wingmax
维 迈 视

TY-C8

Intelligent Control Gateway

V0.02.01

使用说明书

INSTRUCTION MANUAL

Document Description

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Before using this product, please read this manual carefully and keep it for future reference. Read the safety operation guide carefully, and pay attention to danger warning symbols such as , , etc.

The product images in this manual are for reference only. Please refer to the actual product.

Material Code: YLZA00XX0207

1. A brief introduction of the system

The control system is designed for command control center, office and building automation, multimedia environment and home automation, It combined programmable logic and protocol with programmable user interface together, provide full network and intelligent central control technology. It is essential equipment for command center and C4ISR system, it is widely used for administration center, building control, meeting room, training center, exhibition center, industry and home automation.

TY-C8 is the fifth generation intelligent control gateway. It adopts the idea of Internet and Internet of things, and integrates the Linux platform, the Google V8 kernel and the artificial intelligence technology, and adopts neural network graph algorithm in control and supports autonomously drawing arbitrary control operation drawing. The human-machine interface adopts the dynamic graphics and vector graphics technology that conforms to the HTML5 standard, and supports to make all kinds of vivid and graceful dynamic human-machine interface. TY-C8 has many new advanced features facing the era of AI.

Cloud programming -- It supports the online programming of local and cloud platforms, without installing software, and directly controlling the host IP address or cloud platform through Chrome browser.

Remote debugging -- Remote online debugging, remote online diagnosis, remote online programming, greatly reduce the cost of human travel, can choose professionals to complete by online programming.

Artificial intelligence -- Artificial intelligence neural network graph control

algorithm, supporting to make arbitrary complexity control operation map, realize free design, independent will, closed loop control;

Neural networks -Neural network schema control operation mode, it can master the overall operation state, and support the controlled device encapsulation, can effectively inspect the real time operation state of the controlled devices.

Advanced functions – It supports control module is grouped into macro inheritance share, supports user self built function module, can be written by JavaScript which is the

2. Function realization

In order to realize all kinds of control functions, it needs to use the B/S architecture based human-computer interface design software "Vision Node" (VN) and configuration protocol editor software "Logic Node" (LN) to program the equipment. These two softwares do not need to be installed, and it can obtained through running the Chrome browser on PC which not less than the V60 version to access the IP address or through accessing the cloud platform.

Through the VN human-machine interface design software, the user control interface (UI) can be designed and developed. The UI is composed of various pages and various controls deployed on the page. UI can use a general page, a sliding page, or any combination of two pages. TY-C8 supports the simultaneous operation of three independent or interrelated control UI, it is convenient to realize multi - point and multi - user cooperative control.

According to the design needs, the general pages and sliding pages can be deployed

on the pages and sliding areas. These flexible containers are similar to the pages, and can also deploy various operating controls such as buttons, sliders, progress bars, text, images and so on. The commonly used controls are configured with rich templates, which can be convenient and fast completed the design and layout of the interface by selecting templates..

VN has component group functions, which can pack a set of controls to form a resource library, which can be retrieved in different pages or containers according design needs, which can be built by the user besides the original supply by factory.

Controls with control functions in UI are with coded properties to identify various controls and communicate with the control gateway background through LN programs and receive feedback, so that various data feedback and control effects are presented on the UI.

Through the LN configuration protocol editing software, the control program can be designed and compiled according to the application needs, and realized the program control and data feedback of various ports, such as Ethernet network port, multi-function serial port, infrared / unidirectional serial port, relay port, I/O port and other equipment.

LN expresses the control information in various forms of signals. The signal type, according to the information capacity from small to large, is digital, analog and serial, and the information transmission relationship between modules is expressed with different types of signal lines. LN abstracts the physical control interface and the common performance function into the form of the module. By configuring

the module parameters, drawing the signal relation line or editing the signal name, the control transmission relationship between the modules is established, and the drawing of the control operation diagram is realized.

The various modules of LN can be freely matched, and the same type of signals can be connected arbitrarily. LN has modular marshalling functions that support encapsulated macro modules or logical packages. These marshalling macro modules implement specific functions and can be transferred on demand in different application scenarios. These macro modules can also be built by users except the original supply.

LN provides the mechanism of user self built function modules, and supports the construction of user modules in JavaScript language according to certain rules. The JS language is very suitable for processing complex control information, such as extracting and assembling string, and JS language can also conveniently construct special use control information or private control protocol.

3. Technical parameter

TY-C8 integrated control host technical parameters

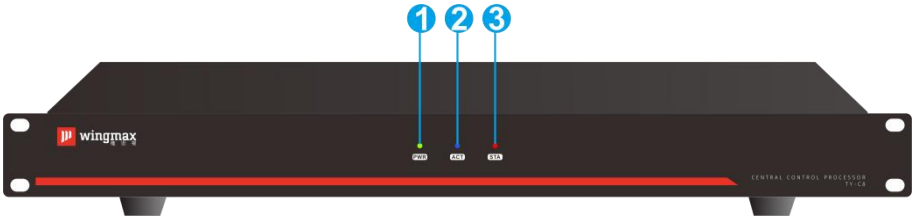
project	Explain
CPU	i.MX ARM Cortex-A7 528MHz
Operating system	Linux 4.1.15 kernel
Memory	512M DDR3 RAM
Flash	512M Nand Flash
RELAY	8 - isolated low voltage relay (normally open) 30VDC/AC 1A

I/O	8 - Digital I/O input
INFRARED–SERIAL	8 - infrared or one-way RS-232 serial port
COM(A,B,C,D)	4 - DB9 bidirectional RS-232 serial port
COM(E,F,G,H)	4 - 7PIN bidirectional RS-232/422/485 serial port
LAN	1 - RJ45 10M/100M Ethernet interface
RST	1 - RST system reset button
LED	3 – LED system status indicator
Power Supply	24VDC 1A
Installation method	Standard 19” mountable or plane mounting
Working environment temperature	5℃ to 45℃
Relative humidity of working environment	10% to 90%
Size and weight	High:45mm (without foot mats) Wide:430mm (excluding the ear of the standard mountable) Deep:192mm (without terminal) Weight: About 3.2kg (excluding packaging and accessories)

4. Port description

The TY-C8 integrated control host is shown as the figure. The front panel is equipped with a LED indicator, and all other external connections and reset buttons are located at the rear part of the device.

4.1. TY-C8 front view:



The front panel indicator function is as follows:

4.1.1. PWR (power supply)

When the device is connected to the 24VDC power supply, the PWR green light changes from the start of the power flicker state to the normal state (about 40 seconds), indicating that the device is started to enter the working state.

4.1.2. ACT (network port indicator)

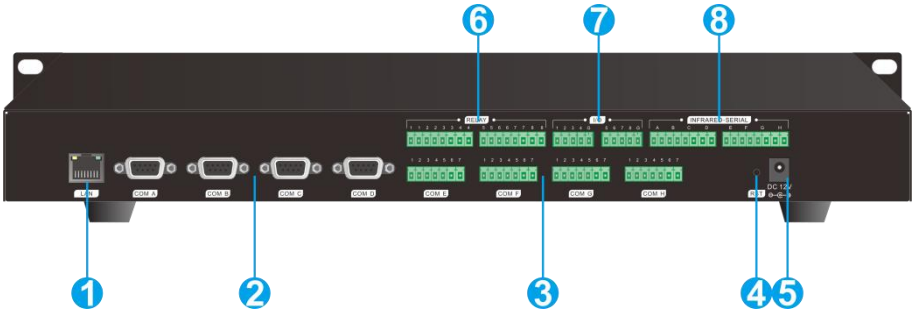
When the Ethernet network port is connected and with data transmission and reception, the LED light is flicker.

4.1.3. STA (working state indicator)

In working state, the red indicator lights are lighted when any control port changes the control signal or receives data.

When the device's main application is out of the service, the PWR green indicator is always on. The STA red light flickers continuously, four times in 1 second, and the duty ratio is 50%.

4.2. TY-C8 rear view:

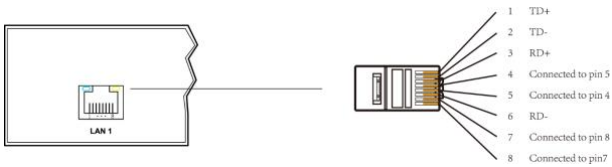


The rear port function and definition are as follows:

4.2.1. LAN

The standard 10M/100M Ethernet port and RJ45 terminal provide functions such as device access, upload engineering, network communication, network control, remote debugging and so on.

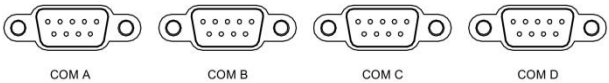
The following figure is the definition of the LAN port:



4.2.2. COM (A,B,C,D)

TY-C8 has 4 DB9 common programmable bidirectional serial ports that support the RS-232 communication protocol. The maximum transmission rate can reach 115200bps, and it supports seven standard rates between 2400 and 115200bps.

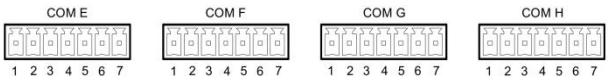
The definition of DB9 9PIN is not completely standard. For RS-232 mode, 2 is RXD (RXD), 3 is TXD (TXD), and the other is ground (GND) pin, which conforms to the standard RS-232 definition.



4.2.3. COM (E,F,G,H)

TY-C8 has 4 7PIN programmable bidirectional serial ports that support RS-232, RS-422, or RS-485 communication protocols with the highest transmission rate of 115200bps, supporting seven standard rates between 2400 and115200bps.

The output definition of 7 PIN is not completely standard, for RS-232 mode, Pin 5 is GND, Pin 6 is received (RXD), Pin 7 is the transmit (TXD) pin conforming to standard RS-232 definition; For RS-422 mode, pins are defined as Pin 1 (RXD+), Pin 2 (TXD+), Pin 3 (RXD-), Pin 4 (TXD-), Pin 5 (GND); For RS-485 mode, Pin 1 (RXD+) and Pin 2 (TXD+) should be short connected as D+, Pin 3 (RXD-) and Pin 4 (TXD-) short connected as D-, and Pin 5 still is GND.



4.2.4. RST (reset button)

After pressing the RST reset button on the rear part of the equipment for more than 5 seconds, the STA red indicator on the front panel continues to flicker and releasing the RST reset button. The device continues to complete the start until the STA red indicator off (about 20 seconds).

The device IP address is reset to the default:192.168.0.111;

The device login username / password is reset to the default value: user / user;

After the equipment is normally started (PWR green indicator is always on), press the RST reset button at the rear of the device for more than 3 seconds, and

the device login username / password will be reset to the default value: user/user, at the same time, send related instructions to access the internet and binding cloud services. When the device is connected to the cloud server network but is not bound to the account number of the cloud server, the PWR green indicator and the STA red indicator flicker alternately, each flash in 1 second, and the duty ratio is 50%. When the device is bound to the account of the cloud server, the PWR green indicator and the STA red indicator flicker alternately, two times in 1 second, and the duty ratio is 50%.

4.2.5. Power 24VDC 1A

The power input port is used to connect external 24VDC power input.



4.2.6. RELAY low voltage relay output

8 low voltage relay ports, normally open contacts, each group is independent and isolated, each group can carry load of 1A 30VDC/AC.



4.2.7. I/O input

This port provides a programmable 8 way dry contact input ports, which is often used for signal acquisition of the alarm.



4.2.8. INFERARED-SERIAL infrared - serial output

TY-C8 has 8 group ports. Each group can be used as an infrared port output or a one-way RS-232 output. Each group has two PINs, left one is signal positive, and the right one is the signal ground. The carrier frequency of the infrared output can reach up to 1.2MHz, and the data transmission rate can reach 115K per second. The amplitude of the one-way RS-232 port output is TTL level, that is, the range from 0 to +5V, which may not be suitable for some serial controlled devices.

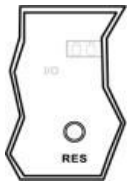
The data format and data rate of unidirectional RS-232 output can be set in the programming, supporting both 7 or 8 bit data lengths, supporting the non parity N, odd parity O, even parity E check mode, and supporting seven standard rates between 2400 and 115200bps.



Infrared serial output port, I/O port, low voltage relay port connection 3.5mm Phoenix terminal are provided by factory.

4.2.9. RES

System reserved debugging port



5. Vision Node application example

Open the Google browser and input the address, such as: 192.168.0.111/home, select "help resources" in web navigation and click on "VN case" to download the VisionNode application instance to the local computer. (The download files are stored in the default download location of the browser. If you want to change the location of the download file, you can change in the Google browser through the "Settings" - "Advanced" - "the download contents" option to change the location of the download file or to open the "save location of each file before download" function.

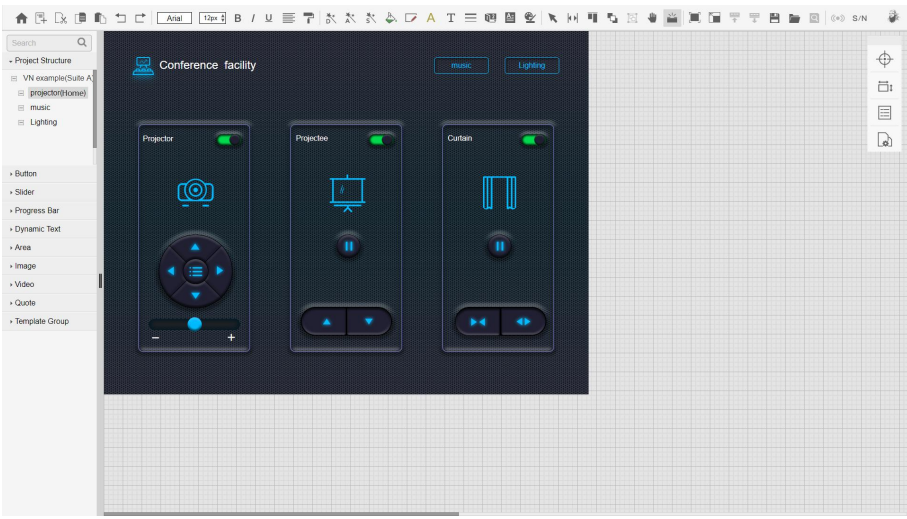
Select the "visual layout" in the web navigation to open the VN software, click on the "open engineering" tool in the VN menu bar, and select the downloaded engineering compression file "LN case.Zip" and double click or click open in the pop-up "open" file selection box to load the project into the LN software.

The case project is only for reference and learning. The case projects can be secondary edited or uploaded directly, and click on the "Upload" tool in the menu bar to upload the project to the current connected equipment. After

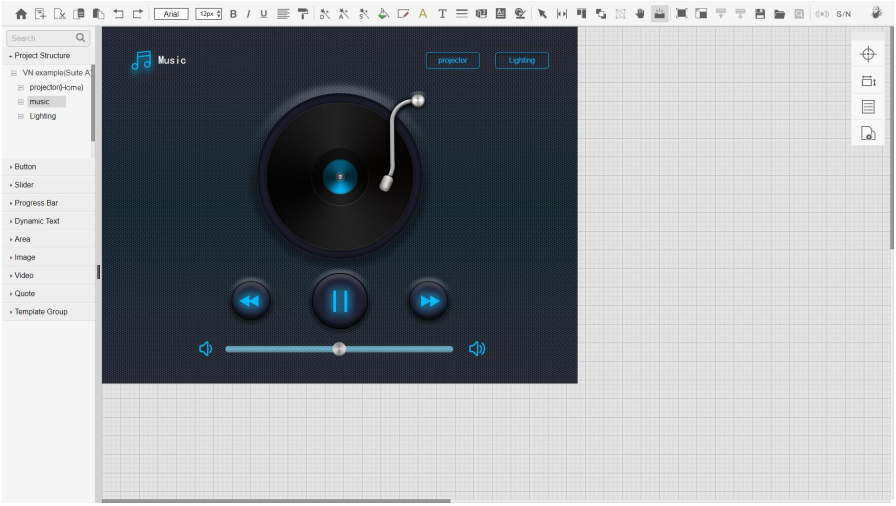
uploading successfully, pop-up "upload success" prompt box, if prompting error in uploading, project will not be uploaded successfully, please modify the errors in the project and re upload.

This case is the control for the three scene systems of the projector, music and lighting in the conference room.

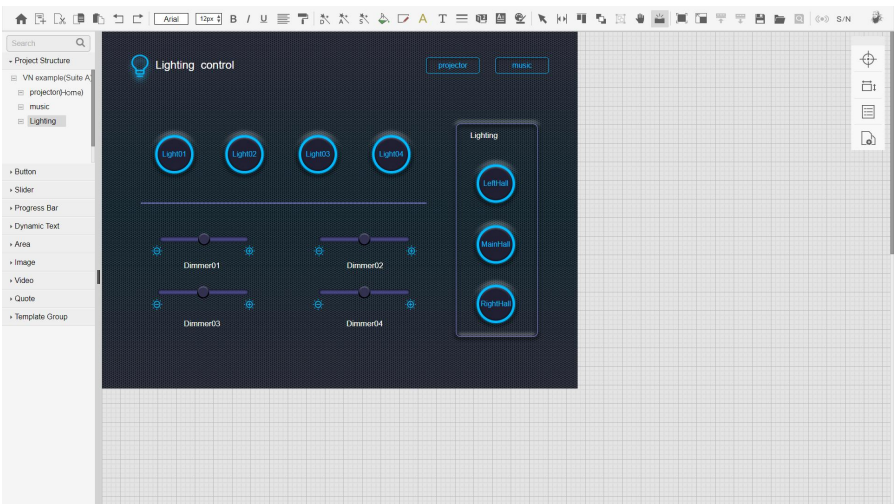
Projector: Projector, projection screen, curtain, common function control interface;



Music: Play, pause, previous song, next song, volume control interface.



Lighting control: Single light switch, area light switch and single light brightness adjustment control interface.

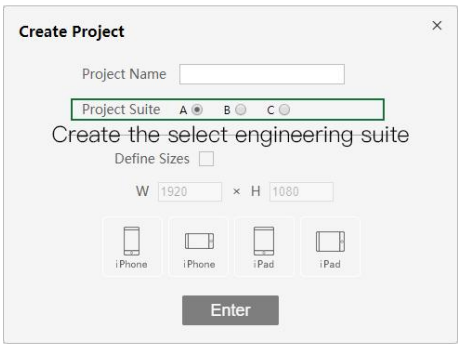


6. Vision Node compilation and run

The target control interface generated by VN software is a set of web pages with HTML5 standard properties, but the support of different hardware platforms to

HTML5 standards is different. In order to use the control interface generated by VN on different platforms, VN software provides a compile selection function to compile the HTML5 web page control interface suitable for the target platform.

TY-C8 supports the simultaneous upload of three sets of controls interface. In the "new project", choose different "engineering set" options and select "compile selection" options before uploading the project, which can realize cross platform control of the coexistence of various control interface hardware platforms. The three sets of control interfaces can have the same or similar control functions, and can also be designed to different control functions, and can be flexible to build hierarchical multi-point control.



The connection addresses of the three sets of control interfaces are:

192.168.0.111/a/

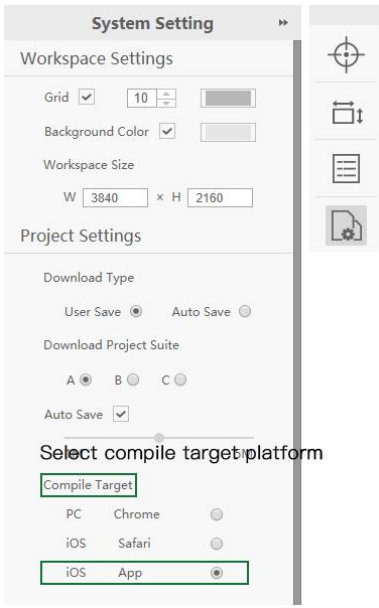
192.168.0.111/b/

192.168.0.111/c/

When the compilation target is selected as IOS App, the compiled target program can be uploaded to the IOS AI intelligent control APP software. The upload steps are as follows:

(1) The IP address of the host is set to: 192.168.0.111

(2) Open the host's "home page" - "Maintenance upgrade " - "System configuration " - "APP application management" , APP application management page will display the VN project creation time, VN software version information, AI intelligent control application online or not of the APP. If it is not displayed the information such as VN project creation time, the VN program should be selected to compile the target as the "ISO App" option to re upload the project.



(3) Open the IOS system which already installed "AI intelligence control" APP software, in 10 seconds after the opening of the APP, click three times in the top left corner of the screen, will enter the "AI intelligent control set update" page; First set the "APP target control host IP" as:192.168.0.111。

(4) After the above settings are completed, the "APP application management" page on the host will display "APP online". There are two ways to update APP software control engineering.

A. In the host's APP application management page, click the push button to push the program to "AI intelligent control" APP software.

B. In the IOS system open "AI intelligent control settings update" page, click "update" button, update the program to "AI intelligent control" APP software.

(5) Switch to the main page after uploading will show the updated APP control engineering page, which can be used for actual control.

(6) When the IP address of the host is changed, the "AI intelligence control setting update" page of the IOS system should be opened and the "APP target control host IP" address should be modified, then it can control the equipment normally. If you need to modify the AI intelligent control APP software control project page, you need to repeat steps 1 to 5 above.

7. Logic Node application example

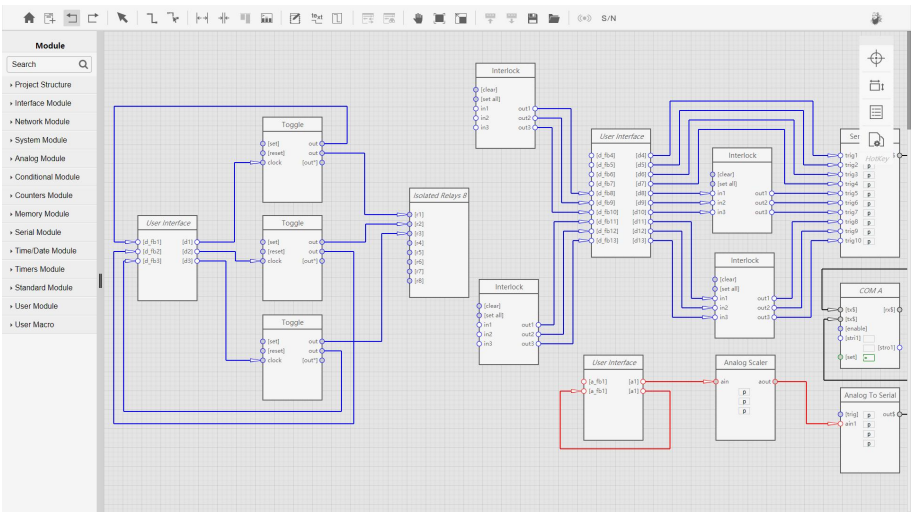
Open the Google browser and the input the address, such as: 192.168.0.111/home, select "help resources" in web navigation and click on "LN case" to download the LogicNode application instance to the local computer.

Select the "logical layout" in the web navigation to open the LN software, click on the "open engineering" tool in the LN menu bar, and select the downloaded engineering compression file "LN case.Zip" and double click or click open in the pop-up "open" file selection box to load the project into the LN software.

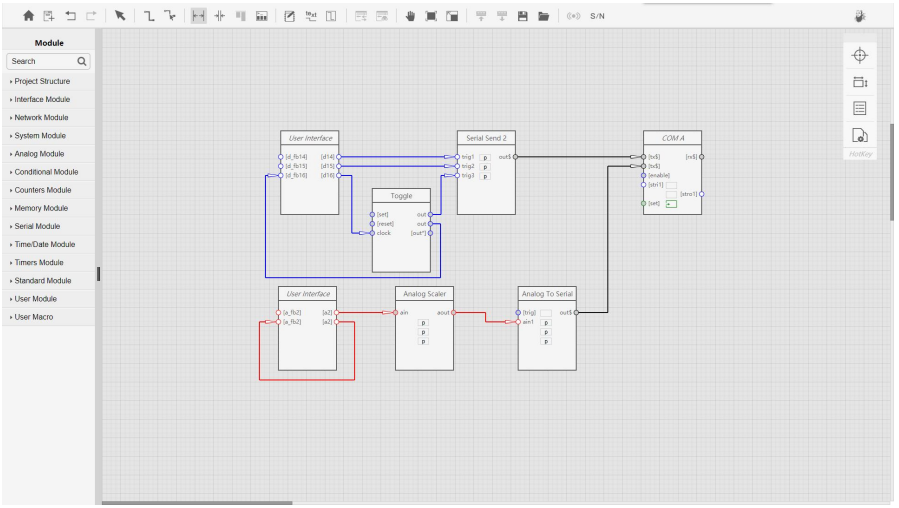
The case project is only for reference and learning. The case projects

can be secondary edited or uploaded directly, and click on the "Upload" tool in the menu bar to upload the project to the current connected equipment. After uploading successfully, pop-up "upload success" prompt box, if prompting error in uploading, project will not be uploaded successfully, please modify the errors in the project and re upload.

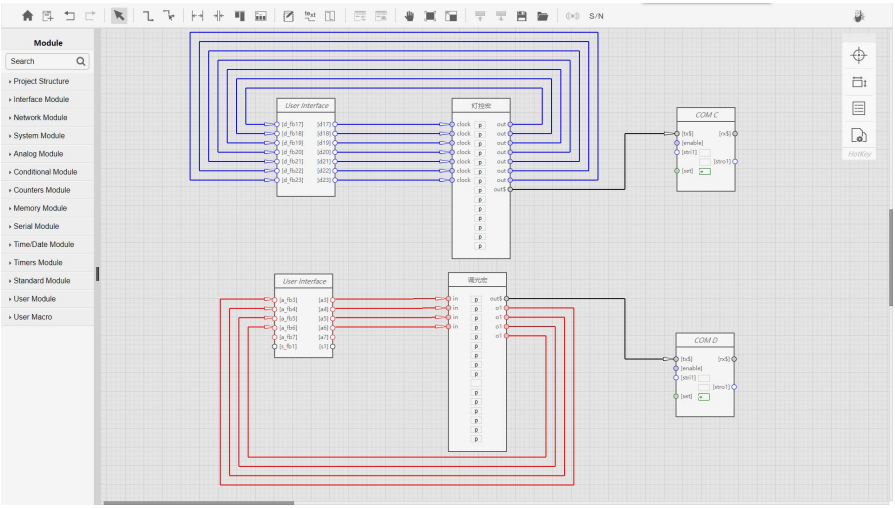
Projector: The projector, the projection screen, the curtain, the common function logic diagram, the following logic program is control of the projector, the projection screen, the curtain, the relay power supply, and the serial command control of the equipment's common functions, the control interface will be displayed when the corresponding function control is operated.



Music: Playing, pause, previous one, next one, the volume logic diagram, the following logic program is the background music common function serial control, the control interface will be displayed when the corresponding function control is operated.



Lighting control: Single way light switch, area lighting switch, single light regulation logic operation diagram, the following logic program is the logic diagram of light switch and light regulation control. The control program encapsulates the 7 way lighting switches and 4 way light regulation, and the logic module used by the specific function into macro, and realize the function control and interface state display.



8. Logic Node compilation and run

The LN application project needs to carry out various tests for the completeness of project before uploading it to the background after editing. The test results are prompted in the form of warnings or errors. Warning information does not affect the upload and operation. If errors occur, the uploading operation will be prohibited.

LN software has the function of debugging and running. Under the debugging and running conditions, the modules that have external monitoring events can be selected and fill in the signal values that need to be debugged and mark a signal or multiple signals to debug. After clicking on the "start" or "single step" button, it will be presented in the form of an animation based on the sequence of the modules running, and each module will display the current signal value on the input and output line. It is convenient for the user to see whether the program is correct and the state of a set is debugged.

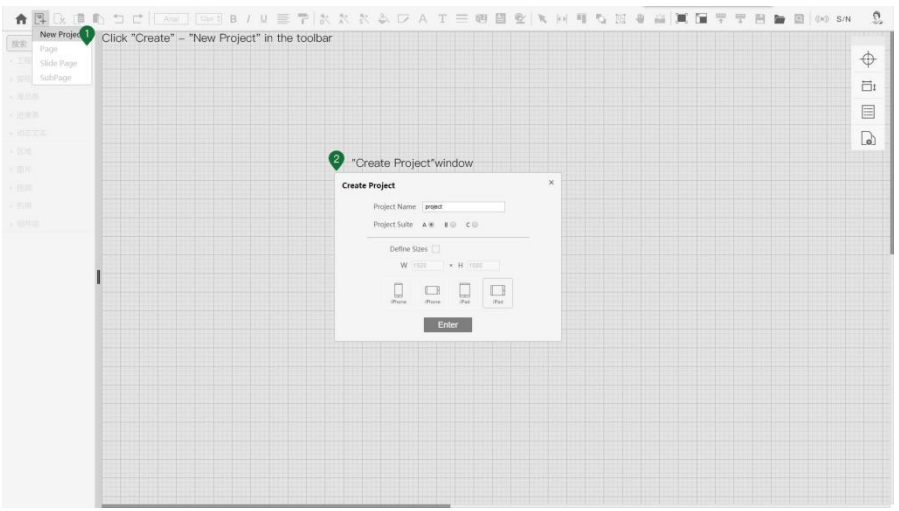
LN software has the function of monitoring and running. You can choose to

upload and run the current project or load the background running project for monitoring. Under monitoring and running conditions, it can display the state of input and output signals of each module. It is convenient for users to see the overall running state of the program and the working state of the target device.

9. Vision Node programming method (One)

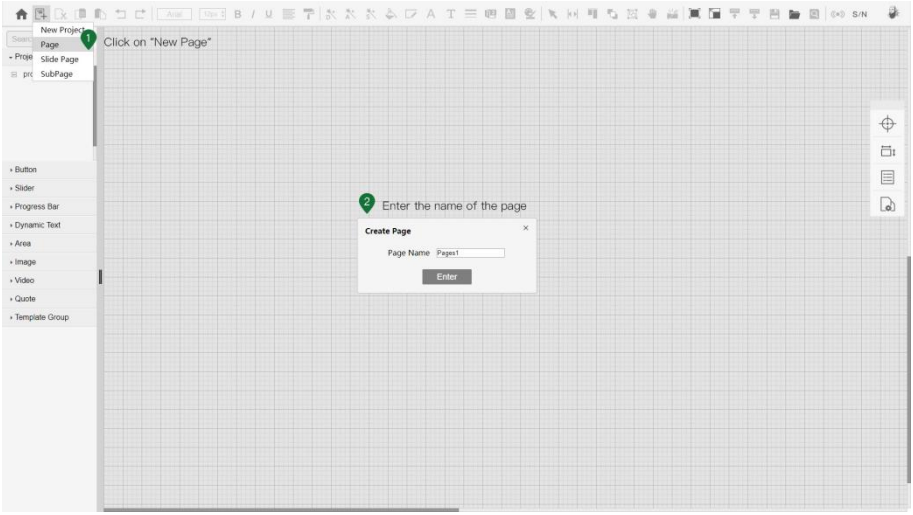
9.1. Create a project

Open the home page, click "tutorial" - "VN (One)", automatically open the VN software, click the "create" button in the menu bar, select the "new project" in the pop-up option, enter the project name, select the engineering set, set the custom size, or choose the equipments to use in the project window, click "confirm".



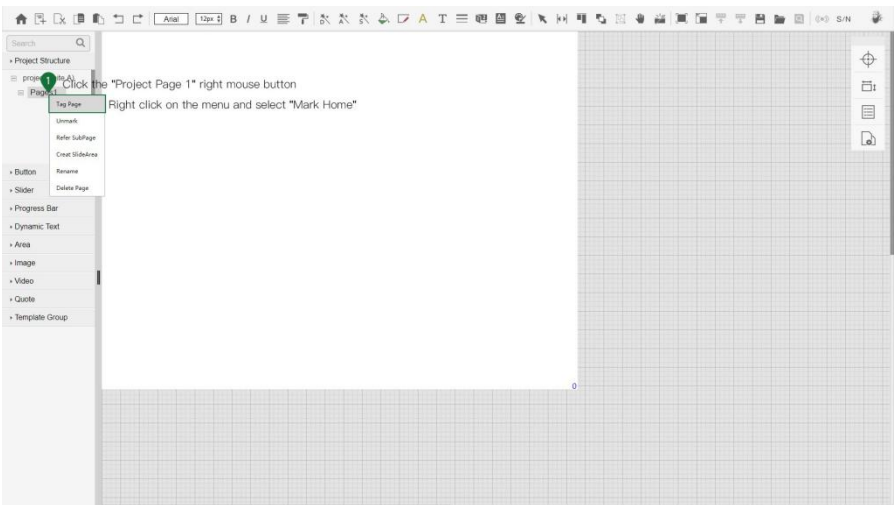
9.2. Create a page

Click the Create button to select the "normal page" name, for example, fill in the page name as "project page 1" and click the "confirm" button.



9.3. Set up the home page

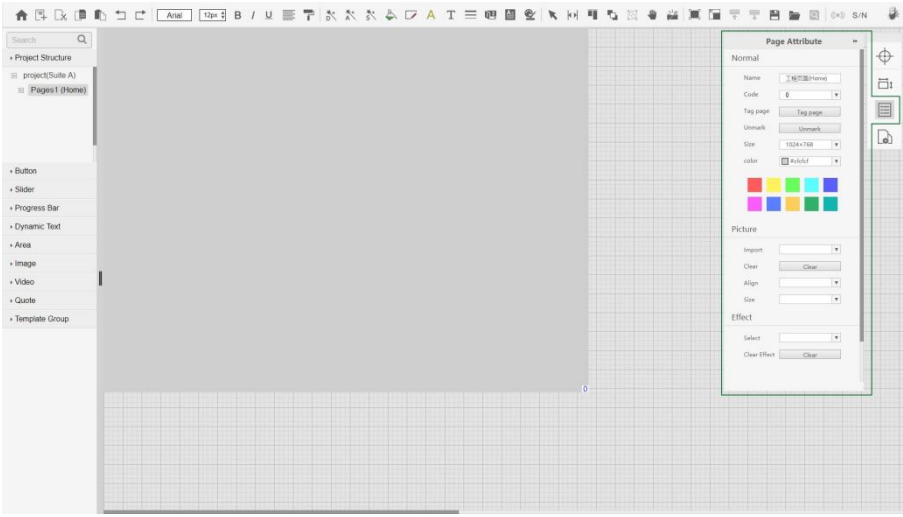
Click on the newly created page "engineering page 1" in the "engineering structure", and select the "marking home page" on the right-click menu.



9.4. Setting page properties

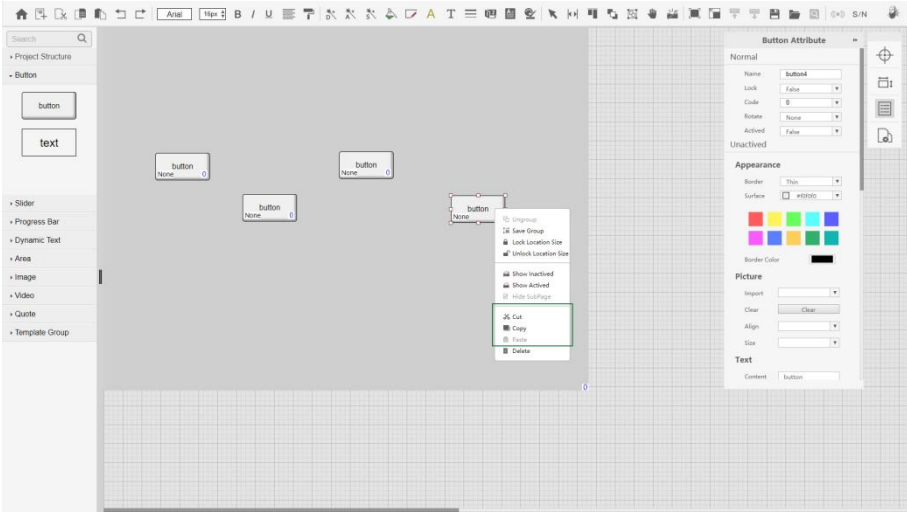
Click the "property" button in the navigation bar to set the properties of the

name of the page, the size of the page, the color of the background, or the pictures, such as the background color of the page.



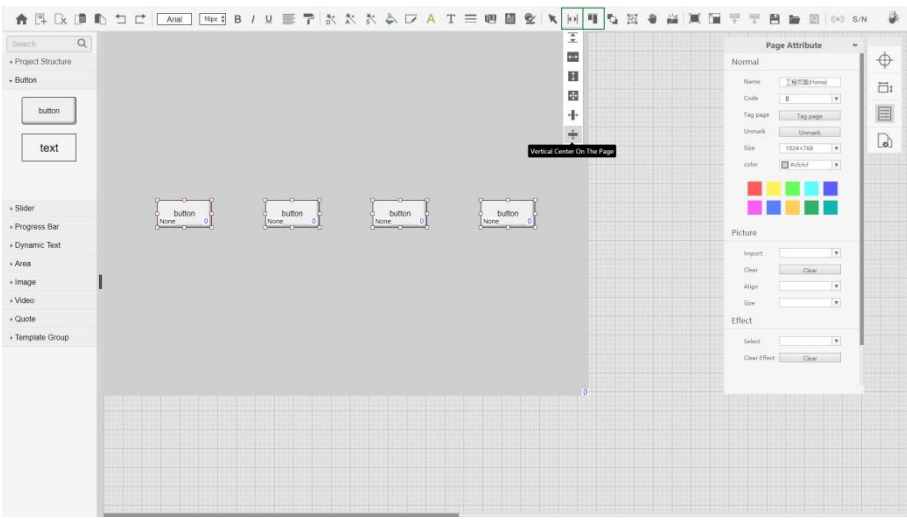
9.5. Distribution control

Open the "button" in the left control bar using the mouse to drag the "button" control to the page, and then use the right mouse button "copy, paste" function, or "Ctrl+C, Ctrl+V" copy and paste three buttons.



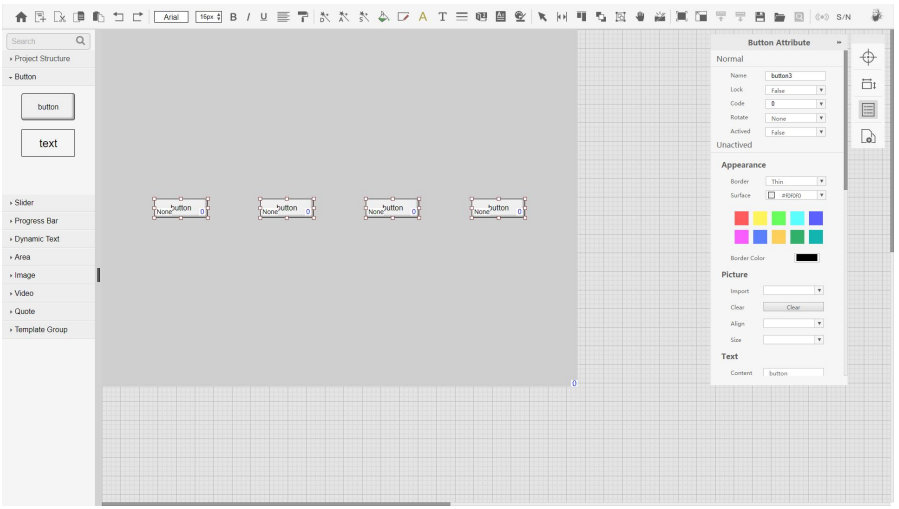
9.6. Adjust the control position

Use the menu bar "select" tool box to select or hold the Ctrl+ mouse left button select the four button controls, use the " equipartition, alignment" tool in the menu bar to adjust the control position, such as the four button controls to carry out "horizontal equipartition,bottom alignment, vertical in the page".



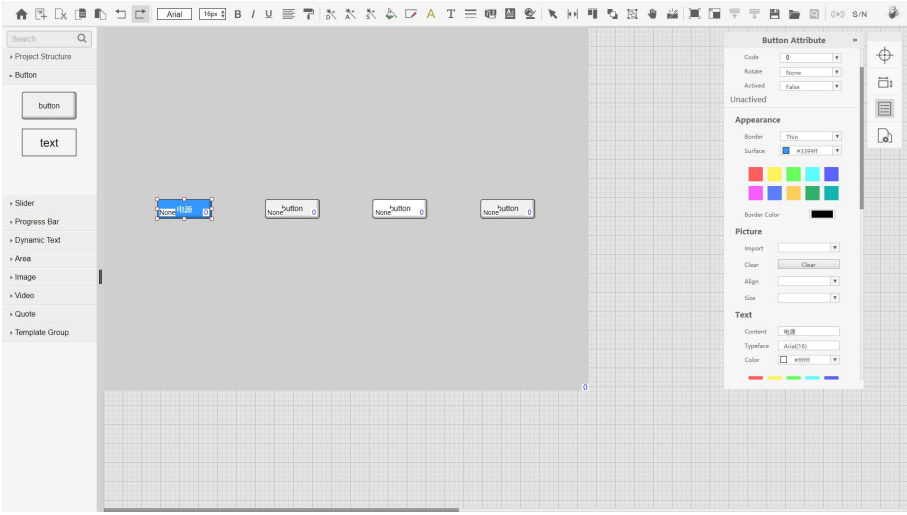
9.7. Adjust the size of the control

Use the menu bar "select" tool box to select or hold the Ctrl+ mouse left button select the four button controls, In selected state of the four buttons, the left mouse button dragging the anchor points around the buttons can change the size of the button control.



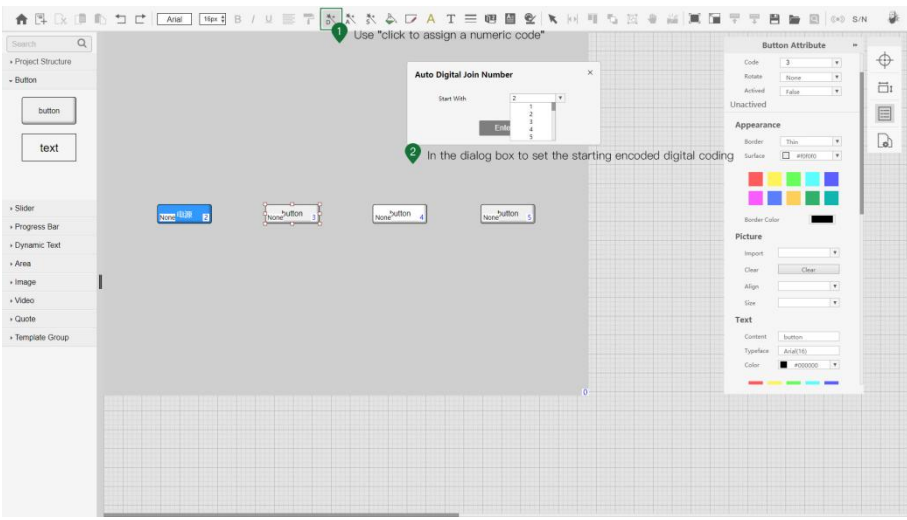
9.8. Setting control properties

Select any button control, click the "property" button in the navigation bar, and set the name or color of the button control in the "button property" bar that pops up.



9.9. Click the distribution code

Using the "click distribution code" tool in the menu bar, set the start code in the pop-up number code box, click the "confirm" button, and click the button control that needs to be encoded in the workspace in turns, distributing the number code to any multiple button controls is shown as the following figure.



9.10. Save project

Using the "save project" in the menu bar, you can modify "engineering name" and "engineering set" in the pop-up dialog box, click the "confirm" button to save the project or click the "confirm" button directly in the pop-up dialog for the project.

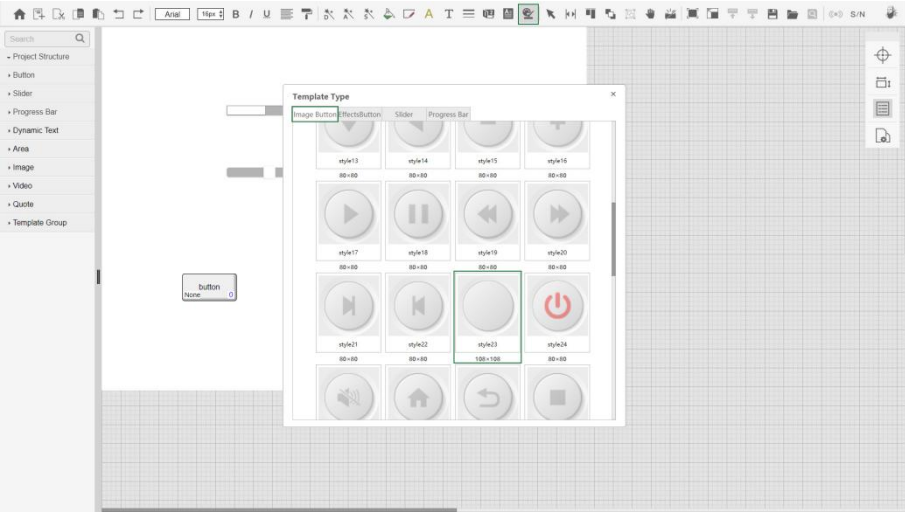
10. Vision Node programming method (Two)

10.1. Open the project

Open the home page and click "VN (Two)" to save the project file in the pop-up dialog box, and use the "open engineering" tool in the VN menu bar to open the engineering file VN_level2.zip.

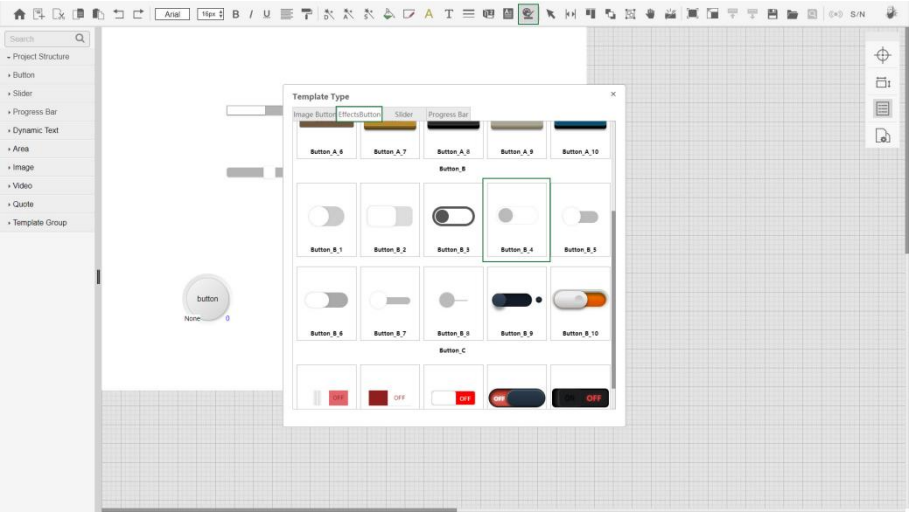
10.2. Map button

Use the "click distribution control template" tool in the menu bar to select a map button template in the pop-up button tab of the pop-up "control template" window and double click the left button of the mouse, and replace the button template in the control template with the left click of the mouse button in the workspace, using a white map button template is shown as the following figure.



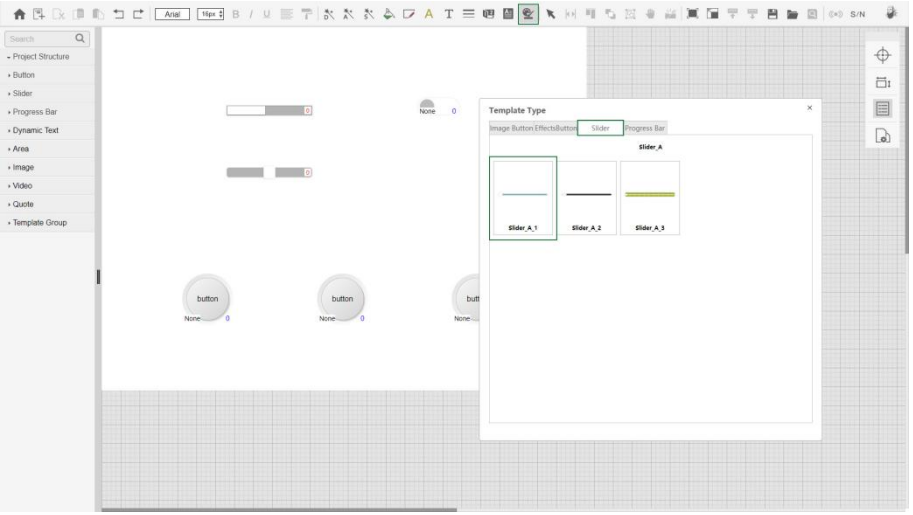
10.3. Special effect button

Use the "click distribution control template" tool in the menu bar to select a map button template in the “map button” tab of the pop-up "control template" window and double click the left button of the mouse, and click a button with the left button of the mouse in the workspace to replace as the special effect button template in the control template, using the "Btton_B" class special effect button template is shown as the following figure.



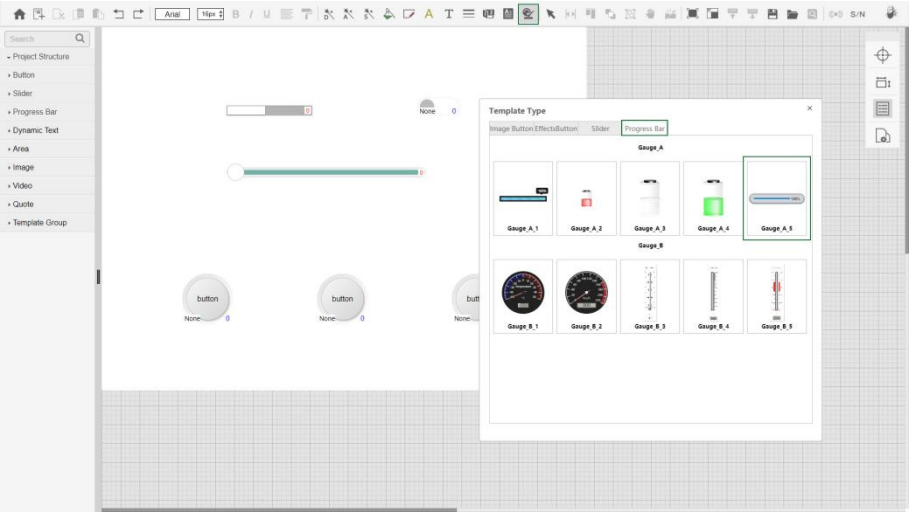
10.4. Special slider

Use the "click distribution control template" tool in the menu bar to select a slider bar template in the " special slider bar template" tab of the pop-up "control template" window and double click the left button of the mouse, click the slider control with the left button of the mouse on the working area to replace, using the Slider_A_1 slider template is shown as the following figure.



10.5. Special effect progress bar

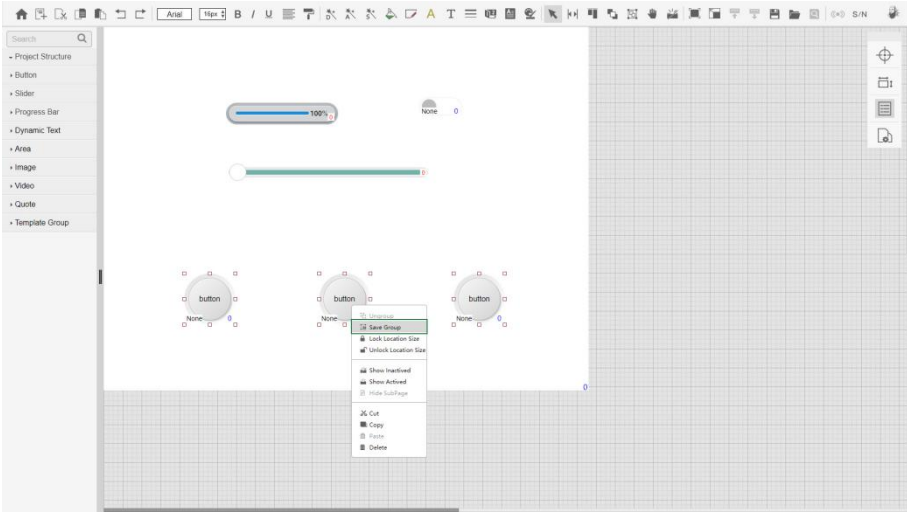
Use the "click distribution control template" tool in the menu bar to select a progress bar template in the "control template" tab of the pop-up "control template" window and double click the left button of the mouse, click the progress bar control with the left mouse button in the workspace to replace, using the "Gauge_A_5" progress bar template is shown as the following figure.



10.6. Create control group

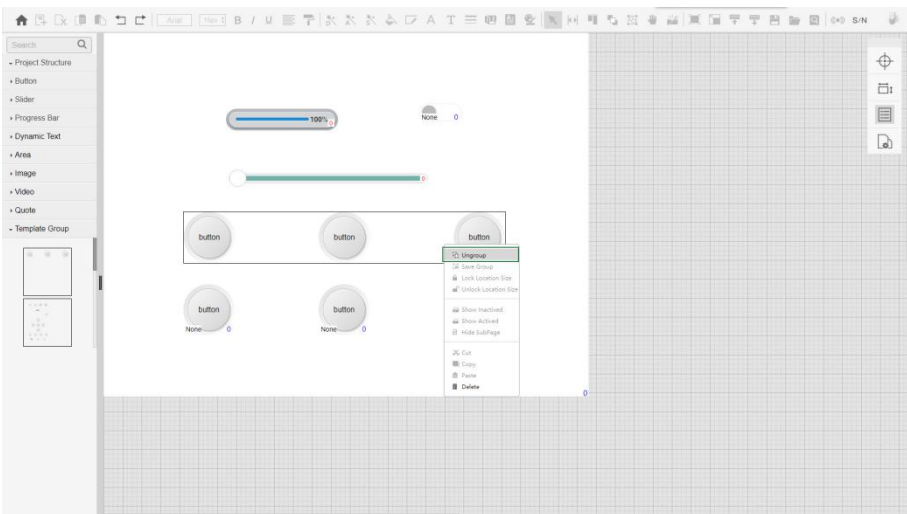
Use the menu bar "select" tool, box the three buttons on the bottom of the workspace, then click one of the buttons with the right mouse button, select the "save control group" in the pop-up menu and fill in the control group name in the pop-up box. (Name can not be reused, if the same name it needs to open the home page “Maintenance and upgrade”

- “Source management” -- "control group template" – “ user template” to delete first and click OK.



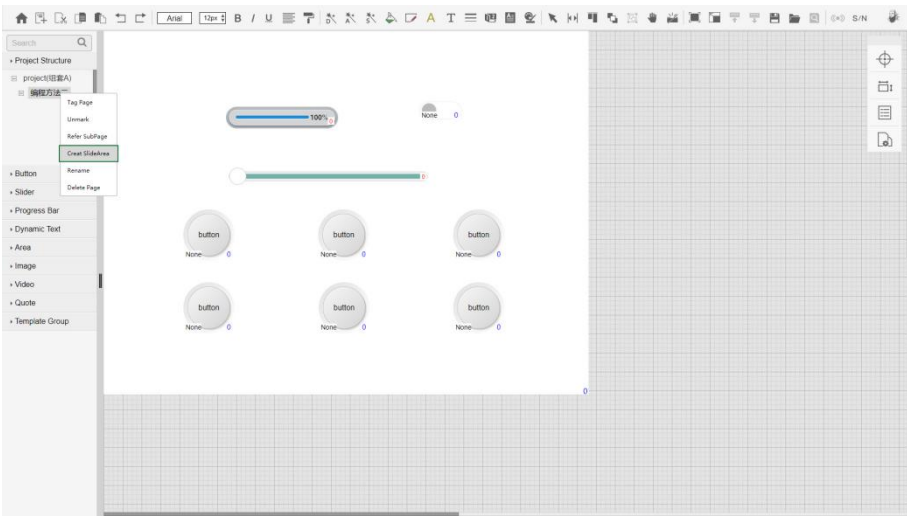
10.7. Reference control group

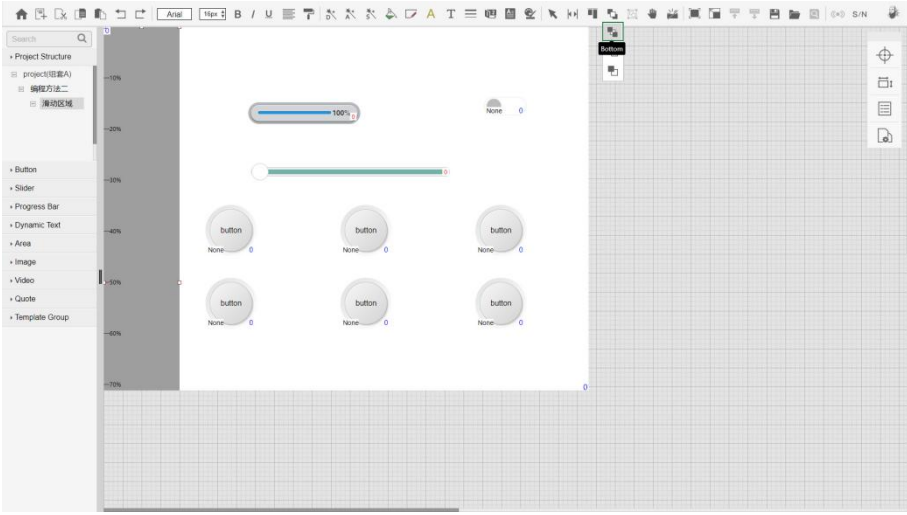
Dragging and dropping the control group to a appropriate position of the workspace with the left mouse key in the "control group" on the left side of the software, and the right click of the mouse click the "disbanded control group" in the control group selection menu.



10.8. Create a sliding area

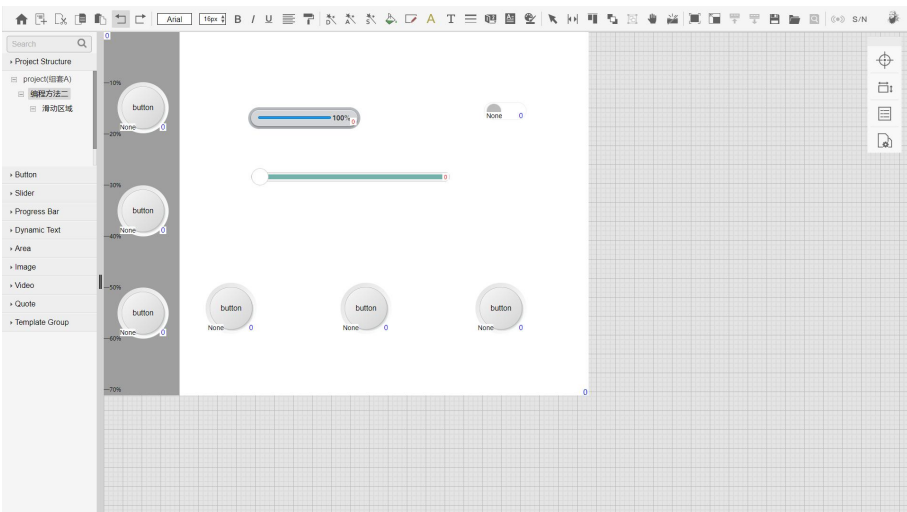
Click the "programming method two" page in "engineering structure", the right mouse button menu selects the "new sliding area" in the pop-up area to enter the sliding area name, click the "confirm" button, the left mouse button to select the created sliding area,use the menu bar "put in the bottom" tool to place the slide area at the bottom of the project .





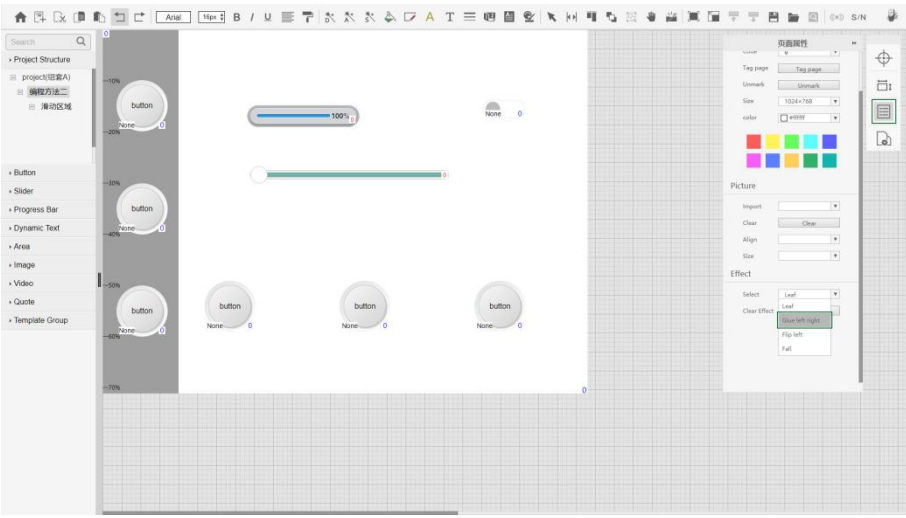
10.9. Layout sliding button

Hold the left mouse button on the control of the engineering workspace, drag and drop the control to the sliding area, when the control completely into the sliding area, and loosen the left mouse button.



10.10. Configuring page effects

Click on the blank page of the project workspace, then open the "property bar" in the navigation bar to set the page's flipping effects.



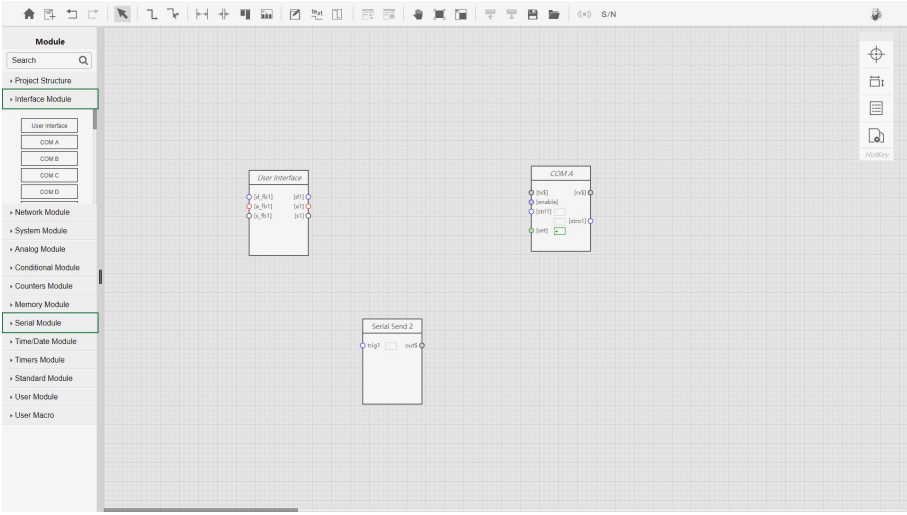
11. Logic Node programming method (One)

11.1.Create a project

Open the home page, click "tutorial" - "LN (One)", automatically open the LN software, use the menu bar "new project" button, enter the project name in the pop-up box, click "confirm" to complete the project;

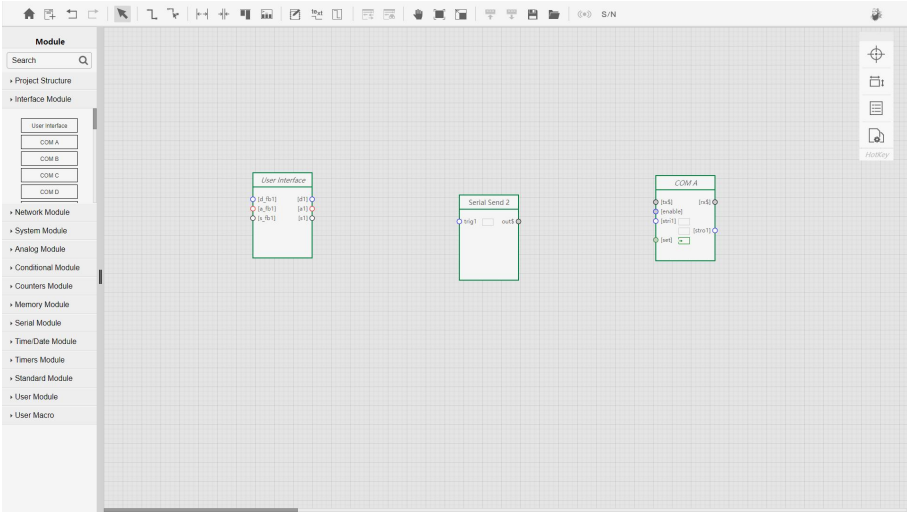
11.2.Drag and drop module

Drag the User Interface, COM A module of the “interface module” and the Serial Send 2 module of serial module in the left resource bar to the engineering editing area.



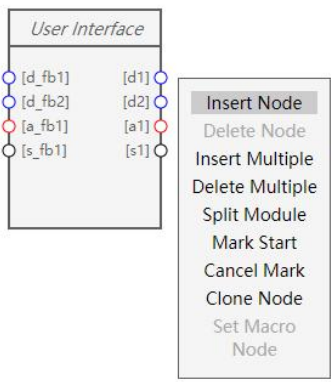
11.3.Layout module

Using the "layout module" tool in the menu bar or the shortcut key "G", the left mouse button selects and moves the module or press the left mouse button to select multiple modules (the selected module border becomes green), the box is completed and the mouse is loosened. Then click any module selected in the box can move the multiple modules selected in the box.



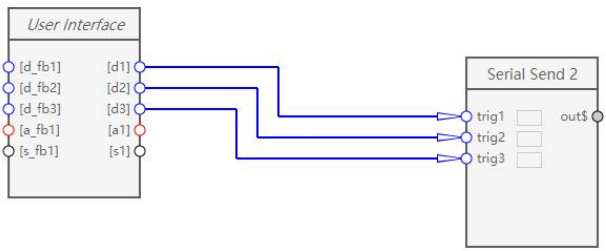
11.4. Insert node

When the mouse is moved to the circular node of the module, when the border of the bode becomes thick, it can do the operations of "insert node, delete node, insert multiple, delete multiple " on the right mouse button menu, and add "D2, D3" two nodes on the right side of "User Interface", and add the "trig2, trig3" two nodes to the left input side of "Serial Send 2".



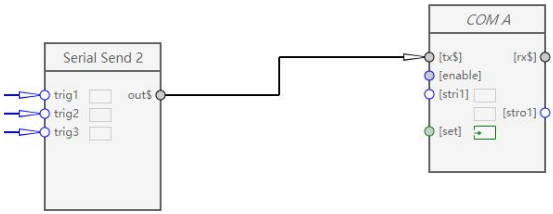
11.5.Drawing signal line 1

Use the "drawing line" in the menu bar or the shortcut key "T" to associate three digital nodes of the "User Interface" and the "Serial Send2" module in the workspace. Click the left mouse button to drag the mouse frame to select "D1, D2, D3" node of "User Interface", when the box is selected to release the mouse and move the mouse to draw the line (in the drawing line process, clicking the mouse to bend the line, the signal line node association at least 2 bending) , through the fold line close to the "trig1" node of "Serial Send 2", When the border of the "trig1" node is thicker, click the left mouse button signal line to automatically close the node.



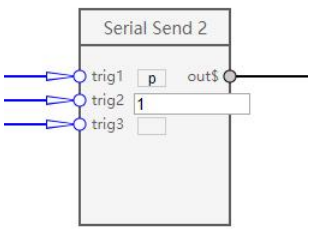
11.6. Drawing signal line 2

When the mouse is placed on the "out$" node of "Serial Send 2", and the node borders become thicker, click the mouse and move the mouse to draw the line. (in the drawing line process, clicking the mouse to bend the line, the signal line node association at least 2 bending), through the fold line close to the "[tx$]" node of "COM A", When the border of the "[tx$]" node is thicker, click the left mouse button signal line to automatically close the node.



11.7. Input parameter

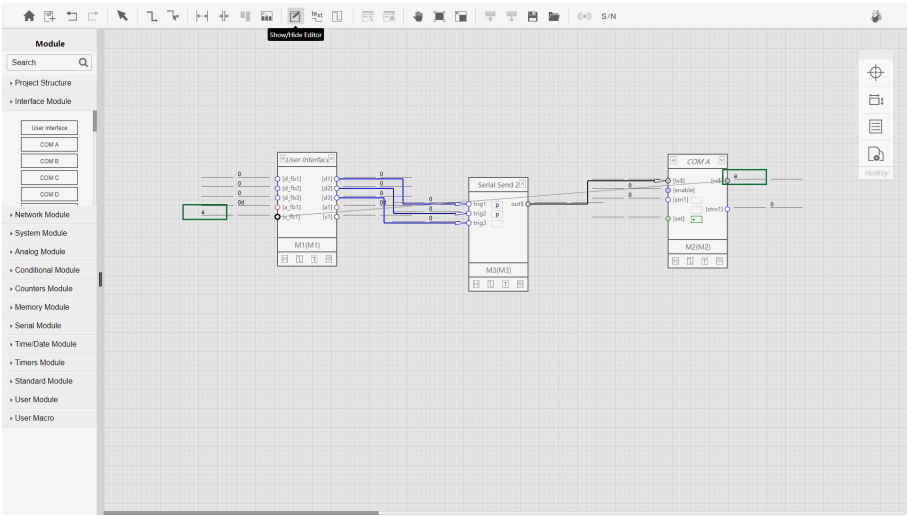
For example, open the parameter edit box of "Serial Send 2", and input the parameter instruction directly through the keyboard. After the parameter is entered, the mouse click the blank area of the workspace will see the "P" logo in the parameter box. When the instruction is long, the mouse is placed on the right border of the parameter edit box (Shortcut keys "F10, F4, F5" carry out fast operation of parameter instructions, such as search element replacement, mantissa increase, mantissa decrement and so on.), holding and dragging the left button of the mouse to change the length of the parameter edit box when the mouse becomes the left and right arrow.



11.8. Edit signal name

Click the edit switch in the upper right corner of the module to open the edit

area of a single module or use the menu bar to "open and close edit area" button (the node left edit line can enter the node signal name, the right is the node signal value), and the same signal name is input on the left side of the nodes. (after the signal name is associated, the mouse is placed. A gray line segment is connected to two nodes.) Such as associate the "rx$" of "COM A" and the "s_fb1" of "User Interface" with the signal name.



11.9.Adjusting signal line

Use the "adjust signal line" tool in the menu bar or shortcut key "B" to adjust the signal connection line between the modules (the both end of each signal line cannot be modified), and when the mouse becomes the left and right arrow moves the mouse to the adjustable signal line.

11.10. Save project

Use the "save project" button in the menu bar to save the project to the computer.

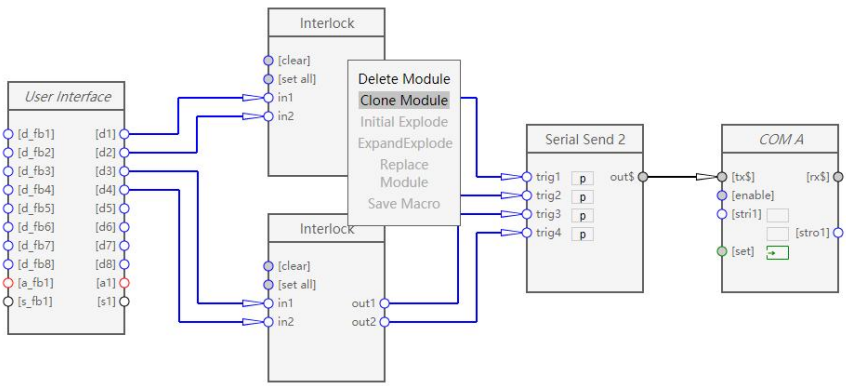
12. Logic Node programming method (Two)

12.1.Open the project

Open the home page and click “tutorials” - "LN (Two)" to save the project file in the pop-up dialog box, and use the "open engineering" tool in the LN menu bar to open the engineering file LN_level2.zip.

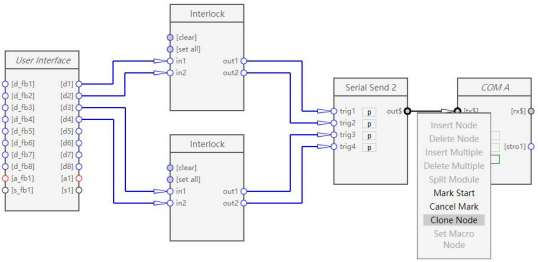
12.2. Cloning module

Right click on the module "Interlock" to select “clone module” and drag the cloned module to the appropriate place.



12.3. Cloning node

Right click on the "out$" signal node of the module "Serial Send 2" to select the "cloned node" or place the mouse on the module signal node and use the shortcut key "V" fast clone node.

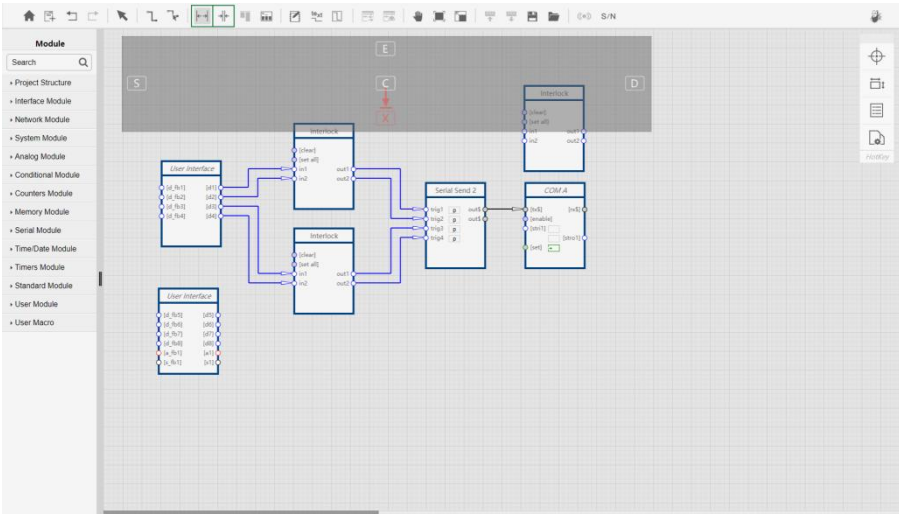


12.4. Split module

Right click on the "[d4]" signal node of the module "User Interface" to select the "split module" and dragged the split module away from the original module.

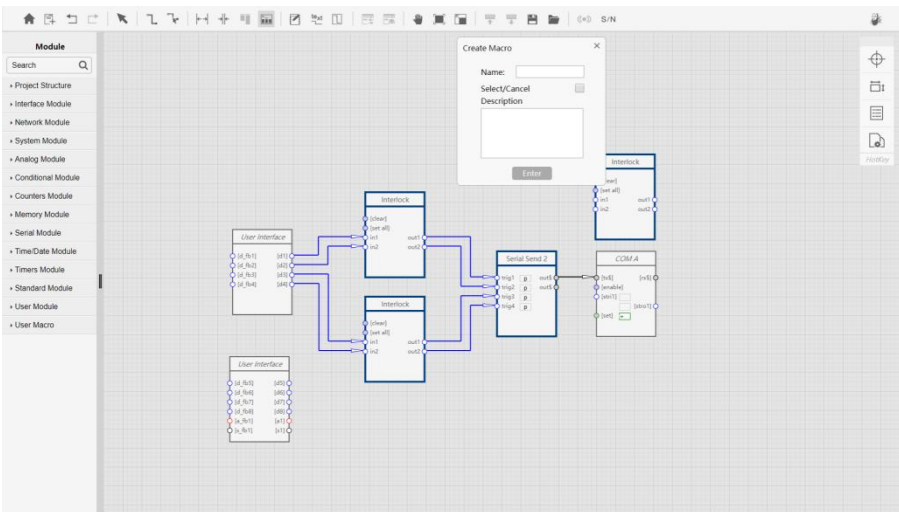
12.5. Insertion / contraction space

Use the "insert space" or "contract space" tool in the menu bar to insert or contract space modules in the workspace. In the workspace, drag the mouse to set the size of the insertion or contraction area. Using the keyboard of "E, X, S, D" to choose the direction of insertion or contraction area respectively.



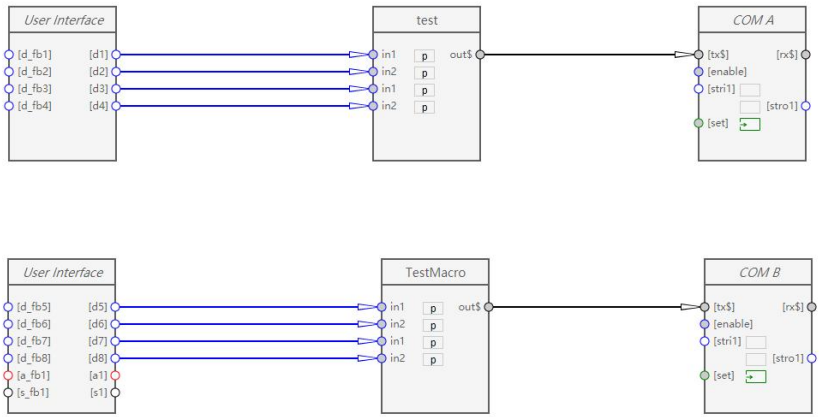
12.6. Compiling macros

Use the "compile macro" tool in the menu bar, select the mouse box or hold the "Ctrl" key and point to select the macro "Interlock, Serial Send 2" four modules, enter the macro name, click "confirm".



12.7.Macro reference operation

Drag and drop the "TestMacro" macro module in the "user module" of the left resource of the software on the software to the engineering workspace, and complete the connection with the module "User Interface" and "COM B" as shown as shown in the diagram.



12.8. Macro internal editing

In the "engineering structure", click the "+" on the front of the project name, and click the macro name that you want to edit to enter the macro edit view. In macro edit view, we can add and delete, clone, connect signal nodes, and edit parameters for macro blocks, signal nodes and module parameters.

12.9. Macro save operation

On the macro group module, click the right mouse button to select "macro save as", and enter the macro name and description in the pop-up box, and click the "confirrm" button to complete the macro group storage operation.

12.10. Project uploading

Use the upload tool in the menu bar to upload the project to the server.

13. Logic Node programming hot keys

Module editing			
Hot key	Hot key function description	Hot key	Hot key function description
F	Insert node	G	Layout module
R	Delete node	T	Drawing signal line
V	Clone node	B	Move signal line
W	Debugging state: Mark debug / cancel mark	W	Non-debugging state: Mark start / cancel mark

Signal line editing			
Hot key	Hot key function description	Hot key	Hot key function description
F	Insert node	D	Delete the current line
R	Delete node	1	Drawing line approaching 1px
V	Cloned node	2	Drawing line approaching 2px
G	Layout module	3	Drawing line approaching 3px
T	Drawing line	4	Drawing line approaching 4PX
B	Move signal line	Double click the left key	Cancel the drawing line

Signal name / parameter editing			
Hot bond	Hot key function description	Hot bond	Hot key function description
F4	Automatic mantissa increase	Ctrl + left key	One by one multi selection
F5	Automatic mantissa decrease	Ctrl + X	Cut
F10	Search and replace	Ctrl + C	Copy
F3	Add Suffix	Ctrl + V	Paste
Shift + left key	Cross line multi selection	-	-

Insertion / contraction space			
Hot key	Hot key function description	Hot key	Hot key function description
S	Left insert / contract space	X	Downward insert / contract space
D	Right insert / contract space	C	Cancel the choice
E	Upwards insert / contractspace	-	-

14. Troubleshooting

Fault measure table		
phenomenon	Possible reasons	processing method
The power lamp is not light	24VDC power unconnected	Confirm the normal and reliable connection of the 24VDC power supply
		Confirm whether the city

	City power is non or abnormal	power supply is normal
Unable to establish communication	Network communication is not established	Confirm whether the network connection is normal
	The IP address is reset	Using known IP or resetting the IP address
The program cannot be compiled and passed	There is a mistake in the program	Check and modify the program
	Disagreement of Engineering versions	Check update software
Control action is not executed	There is a mistake in the program	Check and modify the program
	Control connection error	Check and correct the connection
Network failure	The IP address has been forgotten	Reset the IP address
	MAC address conflict	Check the change of MAC address

△ **If there are other questions, please contact the supplier. It is suggested that programming and debugging the equipment should be performed by experienced professionals. Incorrect programs may cause damage to the equipment or its controlled equipment.**

15. Warranty clause

We committed three years of warranty service to our products, whether it is material or process, except the following special statement. The adjusted mechanical parts are guaranteed for one year, the external power supply is guaranteed for one year, the LCD panel is guaranteed for one year, the touch panel is guaranteed for 90 days, and the battery is guaranteed for 90 days.

The warranty period shall be calculated from the date when the factory is handed over to the user or from the dealer to the user. The date of delivery should be written in the warranty card by the user. The warranty card records are not consistent with the original factory or no written record is based on the factory record.

The damage caused by incorrect installation, incorrect use, accidental damage, artificial modification and man-made damage is not within the scope of warranty. The company shall not undertake joint liability for any direct or indirect losses arising from possible defects in the product.

For equipment or components repaired due to failure, we reserve the option of repair or replacement. Any repaired equipment or components will continue to enjoy the original warranty period, and the remaining warranty period which less than 90 days will be extended to 90 days.

The power of final interpretation of this clause is owned by the enterprise.

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