array variable: Can be empty. When empty, it indicates all elements from the starting address to the end of the array; if the specified length is 0 or not filled in, all data will be transmitted by default Non-array variable: must be empty;
		Return value: Communication error code
	purpose	Writing cached data for the entire array variable or non array variable/Write cached data of specified array length can improve the communication speed of PLC variables
	example	short A=10; DirectWriteVar(@16bit@,&A); Function: Write the data of variable A into the software variable "16bit"

16.3 Recipe Function

Function name	sort	detailed description
RecipeGetData	format	RecipeGetData(recipeAddress, recipeID, &result)
	parameter	recipeAddress: Recipe address, composed of recipe name and item name in the format "recipe_group_name.item_name" (supports both constants and variables)
		recipeID: Recipe sequence number (column index) indicating which data record to retrieve (supports both constants and variables)
		result: Data storage variable where the retrieved data will be stored (must match the data type defined in the recipe)
		Execution error code: 0-success, others-failure
	purpose	Retrieves recipe data

	example	<pre>char recipeAddress[] = "TestA.height"; int recipeID=1; int result; char str[20]; unsigned short cmdRet = RecipeGetData(recipeAddress, recipeID, &result); //get data from recipe "TestA", where item name is "height" and the recipeID is 1. cmdRet = RecipeGetData("TestA.name",1,str); //get data from recipe "TestA", where item name is "name" and the recipeID is 1.</pre>
RecipeQuery	format	RecipeQuery(sql, &result)
	parameter	sql: SQL statement. The SQL syntax must begin with "SELECT * FROM" followed by the recipe group name and query conditions.Format: select * from "Recipe Group Name" where [conditions]Supports both constants and variables.
		result: Number of records found. The count of query results will be stored in result (must be a variable).
		Execution error code: 0 = success, non-zero = failure
	purpose	Queries recipe data using SQL syntax.
	example	<pre>int result; char sql[100] = "select * from \"Default Recipe\" where time >= 12"; unsigned short cmdRet = RecipeQuery(sql,&result); //get number of data from recipe "Default Recipe", where item name is "time" >= 12.</pre>
RecipeQueryGet Data	format	RecipeQueryGetData(recipeAddress, resultNo, &result)
	parameter	recipeAddress: Recipe address composed of recipe group name and item name (format: "recipe_group_name.item_name"),Supports both constants and variables
		resultNo: Index position in query results (0-based)
		result: Data storage variable , Must match the data type of the recipe item
		Execution error code: 0 = success, non-zero = failure
	purpose	To retrieve the recipe record ID from RecipeQuery results, the RecipeQuery function must first be called to query the corresponding recipe group. The result_row_no parameter specifies the zero-based index of the target record in the query results, and writes the retrieved record ID to the output variable.
	example	<pre>char sql[100] = "select * from \"Default Recipe\""; int result; char recipeAddress[] = "Default Recipe.16you"; char str[20]; int result1; unsigned short cmdRet = RecipeQuery(sql,&result);</pre>

		RecipeQueryGetData(recipeAddress,1,&result1);
RecipeQueryGetRecordID	format	RecipeQueryGetRecordID(recipeName, resultNo, &result)
	parameter	recipeName:Recipe group name (string)
		ResultNo:Result sequence number (zero-based index)
		result:Output variable to store the retrieved record ID
		Execution error code: 0 = success, non-zero = failure
	purpose	Retrieves the record ID from the RecipeQuery results. Requires prior execution of RecipeQuery() for the target recipe group. Specify the desired data row position in the query results using resultNo, and writes the record ID to the output parameter.
	example	char sql[100] = "select * from \"Default Recipe\""; int result; char recipename[] = "Default Recipe"; char str[20]; int result1; unsigned short cmdRet = RecipeQuery(sql,&result); RecipeQueryGetRecordID(recipename,1,&result1);

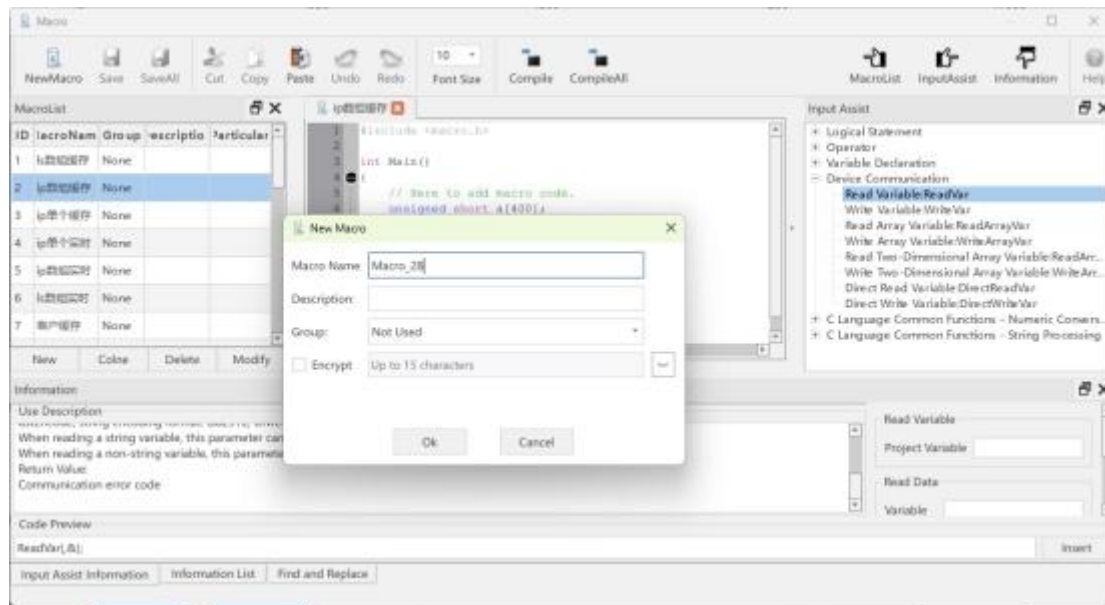
16.4 Other Function

Function name	sort	detailed description
DELAY	format	DELAY(millisecond)
	parameter	This function pauses the execution of the current macro for at least the specified time interval (unit: milliseconds).
		millisecond: Specifies the delay time in milliseconds. Supports both constants and variables.
	purpose	DELAY(100); // Delays execution by 100ms
	example	DELAY(100); // delay 100ms
AsyncTrigMacro	format	AsyncTrigMacro(macrolD)
	parameter	Input macro instruction ID (supports both constants and variables).
		Execution error code: 0 indicates success, non-zero values indicate failure.
	purpose	Triggers the specified macro instruction asynchronously and proceeds to execute the next instruction immediately.
	example	AsyncTrigMacro(5); // execute MACRO 5
SetUserPassword	format	SetUserPassword(strUsername,strPassword)
	parameter	strUsername , @Username@ (project variable) or Username (const char* type)
		strPassword , @Password@ (project variable) or Password (const char* type)

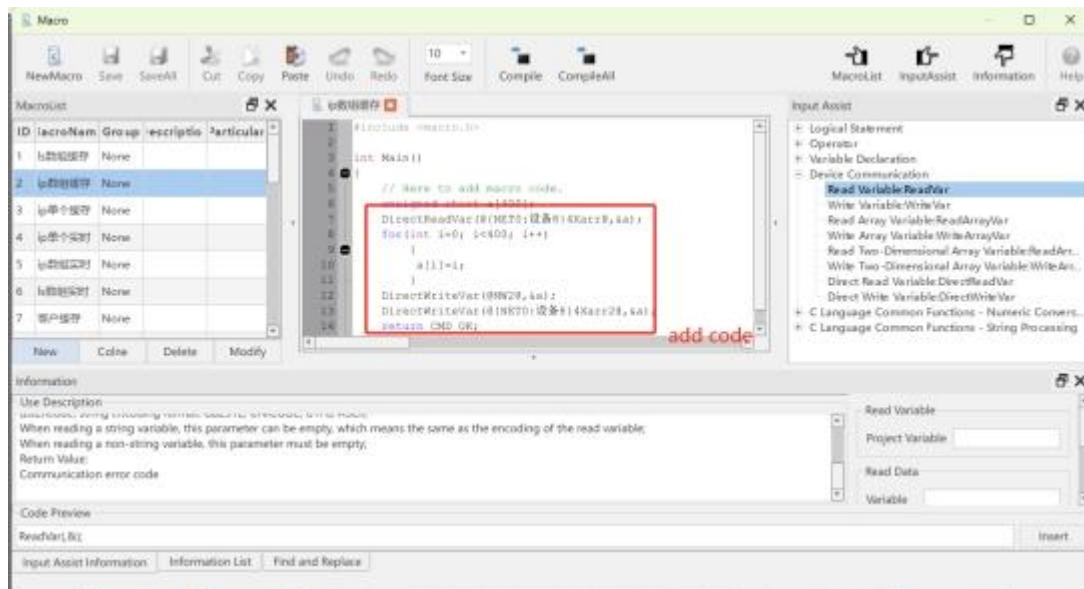
	Function error code, success = 0, failed = -1
purpose	No need for user login, change password
example	CmdRet SetUserPassword(me,123456)

16.5 Macro instruction writing

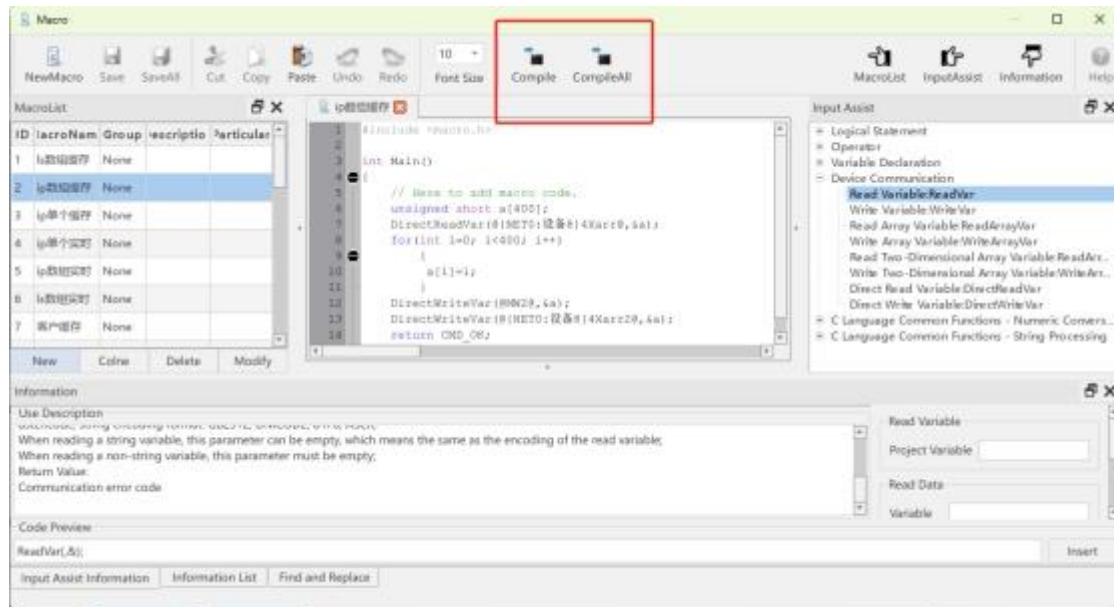
1.Create Macro: A new macro command that allows you to set the macro's name, group, description, encryption, etc



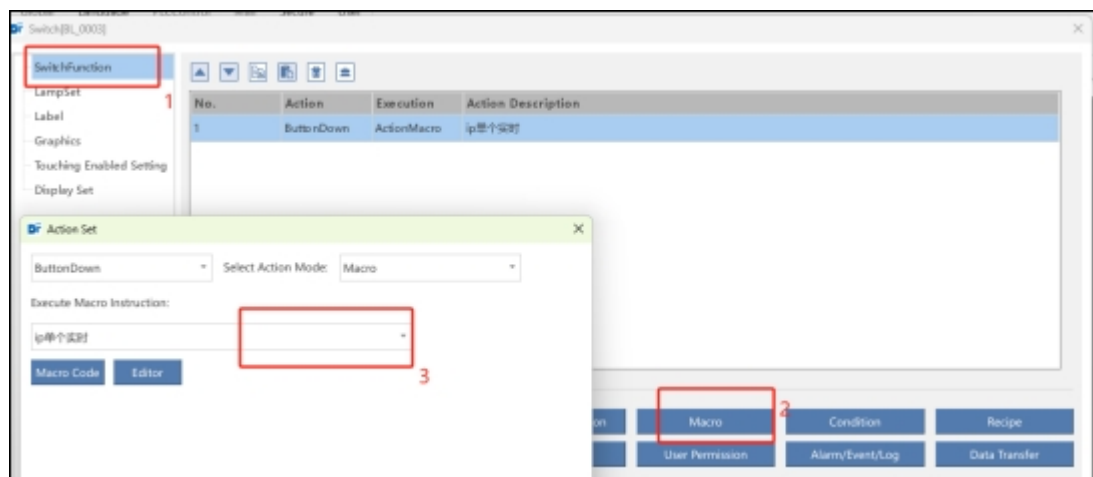
2.Edit Macro



3.Compile macros



4.Call macro: call macro on the screen (can be called in switch function, window execution, global control and alarm settings)



5.Offline simulation or download execution

16.6 Example of Macro Instructions

Example 1: Extract and write the scanning string "PL01~Work0001~PG01~a123456" to the corresponding address

```
#include <macro.h>
```

```
#include <stdio.h>
```

```
int Myfun(char *str1,char *str2)// Define a function to replace~with a " space
```

```
{
    while(*str1!='\0')
    {
        *str2=*str1;
        if(*str2=='~')

```

```
*str2=' ';
str1++;
str2++;
}
*str2='\0';
return 0;
}

int Main()
{
    //Here to add macrocode.
    char str1[200]="PL01~Work0001~PG01~a123456";    //Define temporary data instead of scanned
data
    char str2[200]={0};
    Myfun(str1,str2);
    char arr1[10]={0};    //Define temporary variable receiving workshop code
    char arr2[10]={0};    //Define temporary variable receiving work order number
    char arr3[10]={0};    //Define temporary variable receiving operation group
    char arr4[10]={0};    //Define temporary variable to receive product number
    sscanf(str2,"%s %s %s %s",arr1,arr2,arr3,arr4);//Take out the corresponding array and place it in a
temporary variable
    WriteVar(@workshop@,&arr1[0]); //Write the address data for storing workshop codes into defined
variables
    WriteVar(@WorkOrder@,&arr2[0]);    //Write the address data storing the work order code into
the defined variable
    WriteVar(@ProductionProcesses @,&arr3[0]);    //Write the address data of the stored
process code into the defined variable
    WriteVar(@ProductID@,&arr4[0]);//Write the address data for storing product numbers into the
defined variable
    return CMD_OK;
}
```


17 Recipe

Recipe data refers to the data stored inside the HMI and in an area that can be saved after power outage.

17.1 Introduction to Recipe

Recipes are collections of the same type of data with a fixed data structure. A recipe can contain multiple recipe data, which may differ in terms of data but are completely consistent in structure. At the same time, the recipe is stored in the "csv" file format in the project, with the storage path located in the "recipe" folder of the project root directory.

17.2 Recipe Setting

"Recipe Edit" is mainly used to set recipe attributes, and these data can be displayed using recipe components. Please refer to [Chapter 8.7.5 : Recipe](#).

A project can be configured with up to 10000 recipe groups, and each recipe can be configured with up to 2000 recipe items. There is no limit to recipe data.

1. In "Project" - "Recipe" window, double-click **【Add Recipe】** to add a recipe group. The "Recipe No" and "Recipe Name" columns in the recipe data table are created by default by the system and cannot be edited or bound to variables. The following is a description of the recipe group attributes.

Recipe Edit

Recipe Group Name: Default Recipe

Recipe Edit ☐ Bind structure variable Total length of recipe data 5,125 byte

Recipe Item	Data Type	Bind Variable
Recipe No	unsigned int	
Recipe Name	string	
1	bit	MB0

Add Insert Delete Move Up Move Down Import Export

Recipe Statistics Data

Current operation recipe serial number MW0 </> +

☐ Total recipe number </> +

☐ Current operating recipe name </> +

Help Description OK Cancel

Recipe - Recipe Group Property Description	
Recipe Group Name	Set the current recipe group name
Bind structure variable	If checked, all column items in the formula data table, except for 【Recipe No】 and 【Recipe name】 , will be associated with structural variables. The number of associated recipe items is determined by the number of structural variables
Total length of recipe data	Display the total length of recipe data for the current recipe group
Add	Add a new recipe item, click once to add a new line. It is valid when 【Bind Structure Variable】 is not checked
Insert	Insert a recipe item. The position of the inserted recipe item is on the previous line of the currently selected recipe item. It is valid when 【Bind Structure Variable】 is not checked
Delete	Add the currently selected recipe item, which is valid when 【Bind Structure Variable】 is not checked
Move Up	Move the currently selected recipe item up
Move Down	Move down the currently selected recipe item
Import	Import recipe item form, the format of the imported form should be consistent with the format of the current recipe item form, note that when the recipe name of the file is duplicated with the recipe name of the software, Update - replace with the recipe name and configuration of the form; Ignore - keep the recipe name and configuration of the software unchanged; if there are already non-duplicated recipes in the original recipe group, it is regarded as a new addition, and the recipe is not duplicated. It is valid when 【Bind Structure Variable】 is not checked
Export	Export the current recipe form, consistent with the current recipe group name, you can also name your own, the file format is [.xlsx], the exported file exists in the installation directory of the software, It is valid when 【Bind Structure Variable】 is not checked
Current operation recipe serial number	Display the current operation recipe number using word variables
Total recipe number	Use word variables to display the total number of pre recipes
Current operating recipe name	Display the current operation recipe name using string variables

Note: The data type of the variable bound to the recipe item needs to be the same as the data type of the recipe item

2. In the Project-Recipe window, double click **【Add Recipe】** to add a recipe group. The following are descriptions of recipe data.

Recipe - Recipe group property description	
Create default recipe data	Check to create a recipe data table based on the recipe table in the 【Recipe Property】 section
Add/Insert row	Set to increase the number of inserted rows
Move Up	Move the currently selected row up
Move Down	Move the currently selected row down
Move To Header	Move the currently selected recipe data to the header
Move To Footer	Move the currently selected recipe data to the end of the table
Add	Add formula data, click once to add a new line
Insert	Insert Recipe Data
Delete	Delete the currently selected recipe data
Copy	Copy the currently selected recipe data
Paste	Paste the currently selected recipe data
Import	Import the formula data table, and the format of the imported table must be consistent with the current formula data table format. Please note that the import will not overwrite the previously existing data
Export	Export the current recipe data table. The default file name for exporting is 【RecipeData】 , which can also be named by oneself. The file format is 【'.xlsx'】 , and the exported file is stored in the software installation directory.

18 Operation Log

The operation log can record the operations performed by the user on the HMI, and the user can save these operation records in CSV or PDF file format to external storage.

18.1 Enable Operation Log

In the "item Operate Log" dialog box, you can configure operation log recording and the corresponding properties of the component.

Item operate log

Operation Record Item

Export Record

Capacity Setting

Record Save

Record Retention Reached

Days

7

Delete oldest record

Item operate log

Export

Import

Chinese(Simplified Han)

Item	Record Source	Record Content	Record data change	Same as manipi	Lan
☐ B_29001:User Permission Browsing(29001)					
☐ B_29002:User Attribute Configuration(29002)					
☐ B_29003:Change User Password(29003)					
☐ B_29004:Authorization Expiration(29004)					
☐ B_29005:Authorization Expiration Reminder(29005)					
☐ B_29006:Authorization unlock prompt(29006)					
☐ B_29007:Occupied status touch prompt(29007)					
☐ K_1:Decimal numeric keyboard(30001)					
☐ K_2:Hex numeric keyboard(30002)					
☐ K_3:ASCII character keyboard(30003)					
☐ S_2:System Information(40002)					
☐ S_3:User Login(40003)					
☐ S_4:Operation Comfirm(40004)					
☐ S_5:Electronic Signature Operator Confirmation(40005)					
☐ S_6:Electronic Signature Verifier(40006)					

Operation Log - Item Operation Log Setup Descriptions	
record retention	Set the attributes to be retained in the exported operation log table. The unit can be selected as either "days" or "records". When "days" is selected, the minimum is 1 day and the maximum is 365 days; when "records" is selected, the minimum is 1 record and the maximum is 100,000 records
Reach the record retention number	When the operation log reaches the "record retention" limit, new data will be recorded according to the set "reach record retention limit" method, which includes two options: "delete oldest records" and "no longer retain new records"
Item operation	In this window, you can configure the operation logs of components on all windows within the

log	project, as well as select whether to monitor variables and use text libraries
export	Export the contents of the component operation log in the backend to a specified path in Excel format, supporting custom names
Import	Import the data of components from the Excel spreadsheet into the operation log backend
Current language	Switching the text descriptions of components in the operation log backend to different languages
Language library	Add or delete the currently used languages
Direct input	Set the attributes for record description. Selecting "Direct Input" allows direct editing of the description in the corresponding area of the "Record Content" column in the component operation log backend
Use text corpus	Set the attributes for record description. Selecting "Use Text Library" allows you to choose the name of the text library in the corresponding area of the "Record Content" column in the component operation log backend
Language-independent	Set the attributes for record description. If checked, the selection box after "Current Language" will be invalid, and the component will default to the first language

18.2 Export Record

In the "Operation Record Item" dialog box, you can set the corresponding attributes.

Item operate log
Operation Record Item
Export Record

Record Description

Description Setting
Current Language

Direct input
Chinese(Simplified Han)
Language Independent

Operation Record Item

Operation status display

Record	Type	Description
☒	Item Operation	Double click to open the operation record
☒	Power on	Power on
☒	Power off	Power off
☒	User login succeeded	User@1@ login succeeded
☒	User login failed	User@1@ login failed
☒	User logout	User@1@ logout
☒	Delete user	Delete user@1@
☒	Modify user password	Modify user@1@ password
☒	Modify user properties	Modify user@1@ properties
☒	Restore project user settings	Restore project user settings
☒	Recipe download	Download recipe@2@ of the recipe group@1@
☒	Upload recipe	Upload recipe@2@ of the recipe group@1@
☒	Delete recipe	Delete recipe@2@ of the recipe group@1@
☒	Edit recipe	fy recipe of the recipe group@1@ int the recipe list component
☒	Clear recipe	Clear recipe of the recipe group@1@
☒	Import recipe	Import recipe of the recipe group@1@
☒	Export recipe	Export recipe of the recipe group@1@
☒	Restore recipe	ore recipe of the recipe group@1@ to the default project settin

Value	Type	Discription
0	Success	Success
1-N	Multi action error operation ID number	1-N

Operation log - Operation record setting Descriptions

Direct input	Set the attributes for record description. Check [Direct Input] to directly edit the description in the corresponding area of the "Description" column in the operation record item table
Use text Lib	Set the attributes for record description. Check [Use Text Library] to select the name of the text library in the corresponding area of the [Description] column in the operation record item table

Current language	Switching the text descriptions of components in the operation log backend between different languages	
Language library	Add or delete the currently used languages	
Language Independent	Set the attributes for record description. Checking this option will disable the selection box after "Current Language", and the component will default to using the first language	
Operation record item	Check to display the corresponding description content in the operation log. If not checked, it will not be displayed	
	Click on the description to modify the description of the corresponding function	
	System operation record table, where @1@ represents 1 piece of changed data, with a maximum of 8 pieces	
	customize	Double-click the description column to enter the pop-up window for associating monitoring variables; it supports associating up to 5 variables After setting a custom monitoring variable, when any item in the operation record is triggered, the current value of the monitoring variable will be read from the record and displayed in the corresponding column of the event component;
Operation status display	Double-clicking on a successful item allows you to change the corresponding description of the successful content	

18.3 Record export

In the "Record Export" dialog box, you can set the corresponding attributes.

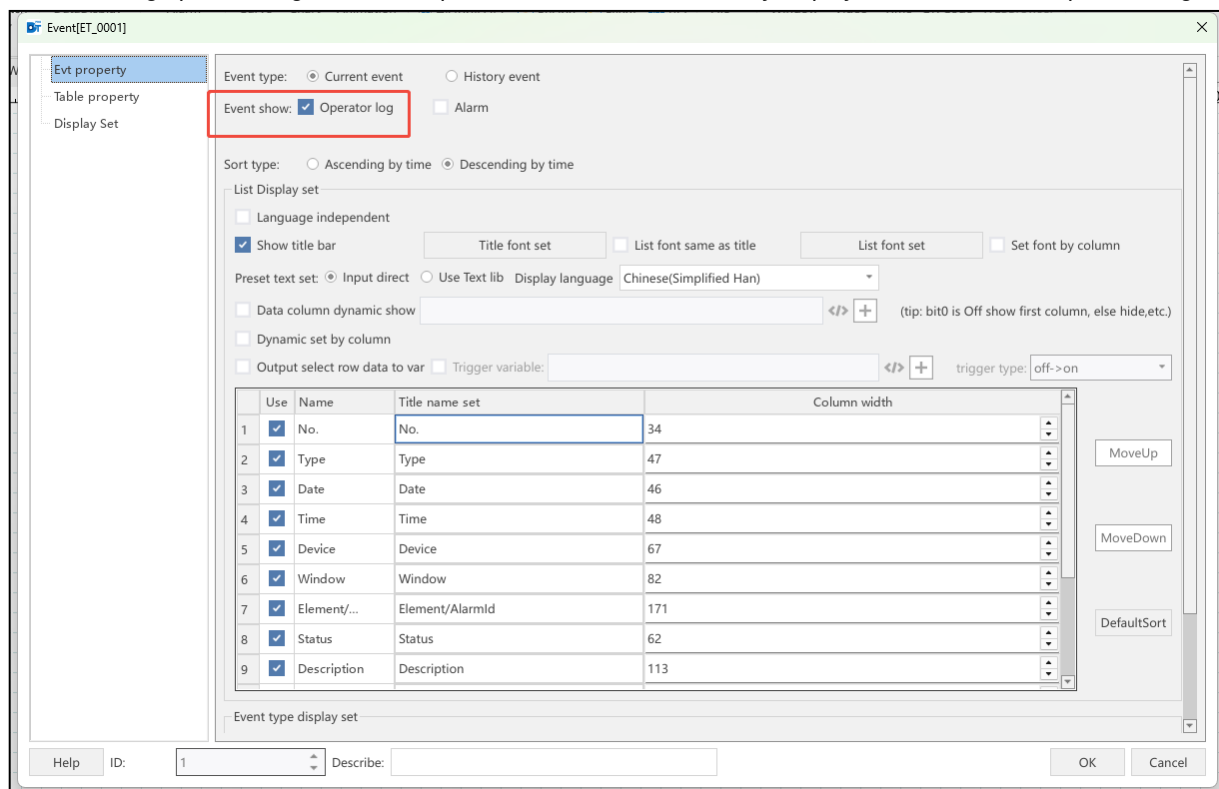
Operation log - record export Descriptions	
Export device	To export and save the operation log in a storage device, you can choose between HMI and USB1
Export folder	Default setting OperLog, set the subfolder name for exporting operation logs. If this

	item is empty, the alarm information is saved by default in the "tar" folder of the project root directory	
Use dynamic folder	Use a string variable to dynamically set the subfolder name	
Export processing data	Export All	Export all data
	append data	Remember the timestamp of the last data from the previously exported file, and only export the data after that timestamp next time (regardless of whether the folder and file name have been modified, only the data after that timestamp will be exported)
Export files	Set the name of the exported file. If the export is successful, a file with the corresponding name will be generated in the subfolder. You can check the time stamp for all exports. If you check "Use dynamic file", you can dynamically set the file name using a string variable	
Export file format	Set the format of the exported operation log files, including CSV and PDF; append export does not support PDF format;	
Export data sorting	Set the sorting method for exported data, including "Sort by Time in Ascending Order" and "Sort by Time in Descending Order"; appending export does not support the time descending order sorting format	
Encrypt	If checked, the exported file format will be a zip file, which requires a password to be entered for successful decompression. If 'File Encryption' is not checked, the exported file format will be the one set in the 'Export File Format' option, and the file can be opened directly. If 'Dynamic Password' is checked, a string variable can be used to dynamically set the password for file encryption, which is valid when 'File Encryption' is checked	
Default Sort	Restore to the original sorting of the data table	
export method	Fixed-cycle export	Automatically export according to the set period
	Daily Scheduled Export	Set the export time and export operation log information at a fixed time every day; additional exports do not support setting
	Triggered export	Trigger the export of operation log records based on the state of a bit variable
Trigger type	Set the trigger type for triggering the export of bit variables	
Trigger variable	Trigger export using bit variables	
Start time	Set the start time for export. During configuration, please use the time component settings. For details on the time component, please refer to "8.9.1 Time". Setting additional exports is not supported	
End time	Set the end time for export. During configuration, please use the time component for setting. For details on the time component, please refer to "8.9.1 Time". Setting is not supported for additional exports	
export state	The export status is reflected by the value of the word variable. 0 indicates the initial state; 1 indicates successful export; 2 indicates no external storage; 3 indicates write error; 4 indicates insufficient storage space	
Channel settings	The export channel settings are used to configure the attributes of the export	

	operation log table
	Input directly/use textlib:Whether to use direct input or a text library for the "Title Bar Name Setting" column item in the "Export Channel Settings" data table, for modifying the title bar name
	Display Language:Preview or set the language of the title bar. When "Language Irrelevant" is checked, it is invalid
	Export Title Bar:Checked by default. If checked, the exported operation log table will include the title bar. Checked by default
	Export time contains milliseconds values:Checking this option will ensure that the time values in the exported operation log table include milliseconds
	Move Up: When a row in the data table is selected, clicking [Move Up] will move the selected row up. Except for the first row of the data table, the [Move Up] button is always effective
	Move Down: When a row in the data table is selected, clicking [Move Down] will move the selected row downwards. The [Move Down] button is functional except when the last row of the data table is selected
	Restore to default: Restore to the original sorting of the data table
	Filter channel: Selected by default, and can manually filter/cancel the corresponding export channel
	Note: The name of the exported channel is set according to the title bar name

18.4 Operation Log Display

After enabling operation logs, event components can be used to visually display the content of the operation logs



Offline simulation effect:

No.	Type	Date	Time	Device	Window	Element/Alarmid	Status	Description	User	Permission	Varname	Pre occur value	Post occur value	Monitor variable values
2		25-04-26	14:47:35		1	DD_0001					MW0	0	2	Monitor variable values
1		25-04-26	14:47:19		0			Power on						

Monitor variable values

2

19 Electronic Signature

Electronic(Digital) signature can only be operated with signature authorization when manipulating variable controls. In response to changes in data values, signature authorization can set up to two levels of confirmation (operator and verifier), and electronic signature information is included in the operation log. After checking Enable electronic signature, you can see the relevant settings for electronic signature under its basic properties when using numerical components.

1. Enable electronic signature function :

Electronic signature setting Descriptions			
Enable electronic signature	This function can only be used after checking it. It is not checked by default Note:This function is not support G2 series HMI		
Save electronic signature record	Record Save	Days	Electronic signature records are saved by days, with a default of 7 days and a maximum of 365 days allowed
		Number	Electronic signature records are saved by number of entries, with a default of 10000 entries and a maximum of 100000 entries
	Record Retention Reached	Delete oldest record	After reaching the set number of days or pieces to save, delete the earliest saved record and continue saving new records
		Not save new records	Do not continue saving after reaching the set number of days or entries
Operator notes	Add, delete, and move as needed (system operation window 40005)		
Verifier notes	Add, delete, and move as needed (system operation window 40006)		
Signature Type	Operation/verification comments can be edited and modified		

2. UserAuthorInfo

The screenshot shows the 'UserSetting' window. At the top, there's a 'Username List' with a value of 8. Below it is a table with columns: ID, Enable, UserName, GroupName, Hide, and UserInfo. The table contains four rows of user data. Below the table, there's a section for 'User1[admin]' with a sidebar containing 'Conventional', 'Group permission', and 'Password validity'. The main area shows fields for 'UserName' (User1), 'Password' (88888888), 'GroupName' (admin), 'LogoutTime(minutes)' (10), and 'CardID'.

ID	Enable	UserName	GroupName	Hide	UserInfo
1	☒	User1	admin	☒	
2	☒	User2	User	☐	
3	☒	User3	User	☐	
4	☒	User4	User	☐	

User1[admin]

Conventional

Group permission

Password validity

UserName: User1

Password: 88888888

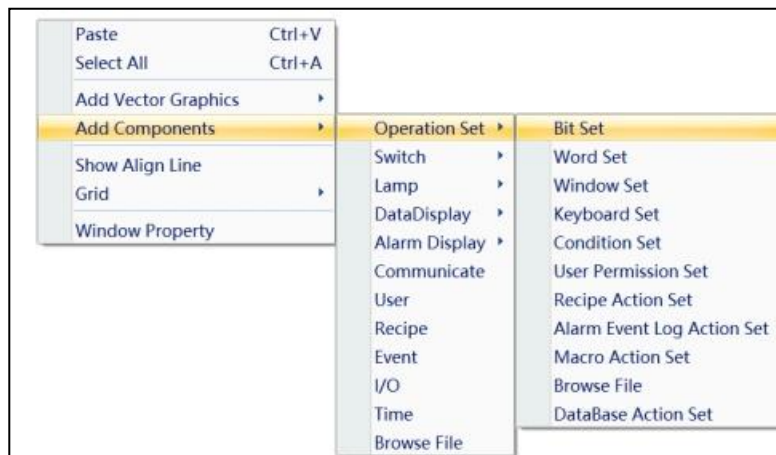
GroupName: admin

LogoutTime(minutes): 10 (0 indicate never logout)

CardID:

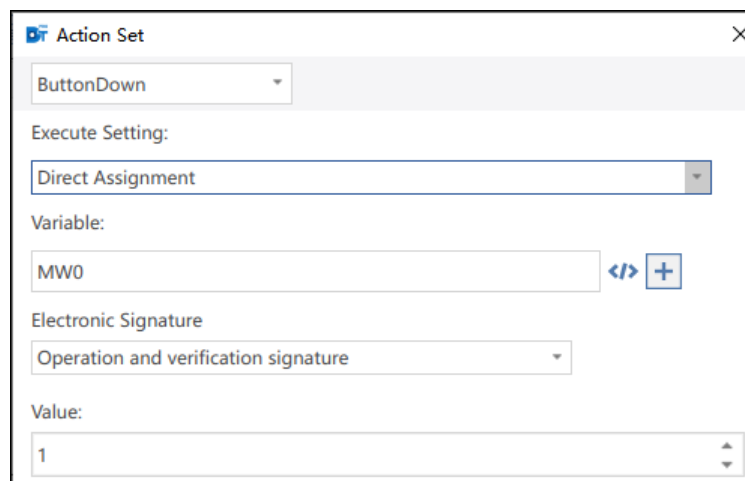
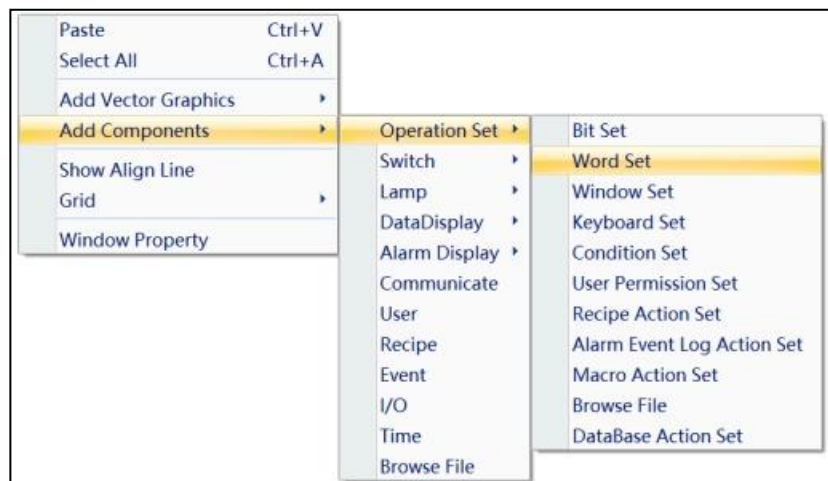
3. Use bit/word components to set electronic signatures: Electronic signatures support “switch component” - bit set/multi state setting and numerical components.

Bit set:

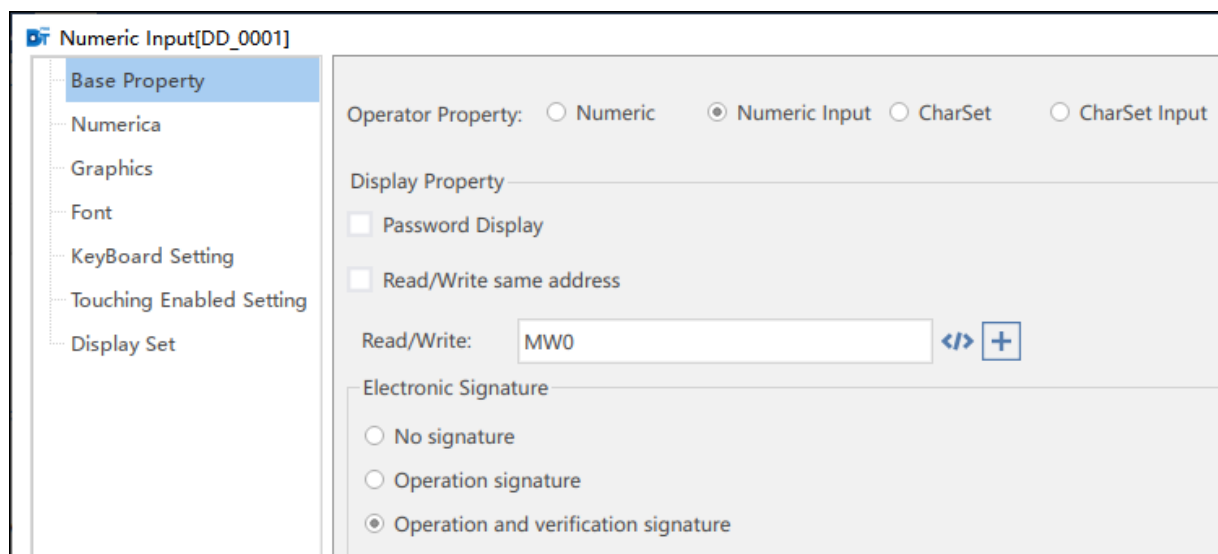


The screenshot shows the 'Action Set' dialog box. It has a dropdown menu for 'ButtonDown'. Below it, there's a section 'Execute Setting:' with a dropdown menu set to 'On'. Then, there's a 'Variable:' section with a text box containing 'MB0' and a button with '</>' and '+'. At the bottom, there's an 'Electronic Signature' section with a dropdown menu set to 'Operation and verification signature'.

Multi state set:



Numerical input:



20 Resource Library

To save frequently used images, fonts, languages, text, etc. for quick and repeated use.

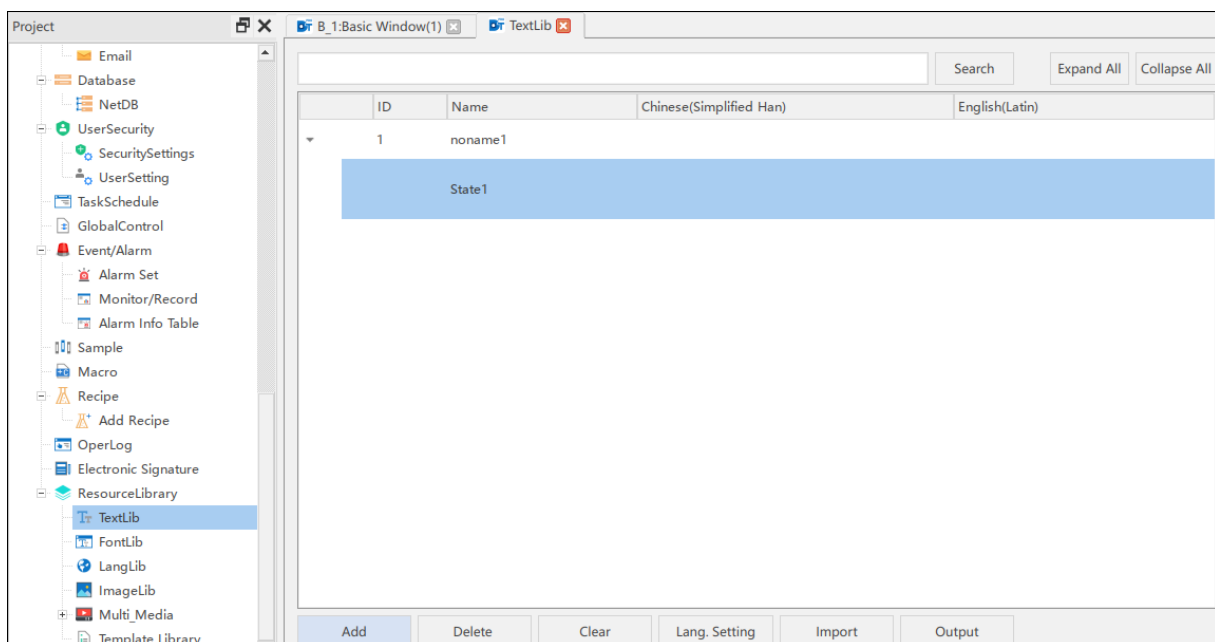
20.1 Text Library

As shown in the following figure, it is the text library (menu bar – Project - ResourceLibrary - TextLib), which can achieve quick editing.

When you need to edit a large amount of text content in a text library, you can use the **【Export】** function to export the text library to a designated location on a PC, and then use Excel to complete the editing work. This not only facilitates editing operations, but also saves a lot of time. After editing, use the **【Import】** function to import the table into the text library for easy use.

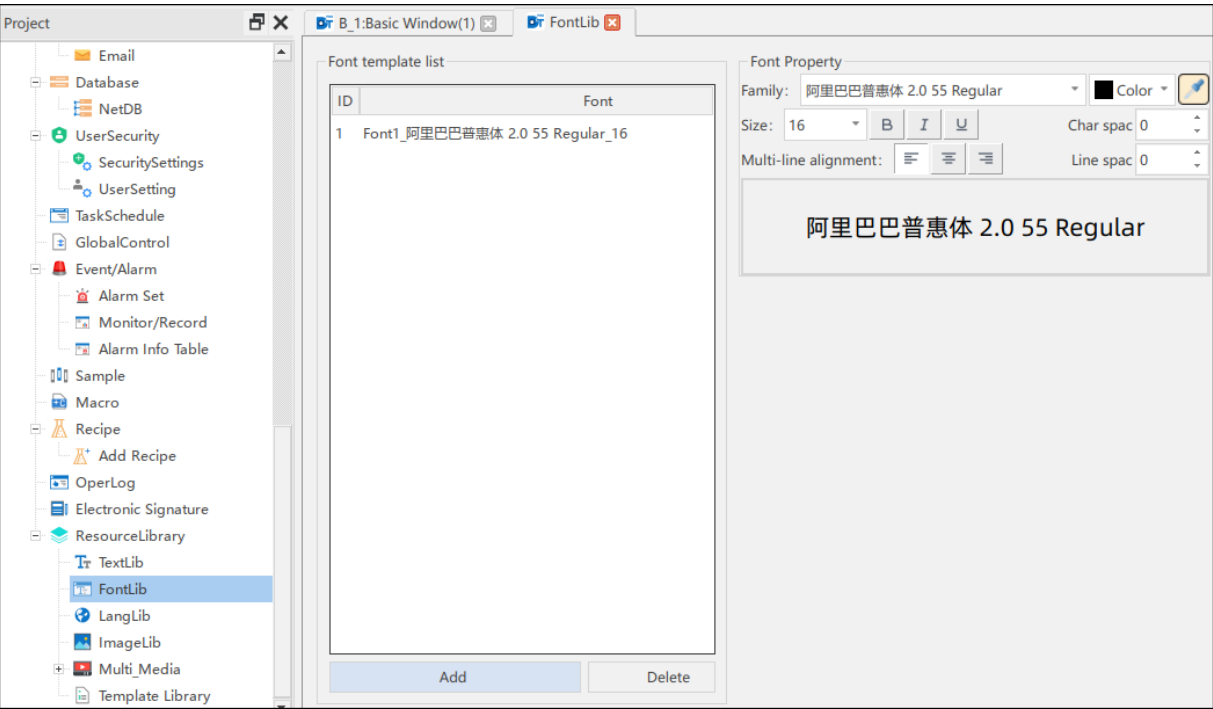
When there is no need for a large batch of text libraries, you can directly add, delete, or empty them

The text library is displayed in different languages, and text content in different languages can be set. Where the text library is used in the component, the text library can also be set, and the settings will be synchronized to the text library.



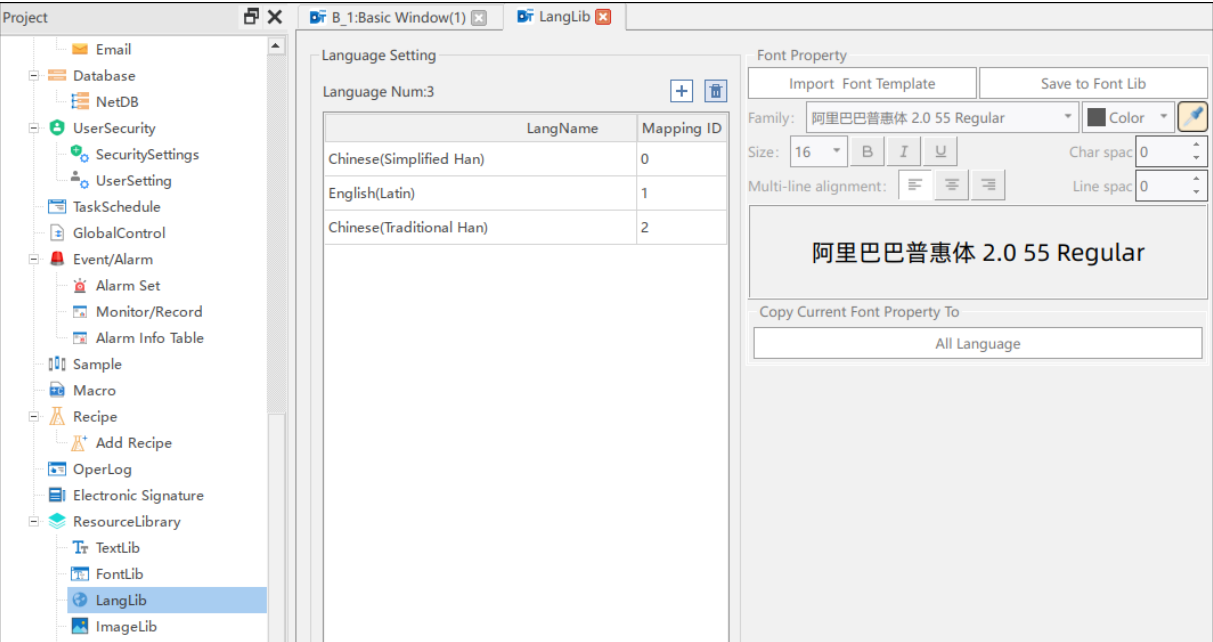
20.2 Font Library

As shown in the following figure, the font library is used to add font templates and quickly set fonts. At the font property of the component, you can click "Import Font Template" to use the font library, or you can click "Save to Font Library" to save the font template set in the component to the font library for reuse.



20.3 Language Library

The language library shown in the following figure is used to set the language. The language library supports a maximum of 32 languages. Changing the number of languages will also modify the number of languages used in other places. It can also be used in conjunction with a font library, where font templates can be imported and font attributes can be saved to the font library.



20.4 Image Library

As shown in the following figure, the image library can be pre imported, or newly created and saved, and can be reused.

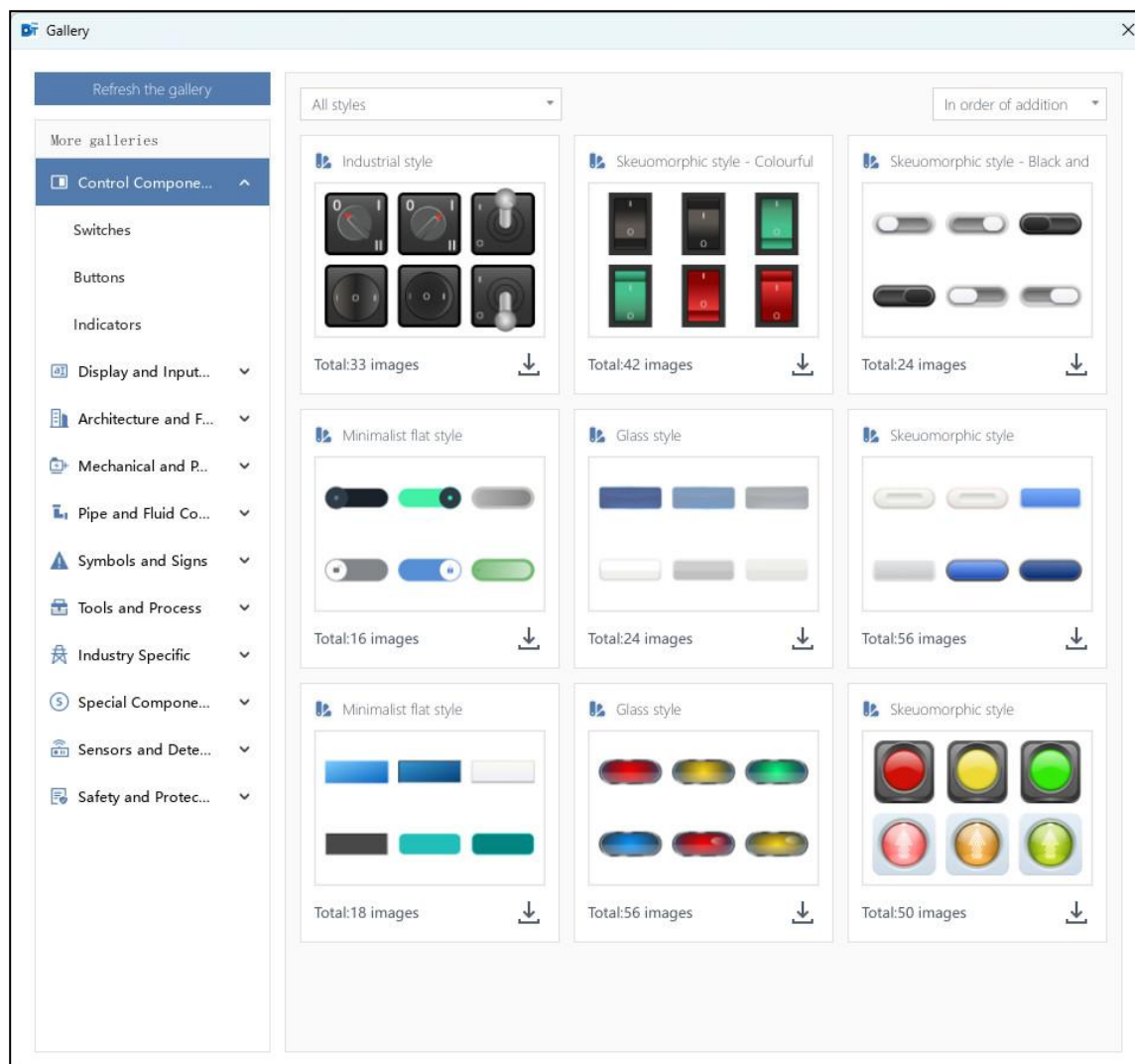
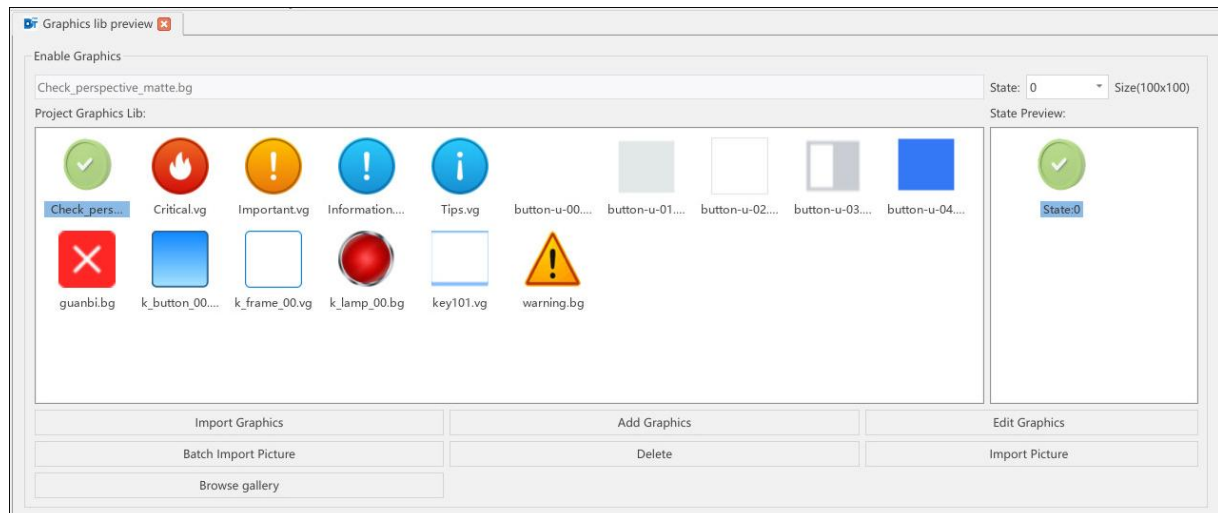


Image Library Description

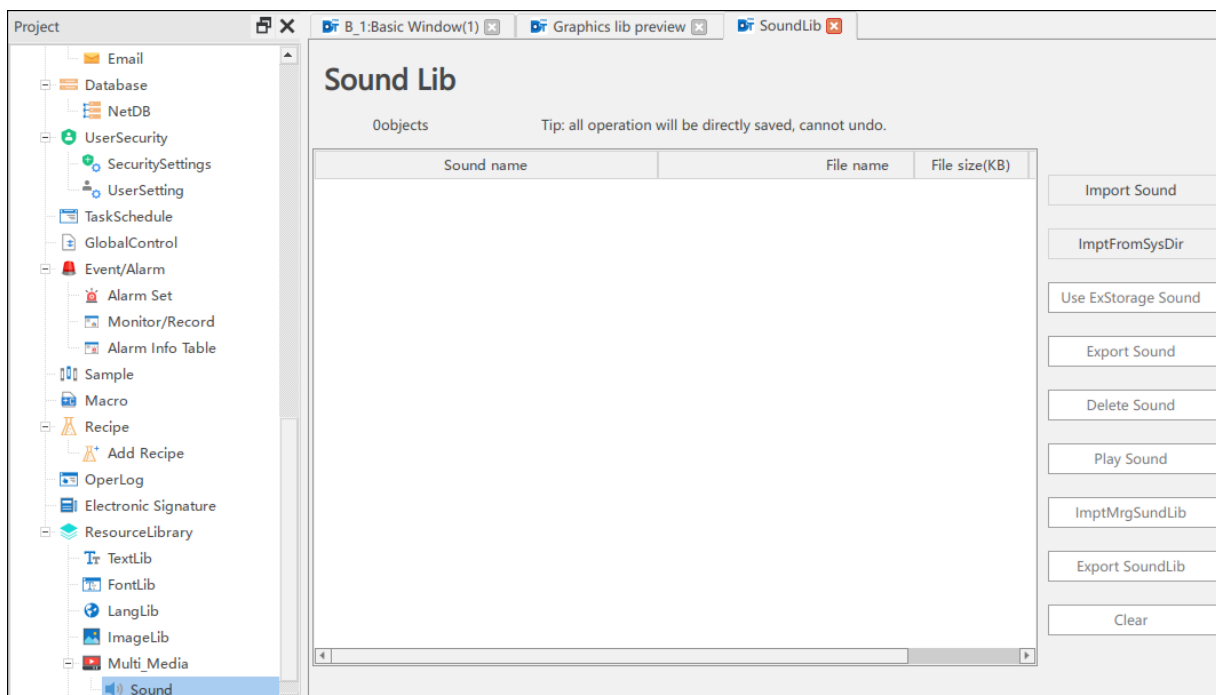
Import Graphics	Import System Library for Use
Add Graphics	Establish external graphic usage
Edit Graphics	Edit the currently selected image

Batch Import Picture	Batch import of external image libraries for use , .jpg .jpeg .png .bmp .svg (currently does not support text classes, animation classes, gradient fill, shadows, blur and other complex svg format)
Delete	Delete the selected graphic, this operation is not recoverable
Import Picture	You can import one or more external images. If multiple images are selected, the imported image is a multi-state graph.jpg .jpeg .png .bmp .svg (currently does not support text classes, animation classes, gradient fill, shadows, blur and other complex svg format)
Browse Gallery	You can get more pictures from the cloud server, you can choose the local computer folder to download and save, the download file format is 7z package, decompression of the picture support for importing

20.5 Multimedia

20.5.1 Sound

You can import sound, display specific information about the sound, or export sound from the sound library for deletion, playback, and other operations.



20.5.2 Animation

20.6 Template Library

20.6.1 Introduction to Template Library

It can meet the setting needs of personalized components/controls for users who have used them multiple times, saving the time for configuration. After setting parameters for individual/multiple components according to requirements, they can be added to the template library and can be called at any time. When changing the computer/software installation directory, you can export the original template library and then import it.

Special convenience features such as:

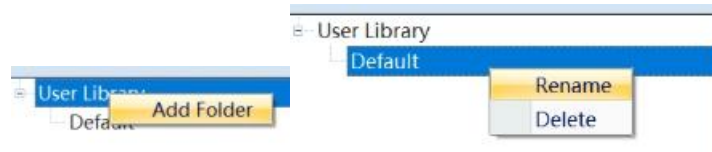
1. After a switch component - macro action (macro contains Modbus device External variable) is added to the template library, the new project calls this element, which can automatically configure the PLC device and create this macro, and the macro code is also retained.

2. After adding a switch component - recipe action to the template library, the new project calls this component to automatically add a recipe.

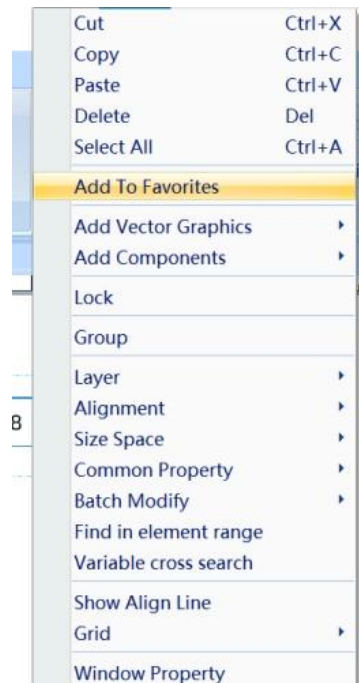
In summary, the template library can be directly and conveniently used by users.

20.6.2 Template Library Setting

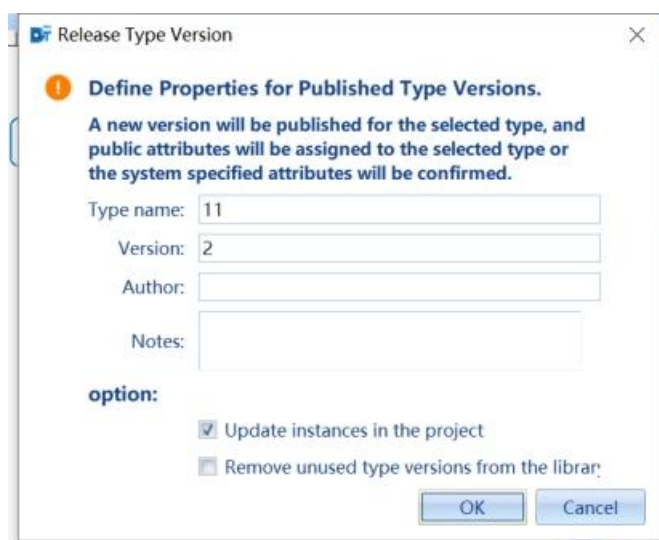
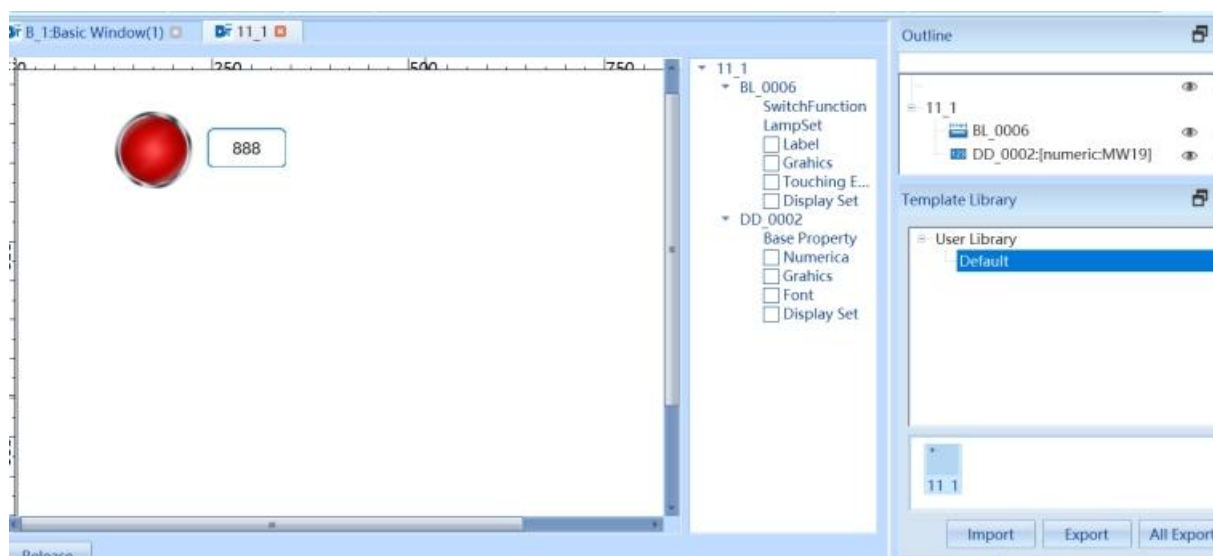
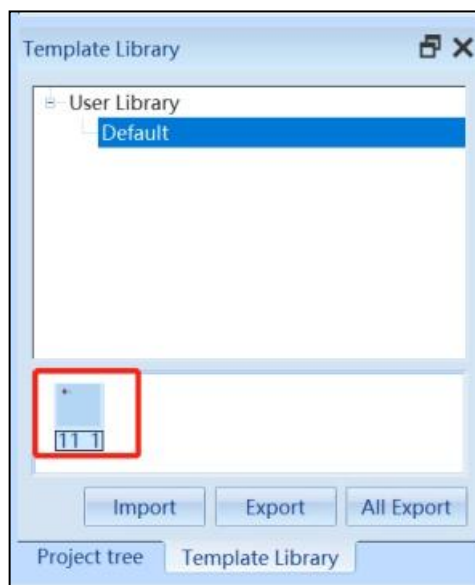
1. Right click on the User Library – Add Folder and Rename it

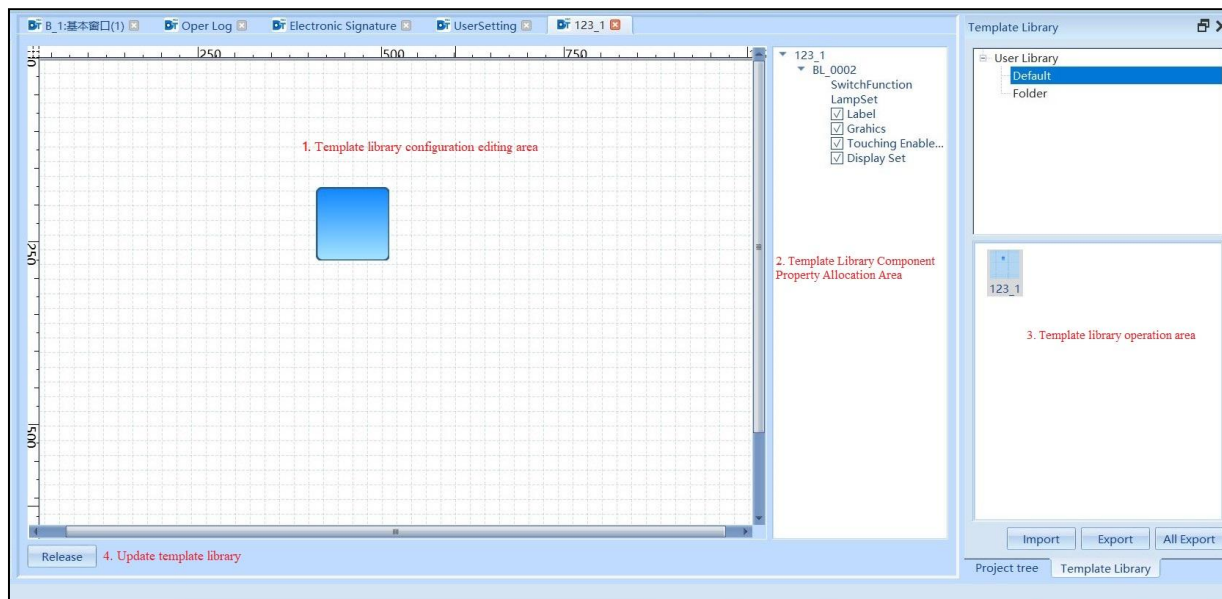


2. Select the desired single/multiple components and right-click on 'Add to Favorites'



3. After adding to favorite, the version number "_1" will be automatically added after the library name, and you will enter the template library editing interface.



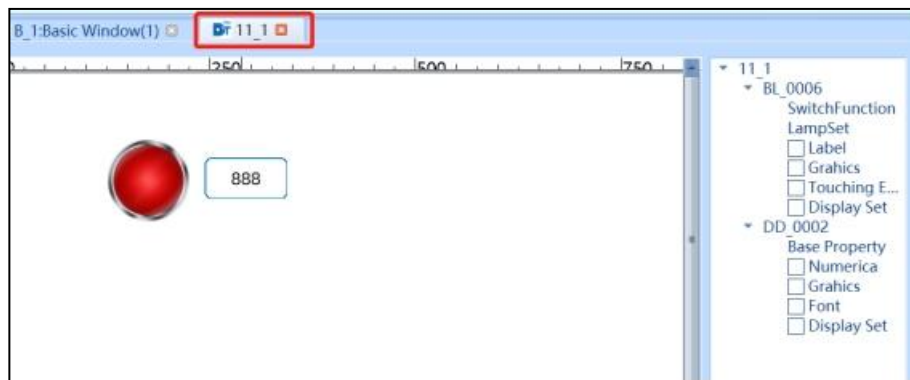
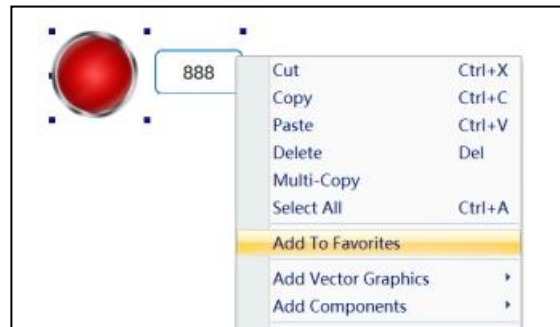


Template Library Editing Interface Setting Description	
1. Template library configuration editing area	Like the basic window, components can be added or removed, and parameters can be set for components
2. Template Library Component Property Allocation Area	Assign attributes to each component in the template library configuration screen one by one, without checking them by default. Checked attributes can only be visible when the basic window calls this template library after the template library version is saved and updated, and when the component attribute configuration is double clicked. It can be understood that the checked attributes are provided for users to flexibly modify, while the unchecked attributes are updated in bulk with the template library. Please refer to the template library instance demonstration for details. Note: For checked attributes, as long as the user has modified these attributes when calling the library in the basic window, after updating the template library, these attributes will not be updated with the template library update, only unchecked attributes will be updated. If the selected attribute has not been modified by the user in the basic window, it will also be updated with the template library update.
3. Template library operation area	You can modify the name of the template library, enter the editing interface, delete, import, and export operations
4. Update template library	- Click "Release" at the bottom left to pop up the update template library interface for update operations - Version: When updating, the version number will be automatically +1, and it can also be modified to any other version - Author and comments: You can add information about the author and comments - Options - Update instances in the project: After checking, the components calling this template library in the basic window will batch update the settings of unchecked attributes in the synchronized template library

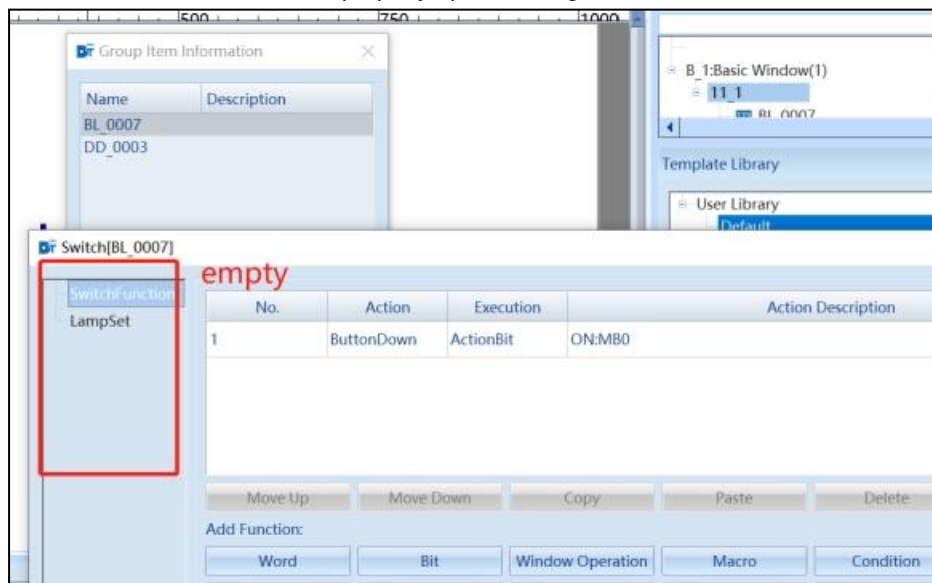
- Remove unused type versions from the library: If checked, the template library styles that have not been called in the library will be deleted

20.6.3 Template library instance demonstration

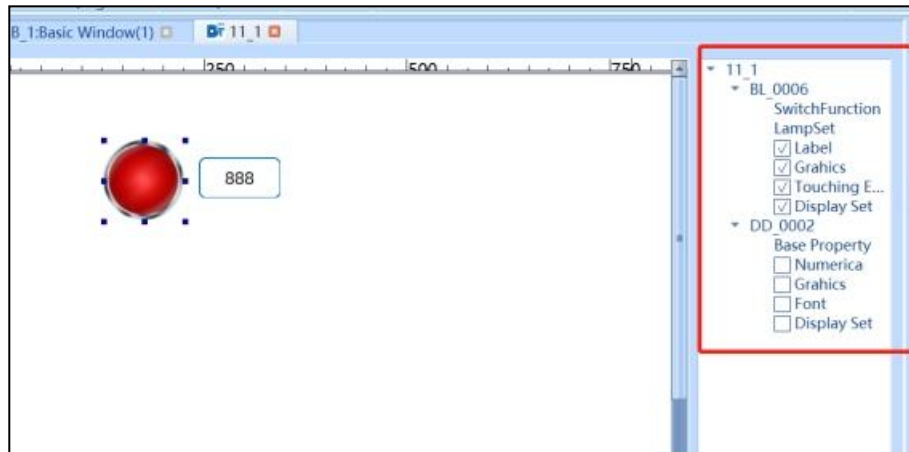
1. Select the component and right-click to add it as a favorite.



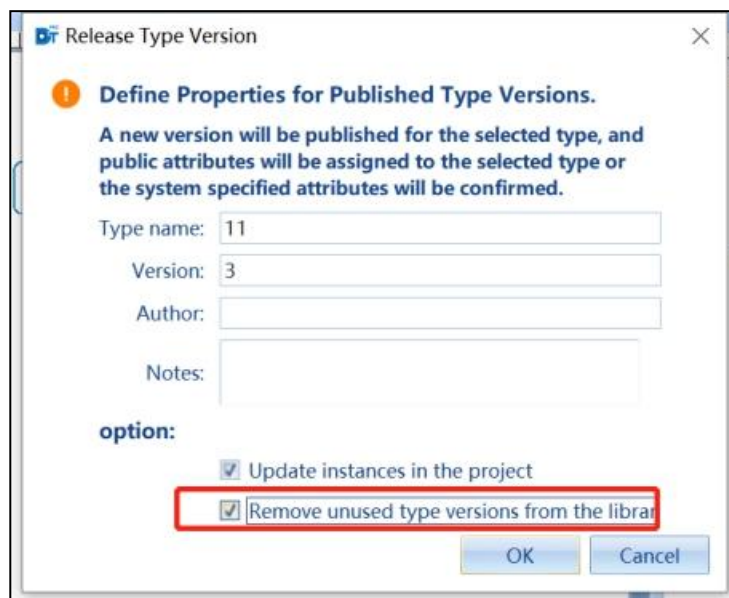
2. At this point, if the template library component property is not checked, then double clicking on the component property in the basic window will result in no property options being visible.



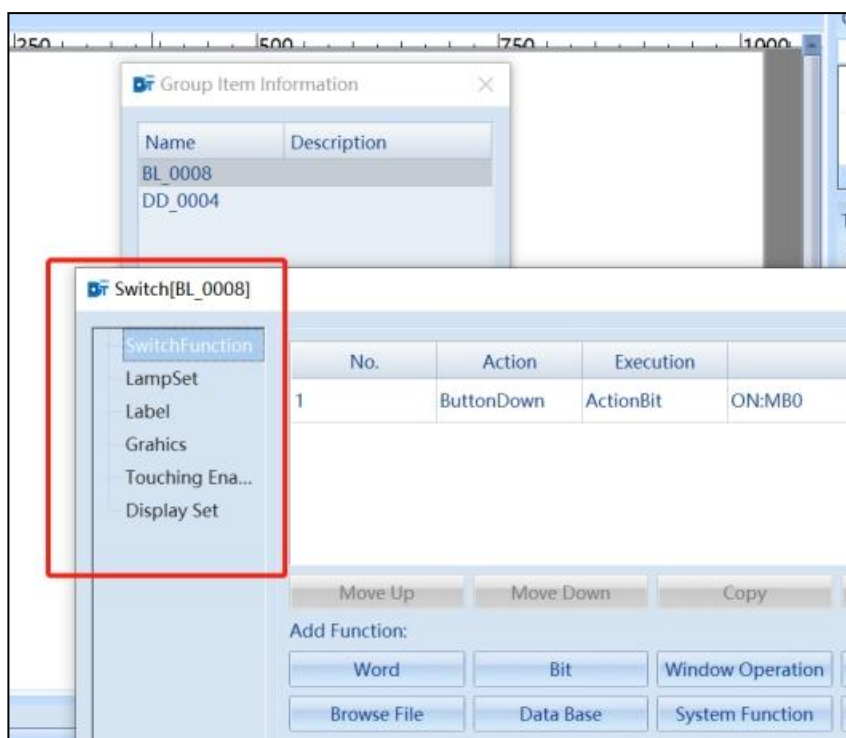
3. Assign the 'Label' property to the switch component 'SB_0004' in the template library.



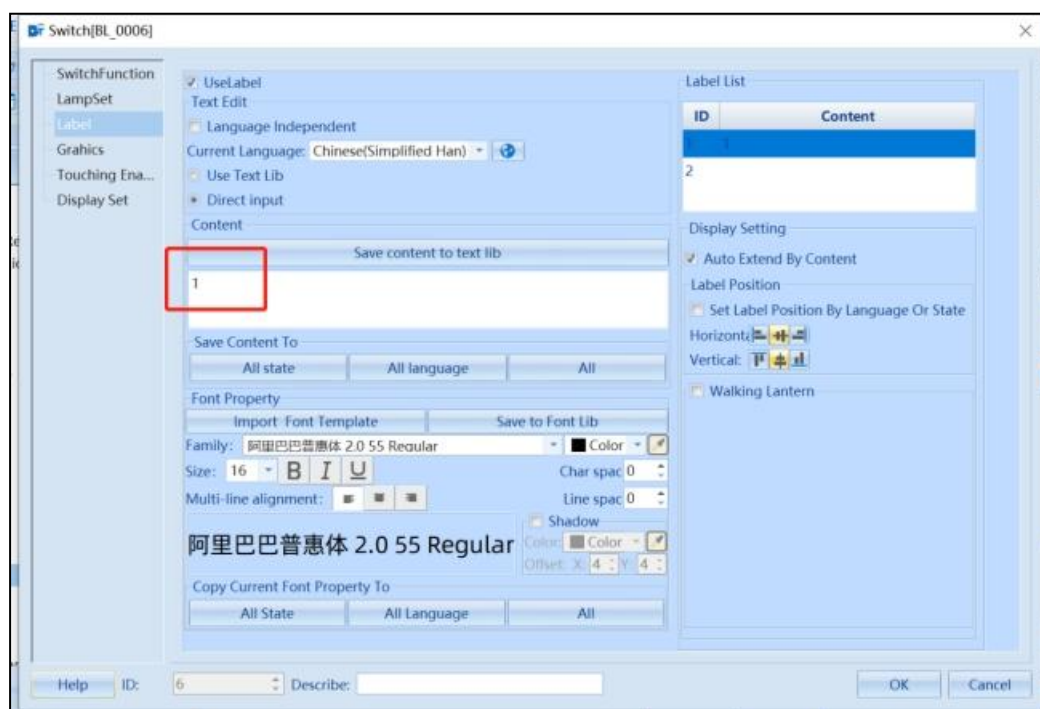
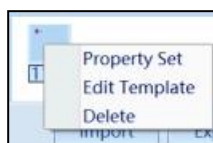
4. Click the "Release" button at the bottom left to update the instance. If "Remove unused type versions from the library" is checked, the template library "Style a1" will be deleted.



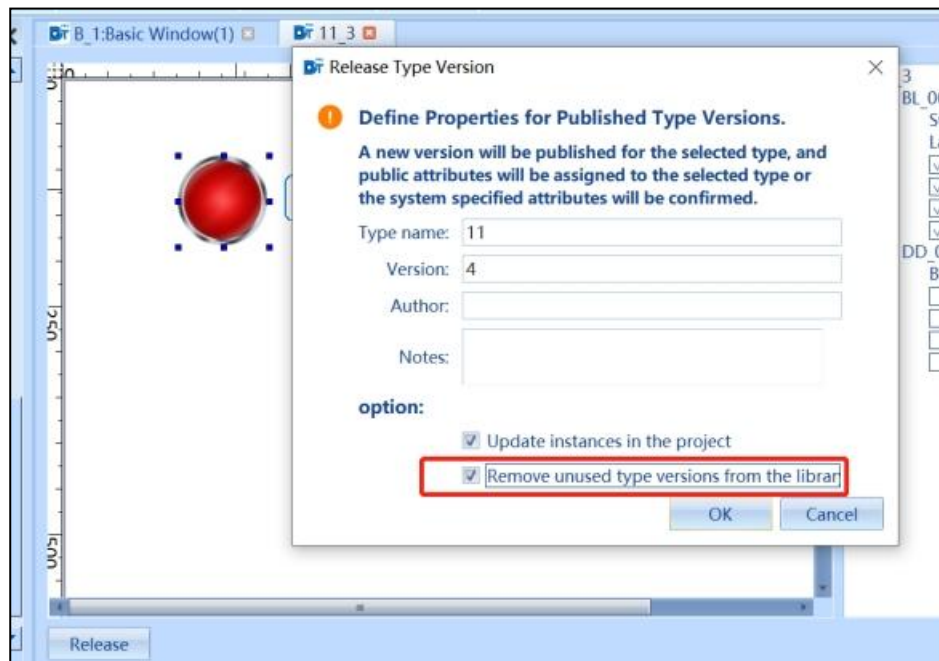
5. After the update, the template library editing interface will automatically close and return to the configuration basic window. At this time, by viewing the switch component properties, you can see that the "label" attribute appears.



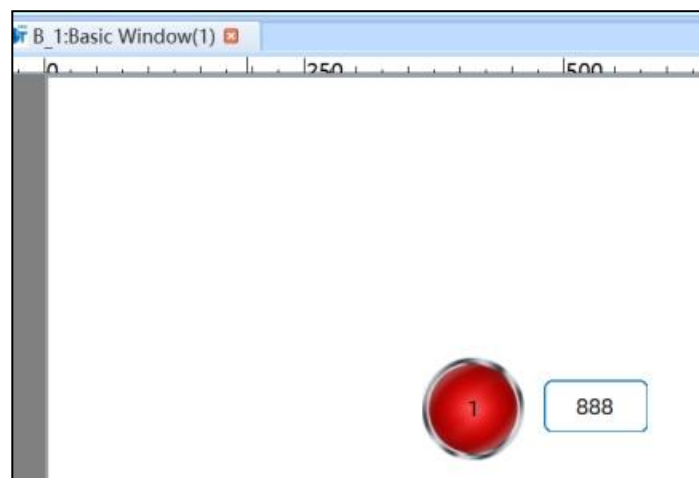
6. At this point, the "Label" attribute of the component will not be modified. Right click on the template library and click "Modify" to enter the template library editing interface. Edit the "Label" attribute of the component with the content of "1".



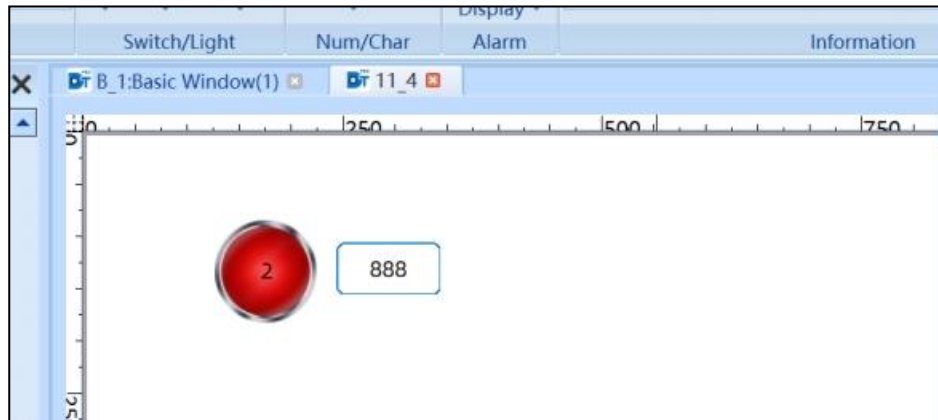
7. Click on the "Release" button at the bottom left to update the instance.



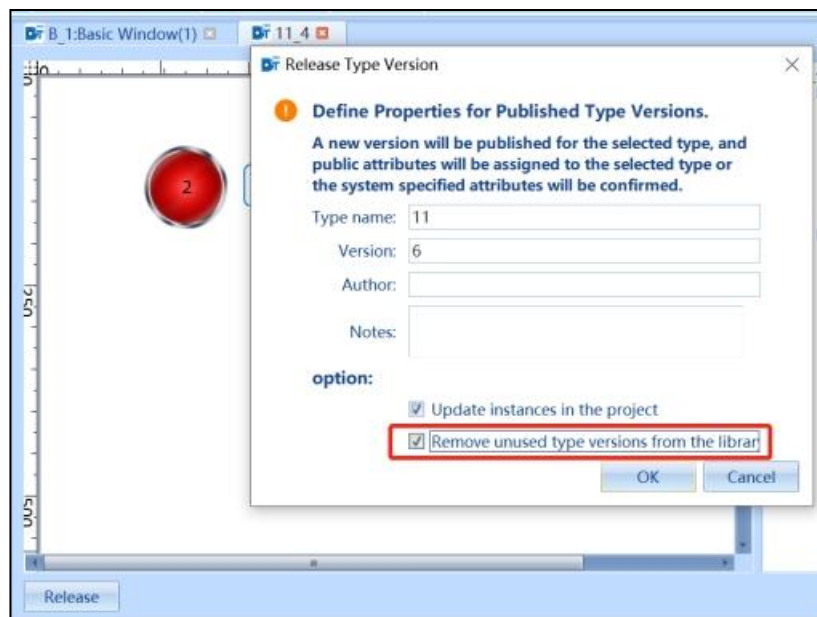
8. At this point, returning to the basic window, you can see that the attributes of the component label have also been updated.



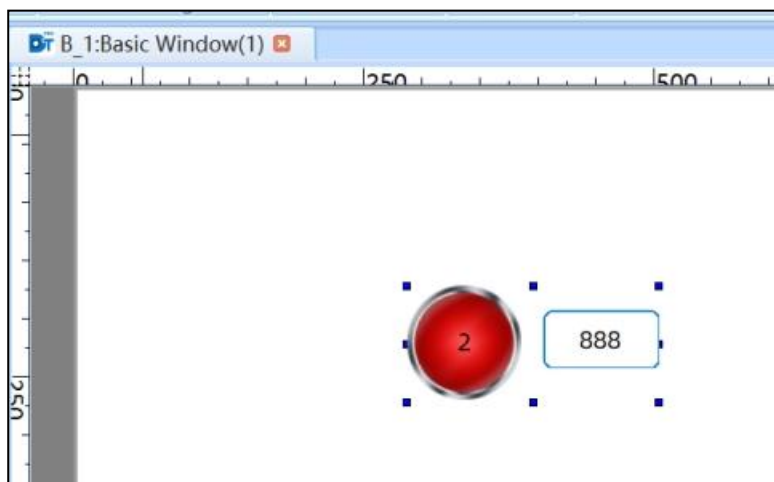
9. Now, modify the "Label" attribute content to "2".



10. Enter the template library editing interface again and click the "Release" button to update the instance.



11. Returning to the basic window interface, you can see that the "label" attribute content of the component has not been modified with the template library update.



12. Reference the Template Library

Select the template library to be called

Hold down the left mouse button, move to the basic window, release the mouse button, and the template library components will be placed in the basic window.

