

# **Touchwin advanced function**

User's manual

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# 1. Overview

#### 1.1 What is advanced function?

Advanced function contains many advanced function parts, each part like a function block; to combine them together you can achieve rich functions that can not be achieved by common components. These parts are different from common components such as button, lamp and so on.

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|---|---|---|-----------|-----|---|---|-----|----|----|----|----|-------|-------|------------------|-----|-----|-----|-----|----|-----|------|
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#### 1.2 Advanced function's advantage

Advanced function is the script function of touch win. It uses flow chart but not C language which is different from SCADA script. It is as better as using C language and the steps are simple.

| Advanced function   | Configuration script function  |
|---|--|
| <ul> <li>Key0_(0)</li> <li>Contain Unit</li> <li>Password0_(1)</li> <li>Self Unit</li> <li>IF0_(2)</li> <li>IF0_(7)</li> <li>IF0_(12)</li> <li>IF0_(15)</li> <li>Self Property</li> <li>Touch Left Coordinate</li> <li>Touch Top Coordinate</li> <li>Touch Right Coordinate</li> <li>Touch Bottom Coordinate</li> <li>Key Status</li> <li>Key Code</li> <li>Float Property</li> </ul> | if(\\本站点\计>=75&&\\本站点\计<=90)<br>{<br>历史曲线.ScooterPosLeft=历史曲线.ScooterPosLeft+0.05;}<br>if(\\本站点\计>=150&&\\本站点\计<=160)<br>{SQLPrev[ DeviceID ];K=66;} |

#### **1.3 Using advanced function's circumstances**

When the common components can't meet customer's requirements, or need to do logical operations, we need advanced function.

## 2. Open advanced function

#### 2.1 Overview

The toolbar of Advanced function in software is not visible, please open the function according to the following steps.

#### 2.2 Specific operations

# 2.2.1 The advanced instruction's opening method of use V2.99 and below touch-screen software

1) Right-click the shortcut icon of Touch-screen installation software on the desktop, select attribute in the pop-up interface, shown below:

2) Pop-up Properties dialog box

3) Click "shortcut" option then select "search target (F)", Will jump to the following window



4) Find the file "option.dat.", as shown below:



**Note:** After installing the software, you may not find the option.dat. file, If you want to find this file, Firstly, you must build a new project and save it, close the project, then in accordance with the above operation you will find the option.dat file.

5) Right-click option.dat, choose "open mode (H)...", As shown in the following diagram :

6) Pop-up the following dialog box:

7) Click "open mode (o)..." button, Pop-up the following dialog boxes :

8) Choose "choose program from the list " and then click "ok" button, open the following dialog box:

9) In the "open mode" dialog box , select "note" from "program (P)" , and click "ok" button to open option.dat. file, contents are shown below :

Note:

① If the contents of the opening option.dat file, difference from the above, please don't worry, it will not affect the normal operation, as long as you follow the following steps continue to operate.

(2) One option.dat file can not occur two [software] at the same time , Therefore, after opening Option.dat file, first to check whether the file contains a [software], if contain, in another new line behind [software], input usermode = 1, Save and close the file, then you can open advanced function of touch screen, otherwise follow the following operations:

10) If the file do not have [software], in the end of the file point to other line, then input[software], in the next line, input usermode = 1, such as shown below:

| 📕 Optia | on.dat - jiz | 爭本             |       |                | - D ×    |
|---------|--------------|----------------|-------|----------------|----------|
| 文件(E)   | 编辑(E)        | 格式( <u>0</u> ) | 查看(⊻) | 帮助( <u>H</u> ) |          |
| Select  | tedPane      | 1ID=4          |       |                |          |
| [Devic  | :e]          |                |       |                |          |
| MainSe  | elected      | Item=1         | 1     |                |          |
| SlaveS  | Selecte      | dItem=-        | -1    |                |          |
| [Seria  | alExpan      | d]             |       |                |          |
| Serial  | L 0=1        |                |       |                |          |
| [Seria] | L1=0         |                |       |                |          |
| [Seria] | L2=0         |                |       |                |          |
| [Seria] | L3=0         |                |       |                |          |
| [Seria] | L4=0         |                |       |                |          |
| Defau]  | LtComPo      | rt=COM3        | 3     |                |          |
| SavePe  | eriod=0      |                |       |                |          |
| ViewRa  | atio=10      | 0              |       |                |          |
| [Posit  | tion]        |                |       |                |          |
| Proper  | rty_X=5      | 40             |       |                |          |
| Proper  | rty_Y=4      | 42             |       |                |          |
| Advanc  | e_X=36       | 3              |       |                |          |
| Advanc  | :e_Y=6       |                |       |                |          |
| Advanc  | :e_₩=59      | 2              |       |                |          |
| Advanc  | :e_H=98      | 7              |       |                | <b>_</b> |
| •       |              |                |       |                |          |

| 📕 Optia | n.dat - id | 亊本      |       |       | - D × |
|---------|------------|---------|-------|-------|-------|
| 文件(E)   | 编辑(E)      | 格式(⊙)   | 查看(⊻) | 帮助(H) |       |
| MainSe  | lected     | Item=11 | 1     |       |       |
| SlaveS  | Selecte    | dItem=- | -1    |       |       |
| 1 °     | ilExpan    | d]      |       |       |       |
| [Seria] |            |         |       |       |       |
| [Seria] |            |         |       |       |       |
| [Seria] |            |         |       |       |       |
| Serial  |            |         |       |       |       |
| Serial  |            |         |       |       |       |
|         | tComPo     |         | 3     |       |       |
|         | eriod=0    |         |       |       |       |
|         | ntio=10    | 0       |       |       |       |
| [Posit  | _          |         |       |       |       |
|         | •ty_X=5    |         |       |       |       |
|         | •ty_Y=4    |         |       |       |       |
|         | e_X=36;    | 3       |       |       |       |
| Advanc  | _          |         |       |       |       |
|         | ;e_W=59    |         |       |       |       |
|         | ;e_H=98    | 7       |       |       |       |
| [softw  |            |         |       |       |       |
| usermo  | )de=1      |         |       |       |       |
|         |            |         |       |       |       |

11) Finally save and close the file.

12) Close the touch screen software and open again , then you can see advanced instructions already opened .

The operations of opening advanced instructions to V2.99 version and the below has been completed, the following will describe how to open advanced instructions to V2.C.3

#### 2.2.2 The Advanced instruction's open method of V2.c.3 and

#### above touch-screen software

1) Open V2. C. 3 software, and build a new project, select any panel type, as shown below:

| 📝 TouchTin for TH Edit Tool  | - Project - Screen1     | _ 🗆 ×          |
|--|-------------------------|----------------|
| <u>File Edit View Part Tool W</u>  | ndow <u>H</u> elp       |                |
| 🗋 🗅 🚅 🔛   🐰 🖻 💼 🗠   💡  | 🛛 A 🖧 🖧 🎯 🏀 🚳 🎀 💷 💷 !   | 123 AB 123 🖬 🔜 |
| $  \setminus \neg \Box \Box$ | 🖪   🎤 🏵   📐 📷   🖻 🥝 🍕 🔆 | iii 💽 👿 🚃 👰    |
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| ×  | Screenl                 |                |
| 🖃 🚮 Project  |                         |                |
| 🖻 📶 Screen   |                         |                |
| 1: Screen1   |                         |                |
| Mindow   |                         |                |
| Alarm  |                         |                |
| Print  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  |                         |                |
|  | TH765-                  | M PLC Port:1   |

2) Then, open menu bar "Tool", select "option", as shown below:

| 📑 TouchTin for TH Ed  | lit Tool – Pro                    | ject - Screen1   |            |
|---|-----------------------------------|--|------------|
| $\underline{\underline{F}}$ ile $\underline{\underline{E}}$ dit $\underline{\underline{V}}$ iew $\underline{\underline{P}}$ art | Tool Window H                     | felp   |            |
|   | <u>L</u> ine<br><u>R</u> ectangle | A AA   ♥ ♥ ♥ ♥ ■ ■ ■ ■ □ □       A AA   ♥ ♥ ♥ ● ♥     ■ ■ ■ □     □       Image: A AA   ♥ ♥     Image: A AA   ♥ ♥     Image: A AA   ♥ ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥     Image: A AA   ♥       Image: A AA   ♥     Image: A AA   ♥ <tr< th=""><th>AB 123 🖬</th></tr<> | AB 123 🖬   |
| 다 댄 띵 퍆 횬 趈   | <b>-</b>                          |  |            |
| 🖃 🚮 Project   | Map                               | een1   |            |
| Screen<br>I: Screen<br>Window<br>Alarm<br>Print   | Option                            |  |            |
|   |                                   | TH765-M  | PLC Port:1 |

3) Pop-up the following dialog box, as shown below:

| Option                                    |                              | ×         |
|---|------------------------------|-----------|
| Grid Size<br>Move Grid<br>Auto Save 1 (M) | Zoom Ratio(%)<br>Grid Radio  | 100       |
| Download<br>Com Port COM1 💌               | ☐ Down Load Al ☐ Secute Code |           |
| TW<br>Display Mouse Cursor                | Hit Key Errors               | 10        |
| Other<br>Undo Votimi                      | stic                         | Vser Mode |
| OK  | 1                            | Cancel    |

4) Click "User Mode" button User Mode, it will pop up the following dialog box :

| 💽 TouchTin for | r TH Edit Tool – P                   | roject - Scre     | en1                  |               | <u> </u>            |
|----------------|--------------------------------------|-------------------|----------------------|---------------|---------------------|
|                | v Part Tool Window<br>D <b>ption</b> | Help              |                      | xIE           |                     |
|                |                                      |                   |                      | ×2            |                     |
|                | Grid Size                            |                   | <b>D</b> (1) (4) (1) |               | 🗑 📼 👰               |
|                | Move Grid                            | _                 | Ratio(%)             |               | 🖻 🗙   🕱 🕴           |
|                | Auto Save 1                          | M) Grid           | Radio                | 10            |                     |
| ⊡ 🚰 Project    |                                      |                   |                      | F             | ×                   |
|                |                                      |                   |                      |               |                     |
| The use        | r mode has been chang                | ged, please reset | the applicatio       | on to use the | e changed mode      |
|                |                                      |                   |                      |               |                     |
|                |                                      | 确定                |                      |               |                     |
|                | L                                    |                   |                      |               |                     |
|                | -Other                               |                   |                      |               |                     |
|                |                                      |                   |                      |               |                     |
|                | 🔲 Undo                               | 🔽 Optimistic      | Vser                 | Mode          | · · · · · · · · · · |
|                |                                      | ✓ Optimistic      |                      |               |                     |
|                | Undo<br>OK                           | ✓ Optimistic      |                      | Mode          |                     |
|                |                                      | ✓ Optimistic      |                      |               |                     |

5) Click "OK" button, then close the project (don't need to save ),open the software again .then you can see the screen has been opened advanced instructions.

The above is the introduction about the opening of touch screen advanced instructions to V2. C. 3

# 3. The structure and combination of advanced function

#### 3.1 Structure

Here, there must first be recognized, in fact, all the component parts in the toolbox are constituted by these advanced function parts, Advanced function components can be seen as a tiny function unit, similar to a chip, different chips can be realized certain functions through combination.

Composition structure is shown below:



Advanced function's Composition structure

In order to deepen the understanding, we use a "text" component as an example to introduce its connotation.

• First introduce how to open component's advanced property:

① Place one "text " part A on the screen, Choose it and right-click , In the pop-up menu, select "Advanced", it will bring up the Advanced property box:



② Grading Open dialog box of "Group", We find that this "group" (text) is constituted by self unit and self property, as shown below:

| Advance  |                            |
|--|----------------------------|
| Group0_(0)     Self Unit     IF0_(1)     Text0_(4)     Self Property     Top-Left Horizon     Top-Left Vertical     Height     Width | Unit Name<br>Unit Property |

Self unit refers to the basic components of this component. The self property is a description of component's (in this case refers to "Group") status or nature.

3 Constitute the "text" part are actually "IF" and "text" elements. Grading open IF component again



IF element is composed by two rectangles. Such layers open, we can find that in fact all the components are composed by advanced units through a series of methods and logic, Through these basic elements, we can get any parts and functions what we want.

#### 3.2 Combination

Advanced function components have four combination types:

- Property contain
- Property link
- Property Float
- Insert unit

Please see the following examples.

#### 3.2.1 Property contain

**Definition:** The properties of components to contain the other components, that is, contained components as property's data source.



Property has a data source after contained

**Description**: contained components must be able to reflect the change of numerical value, such as: "Read" element , can reflect the numerical quantity or bit status (0 or 1 two states). "Data comparison" element, can reflect the results of true or false (0 or 1 two states)

Example: Through the value of PSW300 and PSW301 to control a rectangle's length and height.

1 Placing one rectangle \_\_\_\_\_,2 "read" **T** on the screen:

Double-click"read "element then in the pop-up dialog box, modify the two read unit's property, point separately to PSW300 and PSW301, the set methods are shown below:

| · · · · · · · · | Read 🔀  | Read 🗙  |
|-----------------|---|---|
|                 | Object Position   | Object Position   |
| READ            | Type         Unit Type         Register         Station         Device         PLC Port         VirStaND         Object         Object         Data         Data         Data Type         Word | Type       Unit Type Register       Station       Device       PLC Port       VirStaNO       Object       Object       Object       Data       Data       Data       Data |
|                 | 确定 取消 应用 ( <u>A</u> )   |   |

2 Box above components, right-click will pop-up advance dialog box:

| - Advance   |                                   |  |                                      |
|---|-----------------------------------|--|--------------------------------------|
| Rectangle0_(0)     Self Property     Horizon Coordinate     Vertical Coordinate     Height     Width     Frame Style     Frame Width     Frame Color     Is Fill     Solid Color      READ0_(1) | Property Contain<br>Property Link |  |                                      |
| ⊡ READ0_(2)   | OK<br>Cancel                      |  |                                      |
| <ul> <li>The "height" attribute of rec</li> <li>Procedure: click Height</li> <li>(corresponding PSW301) clip</li> </ul>   | click Property Contain            | 1  | 'SW301.<br>∲- <mark>READ0_(1)</mark> |
| Horizon Coordinate  | erty Contain<br>perty Link        | Advance  - Rectangle0_(0)  - Self Property  - Horizon Coordinate  - Vertical Coordinate  - Height - Width - Frame Style - Frame Width - Frame Color - Is Fill - Solid Color  - READ0_(1) - READ0_(2) | Cancel Contain                       |
|   | OK<br>Cancel                      |  | OK<br>Cancel                         |

• The "width" attribute of rectangle property contain the "read" element of PSW300.(as the above methods )

Click "ok" button to quit after the completion. The final effect are shown below:

| Advance   |  |
|---|--|
| Rectangle0_(0) Self Property Horizon Coordinate Vertical Coordinate Height Width Frame Style Frame Width Frame Color Is Fill Solid Color Contain Unit READ0_(1) READ0_(2) | Unit Name<br>Unit Property<br>OK<br>Cancel |

Rectangular in one more a "contain unit", all the contained components are put in this area, while clicking the "height" or "width" attributes of rectangle, the contained element will become an orange.

| Advance  |                                |
|--|--------------------------------|
| ■ Rectangle0_(0) • Self Property • Horizon Coordinate • Vertical Coordinate • Vertical Coordinate • Width • Frame Style • Frame Width • Frame Color • Is Fill • Solid Color • Contain Unit • READ0_(1) • READ0_(2) | Delete Contain<br>OK<br>Cancel |

③ Placing two "digital input" parts 23 on the screen:

• "Digital input" address corresponding to PSW300 and PSW301 After the completion, the figure are shown below:

| ·                | ۰. |    | Ŀ.         | ÷ | ۰.  | ÷  | ÷.  | ÷  | ÷    | ÷ | ÷  |    | ÷   | ÷ | ·           | ·           | ·           | I | N  |    |     |   | M  |   | ŀ  | · | · | · | ·           | ·                | ·                | ·           | ·                | ·                | ·                | ·                | ·                | ·           | ·           | ·           | ·           | ·           | ·           |
|------------------|----|----|------------|---|-----|----|-----|----|------|---|----|----|-----|---|-------------|-------------|-------------|---|----|----|-----|---|----|---|----|---|---|---|-------------|------------------|------------------|-------------|------------------|------------------|------------------|------------------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| ·                | ۰. | Н  | le         | i | g   | π  | t i | Р  | S    | 1 | N  | 3  | 0   | U | ŀ           | ·           | ·           | Ľ | e  | 10 | IØ  | Ø | Ø  |   | ŀ  | · | · | · | ·           | ·                | ·                | ·           | ·                | ·                | ·                | ·                | ·                | ·           | ·           | ·           | ·           | ·           | ·           |
| •                | •  | •  | •          |   | -   | •  | •   | •  | •    | • | •  | •  | •   | • | •           | •           | ·           |   |    | _  |     |   |    |   | Ŀ  | • | • | • | ·           | ·                | ·                | ·           | ·                | ·                | ·                | •                | ·                | •           | •           | •           | •           | •           | •           |
| •                | •  | •  | •          | · | ·   | ·  | ·   | ·  | ·    | · | ·  | ·  | ·   | · | •           | •           | ·           | • | •  | •  | •   | • | •  | • | ·  | • | · | · | ·           | ·                | ·                | ·           | ·                | ·                | ·                | ·                | ·                | •           | •           |             | •           | •           | •           |
| •                | •  | •  | •          | • | ·   | ·  | ·   | ·  | ·    | · | ·  | ·  | ·   | · | •           | •           | ·           | • | •  | •  | •   | • | •  | • | ·  | • | · | · | ·           | ·                | ·                | ·           |                  |                  |                  |                  |                  |             |             | ŀ           | •           | •           | •           |
| ·                | ·  | ·  | ·          | · | •   | ·  | ·   | ·  | ·    | · | ·  | ·  | ·   | · | ·           | ·           | •           | • | •  | •  | ·   | · | ·  | • | •  | · | · | · | ·           | ·                | ·                | ·           |                  |                  |                  |                  |                  |             |             | ł           | •           | ·           | ·           |
| -                | •  |    | •          |   |     | •  |     |    | •    | · |    |    |     | • | •           | •           | ·           | - |    |    |     |   |    |   |    | • | • | • |             | •                | •                | ·           |                  |                  |                  |                  |                  |             |             | ⊥           | •           | -           | •           |
|                  |    |    |            |   |     |    |     |    |      |   |    |    |     |   |             |             |             |   |    |    |     |   |    |   |    |   |   |   |             |                  |                  |             |                  |                  |                  |                  |                  |             |             |             |             |             |             |
| -                |    | ÷. | ÷          | - | ÷., | ·  | ÷   | ÷. | . in | ÷ | ÷. | Ċ. | ÷., |   | •           | •           | •           |   | 18 |    | 102 |   | 12 | 1 | Ŀ. | • | • | • | •           | •                | •                | •           | •                | ·                | ·                | ·                | ·                | •           | •           | •           | •           | •           | -           |
| :                |    | Ń  | 7          | d | tl  | i  | Þ   | Ś  | , 1  | Ā | 73 | 6  | )1  |   | :           | :           | :           | 1 | e  | 10 | Ø   | Ø | Ø  | 1 |    | : |   | : | :           | ÷                | :                | :           | :                | :                | :                | :                | :                | :           | :           | :           | :           | :           | :           |
| :                | 1  | Ŵ  | 7          | d | ţ   | ļ  | Þ   | 8  | , \  | A | /3 | 6  | )   |   | :           | :           | :           | ļ | e  | Ø  | 0   | Ø | Ø  | 1 |    |   |   | : | :           | :                | :                | :           | :                | :                | :                | :                | :                | :           | :           | :           | :           | :           | :           |
|                  | 1  | Ŵ  | 7 <b>i</b> | d | ţ   | ļ  | P   | S  | , \  | A | /3 | 1  | )   |   | :           | :           | :           | ļ | e  | IØ | 0   |   | Ø  | 1 | ł  |   | : | : | :           | :                | :                | :           | :                | :                | :                | :                | :                | :           | :           |             |             | :           | :           |
| ·<br>·<br>·      |    | Ŵ  | 71         | d | tl  | ņ  | P   | S  | , \  | A | /3 | 1  | )   |   | ·<br>·<br>· | ·<br>·<br>· |             |   | e  | le | 0   |   | 0  |   | ł  |   | : | : |             |                  |                  |             |                  | ·<br>·<br>·      |                  | ·<br>·<br>·      | ·<br>·<br>·      | ·<br>·<br>· |             | ·<br>·<br>· |             |             |             |
| ·<br>·<br>·      |    | Ŵ  | 71         | d | tl  | 'n | P   | S  | , \  | A | /3 | 1  | )   |   | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· |   | 10 | 10 |     |   |    |   | ł  |   | : | : | ·<br>·<br>· | ·<br>·<br>·      | ·<br>·<br>·      | ·<br>·<br>· |                  | ·<br>·<br>·      | ·<br>·<br>·      | ·<br>·<br>·      | ·<br>·<br>·      | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· |             |             |
| ·<br>·<br>·<br>· |    | Ŵ  | 71         | d | tl  | 'n | P   | 2  | , \  | A | /3 | 1  | )   |   | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· |   | e  |    |     |   |    |   | ł  |   | : | : | ·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· | ·<br>·<br>· |

④ Click the "off-line simulation" icon on the software 🕅, Change the value of the two digital input, then the length and width of the rectangular will change, See the following simulation results:



#### **3.2.2 Property Link**

**Definition:** property link is to contact the two property unit which belong to the same element, When the contacted attribute changes , contact attribute also change.



**Description:** 1.property link can only operate the different property in the same element , cannot cross components to execute property link.

2. The property must be the same type. Such as length and width, fill color and line color, Horizon coordinate and Vertical coordinate  $_{\circ}$ 

**Example:** property link "length" and "width" of the rectangle.

(1) Put one rectangle  $\square$  on the screen

2 Right-click the rectangle, pop-up the following dialog box:

| <b>Advance</b>   |                         |                |
|--|-------------------------|----------------|
| ■ Rectangle0_(0) Self Property Horizon Coordinate Vertical Coordinate Height Width Frame Style Frame Vidth Frame Color Is Fill Solid Color | Property Link           |                |
|  | OK<br>Cancel            |                |
| 'Height" of the recta  | angle property link     | "Width"        |
| <b>cedure:</b> select Height-cli   | ick Property Link -sele | ect Widthclick |
| Affirm Link  |                         |                |



(3) After the completion, click "OK" button to exit. As the following diagram:



You can see, the original rectangle changed into a square. Manually widen the width of the rectangle, the height of the rectangle will be a corresponding larger, and still remain as a square.

Note: However, if properties belong to two units want to contact, the direct property link can not be operated. Then in the "property float" to explain this situation,

#### **3.2.3 Property Float**

**Definition:** unit property of "self unit" can be floating operation, rising as component's property, That the original properties of different components can belong

to the same upper unit.

For example, when two elements combination, can be property float:



Property all belong to "group" unit

Note: To make an element containing "self unit", there are 2 methods:

1 using the "Insert unit" operation to insert other components to this component .

2. The two or more components were combined, then these components will become the group's "self unit"

**Example:** Let a rectangle and an oval's frame color keep Consistent ,as long as the rectangle change the color, ellipse will change at the same time .

**Note:** This rectangle and ellipse are two separate components, their properties can not be cross-linked, it must let their properties belong to the same "group."

(1) Put one rectangle  $\square$  and one ellipse  $\bigcirc$  on the screen.



② Box select the two graphics, right-click to choose "group", as follows:



Click "OK" button to complete it

③ Right-click the group , pop-up the following dialog box:

| Advance  |               |
|--|---------------|
| □- Group0_(0)<br>□- Self Unit<br>□- <b>Rectangle0_(1)</b>    | Unit Name     |
| Ellipse/Circle0_(2)     Ellipse/Circle0_(2)     Elf Property | Unit Property |

Can be seen under the "Group" more of a "self unit" part, self unit constitute the group of all the components. Ellipse and rectangle were included.

• Rectangle's "Frame color" property float to the group.

| Steps: | select | Frame Color | click | Property Float | button-select | <b>⊪Group0_(0)</b> | click |
|--------|--------|-------------|-------|----------------|---------------|--------------------|-------|
| Affirm | Float  |             |       |                |               |                    |       |



• Ellipse's "Frame color" property float to the group.(as the above methods) After the completion of the following diagram:



Under "Group" more of a "Float Property" section, floated properties are concentrated in the

section, click one of these attributes, its original location will become green.

• In the float property section, property link "Frame Color" of ellipse to rectangle's "Frame color.", the operations can be seen in "property link" section.

After the completion of the following diagram:



Double-click the "group", in the pop-up Group Property dialog box, you can modify the rectangle and ellipse's frame color respectively, you can see regardless how to set up the ellipse's frame color, it is always maintain the same with rectangle's frame color.

| Group                                | ×                   | ] |
|--------------------------------------|---------------------|---|
| Color Position                       |                     |   |
| Kind<br>RectangleO_(<br>Ellipse/Circ | Color               |   |
|                                      | <b>确定 取消</b> 应用 (A) |   |

#### 3.2.4 Insert Unit



Definition: change one component into another component's Component, to become "self unit".

**Description:** "Insert unit" operation is generally right to "switch" 、 "IF" component making sense. These two components, similar to an empty box, you can insert into other components to become their "self unit", The two components, according to the logic function to execute "insert unit"。 (About "switch"、 "IF" component , you can see the relevant section) When two or more elements combined, there is still generate "self unit" part in the "group" element

**Example:** Use "switch" unit to make a simple three state indicator, through the value of PSW300 to change the state

1) Put three rectangle in on the screen, separately filled with red, green, blue three kinds



| Read                         |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register ▼ |
| Station                      |
| Device PLC Port 👻            |
| VirStaNO 0                   |
| Object                       |
| Object PSW - 300             |
| Indirect                     |
| Data                         |
| Data Type Word               |
|                              |
| 确定 取消 应用(A)                  |

(3) Box select them, right-click to pop-up the advanced dialog box. As follows:

| <b>Advance</b>  |   |
|---|---|
| <ul> <li>SWITCH0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Index</li> </ul> | Insert Unit<br>Unit Name<br>Unit Property<br>OK<br>Cancel |

 "current index" of switch property contain "Read".(Operation method can be seen in the "property contain" section)



(4) Box selects "switch" and the three rectangles, stacked them together, right-click bring up the "Advanced" dialog box.

| Advance   |               |             |              |
|---|---------------|-------------|--------------|
| Rectangle0_(0)     Rectangle0_(1)     Rectangle0_(1)     Rectangle0_(2) | Insert Unit   |             |              |
| SWITCH0_(3)   | Unit Name     |             |              |
|   | Unit Property |             |              |
|   |               |             |              |
|   |               |             |              |
|   | ОК            |             |              |
|   | Cancel        |             |              |
| sert one rectangle into "switc  | h" unit.      | 1           |              |
| teps: select 🕀 Rectar   | gle0_(0)click | Insert Unit | button-selec |
| SWITCHO_(3)click  | m Insert      |             |              |

| Advance   |                            |   | <b>Advance</b>   |                                |
|---|----------------------------|---|--|--------------------------------|
| ■ Rectangle0_(0)<br>■ Rectangle0_(1)<br>■ Rectangle0_(2)<br>■ SWITCH0_(3) | Unit Name<br>Unit Property | - | Rectangle0_(0)     Rectangle0_(1)     Rectangle0_(2)     SWITCH0_(3) | Affirm Insert<br>Cancel Insert |
|   | OK<br>Cancel               |   |  |                                |

Also do the same for the rest rectangles' insertion.

| <b>Advance</b>  |                            |
|---|----------------------------|
| Switch0_(3)  Contain Unit  Self Property  Self Unit  Rectangle0_(0)  Rectangle0_(1)  Rectangle0_(2) | Unit Name<br>Unit Property |
|   | OK<br>Cancel               |

You can see, under "switch" more than a "self unit" part, self unit is the part to constitute the "switch" component.

After the completion of the dialog box, click the "OK" button to exit.





Modify the value of PSW300 (0, 1, 2), the three rectangular will switch display, showed to be a simple three status indicators.



# 4. Component function Introduce

#### 4.1 Overview

This chapter introduce the function and usage of the advanced function part, and. each component with a small routine as instruction to understand. (note: some parts due to its function that user inconvenience using, so the introduce are omitted here),

#### **4.2 Part Introduction**

#### 4.2.1 Switch 🔳 component

**Summary:** The component is similar to switch (case) statement function of programming language, in engineering applications, often used with rotating animation, pictures switch and other parts to achieve flexible animations.

Through the tool bar component is to place it on the screen , right-click the component and select "advanced" , the advanced property is shown below :



• Through "current index" and other part's "property contain" to edit advanced functions, Based on "current index" to operate pictures switch and other operations.

Example: Switch component's image switch based on rotating animation



In this case, will achieve the following switch between the four images:



Implementation steps:

Step1: Add pictures to switch component's "self unit", can be achieved through the following two ways:

Method 1: According to the stacking order added to the Switch :



The following dialog box will appear, select "OK" to confirm the operation. Add complete, as shown on the right:

| TTin | ××××××××××××××××××××××××××××××××××××××   |   |  |
|------|--|---|--|
| ♪    | Are you sure add selected unit to alter? | • |  |
|      | <u>是(1)</u> 否(1)                         |   |  |

At this point, open the advanced function property , can be observed switch contains four components: rectangle  $0_{1}$ , rectangle  $0_{2}$ , rectangle  $0_{1}$ , rectangle  $0_{1}$ , rectangle  $0_{1}$ , rectangle  $0_{1}$ , rectangle  $0_{2}$ , recta

| ■       Switch0_00         ■       Self Unit         ■       Rectangle0_(1)         ■       Rectangle0_(2)         ■       Rectangle0_(3)         ■       Rectangle0_(4)         ●       Self Property | Unit Name<br>Unit Property |   |
|--|----------------------------|---|
|  | OK<br>Cancel               | •Switch component's<br>self unit with the<br>dragging order,<br>include rectangular 0_<br>[1] to the rectangular<br>0_ [4]. |

Method 2: By" insert unit" to achieve adding "self unit" to switch

Stacked rectangular in turn to the same location, rectangular 4 in the top level, rectangular1 at the bottom, as shown in the left graphic , this time, select the graphics and switch component, open advanced property , as shown on the right:



Please insert unit with the following order:



At this point, complete the adding of switch's "self unit".

Step2:



Operate according to the following orders:

| SWITCH0_(0)     Current Index     →  | Property Contain      |   | Affirm Contain        |
|--|-----------------------|---|-----------------------|
| Advance  | _                     |   |                       |
| Self Unit  Self Property  Top-Left Horizon  Top-Left Vertical  Bottom-Right Horizon  Current Index  Contain Unit  Rotate Animal0_(5) | Delete Contain        |   |                       |
|  | OK<br>Cancel          |   |                       |
| Step3: Select Rotate AnimalO [5] , an follows:   | d then click          | Jnit Property to mo                                       | dify the property, as |
| Rotate Animal  | X                     |   |                       |
| Period 1000 ms V Enab<br>C Random Reset<br>C Continue<br>Start 0 C Trip  | t                     | •set period as 1000<br>pictures switch wi<br>milliseconds |                       |
| End 3 ▼ Repea  | at<br>应用 ( <u>A</u> ) | • set Start as 0, s                                       | set End as 3          |

Step4: Function Simulation

Through the toolbar "off-line simulation" button to observe the effect .



Through the simulation process can be observed picture switch from picture 1 to picture 4, and the period is 1000 milliseconds.

Example 2: Text switch based on date change of register

In this example, according to the numerical changes in PSW300 register, to realize the different text display



Realizing steps:

Step1: Modify read component's property, point object to PSW300.

Through toolbar part ——Read component" **E**", make it object point to PSW300, as the following:

|      | Read                   |
|------|------------------------|
|      | Object Position        |
| READ | Data<br>Data Type Word |
|      | <b>确定 取消</b> 应用 (g)    |

Step2: Add five text strings to switch component's "self unit"



About how to add the five text strings to switch component's self unit, you can learn from the above example (Picture switch).

When complete the operation, the property is shown below:

|        | Advance  |                            |
|--------|--|----------------------------|
|        | SWITCH0_00           ⊖ Self Unit           ⊕ Group0_[1]           ⊕ Group0_[6]           ⊕ Group0_[16]           ⊕ Group0_[21]           ⊕ Group0_[21]           ⊕ Self Property | Unit Name<br>Unit Property |
| Text 1 |  |                            |
|        |  | OK<br>Cancel               |

• Five text strings have been became to switch component's self unit

Step3: Switch component "property contain" read component

| Text 1   |  |                |
|--|--|----------------|
| Advance  Switcho (0)  Self Unit  Self Property  Top-Left Hoizon Bottom-Right Horizon Bottom-Right Vertical Current Index  READ0_(26) | Linsert Unit<br>Unit Name<br>Unit Property<br>OK<br>Cancel |                |
| Current Index Property Contain   | ⊡-READ0 (26)   | Affirm Contain |

Step4: Via digital input component, make it point to PSW300.then via offline simulation to observe the effects.

| • | • | •   | •  | ·  | •  | ·   | ·  | ·  | •   | · | · | · | · | · | · | ·  | · | •  | ·  | · | ·  | • | • |
|---|---|-----|----|----|----|-----|----|----|-----|---|---|---|---|---|---|----|---|----|----|---|----|---|---|
| • | ÷ | •   | •  | •  |    | •   |    | ۰. |     |   |   |   |   |   |   |    |   |    |    |   |    |   |   |
|   | 1 | UR. | 11 |    |    | -Ib | 1  |    |     |   |   |   |   |   |   |    | • | ۰. |    | - | ۰. |   |   |
|   | 4 | Ľ   | ЗI | 00 | 20 | 21  | a' | I  | Ŀ., |   |   |   |   |   | Т | 'e | x | t. | 1  | - | Ŀ. |   |   |
|   |   |     |    |    |    |     |    |    |     |   |   |   |   |   | ÷ |    |   | ĩ. | τ. | - | ١. |   |   |
|   |   |     |    |    |    |     |    |    |     |   |   |   |   |   |   |    |   |    |    |   |    |   |   |
|   |   |     |    |    |    |     |    |    |     |   |   |   |   |   |   |    |   |    |    |   |    |   |   |
|   |   |     |    |    |    |     |    |    |     |   |   |   |   |   |   |    |   |    |    |   |    |   |   |

•After completing the picture, observing "digital input" component and switch component

The following are the effects of operations:



# 4.2.2 IF element 7/F

#### • Overview

The above description of the Switch component contains multiple branches, But IF component is a special case of Switch, can only contains two branches.

The principle and application of the component can be shown below:



If component determines executing self unit 1 or self unit2 through the execution result of target object established or not .When the executive outcome is established (namely the return value is 1), executing self unit1; When the executive outcome is not established (namely the return value is 0), executing self unit2.

#### • Routine

The following will be illustrated through the application of case :

By anti-button to input definite value in the target register: when the button is ON state, the target register's value is 100; when the button is OFF state, the target register's value is 10.



Step1: The production of Data anti-button and digital input part

- •Through the toolbar component  $\bigcirc$  lamp button, to execute PSB300 counter-action.
- •Through the toolbar component <sup>IIII</sup>——Digital display, display the value of register PSW300.


#### Set their properties as the following:

| Button With Lamp  | Button With Lamp  | Display Digital  |
|---|---|--|
| Object General Aspect Color Position  | Object General Aspect Color Position  | Object Display Font Color Position   |
| Button Operate<br>C Sgt ON C Set OFF (* <u>Reverse</u> ) C ON Instant<br>Twinkle Status<br>(* Stop C ON C OFF | Operate Object           Station           Device         PLC Port y           VirStaNO         0 | Station<br>Device PLC Port V<br>VrStaNO 0 Station 0  |
|   | Object  | Object Object State Stat |

#### **Step2:** If condition judgment

Through the toolbar "read" component— **E**, point object to PSB300:

| Read   |  |
|--|--|
| Object Position<br>Type<br>Unit Type Bit<br>Station<br>Device PLC Port<br>VirStaNO 0 Station 0 | • point the read<br>component' s object to<br>PSB 300, To modify the<br>attributes as shown in |
| Object<br>Object PSB V 300<br>Indirect<br>Data<br>Data Type Bit V                              | left.  |

• The operation of current value of If component's property contain

Through the toolbar to place "  $\mathcal{F}$ ", select "If" and "read" components, make the following operations:



Please follow the following sequence to execute if element's property contain, after completion, as shown the above pictures:

| Current Value Property Contain |  | Affirm Contain |  |
|--------------------------------|--|----------------|--|
|--------------------------------|--|----------------|--|

Step3: Implement If condition

The operations of write when If condition is established : through the toolbar "write" element-



If condition isn't established, the operations of write are: through the toolbar "write" element-

| — <b>王</b> , object point | ed to PSW300,set date for 10.   |   |
|---------------------------|---|---|
|                           | Trite         Object       Position         Type       Unit Type Register         Station       Station         Device       PLC Port         VirStaND       0         Object       Object         Object       300         Data       Data         Data       10 | •modify the write<br>unit, object is<br>PSW300,date is 10 |

Adding the two "write" components as If component's self unit, according to the following sequence:

|     | Write the value of 100 | Execution when the condition                             |
|-----|------------------------|--|
| · F | Write the value of 10  | judgement is established                                 |
|     |                        | Execution when the condition judgement isn't established |

Please according to the application of above "switch" component to achieve their adding process. The results are shown below:



(4) Via offline simulation, observing the effect of operations.



# 4.2.3 Text A

**Overview:** This component is used to display text or data, and similar to the basic component "text" "**A**", The difference is that not only can display text, but also display data, character and other manifestations.

Through the toolbar component "A", placing screen, their manifestations are shown below :





Advanced function "text" Basic function "text" Double-click the advanced "text" part, the modify properties are shown below:

| Mode       Align Hor       Align Ver         Digital • Fext       • Left       • Top         • Digc       • Left       • Left         • Digc       • Left       • Left         • Bight       • Bight       • Bottom         Styl       Normal       • Ext         Pormat       • Hex       • Bight         • Bight       • Bottom         Text       • Bottom         • for mat: The contents are on       • display mode" in the "digital" for effectively.         • special style : Include, "time | Text   |   |                                   |   |
|---|--|---|-----------------------------------|---|
| Format       D: it in         Pigtial       Yalue         Bit Length       9  | Display Font   Color   Position  <br>Mode<br>C Digital C Text<br>Format<br>C Dec C Hex<br>C Bloat C Unsigned | <ul> <li>€ Left</li> <li>C Center</li> <li>C Right</li> </ul> | ⊙ <u>T</u> op<br>○ <u>M</u> iddle |   |
| Yalue       • special style :Include, "time         Bit Length       "normal", password " totally three   | C gloat C Unsigned<br>Styl Normal T<br>Format D:H:M  | C Right   | _                                 | various forms<br>• format: The contents are on<br>"display mode" in the "digital" for |
|   | Bit Length 9   |   |                                   | •special style :Include, "time<br>"normal", password " totally three                  |

The following would be examples of "text" part under the form of the "digital" and "text":

• Shown as "Digital" mode:

| ext                             |                  |                   |
|---------------------------------|------------------|-------------------|
| Display Font Color Position     |                  |                   |
| Mode<br>(* Digital) (* Text     | Align Hor        | Align Ver         |
| Format<br>Dec C <u>H</u> ex     | ⊙ <u>C</u> enter | Middle     Middle |
| C Float C Unsigned              | C <u>R</u> ight  | C Bottom          |
| Styl Normal V<br>Format Digital | Text Content-    |                   |
| 200                             |                  |                   |
| Bit Length 4                    |                  |                   |
| Float Length                    |                  |                   |
| 🔽 O Lead 🔲 Use Chinese          |                  |                   |

| •   | •     | • | • | • | • | •        | • | •   | •   | • | • | • | • | • | • | • | -1  |
|-----|-------|---|---|---|---|----------|---|-----|-----|---|---|---|---|---|---|---|-----|
|     | -     |   |   | - | - |          |   |     |     | - | - |   | - |   |   | - | -   |
|     | ١.    |   |   |   |   |          |   |     |     |   |   |   |   |   |   |   |     |
|     |       |   |   |   |   |          |   |     |     |   |   |   |   |   |   |   | - 1 |
| •   | •     | • | • | • | - | <u> </u> |   |     | •   | • | - | • | • | • | • | • | - 1 |
| 1   | · * - | • | • | - | - | 2        |   | ITI | Ŀ   | - | - | • | - |   | - | - | 1   |
|     | -     |   |   | - | - |          |   |     | · . | - | - | - | - |   | - | - | -   |
|     |       |   |   |   | - | -        |   |     | -   |   | - | - |   |   |   |   |     |
| - • |       |   |   |   |   |          |   |     |     |   |   | - |   |   |   |   |     |
|     |       |   |   |   |   |          |   |     |     |   |   |   |   |   |   |   |     |
| -   | -     | - | - | - | - | -        | - | -   | -   | - | - | - | - | - | - | - | - 1 |
| -   | •     | • | • | - | - | -        | • | •   | •   | - | - | - | - | • | • | - | - 1 |

•Choose "digital" as the manifestation ,Data type is "decimal",Select digit to "4" bits, decimal digits for "2" ,When the input data is"200", the final data displayed as "2.00"



| Text<br>Display Font Color Position<br>Mode<br>C Digital C Text<br>Format<br>C Dgc C Hex<br>C Float C Unsigned | Align Hor Align Ver<br>C Left C Iop<br>C Center C Middle<br>C Bight C Bottom | · • · · · · · · · · · · · · · · · · · ·  |
|--|--|--|
| Styl Normal  Format  Format  Figure Bit Length Figure C Lgad  Use Chinese                                      | Text Content   | •Choose "text" as the<br>manifestation ,in the "Special type",<br>select "normal", At the same time<br>check "use Chinese", When the text<br>display as "thinget", the figure will be<br>on display. |

As noted, when under the "digital" and "text" mode, "text" display can be set through the above means . but when "text" part as time to display, the following will through the display of

"hours : minutes: seconds" to explain:



**Step1:** Put three A component on the screen , the property modification are shown below:

| Iext<br>Display Font   Color   Position   |  |  | · · · · · · · · · · · · · · · · · · ·                             |
|---|--|--|---|
| Node<br>© <u>Digital</u> C Text<br>Format<br>C Dgc C <u>H</u> ex<br>C Elost C <u>Unsigned</u>                             | Align Hor<br>Left<br><u>C</u> enter<br><u>R</u> ight | Align Ver<br>© Top<br>© Middle<br>© Bottom |   |
| Styl Time<br>Format H.M.S<br>Digital<br>Value<br>Digital<br>Value<br>Figure Length<br>C Length<br>0<br>0 Lgad Vse Chinese | - Text Content                                       |  | •Display mo<br>• Style: set a<br>•Special style<br>time format is |



•Display mode:set as "digital" mode. • Style: set as "Hex". •Special style: select "time", and time format is "H:M:S"

Step2: To read the address of touch-screen's internal clock.

| ject Posi | 1          |  |
|-----------|------------|--|
|           | Register 💌 |  |
| Station   |            |  |
| Device    | PLC Port 💌 |  |
| VirStaNO  | Station0   |  |
| - Object  |            |  |
| Object    | PSW - 33   |  |
|           | ☐ Indirect |  |
|           | Indirect   |  |
| Data      |            |  |
| Data Type |            |  |

|   |   |    |    |     |     |    |   | - |     |     |     |     |     |   |    |    |    |    | :   |   |   |   |
|---|---|----|----|-----|-----|----|---|---|-----|-----|-----|-----|-----|---|----|----|----|----|-----|---|---|---|
| • | · |    | ·  |     | ·   | ·  | · | • |     |     | ·   | ·   |     |   | ·  | ·  | ·  | ·  | •   | · | · |   |
| • | · | ÷. |    | ÷., | ÷., |    |   |   | ÷.  | ÷., | ÷., | ÷., | ÷., | - | ۰. | ÷  | 1  |    | ÷.  | • |   |   |
| • | · | Ŧ  | ۶F | Δ.  | n   | Ţ. | • | • | ΞĒ. | ΣĒ  | ۵   | n   | Ţ., | • | -7 | PI | F. | ۵Ī | ٦ř. | · | · |   |
| • | • | ÷. |    |     | -   | ۰. |   |   | ÷-  |     |     | -   | ۰.  | - |    | -  | -  | -  | -   | • |   |   |
| • | · |    | •  | -   |     |    |   |   | -   | -   |     |     |     | - |    |    |    | •  |     |   |   |   |
|   |   | -  |    | -   |     | -  | - |   | -   | -   | -   | -   |     | - |    |    |    |    | -   |   |   |   |
| • | · |    | •  |     |     |    |   |   | -   | -   |     |     |     |   |    |    | •  | •  |     | • |   |   |
| • | • | -  | •  | -   | •   | -  | - | • | -   | -   | -   | -   |     | - | •  | •  | •  | •  |     | • | • |   |
|   |   |    |    |     |     |    |   |   |     |     |     |     |     |   |    |    |    |    |     |   |   | _ |

• Point register addresses separately to PSW33, PSW34 and PSW35, namely respectively point to touchscreen internal address "hour" register, "minute" register, "second" register.

Step3: Text display content point to the clock address

The following will be using "hour" property contain to describe the production process, "Minutes" and "seconds" of the production process is similar.

|  | <b>Advance</b>   |   | Advance  |                            |
|--|--|---|--|----------------------------|
|  |  | Insert Unit<br>Unit Name<br>Unit Property | Text0_(0)     Self Property     Contain Unit     READ0_(1) | Unit Name<br>Unit Property |
| Select the "text" and "read"<br>element right-click then choose<br>"advanced". | Is an approximate of the cool of the | OK<br>Cancel                              |  | OK<br>Cancel               |

According to the following order to modify, after the completion of adding, as shown in the upper-right figure.



According to the above method for "minutes" and "seconds" property contain, the screen shown as the below - left figure, through the off-line simulation can observe the effects of operation, such as the below -right figure.



### 4.2.4 User input

**Overview** : Advanced function toolbar part "user input" component and basic function "user input" component are relatively, Distinction, advanced "user input" is the formation parts to basic "user input" component, mainly reflected in the performance of form and input return value. **Example:** In the following case can observe the difference between advanced "user input" component and basic "user input" part:

•To advanced "user input" component : Input "1" to the digital input box which object pointed to PSW300.

| •     | •   | • | • | · |   |   |    |   |   |   |   |   |     |    |   |    |    |    |    |            |   |  |
|-------|-----|---|---|---|---|---|----|---|---|---|---|---|-----|----|---|----|----|----|----|------------|---|--|
|       |     |   |   | · | · | · | ·  | · | · | · | · | · | ·   | ·  | · | ·  | ·  | ·  | ·  | ·          | · |  |
| <br>• | •   | • | · | · | · | · |    | · | · | · | · | · | ·   | ·  | · | ·  | ·  | ·  | ·  | ·          | · |  |
|       | •   | • | ÷ | • |   | · | ·  | · | · | · | · |   | 16  | -  | _ | _  |    |    | _  | <b>1</b> 1 |   |  |
|       | • 1 |   | V |   |   |   | 17 |   | ŀ |   |   |   | - N | Js | e | F. | In | ιP | u  | ţ٠.        |   |  |
|       | ·   | n |   | Ø | Ø | Ø | Ľ  | 1 | ŀ | · | · | · | 1   | ÷  | • |    | ÷  |    | •  | ۰.         | · |  |
| <br>• | ·   |   |   |   |   |   |    |   | ŀ | · | · | · | ·   | ·  | · | ·  | ·  | ·  | ·  | ·          | · |  |
|       |     | • | · | • | • | · |    | · |   | · | · |   | •   |    |   |    | •  | •  | •  | •          |   |  |
|       | •   | • | · |   |   | · |    | · |   |   |   |   | - h | ľe | - |    | In | 'n | пt | P-         |   |  |
|       |     | • | · |   |   | · |    | · |   |   |   |   | r   | -  |   |    |    | ч  | -  | Ч.         |   |  |
|       |     |   |   |   |   |   |    | · |   |   |   |   |     |    |   |    |    |    |    |            |   |  |
|       |     |   |   |   |   | · |    | · |   |   |   |   |     |    |   |    |    |    |    |            |   |  |



• To basic "user input" component:



Click "digital input"  $\rightarrow$  click "1" button  $\rightarrow$  click "ENTER" button  $\rightarrow$  finished

Application example:

Here are introduction of the completion process of the above-mentioned cases: **Step1:** Digital input component, object pointed to PSW300

Through toolbar "digital input" component- 23, placed on the screen, point object to PSW300, as the following:

| - | -   |   |   |   |    |    |    | • | •  |   |   |   |   |
|---|-----|---|---|---|----|----|----|---|----|---|---|---|---|
|   | 1   |   |   |   | ÷. |    |    |   | ÷. | • | • |   | - |
| - | • ] | н | V |   | _  | Н  | 12 |   | F  | • | • |   |   |
| - | - 1 | 1 |   |   | Ы  | 12 | 12 |   | P  | • | • | • | • |
| - | - J | - |   |   | -  |    |    |   | ч. | • | • | • | • |
| • | •   | • | • | • | •  | •  | •  | • | •  | • | • | • | - |
| • | •   | • | • | • | •  | •  | •  | • | ·  | • | • | • | - |
|   |     |   |   |   |    |    |    |   |    |   |   |   | - |
| - | •   |   |   |   |    |    |    |   |    |   |   |   |   |
| - | -   |   | · | · | ·  | ·  | ·  | · | ·  | · | · | · | · |
| - | ÷   | : | : | : | :  | :  | :  | : | :  | : | : | ÷ | ł |

Jse

Use

| Digital Input                            |  |
|--|--|
| Object Display Input Font Color Position |  |
| Operate Object                           |  |
| Station<br>Device PLC Port 👻             |  |
| VirStaND 0 Station 0                     |  |
| Object                                   |  |
| Object PSW - 300                         |  |
| 🗖 Indirect                               |  |

Step2: Click advanced function toolbar part "user input", placed on the screen, as the following:

| r Input | Input                          | Input                          |
|---------|--------------------------------|--------------------------------|
| r Input | Object Position<br>ASCII (Hex) | Object Position<br>ASCII (Hex) |
|         | ASCII of value "1"             | ASCII of "Enter" button        |

#### Step3: Function Simulation

Through the toolbar "off-line simulation" button, clicking the digital input box to set the date of register PSW300 to 1:



# 4.2.5 Screen jump

Overview: Advanced Function - "screen jump" component as the action component part, Click

the Advanced toolbar component "<sup>2</sup>", Double-click to modify the property, as follows:

| Screen | յար      |
|--------|----------|
| Object | Position |
|        |          |
| Jum    | p ID     |
| 0      |          |
|        |          |

•Input the screen No. Jump in "screen jump"

**Example:** In this case, PSB300 is the basis for the screen jump, when PSB300 in ON state, will jump to No. 2 screen, when the PSB300 in OFF state, will jump to No. 1 screen.



When PSB300 is ON, it will show screen 2, otherwise it is screen 1.



### Step1: The production of screen 1

(1) Button production ,through toolbar unit is , point object to PSB300, as the following:

|         | Button   | Button  |
|---------|--|---|
| reverse | Object Operate Button Color Position<br>Station<br>Device PLC Port<br>VirStaND 0 Station 0 | Object Operate Button Color Position<br>Button<br>C Set OM C Set OFF © Reverse C On Instant |
|         | Object PSB 300   |   |

• point "Object" tab to PSB300, select "operate" tab as "Reverse"

#### **Step2:** If condition judgment.

| 1. Put one "read" a | nd one "if" 7/F              | components on the screen, as follows: |
|---------------------|------------------------------|---------------------------------------|
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
| · · · · • • •       | <b>* 6 D</b> · · · · · · · · |                                       |
| · · · · <u>1</u>    | - <u> </u>                   |                                       |
|                     | · · · · · • • • • • • • • •  |                                       |
|                     | <b> F</b>                    |                                       |
|                     | · · · · · · • • - · · · ·    |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |
|                     |                              |                                       |

2.Double-click to modify its property, point object to PSB300.

| Read   | × |
|--|---|
| Object Position                                    |   |
| Type<br>Unit Type Bit ▼                            |   |
| Station<br>Device PLC Port<br>VirStaND 0 Station 0 |   |
| Object<br>Object PSB 300<br>Indirect               |   |
| Data<br>Data Type Bit                              |   |
|  |   |

3.Add "read" as "if" components contain unit.



After property contain, the effect is shown below:

| Advance  |                |
|--|----------------|
| <ul> <li>□-IF0_(1)</li> <li>□- Self Property</li> <li>□- Top-Left Horizon</li> <li>□- Top-Left Vertical</li> <li>□- Bottom-Right Horizon</li> <li>□- Bottom-Right Vertical</li> <li>□- Current Value</li> <li>□- Contain Unit</li> <li>□- READ0_(0)</li> </ul> | Delete Contain |
|  | OK<br>Cancel   |

#### 4. If Condition execution

•Through advanced tool bar, put two "screen jump" on the screen, modify their properties, added as if component's self unit,



1 Add "screen jump" as "if" component's self unit , Must be based on the following order :



|   | • | • | • | •   | •  | •  | • | •             | •  | •  | •   | • | • | • | •  | •  | •  | •  | •        | •  | •   | •  | •  | •        | • | • | • | • | • | • | • |
|---|---|---|---|-----|----|----|---|---------------|----|----|-----|---|---|---|----|----|----|----|----------|----|-----|----|----|----------|---|---|---|---|---|---|---|
| • | • | • | · | ·   | ·  | •  | • | ·             | ·  | ·  | ·   | · | · | · | ·  | ·  | ·  | ·  | •        | ·  | ·   | ·  | ·  | ·        | · | • | • | • | • | • | • |
| • | • | • | • | •   | •  | •  | • | •             | •  | •  | ·   | · | • | · | ·  | ·  | •  | ·  | ·        | ·  | •   | •  | •  | •        | • | • | • | • | • | • | • |
|   |   |   |   |     |    |    |   |               | 10 | ۰. | The |   | à | ń | 14 | ÷. | •  |    |          |    |     |    |    |          |   |   |   |   |   |   | • |
|   |   |   |   |     |    |    |   |               | R, |    |     | Ľ | c |   |    |    |    |    | ·        |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   | Б | 1.0 | 21 |    |   | 12            | 21 |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   | l | μ.  |    |    |   |               |    |    |     |   |   |   | .  | c  |    |    | 2        |    | Ŧ., |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   | Ŀ   | ¢ε | ٩v | e | $\mathbf{r}s$ | e  |    |     |   |   |   |    |    | υr | E. | <u> </u> | Ľ, | յլ  | i. | ч. | <u> </u> |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    | N. |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
|   |   |   |   |     |    |    |   |               |    |    |     |   |   |   |    |    |    |    |          |    |     |    |    |          |   |   |   |   |   |   |   |
| • | • | · | · | ·   | •  | •  | · | ·             | ·  | ·  | ·   | · | · | · | ·  | ·  | ·  | ·  | ·        | ·  | ·   | ·  | ·  | ·        | · | · | · | · | · | · | · |

**Step2:** The production of screen 2

Similar to screen 1, you can directly copy reverse button and "screen jump" button to the screen 2, as follows:

|  |   |   |    | • | · | •  | •  |    | ·   | • |   | ·    | •   | •  | • |    | •  | •  | •   | • |     |          |   |  |
|--|---|---|----|---|---|----|----|----|-----|---|---|------|-----|----|---|----|----|----|-----|---|-----|----------|---|--|
|  |   | · |    | • |   | •  | ¢  | ۰. | The |   | à | nin. | -   | ÷. |   | ·  |    |    |     |   | ·   |          |   |  |
|  |   |   |    |   |   |    | £  |    |     | C | c | 'n   | 4   |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    | • |   |    | ·  |    |     |   | · |      | ·   |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      | ·   |    |   |    |    |    |     |   |     |          |   |  |
|  | Ð |   | 31 | - |   | 16 | 20 |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   | h | ٦. |   |   |    |    |    |     |   |   |      | ·   | ē. |   | e. | er | v. | ħ   |   | n'r | ł        |   |  |
|  |   | Ľ | ٢e | v | e | rs | е  |    |     |   |   |      | . 1 |    |   | 5  |    |    | ιų. | ÷ | ч.  | <u>'</u> |   |  |
|  |   |   | H  |   |   |    | Η  | V  |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   | · | ·  | · | · | ·  | ·  | ÷  |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   |   |    |   |   |    |    |    |     |   |   |      |     |    |   |    |    |    |     |   |     |          |   |  |
|  |   | · |    |   | · |    | ·  |    | ·   |   | · |      | ·   | ·  | · | ·  |    | ·  |     |   | ·   | ·        | · |  |

• Since the IF condition judgment between screen 2 and screen 1 are Consistent, so can be directly copied.

Step3: Through "Off-line simulation" to observe the Running effects:



Overview: In the applications of advanced function, "password" component used in conjunction with "open password" component, the former is to determine the competence and level passwords, the latter lies in the implementation of "open password" operation.

The functions are as follows:



Example: The following through making screen jump button as example to describe the application of "password" and "open password":

| "password" a | ind "open password" routin | e 1Through set PSB300 to open<br>password                  | Screen 2 |
|--------------|----------------------------|--|----------|
| Screen 2     | PSB300                     |  |          |
|              | (Open Password)            | 2.After open password, click the but to jump to "screen 2" | itton    |

Implementation steps:

Step1: The production of "screen jump" button with the "Password" permission (1-1) The production of key.

", on the screen, as follows: Placing advanced function part-

| • | · | · | · | · | · | ·  | ·  | · | · | · | · | · | · | · | · | • | • ' |   |
|---|---|---|---|---|---|----|----|---|---|---|---|---|---|---|---|---|-----|---|
| • | · | • | • | • | • | •  | ·  | · | · | · | · | · | · | • | · | • | •   | Droparty is got to default value                    |
|   | • | • | • | • | • | •  | •  | • | · | • | • | • | • | • | • | • | •   | <ul> <li>Property is set to default valu</li> </ul> |
|   | : | : | : |   | ÷ |    |    | : | : |   | : | : | : | : | : |   |     | The four key states:                                |
| • | · | · | · | 1 | k | e١ | Ā, | · | · | · | · | · | · | · | · | • | •   | State1: released                                    |
| • | · | • | · |   |   | Ē  | 40 | · | • | · | · | · | · | · | · | • | •   | State1. Teleaseu                                    |
|   | : | : | : | : | : | :  | ÷  | : | : | : | : | : | : | : | : | : |     | State2: pressed                                     |
|   | • | • | • | • | • | •  | •  |   | • |   | • | • | • | • | • | • | •   | -   |
|   | : | : | : | : | : | :  | ÷  | : | : | : | : | : | : | : | : | : |     | State3: releasing                                   |
|   | - | - | - | - | - | -  |    | - |   |   |   | - | - | - | - | - |     | 0   |
| • | • | • | • | • | • | •  | •  | • | • | • | • | • | • | • | • | • | •   | State4:pressing                                     |
| • | • | • | • | • | • | •  | •  | • | • | • | • | • | • | • | • | • | •   |   |

In this case, the operation corresponding to four states, which are as follows:

Status 1: a rectangular box with a screen 2

Status 2: NOP (empty operation)

Status 3: NOP (empty operation)

State 4: The Jump screens which through condition judgment to determine whether password returns value is 1.

(1-2) Judge if the password return value is 1.

Through advanced function parts to place "If" 、 "password"、 "screen jump" components. Then set "Password" component and "screen jump" part as the following:

|  | Password 🛛                                      | Screen Junp                     | X |
|--|---|---------------------------------|---|
| Password<br>Screen Jump                                    | Password Position                               | Object Position<br>Jump ID<br>2 |   |
|  | 确定 取消 应用 (A)<br>Set password level as "level 1" | Set "jump ID" as 2              |   |
| Operations according to the<br>① Add "Password" as "if" co |   |                                 |   |
| Current Value     Inse     Add "screen jump" as "if"       | t Unit Password0_(11                            | Affirm Insert                   |   |
| E Screen Jump0_(12)  | Insert Unit                                     | Affirm Insert                   |   |

At this point, can be observed "contain unit" and "self unit" of "If" component.



#### (1-3) Form to "screen jump" button





Complete setting, the screen is as follows:



**Step2:** PSB300 in ON state of the implementation of "open password" operation.

(2-1) The indicator button which object pointed to PSB300, "button operate" is "reverse".

|   | ш | ьa |   | κ. | Ьz |   |
|---|---|----|---|----|----|---|
|   | 1 | 1  |   |    | Ľ. |   |
|   | 1 | Ι. |   |    | L  |   |
|   |   |    |   |    |    | ÷ |
|   |   |    |   |    | ,  |   |
| - | М |    | - | ĸ, |    | 4 |
|   |   |    |   |    |    |   |

| lut | ton Vit                                     | h Lamp                     |   |
|-----|---|----------------------------|---|
| 0Ъ_ | ject Gene                                   | eral Aspect Color Position |   |
|     | Operate Ob<br>Station<br>Device<br>VirStaNO | PLC Port                   | 1 |
|     | Object<br>Object                            | PSB 300                    |   |

| Button Operate<br>C S <u>e</u> t ON C Se <u>t</u> OFF |       |
|---|-------|
| Twinkle Status<br>© Stop © OM                         | C off |
|   |       |

(2-2) PSB300 in ON state of the implementation of "open password" operation.

In this case, set the screen jump level as level 1, the password set in the "System Parameter", in this case, the password is 123, as follows:

| Project Set                   |
|-------------------------------|
| Device Font Project           |
| Para Alternation Clock Panel  |
| Screen                        |
| Start Screen 1                |
| ✓ P <u>a</u> ssowrd           |
| Level Level1  Password 123    |
| Screen Save                   |
| Latency Time After 3 Minute 💌 |
| 💽 Close LCD 🔿 Show Screen 🛛   |

"If" condition judgment, PSB300 in ON state of the implementation of "open password" operation:



"Read" property and "open password " property are shown below:

| Open Password        | Read 🔀   |
|----------------------|--|
| Object Position      | Ubject Position<br>Type<br>Unit Type Bit   |
| Open Password<br>123 | Station<br>Device PLC Port  VirStaND 0 Station 0 Object Object PSB  300 Indirect |
|                      | Data Type Bit I I I I I I I I I I I I I I I I I I I                              |

Advanced properties are as follows:

| Advance   |                            |  |  |  |
|---|----------------------------|--|--|--|
| Fo_(0)     Contain Unit     PREAD0_(1)     Self Unit     Open Password0_(2)     Self Property | Unit Name<br>Unit Property |  |  |  |

Step3: Through "off-line simulation" to observe effects, as follows:



# 4.2.7 Arithmetic 🏷

**Overview:** This section will introduce arithmetic  $\overleftarrow{\times}$  component of advanced instructions. Users can used basis parts -set data 23 to achieve +,-,\*,/ operation , can also through advanced instruction  $\overleftarrow{\times}$  to achieve +,-,\*,/ operation, but also the use of more flexible, Unlike the 23 button only limited on a variable and a constant +,-,\*,/ operation , while advanced instruction  $\overleftarrow{\times}$  can through other advanced instructions such as read  $\overleftarrow{\bullet}$ , write  $\overleftarrow{\bullet}$  to achieve constant and constant , constant and variable, variable and variable +,-,\*,/ Operation , The following will introduce the function and usage of arithmetic  $\overleftarrow{\times}$  component .

#### Routine

Step1: building a screen, placing parts on the screen

Building a new screen, placing the following components on the screen: three digital input

123, two texts **A**, one advanced instruction arithmetic  $\frac{1}{27}$ , two advanced instructions Read

**T**, one Write **T**, as the following diagram:

| 00000  | 300 |
|--|-----|
| · · · · · · · · · · · · · · · · · · ·                                  |     |
|  |     |
|  |     |
|  |     |
| Text   |     |
|  |     |
|  |     |
|  |     |
|  |     |
|  |     |
| en <b>Read</b> e e (†) e e <b>Read</b> e e e ( <sub>WRITE)</sub> e e e |     |
| · · · · · · · · · · · · · · · · · · ·                                  |     |

Step2: Basic components' properties modification

1. Digital input properties:

Double-click the left "Digital input", open the Properties dialog box, point object to PSW300, as follows:

| Г | Object- |     |   |          |  |
|---|---------|-----|---|----------|--|
|   | Object  | PSW | - | 300      |  |
|   |         | ,   |   | Indirect |  |

The same operations to the middle and right "Digital input", point objects separately to PSW301, PSW302, as follows:

| - Ubject - |     |   |          |
|------------|-----|---|----------|
| Object     | PSW | - | 301      |
|            |     | Г | Indirect |

| - Ubject- |     |   |         |
|-----------|-----|---|---------|
| Object    | PSW | - | 302     |
|           |     |   | ndirect |

2. Text properties.

Double-click the left "text" to open the Properties dialog box, enter "+" into display content, as follows:

| Text              |  | ×                 |
|-------------------|--|-------------------|
| Display Font Colo | r   Position   |                   |
| Content           |  |                   |
| +                 |  |                   |
| Aspect            | Align Hor  | Align Ver         |
| Text              | C Left   | С <u>Т</u> ор     |
|                   | <u> <u> <u> </u> <u> </u></u></u> | Middle     Middle |
| Changing          | ○ <u>R</u> ight  | C Bottom          |
|                   |  |                   |
|                   | 确定   | 取消 应用(A)          |

The same operations double-click the right "text" to open the Properties dialog box, enter "=" into display content, as follows:

| lext              |  |                                    | X     |
|-------------------|--|------------------------------------|-------|
| Display Font Colo | or Position  |                                    |       |
| Content           |  |                                    |       |
| Text              | Align Hor<br>C Left<br>C <u>C</u> enter<br>C <u>R</u> ight | Align V<br>C Iop<br>C Mid<br>C Bot | dLe   |
|                   | 确定   | 取消                                 | 应用(A) |

Step3: Advanced components' properties modification

1. Modify the attributes of the READ

a. Double-click the left "read" component to open the Properties dialog box, here the modify type is register, object is PSW300, and the results are as follows:

| Read 🔀  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaND 0 Station 0 |
| Object Object PSW 300                           |
| Data<br>Data Type Word                          |
|   |

b. Double-click the right "read" component to open the Properties dialog box, here the modify type is register, object is PSW301, and the results are as follows:

| Read   | ×          |
|--|------------|
| Object Position                                      |            |
| Type<br>Unit Type Register ▼                         |            |
| Station<br>Device PLC Port 🗾<br>VirStaND 0 Station 0 |            |
| Object<br>Object PSW 301                             |            |
| Data<br>Data Type Word                               |            |
| 确定取消 应用(   | <u>A</u> ) |

#### 2. Modify the attributes of the "Write"

Double-click the "Write" component to open the Properties dialog box, here the modify type is register, object is PSW302, and the results are as follows:

| Trite                        |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register ▼ |
| Station                      |
| Device PLC Port -            |
| VirStaNO 0 Station 0         |
| Object                       |
| Object PSW - 302             |
| Indirect                     |
| Data                         |
| Data Type Word               |
| Set Data                     |
|                              |
| 确定 取消 应用(A)                  |

#### Step4: Advanced Operations

1.Select the two "read", "write" and "+" at the same time, Right-click the selected area, Pop-up the following dialog box :

|   |    | • |   | <b>7</b> . | : | : | ¶- | •   |             |     | j, |   |         |   |          |   |
|---|----|---|---|------------|---|---|----|-----|-------------|-----|----|---|---------|---|----------|---|
| 1 | ٦E | • | Ē | 1          | : | : | ļ  | ŧ   | Property    | 11  | j  | Ļ | <u></u> |   | <u> </u> | ļ |
| : | :  | : | : | :          | : | : | :  | :   | Group       | 11  | :  | : | :       | : | :        | : |
|   | ·  | • |   |            |   |   |    | •   | Lock        | · · |    |   |         |   |          |   |
| • | •  | • | • | •          | • | • | •  | •   | Public Unit | 11  |    | • | •       | • | •        | • |
|   |    |   |   |            |   |   |    |     | System      |     |    |   |         |   |          |   |
|   |    |   |   |            |   |   |    |     |             | - I |    |   |         |   |          |   |
|   | ·  |   |   | ·          |   |   |    | ·   | Cut         | · · |    |   |         |   |          |   |
| · | ·  | • | • | ·          | · | • | •  | •   | Copy        | 11  | •  | • | ·       | • | ·        | • |
| : |    | : | : |            | : | : |    |     | Delete      |     |    | : |         | : | :        | : |
|   |    |   |   |            |   |   |    | •   | Save        | · · |    |   |         |   |          |   |
| • | ·  | · | • | •          | • | · | •  | •   | <b>m</b>    | 1.1 | -  | • | •       | • | •        | · |
|   | •  | · | • |            | • | · |    | ·   | Template    | 1.1 |    | • |         | • | •        | · |
| · | ·  | · | · | ·          | · | · | ·  | •   | Advance     | 1.1 | ·  | · | ·       | · | ·        | • |
| : | :  | : | : | :          | : | : | :  |     | Optimistic  |     | :  | : | :       | : | :        | : |
|   |    |   |   |            |   |   |    |     | Unlock All  |     |    |   |         |   |          |   |
|   |    |   |   |            |   |   |    | . l |             |     |    |   |         |   |          |   |

2. choose Advanced, advanced dialog box as follows:

| <b>Advance</b> |               |
|----------------|---------------|
|                | Insert Unit   |
| ⊡ READ0_(3)    | Unit Name     |
|                | Unit Property |
|                |               |
|                |               |
|                | ОК            |
|                | Cancel        |

3. Click the plus sign <sup>→</sup> in front of "write", then click the plus sign <sup>→</sup> in front of "write-self property", open its self property. as follows, select <sup>−</sup> Input Value</sup> :

| Advance   |                                   |
|---|-----------------------------------|
| + 0_(0)     • READ0_(1)     • WRITE0_(2)     • Self Property     • Station     • Field1 Value     • READ0_(3) | Property Contain<br>Property Link |
|   | ОК                                |
|   | Cancel                            |

4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance  |   |
|--|---|
| <ul> <li>+ 0_(0)</li> <li>• READ0_(1)</li> <li>• WRITE0_(2)</li> <li>∴ Self Property</li> <li>∴ Station</li> <li>∴ Field1 Value</li> <li>Input Value</li> <li>● READ0_(3)</li> </ul> | Affirm Contain<br>Cancel Contain                |
| Affin  | Cancel  |
| 5. Select $+ 0_{(0)}$ , button   | immediately changed into operational status , a |
| follows:   |   |

| Advance  |                                  |
|--|----------------------------------|
| + 0_00     • READ0_[1]     • WRITE0_[2]     • Self Property     • Station     • Field1 Value     • Input Value     • READ0_[3] | Affirm Contain<br>Cancel Contain |
|  | Cancel                           |

6. Click Affirm Contain button, complete "write" Component contain. Click the plus sign 🗐 in

front of "write-contain unit", then click the plus sign  $\overline{\mathbb{H}}$  in front of +0 [0], open its self property, as follows:

|               | Advance   |   |                 |  |
|---------------|---|---|-----------------|--|
|               | READ0_(1)     WRITE0_(2)     Self Property     Self Operand     Right Operand | Property Contain<br>Property Link<br>Property Float |                 |  |
|               |   | OK<br>Cancel  |                 |  |
| 7. Select Lef | t Operand , Click the right butt<br>t non-operational status, while   |   | the dialog box, |  |



8. Select **EEADO\_(1)**, button Affirm Contain immediately changed into operational status , as follows:

| Advance  |                                  |                               |  |  |
|--|----------------------------------|-------------------------------|--|--|
|  | Affirm Contain<br>Cancel Contain |                               |  |  |
|  | OK<br>Cancel                     |                               |  |  |
| 9. Click Affirm Contain button, complete $= + 0_0$ left operand Component contain. |                                  |                               |  |  |
| 10. Select Right Operand, Click the righ   |                                  | in the dialog box, the button |  |  |
| will be grayed-out non-operational status,   | while text changed into          | "affirm contain", as follows: |  |  |

| Advance                  |  |
|--------------------------|--|
|                          | Affirm Contain<br>Cancel Contain             |
|                          | OK<br>Cancel                                 |
| Select FEADO (3), button | immediately changed into operational status, |

as follows:

| Affirm Contain<br>Cancel Contain |
|----------------------------------|
|                                  |
| Cancel Contain                   |
| Cancel Contain                   |
| Cancel Contain                   |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |
|                                  |

12 Click  $\square$  button, complete  $\square$  +  $\square$   $\square$  right operand Component contain, The

| Advance  |                            |
|--|----------------------------|
| <ul> <li>→ WRITEO_(2)</li> <li>→ Self Property</li> <li>→ Station</li> <li>→ Field1 Value</li> <li>→ Input Value</li> <li>→ Contain Unit</li> <li>→ + 0_(0)</li> <li>→ Self Property</li> <li>→ Left Operand</li> <li>→ Right Operand</li> <li>→ Contain Unit</li> </ul> | Unit Name<br>Unit Property |
|  | OK<br>Cancel               |

end results are as follows:

13. Click Affirm Contain button, complete advanced operation of arithmetic-plus. Click "offline simulation" icon, To see the results of the following operation:



The above operation mainly introduce the operation of arithmetic-addition, the following will introduce multiplication

Step5: Arithmetic-multiplication Set

1. Select all the contents of the screen, as shown below:



2. Right-click to choose copy, then in the blank area right-click to choose paste, the results are as follows:



3. Dragging replicated components to the suitable location, as follows:

|                   | · · · · · · · · · · · · · · ·         | =       |
|-------------------|---------------------------------------|---------|
| · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | WRITE   |
|                   | · · · · · · · · · · · · · · ·         |         |
| 00000             | + 00000                               | - 00000 |
| · · · · · · · ·   | · · · · · · · · · · · · · · · · · ·   | WRITE   |

#### 4. "Digital Input" Properties modifications:

In turn from left to right to open the "digital input" property, modify their objects, point separately to PSW303, PSW304, PSW305, as follows:

| - Object<br>Object   | PSW | ▼ 303 |  |
|----------------------|-----|-------|--|
| – Object –<br>Object | PSW | ▼ 304 |  |
| - Object<br>Object   | PSW | ▼ 305 |  |

5. Select the bottom "write", Right-click, then in the pop-up list select advanced, as follows:

| 00000               | + 00000                               | = 00000  |
|---------------------|---------------------------------------|--|
|                     |                                       | WRITE  |
| 00000               |                                       | = 00000  |
|                     | · · · · · · · · · · · · · · · · · · · |  |
|                     |                                       | Property                                       |
|                     | · · · · · · · · · · · · · · · · · · · | · · Lock · · · · · · · · · · · · · · · · · · · |
| · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | Public Unit                                    |
|                     | · · · · · · · · · · · · · · · · · · · | Cut  |
|                     |                                       | Delete   |
| · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | Save :<br>Template                             |
|                     | · · · · · · · · · · · · · · · · · · · | Advance · · · · · · · · · · · · · · · · · · ·  |
|                     |                                       | Unlock All                                     |

6. Open the advanced dialog box, as shown below:

| Advance      |               |
|--------------|---------------|
| ■ WRITE0_(0) | Unit Name     |
|              | Unit Property |
|              |               |
|              |               |
|              |               |
|              | ОК            |
|              | Cancel        |

7. Select "write", click the right Unit Property button in the dialog box, open the property box , here the modify type is register, object is PSW305:

| -Object- |     |   |          |
|----------|-----|---|----------|
| Object   | PSW | - | 305      |
|          |     |   | Indirect |

8. Click the plus sign in front of "write", then continue to click the plus sign in front of "write-contain unit", selecting  $\textcircled{} + 0_{-}(1)$ , click the right Unit Property button in the dialog box, open arithmetic's property box , Click the small arrow button on the right  $\fbox{}$ , In the



drop-down list  $\underline{\text{Div}(f)}$ , select  $\underline{\text{Mul}(*)}$ , click "ok" to complete the properties setting of  $\mathbf{E} + \mathbf{0}_{[1]}$ , as follows:

9. Click the plus sign in front of "contain unit" of  $\textcircled{P} + 0_{[1]}$ , selecting  $\textcircled{PEAD0_{[2]}}$ , click the right Unit Property button in the dialog box, open the property box, here the modify type is register, object is PSW303:

| -Object- |     |   |          |
|----------|-----|---|----------|
| Object   | PSW | - | 303      |
|          | ·   |   | Indirect |

10. Click the plus sign in front of "contain unit" of  $\textcircled{} + 0_{[1]}$ , selecting  $\textcircled{} \text{READ0_{[3]}}$ , click the right Unit Property button in the dialog box, open the property box, here the modify type is register, object is PSW304:

| -Object- |     |   |          |
|----------|-----|---|----------|
| Object   | PSW | - | 304      |
|          |     |   | Indirect |

11. Finally click the "OK" button, complete the setting of multiplication.

12. Now the operations of multiplication have been completed. Click "offline simulation" icon, to see the results of the following operations:



# 4.2.8 NOP N

•Overview: "NOP" instruction is empty operation, that is, do not perform any operations, to maintain the existing operating state.

•**Routine:** The following will illustrate:

Step1: make "revert" indicator button, point to PSB300:

| Button With Lamp 🛛 🔀  | Button With Lamp                          | X |
|---|---|---|
| Object General Aspect Color Position<br>Operate Object<br>Station | Object General Aspect Color Position      | 1 |
| Device PLC Port VirStaND 0 Station 0                              | C Set ON C Set OFF ( Reverse C ON Instant |   |
| Object PSB 300  | Finkle Status                             |   |

Step2: Placing "Read", "IF", "Nop" advanced parts and to display pictures on the screen. "read" unit's setting as follows:

| · · · · · <u>-</u> · · · · · · · · · · · · · · · · · · · | Read 🔀  |
|--|---|
| READ   | Object Position   |
| NOP  | Type<br>Unit Type Bit<br>Station<br>Device PLC Port<br>VirStaND 0 Station 0<br>Object<br>Object PSB 300 |
|  | Data<br>Data Type Bit   |

As the following steps, adding "Read" as "If" component's contain unit:

| Current Value Property Contain | → ⊡ READ0_(1) | Affirm Contain |
|--------------------------------|---------------|----------------|
|--------------------------------|---------------|----------------|

Respectively, add "NOP" element and "image" as self unit of "IF" component .specifically with reference to above-mentioned relevant parts, as the shown below:

| Advance  |                            |   |
|--|----------------------------|---|
| <ul> <li>□ IF0_[2]</li> <li>□ Contain Unit</li> <li>□ READ0_[3]</li> <li>□ Self Property</li> <li>□ Self Unit</li> <li>□ NOP0_[0]</li> <li>□ Rectangle0_[1]</li> </ul> | Unit Name<br>Unit Property | •Note the order<br>of "Nop" elem<br>ent and "image" |

Step3: Through "off-line simulation" to observe run effects,



•The PSB300 for the ON state, will hidden pictures.

# 4.2.9 Converse

### • Overview

Negation operation is on the current operand bitwise operations to take converse operation, namely, the operation is from 1 to 0 or from 0 to 1, usually associated with "read" element to use.



### Routine

The following will illustrate the use of "reverse" button:



In the case, PSB301 and PSB300 have the opposite state



### **Implementation steps:**

Step1: make "PSB300 indicator button" and "PSB301 lamp" parts.



•To indicator button ,object point to PSB 300, button operate choosed as "reverse".

•Lamp object pointed to PSB301

The properties modification as follows:

| Button Vith Lamp  | Button With Lamp   | × |
|---|--|---|
| Object General Aspe<br>Operate Object<br>Station<br>Device PLC Port<br>VirStaNO<br>Object<br>Object PSB | ct   Color   Position  <br>Object General   Aspect   Color   Position  <br>-Button Operate |   |
|   | Lamp VirstaNO Object Object PSB 301 Indirect   |   |
| Step2: Advanced op  | erations   |   |
| Putting one   | , one wor and one <b>E</b> on the screen, as follows:                                      |   |
| READ  | Operand<br>Reverse operation Read  |   |
| Converse<br>WRITE   | Input date<br>Write  |   |

According to the following order, adding "read" component as "converse" component's "contain unit".

| Property Conta | n→ <u></u> | Affirm Contain |
|----------------|------------|----------------|
|----------------|------------|----------------|



According to the following order, adding "converse" component as "write" component's "contain unit".

| <br>Input Value Property                         | Contain→ ⊡ Converse0_(2)→ Affirm Contain |
|--|--|
| Advance  |  |
| ■- WRITE0_(0)                                    |  |
| Self Property                                    | Unit Name                                |
| Station  |  |
| Field1 Value<br>Input Value                      | Unit Property                            |
| 🖃 - Contain Unit                                 |  |
| 🗆 Converse0_(1)                                  |  |
| 🖻 ·· Contain Unit                                |  |
| <b>⊡</b> • <b>READ0_(2)</b><br>⊕ · Self Property |  |

**Step3:** Modify "read" unit and "write" unit's property, point separately to PSB300 and PSB301, as follows:

| Read 🛛 🗙   | Vrite 🔀   |
|--|---|
| Object Position  | [Object] Position   |
| Type<br>Unit Type Bit<br>Station<br>Device PLC Port VirStaND 0 Station 0<br>Object | Type       Unit Type       Bit       Station       Device       PLC Port       VirStaNO       Object       Object       PSB<▼       301 |
| Object PSB   | Data<br>Data Type Bit V<br>Set Data   |
|  |   |

**Step4:** Trough "offline simulation" to observe the effects, Can be observed PSB301 and PSB300 have the opposite state



In the case, PSB301 and PSB300 have the opposite state



## 4.2.10 "And, Or, Not"

#### • Overview

"And, Or, Not" component to achieve the function of logical operation, also known as "logical operation" component, that is, And, Or, Not operation.

Description: Participate in operation can be a value or a bit, When the value is non-0 or bit in the ON state, the number (or bit) is identified as "true" (Binary number

"1").When the value is 0 or bit in the OFF state, the number (or bit) is identified as a "false" (Binary number "0"), Then use the two binary number to carry out And, Or, Not logical operation, then got the outcome, Algorithm is as follows:

1 and 1=1, 1 and 0=0, 0 and 0=0; 1 or 1=1, 1 or 0=1, 0 or 0=0; 1 not= 0, 0 not=1.

Its advanced properties of the following diagram(Right-click And, in the pop-up list select



• Left Operand/Right operand: Select the two operation required data

#### Unit Property:

| Logical 🗙               |
|-------------------------|
| Logic Position          |
| Kind And                |
| Left Operand 0          |
| <u>R</u> ight Operand 0 |
|                         |
| 确定 取消 应用 (A)            |

- Kind: Manually specify the operation kind,
- Left Operand/Right operand: Manually specify the operation required two data

#### **Example:**

Use PSW300 and PSW301 as the two operands to carry out logic "And" operation, the results output to PSB300.



Settings are as follows: select "logical kind" as "And", modify the two "read" unit's property. point separately to PSW300 and PSW301. "Write" is PSB300.

| Logical         | Object PSW 		 300 |
|-----------------|-------------------|
| Logic Position  | Indirect          |
| Kind And -      | Object PSW V 301  |
| Right Operand 0 |                   |
|                 | - Object          |
|                 | Object PSB 💌 300  |
|                 | 🔽 Indirect        |

(2) Box above components, right-click, in the pop-up list select "advance", as follows:



"Left operand" property contains one "read" unit.

"Right operand" property contains the other "read" unit.

| Advance   |   |
|---|---|
| <ul> <li>And 0_(0)</li> <li>Self Property</li> <li>Left Operand</li> <li>Right Operand</li> <li>Contain Unit</li> <li>READ0_(1)</li> <li>READ0_(2)</li> <li>WRITE0_(3)</li> </ul> | Insert Unit<br>Unit Name<br>Unit Property |
| "Input value" property contain "  | And 0_(0)"                                |
| Advance   |   |
| And 0. (0)  |   |

| Advance  |                                   |
|--|-----------------------------------|
| <ul> <li>And 0_(0)</li> <li>WRITE0_(3)</li> <li>Self Property</li> <li>Station</li> <li>Field1 Value</li> <li>Input Value</li> </ul> | Property Contain<br>Property Link |

| Advance  |                            |
|--|----------------------------|
| WRITED_(3) Self Property Station Field1 Value Input Value Contain Unit And 0_(0) | Unit Name<br>Unit Property |

Click "Ok" to complete the operations.

(3) Placing two "digital input" unit 23, one "lamp" 29, three "text" on the screen. modify the two "digital input" unit's property. point separately to PSW300 and PSW301. "Lamp" is PSB300.as follows:



(4) Trough "offline simulation" to observe the effects, as follows:

| Left operand               |                        | Left operand               | HMI H <mark>M</mark> I |
|----------------------------|------------------------|----------------------------|------------------------|
| Right operand              | HMI H <mark>M</mark> I | Right operand              | нмі н <b>д</b> і       |
| Operation outcom<br>PSB300 |                        | Operation outcom<br>PSB300 |                        |


Only when the PSW300 and PSW301 are non-0 value, PSB300 will be in ON state, otherwise PSB300 is OFF.

# 4.2.11 "Compare"**≥**

### • Overview

"Compare" component used to achieve the function of data compare, also can be called " data compare". When the comparison result is true (compare relationship was established), the device will turn-on (turn to ON state), so it can also be used as other component's data source.

Its advanced properties of the following diagram(Right-click **1**, in the pop-up list select "advance"):

| Advance  |               |
|--|---------------|
| □- > 0_(0)<br>⊡- Self Property<br>Left Operand | Unit Name     |
| Right Operand                                  | Unit Property |

- Left Operand/Right operand: the two operation required data
- Compare kind: Manually specify the operation kind,
- Data format: Comparative data is based on which system
- Left Operand/Right operand: Manually set the operation required two data

### Example:

Use PSW300 and PSW301 as the two operands to complete data comparison, when PSW300>PSW301, set PSB300



Settings are as follows: modify the two "read" unit's property. point separately to PSW300 and

PSW301. "Write" is PSB300. "Data compare" comparison type choose ">"

| Compare               |       |  |
|-----------------------|-------|--|
| Compare Positio       | m     |  |
| Kind                  |       |  |
| <u>F</u> ormat        | Dec 💌 |  |
| <u>L</u> eft Operand  | 0     |  |
| <u>R</u> ight Operand | 0     |  |

(2) Box above components, right-click, in the pop-up list select "advance", as follows:

| Advance  |                                   |
|--|-----------------------------------|
| <ul> <li>⇒ 0_(0)</li> <li>⇒ Self Property</li> <li>Left Operand</li> <li>⇒ READ0_(1)</li> <li>⇒ READ0_(2)</li> <li>⇒ WRITE0_(3)</li> </ul> | Property Contain<br>Property Link |

"Left operand" property contain PSW300 "read" unit. "Right operand" property contains PSW301 "read" unit.

| Advance   |   |
|---|---|
| Self Property     Group Contain Unit     PREAD0_(1)     ⊕ READ0_(2)     ⊕ WRITE0_(3)  | Insert Unit<br>Unit Name<br>Unit Property<br>ue" property contain ₹ > 0_0 |
| Advance   |   |
| <ul> <li>⇒ 0_(0)</li> <li>Self Property</li> <li>Contain Unit</li> <li>⊕ READ0_(1)</li> <li>⊕ READ0_(2)</li> <li>⊕ WRITE0_(3)</li> <li>⊕ Self Property</li> <li>⊕ Station</li> <li>⊕ Field1 Value</li> <li>Input Value</li> </ul> | Property Contain<br>Property Link   |
| The final as follows:   |   |
| Advance   |   |

| Advance  |                            |
|--|----------------------------|
| WRITEO_[3]     Self Property     READ0_[1]     READ0_[2] | Unit Name<br>Unit Property |

(3) Placing two "digital input" unit<sup>23</sup>, one "lamp" <sup>(2)</sup>, three "text" on the screen. Modify the two "digital input" unit's property. point separately to PSW300 and PSW301. "Lamp" is PSB300. After the completion of the following diagram:



(4)Trough "offline simulation" to observe the effects, as follows:



When the date of PSW300 is larger than the date of PSW301, PSB300 will be in ON state

## 4.2.12 Edge л

**Overview:** And the "Read" or other components used with together, take the number of rising or falling edge operation.

Example: Set M10 When the falling edge of coil M0

Step1: Place a "read" **王** , one "write" **王** , one edge **n** on the screen, as follows:

| · | · | ·  | ·  | ·  | · | ·          | · | · | · | · | ·  | · | · | • | · | · |
|---|---|----|----|----|---|------------|---|---|---|---|----|---|---|---|---|---|
| · | · |    | ·  | ·  | · | ·          | - | _ | - |   | •• | · | · | • |   |   |
| · | · | •  | ·  | ·  | · | ·          | E | d | g | е | Ŀ  | · | · | • | • |   |
|   | • | ĪF | ŀ  |    |   |            | • | · |   | ÷ | ۰. |   |   |   |   |   |
|   | . |    | ]. |    |   | ·          |   |   |   |   |    |   |   |   |   |   |
|   | · |    |    |    |   | ·          |   |   |   |   |    |   |   |   |   |   |
|   |   |    |    |    |   | ·          |   |   |   |   |    |   |   |   |   |   |
|   |   |    | _  |    | _ | <b>1</b> . |   |   | F |   |    | _ |   |   |   |   |
|   |   | ÷  | ŧ٤ | :A | D | Ľ.         |   |   | Ŋ | M | н  | н | Ē |   |   |   |
|   |   |    | ·  | '  | • | ۰.         |   |   |   |   | ÷  | · | - |   |   |   |
|   |   |    |    |    |   |            |   |   |   |   |    |   |   |   |   |   |
|   |   |    |    |    |   |            |   |   |   |   |    |   |   |   |   |   |
|   |   |    |    |    |   |            |   |   |   |   |    |   |   |   |   |   |

Step2: Double-click "Read" component **T**, object point to M0

| Read   |
|--|
| Object Position                                      |
| Type<br>Unit Type Bit                                |
| Station<br>Device PLC Port 💌<br>VirStaND 0 Station 1 |
| Object<br>Object M V O<br>Indirect                   |
| Data<br>Data Type Bit                                |
| 确定 取消 应用 ( <u>A</u> )                                |

Step3: Double-click "Write" component **E** , object pointed to M10,set data as 1.

| Vrite 🔀               |
|-----------------------|
| Object Position       |
| Type<br>Unit Type Bit |
| Station               |
| Device PLC Port       |
| VirStaNO 0 Station 1  |
| Object                |
| Object M 10           |
| Indirect              |
| Data                  |
| Data Type Bit         |
| Set Data 1            |
|                       |
| 确定 取消 应用 (A)          |

Step4: Double-click "Edge" component  $\Pi$ , pop-up the following box, select "type" as "Descend".

| Edge          |         |    | X     |
|---------------|---------|----|-------|
| Edge H        | osition |    |       |
| <u>Т</u> уре  | Descend |    |       |
| <u>V</u> alue | 0       |    |       |
|               |         |    |       |
|               |         |    |       |
|               | 确定      | 取消 | 应用(A) |

Step5: "Operand" of Edge property contain "read"

| Advance                                  |               |
|--|---------------|
| Edge 0_(0)<br>Self Property<br>Operand   | Unit Name     |
| i⊟⊷ Contain Unit<br>i∄⊶ <b>READ0_(1)</b> | Unit Property |

Step6: "If" component's "current value" property contain Edge unit.

| Advance  |                            |
|--|----------------------------|
| <ul> <li>□- IFO_(2)</li> <li>□- Self Property</li> <li>□- Top-Left Horizon</li> <li>□- Top-Left Vertical</li> <li>□- Bottom-Right Horizon</li> <li>□- Bottom-Right Vertical</li> <li>□- Current Value</li> <li>□- Contain Unit</li> <li>□- Edge 0_(0)</li> </ul> | Unit Name<br>Unit Property |

Step7: WRITE component insert into IF component

| <b>Advance</b>  |                            |
|---|----------------------------|
| <ul> <li>FO_(1)</li> <li>Contain Unit</li> <li>Edge 0_(2)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Value</li> <li>Self Unit</li> <li>WRITE0_(0)</li> </ul> | Unit Name<br>Unit Property |
|   | ОК                         |
|   | Cancel                     |

Step 8: place one indicator button and a lamp on the screen , modify the property of the two parts, To indicator button, point object to M0, select "button operate" as "On instant", To lamp, point object to M10. As follows:

| · | ł  |    | 1 |   |     | ų, | 4   | · | · | · | · | · | ·  | · | · | · | · | · | · | · | · | · | · | н   | k  |   |   | 1 | kz |   |
|---|----|----|---|---|-----|----|-----|---|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|-----|----|---|---|---|----|---|
|   |    | 11 |   |   |     |    | ۱÷. |   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   | 12  | 1  |   |   | 2 | Ŀ. |   |
|   |    |    |   |   |     |    | Ŀ   | · | · | · | · | · | F  |   | - |   | - | • | · | · | · | · |   | 1   | Г. | 1 |   | 3 | Λ  |   |
| • |    |    |   |   |     |    | Γ., | • | · | • | • | • | -N | Y | к | H | Ē | • | • | · | · | · | • | U   |    |   |   |   |    | - |
|   |    | ۰. |   |   |     | ,  |     |   |   |   |   |   |    |   |   |   | - |   |   |   |   |   |   | -10 |    |   |   | ┛ |    |   |
|   | .h | 41 | - | - | ΞţŔ | 21 |     |   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   | ю   |    |   |   | 0 | i. |   |
|   |    |    |   |   |     |    |     |   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |     |    |   |   |   |    |   |
| · |    | ·  | · | · | ·   | ·  | ·   | · | · | · | · | · | ·  | · | · | · | · | · | · | · | · | · | · | ·   | ·  | · | · | · | ·  | · |
| • | ·  | ·  | · | · | ·   | ·  | ·   | · | · | · | · | · | ·  | • | • | • | · | • | · | · | · | · | · | ·   | ·  | · | · | · | ·  |   |

Step9: Please download the project to the touch screen, run in the touch screen, observing the effect of operations. Click the indicator button, when indicator button in the releasing state, the lamp will be light.

# 4.2.13 Window

### • Overview

In practice application, Window components are very widely used, such as pop-up reminder, alarm information, password screen, etc. Users typically use call window, window button, function button or functional field of software base components to achieve, but it is not flexible, so we can use touch screen advanced command to realize, this section will introduce the advanced part window.

#### **Property Description:**

(1)Place component

Open the touch screen software, create a new project, place one window element on the

screen .as Follows:

| • | • | • | • | •  | •  | • | • | • | • | • | • | • | • | • | • | • | • | • | • |
|---|---|---|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| · | • | · | • | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · | • | · |
| · | · | · | · | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| · |   | · |   | ·  | ·  | · | · | · | · | · | · | · | · | · | · |   | · |   |   |
| · | · | · | : | Γv | Vi | ņ | Ł | · |   | · |   | · | · |   |   |   |   |   |   |
| · | · | • |   | ι. |    | _ | T | · | • | · | · | • | · | · | · | · | · | · | · |
| · | · | · |   | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · |   | · |
|   |   |   |   |    | ·  |   |   |   |   | • |   |   |   |   |   |   |   |   |   |
| · | · |   | · |    | ·  | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
|   | · |   | · |    | ·  | · | · | · | • | · | • |   | · | · | · | · | · | · |   |
| · | · | · | · | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| · | · | · | · | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · | · | · |
| · | · | · | · | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | · | · |   |
| • | · | · | · | ·  | ·  | · |   | · | · | · | · | · | · | · | · | · | · | · |   |
| · | · |   | · |    | ·  |   |   | • | • | · | · |   | • |   |   |   | • |   | • |

(2)General Property Description:

1.Double-click the Win components to open the Property window, as follows:

|                                       | : : :            |  |            |
|---------------------------------------|------------------|--|------------|
| · · · · · ·                           | · · · ·          | Tindo <del>v</del> X                                 | · ·        |
| . <b>¦₩j</b> r                        |                  | Window Position                                      | · ·<br>· · |
| · · · · · ·                           | · · · ·<br>· · · | Window ID  | · ·<br>· · |
| · · · · · ·                           | · · · ·          | Act Open 💌   | · ·        |
|                                       |                  | Mode   |            |
|                                       |                  | ○ <u>H</u> ide ⊙ <u>S</u> how ○ <u>I</u> ndependence |            |
|                                       |                  |  |            |
| · · · · · ·                           |                  | <b>确定 取消</b> 应用 ( <u>k</u> )                         | · · ·      |
| · · · · · · · · · · · · · · · · · · · |                  |  | •          |

| Property Name | Description  |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|--|
| Window ID     | The window to perform operations serial number, users can enter the Window |  |  |  |  |  |  |
|               | number based on needed   |  |  |  |  |  |  |
| Action type   | the specified action to the specified window ,The default action type is   |  |  |  |  |  |  |
|               | window open <sup>Open</sup> , Click the small arrow button on the          |  |  |  |  |  |  |
|               | - Open   |  |  |  |  |  |  |
|               | right side , in the drop-down dialog box                                   |  |  |  |  |  |  |
|               | three action types: window open, window closed, window state               |  |  |  |  |  |  |

| Mode | Display Mode: hide, show, Independent  |  |  |  |  |  |  |  |
|------|--|--|--|--|--|--|--|--|
|      | • Hi de Although the window is opened, but it is not visible;                  |  |  |  |  |  |  |  |
|      | • Show The window is opened, and can be seen;                                  |  |  |  |  |  |  |  |
|      | • Independence Window is opened, but can be seen as an independent form.       |  |  |  |  |  |  |  |
|      | Note: Only action type is set as open, display mode in order to be actionable. |  |  |  |  |  |  |  |

| · · · · · · · · · · · ·               | Tindo <b>v</b> 🔀 |
|---------------------------------------|------------------|
| ¦₩ini                                 | Window Position  |
|                                       | Position         |
|                                       | <u>100</u>       |
|                                       | 🔽 Lock 🔽 Visible |
| · · · · · · · · · · · · · · · · · · · | 确定 取消 应用 (A)     |

| Property Name | Description   |  |  |  |  |  |  |
|---------------|---|--|--|--|--|--|--|
| Position      | It is a coordinate point, that is, upper left corner of the window location, position: X and Y                                  |  |  |  |  |  |  |
|               | X :X point<br>Y :Y point  |  |  |  |  |  |  |
| Lock          | Used to Fixed window position, avoid component being easily moved during operation. Select the locked position, or do not lock. |  |  |  |  |  |  |
| Visible       | Whether the window component Placed on the screen is visible, select component visible or not visible.                          |  |  |  |  |  |  |

(3) advanced property

Right click win component, in the pop-up dialog box, select advanced, as the left diagram, the advanced property dialog box shown as the right diagram.



### • Routine

Win component usually used with key, nop, if, switch and read components. Using win open or win closed, in this example, through the combination of key, nop, win components to achieve win open and win closed

Step1: Create a project, place parts on the screen

Create a new project, put two rectangle parts  $\Box$  on the screen, the color of rectangle 1 is red, size is 50\*30, the color of rectangle 2 is green, size is 50\*30, as follows:



1.Double-click key component, open the Property dialog box, set <sup>Width</sup> as 50. Set <sup>Height</sup> as 30, as follows:

| Key               |           |          | ×      |
|-------------------|-----------|----------|--------|
| Key Position      | .]        |          |        |
|                   |           |          |        |
| <u>K</u> ind      | Touch Key | -        |        |
| Touch-            |           |          |        |
| <u>W</u> idth     |           | 50       |        |
| <u>H</u> eight    |           | 30       |        |
|                   |           |          |        |
| Eetting           |           |          |        |
| <u>C</u> ode (0x) |           | <b>—</b> |        |
|                   |           |          |        |
|                   |           |          |        |
|                   | 确定        | 取消       | 应用 (A) |

2.2.Double-click win component, in the window option, set

| Window ID as 1, set      | Act | as | Open      |   | ▼,set | -Mode    | as    | Show , | , i | in |
|--------------------------|-----|----|-----------|---|-------|----------|-------|--------|-----|----|
| the position option, set | x   | as | 200 , set | Y | 200   | , as fol | lows: |        |     |    |

| Tindov  | ×           |
|---|-------------|
| Window Position                                     |             |
| Window ID 1   |             |
| Act Open  |             |
| Mode<br>C <u>H</u> ide ⊙Show C <u>I</u> ndependence |             |
|   |             |
| 确定 取消应用   | <u>(A</u> ) |

| Tindov                                   | ×            |
|--|--------------|
| Window Position                          |              |
| Position<br><u>X</u> 200<br><u>Y</u> 200 |              |
| 🗖 Lock 🔽 Yisible                         |              |
| 确定 取消 应用                                 | ( <u>A</u> ) |

Step3: advanced operations-open window



2.Right-click the select area, in the pop-up menu, select advanced, the advanced dialog box shown below:

| Rectangle0_(0)     Rectangle0_(1)     Rectangle0_(1)     Rectangle0_(2)     NOP0_(3)     Win 0_(4)     Win 0_(4) | Insert Unit<br>Unit Name<br>Unit Property |
|--|---|
| 2. Select Rectangle0_(0), Click the right  | button Insert Unit in the                 |

dialog box, the button will be grayed-out non-operational status, while text changed into "affirm insert", as follows:



insertion of  $\mathbb{P}$ -Rectangle0\_(1)  $(NOP0_{3})$ , and  $\mathbb{W}$  in  $\overline{O}_{4}$ , The final screen as shown below:

| E         Key0_(2)           ⊕         Self Property           ⊕         Self Unit           ⊕         Rectangle0_(0)           ⊕         Rectangle0_(1)           ⊕         NOP0_(3)           ⊕         Win 0_(4) | Unit Name<br>Unit Property |
|---|----------------------------|

5. Finally click "OK" button to complete the advanced operations, the final screen as shown below:



Step4: advanced operations-close window

1. Copy the part which made in the step 3, then paste one time, as follows:

| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | · | · |
|---|---|---|---|---|----|---|---|----|----|---|----|----|---|---|---|---|---|
| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | · | · |
| · | · | · | · | · | ·  | · |   | ·  | ·  | · | ·  | ·  | · | · | · | • | · |
| · | · | · | · | · |    |   |   |    |    | ł | 1  | Ľ. | · | · | · | · | · |
| · | · | · | · | · |    | Г |   |    |    |   | ľ  | ·  | · | · | · | · | • |
| • | · | · | · | · |    |   |   |    |    |   | ŀ  | Ľ. | • | · | · | • | • |
| • | · | · | · | · |    |   |   |    |    |   | ŀ  | ·  | • | · | · | • | • |
| · | · | · | · | · | ÷. | Ē | · | ÷. | Ľ. | • | ۰. | Ľ. | · | · | · | • | • |
| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | • | · |
| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | · | · |
| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | · | · |
| · | · | · | · | · | ·  | · | · | ·  | ·  | · | ·  | ·  | · | · | · | • | • |

2. Right-click the paste part , in the popup menu selecting "advanced" , then will pop-up the following dialog box , as follows :

| - Advance |                            |
|-----------|----------------------------|
|           | Unit Name<br>Unit Property |

3. Select **Win 0** [4], click the right button Unit Property , pop-up the following dialog box, as follows :

| Tindov            | ×   |
|-------------------|---|
| Window Pos        | sition  |
| Window <u>I</u> D |   |
| <u>A</u> ct       | Open 💌  |
| -Mode             |   |
| ○ <u>H</u> ide    | ⊙ Show ○ Independence                                   |
|                   |   |
|                   | 确定 取消 应用 (法)  |
|                   |   |
| Act as            | Close , Other parameters remain the default , then clic |

4.

86

button . drag the close window Button to the appropriate location, as follows:



Step5: Create a window in the engineering column.

1. Open the software engineering field below the window list, and then right-click the window, as follows:



2. Click "insert" button, pop-up the following dialog box:

| Tindow          |          |                | X              |
|-----------------|----------|----------------|----------------|
| ĪD              | 1        | <u>W</u> idth  | 160            |
| <u>N</u> ame    | Window1  | <u>H</u> eight | 120            |
| <u>M</u> essage |          |                |                |
| Frame           | Single 💌 | Back Colo      | · 📃 🗖          |
| <u>_</u> К      |          |                | <u>C</u> ancel |

3.click "Ok" button, The window screen has been established, as follows :

| - A Project          | Screenl   |
|----------------------|-----------|
| + C Screen           |           |
| ⊡ Window             | Tindow1   |
| 1: Window1           |           |
| 60001: Commu NG Wi   |           |
| 60003: password op   |           |
| 60004: password cl   |           |
| 60005: password NG   |           |
| 🔣 60009: password Le |           |
|                      |           |
|                      |           |
|                      |           |
|                      | • • • • • |
| 60007: KevBoard As   |           |
|                      |           |
|                      |           |
|                      |           |



|    | Tindo <del>v</del> 1 |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
|----|----------------------|---|-----|---|---|---------------------------|------|---|---|---|---|---|---|---|---|
| Г  |                      | • | •   |   |   |                           | •    |   | • |   | • | • | • | • |   |
| Ł  | ·                    | · | ·   | · | · | ·                         | ·    | · | · | · | · | · | · | · | · |
| ŀ  | ·                    | · | ·   | · | · | ·                         | ·    | · | · | · | · | · | · | · | · |
| ŀ  | ·                    | · | ۰   |   |   | •                         | _    | ď | ÷ | · | · | · | · | · | · |
| ŀ  | ·                    | · | •   |   |   | pe                        | - +- |   |   | · | · | · | · | · |   |
| ŀ  | ·                    |   | · 1 | 1 | 4 | $\mathbf{h}_{\mathbf{c}}$ | - 11 | ľ |   |   |   |   |   |   |   |
| ŀ  | ·                    |   | ۰   | ÷ | ÷ |                           | •    |   | • |   |   |   |   |   |   |
| ŀ  |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
| ŀ  |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
| ŀ  |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
| ŀ  |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
| Ļ. |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |
| L  |                      |   |     |   |   |                           |      |   |   |   |   |   |   |   |   |

5. Double-click it to open the property dialog box , as shown below :

| Tindow Button   |
|---|
| Operate Button Color Position   |
| <u>Current Window</u><br><u>W</u> indow ID 1                            |
| Function<br>Type Open Window 💌  |
| ○ Hi de ⊙ Show  |
| Position  |
| X: 35   |
| ¥: 30   |
|   |
| -Function-  |
| 6. Set <u>Window ID</u> as 1, select <u>Type</u> as <u>Close Window</u> |

| Tindow Butto                         | n.                 |
|--------------------------------------|--------------------|
| Operate But                          | ton Color Position |
| <u>C</u> urrent<br><u>W</u> indow ID | Window             |
|                                      |                    |
| -Function-<br><u>T</u> ype           | Close Window       |
|                                      | C Hi de 🛞 Show     |
| -Position-                           |                    |
| X :                                  | 35                 |
| ¥:                                   | 30                 |
|                                      |                    |
|                                      |                    |

7. Select <sup>Button</sup> option, In the text editing area, enter the following text:

| ✓ Use Text<br>Cont <u>e</u> nt | close window 1 | À |
|--------------------------------|----------------|---|
| Font                           |                | ~ |

8. Select Position option, set <u>Width</u> as 100, set <u>Height</u> as 30, as shown below:

| -Size          |     |
|----------------|-----|
| <u>W</u> idth  | 100 |
| <u>H</u> eight | 30  |

- 9. .Click "OK" button to finish the setting.
- 10. Trough "offline simulation" to observe the effects



Note: click 1) to open window, click 23 to close window

# 4.2.14 Date

### • Overview

Match with Write and other components, as the assignment of a data carrier

• Routine: When set on the coil M0, the value 100 is assigned to D0

**Step1:** Put one" IF", one "Read", one "write" and one "Data" on the screen, as follows:

|                 | • • | • • | • • | • • | ·   |             |
|-----------------|-----|-----|-----|-----|-----|-------------|
| · · • • • • •   |     |     |     |     |     |             |
| i i 📊           | • • | • • | R   | ΔĒ  | ī.  |             |
| · · · · - · - · | • • | • • |     | -0  | 1.  | • •         |
|                 |     |     |     |     |     |             |
|                 |     | • • | • • |     | •   |             |
|                 |     | • • | • • |     |     |             |
|                 |     |     |     |     |     |             |
| ∵₩Ri            | TE  | • • | • • | D٤  | ita | -<br>-<br>- |
|                 |     | • • | • • |     |     | ы ·         |
|                 | • • | • • |     | • • | ·   |             |
|                 | • • | • • | • • | • • | ·   | • •         |
|                 |     |     |     |     |     |             |

**Step2:** Double-click D component, open the Properties dialog box, set data value as 100. as follows:

| Data           |        |    |        |
|----------------|--------|----|--------|
| Data Po        | sition |    |        |
| <u>F</u> ormat | Dec 💌  | [  |        |
| <u>V</u> alue  | 100    |    |        |
|                |        |    |        |
|                |        |    |        |
|                | 确定     | 取消 | 应用 (A) |

**Step3:** Double-click "write" component, here the modify type is register. Object is D0. As shown below:

| Vrite 🔀                      |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register 💌 |
| Station                      |
| VirStaN0 0 Station 1         |
|                              |
| Object                       |
| Object D V O                 |
| Indirect                     |
| Data                         |
| Data Type Word 💌             |
| Set Data                     |
|                              |
| 确定 取消 应用 (A)                 |

Step4: "Input value" of "write" property contain "Data"



Step5: If component's "current value" property contain "read" component

| Advance   |                            |
|---|----------------------------|
| <ul> <li>□ FO_(0)</li> <li>□ Self Property</li> <li>□ Top-Left Horizon</li> <li>□ Top-Left Vertical</li> <li>□ Bottom-Right Horizon</li> <li>□ Bottom-Right Vertical</li> <li>□ Current Value</li> <li>□ Contain Unit</li> <li>□ READ0_(1)</li> </ul> | Unit Name<br>Unit Property |

Step6: Insert "Write" component into "IF"

| Advance   |               |  |  |  |  |  |  |
|---|---------------|--|--|--|--|--|--|
| ⊡- <b>IF0_(2)</b><br>⊟- Contain Unit<br><b>⊡</b> - <b>READ0_(3)</b> | Delete Unit   |  |  |  |  |  |  |
| ⊡ - Self Property<br>- Self Unit<br>- WRITE0_(0)                    | Unit Name     |  |  |  |  |  |  |
|   | Unit Property |  |  |  |  |  |  |

Step7: placing one "indicator button" 🥥 and one "Digital display" 🎟 on the screen, modify

the property of the two parts, To indicator button, point object to M0, select "button operate" as "On instant", To "Digital display", point object to D0. as follows:

|   |   | •   | •    | • | • | •  | •  | • | • | • | •   | • | • | •  |    |   | • | • | • | • | • | • | • | •   | •   | •   | •  | •  | • | • | • |   |
|---|---|-----|------|---|---|----|----|---|---|---|-----|---|---|----|----|---|---|---|---|---|---|---|---|-----|-----|-----|----|----|---|---|---|---|
| • | • | •   | •    | • | • | •  | •  | • | · | · | •   | · | · | •  | ·  | · | · | • | • | • | · | · | • | •   | •   | •   | •  | •  | • | • | • | • |
|   |   |     |      |   |   |    |    |   |   |   |     |   |   |    | ·  |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   | • | Ŀ   | 1    | - |   |    | M  | · | · | · | ·   | · | · | ·  | ·  | · | · | · | · | · | · | · | · | ·   | ·   | ·   | ·  | ·  | · | • | · | · |
|   | • |     |      |   |   |    | L. | · | · | · | ·   | · | · | ·  | ·  | · | · | · | · | · | · |   |   |     |     |     |    |    |   | • | • |   |
|   |   |     |      |   |   |    |    | · | · | · | ·   | · | · | ·  | ·  | · | · | · | · | · | · | ł | P | 4   | ar  | ać  | ar | 41 |   |   | · | · |
| • | • |     | Δ.   |   |   |    | ,  | · | · | · | . ! | 5 | Æ | ۶Ē | TF | - | · | · | · | · | · |   | ۲ | 316 | 316 | 316 | 36 |    |   | · | · | · |
| • | • | . 1 | •    |   |   |    |    |   |   |   | •   |   |   |    |    |   | • |   |   |   |   |   |   | ÷   | ÷   | ÷   | ÷  | ÷  |   | • | • | • |
|   |   | -N- | 41,7 |   | 1 | īγ | н. |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   |   |     |      |   |   |    |    |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   |   |     |      |   |   |    |    |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   |   |     |      |   |   |    |    |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   |   |     |      |   |   |    |    |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   |   |   |   |
|   |   | -   | -    | - |   |    |    |   |   |   |     |   |   |    |    |   |   |   |   |   |   |   |   |     |     |     |    |    |   | - | - |   |

Step8: When press on the indicator button, the Digital display will display 100.

## 4.2.15 Conversion

**Overview:** Performing operations with Write and Read components. Can convert the data format and size

Example 1: Convert the float data of D0,D1 into a decimal data and stored in D2,D3

Step1: Placing one "read" **a**, one "write" **a**nd one "convert" **a** components on the screen, as follows:



**Step2:** Double click "conversion" part, in the pop-up list, set source format as "Float", set result format as "Dec", ensure the upper and lower limit of data source and result keeping the same.

| Conversion         |                   |             | × |
|--------------------|-------------------|-------------|---|
| Transform Position |                   |             |   |
| Source             | Resul             | 1t          |   |
| Format Float       | ▼ F <u>o</u> rm   | nat Dec 💌   |   |
| Max 1000           | 0000 M <u>a</u> x | 1000000     |   |
| M <u>i</u> n       | 0 Min             | 0           |   |
| Operand            | 0                 |             |   |
|                    |                   |             |   |
|                    | 确定                | 取消   应用 (A) |   |

**Step3:** Double-click the "Read" component, here the modify type is register, object is D0 and data type is DWORD.

| Read 🔀  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register ▼                    |
| Station<br>Device PLC Port VirStaNO 0 Station 1 |
| Object<br>Object D V O<br>Indirect              |
| Data<br>Data Type DW/ord                        |
|   |

Step4: "source value" of convert property contain "read" component.

| <b>Advance</b>   |                            |  |  |  |  |  |  |  |
|--|----------------------------|--|--|--|--|--|--|--|
| Convert 0_(0)  Convert 0_(0)  Self Property  Min Source Value Min Source Value Min Target Value Max Target Value Contain Unit  READ0 (1) | Unit Name<br>Unit Property |  |  |  |  |  |  |  |

**Step5:** Double-click the "Write" component, here the modify type is register, object is D2 and data type is DWORD.

| Vrite 🛛 🔀                                       |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaNO 0 Station 1 |
| Object<br>Object D 2<br>Indirect                |
| Data<br>Data Type Word V<br>Set Data            |
|   |

Step6: "Input value" of Write property contain "convert" component

| value" of Write property conta     | ain "convert" component |
|------------------------------------|-------------------------|
| <b>Advance</b>                     |                         |
|                                    |                         |
| ie Self Property<br>⊡⊂Contain Unit | Unit Name               |
| En Convert 0 (1)                   | 1                       |
| ()                                 | Unit Property           |
|                                    |                         |

Step7: Put one "digital input" and one "digital display" on the screen, To "digital input", the modify type is register, object is D0, data type is DWORD and data format is "Float", in the "Bit length" set "float" as 2. To "digital display", the modify type is register, object is D2, data type is DWORD and data format is "Dec"

| The Float                    | : | : | : | : |       | : | : |      | : |      | :  | : |     | : | : | : | : | : | : | : | : | · ·      |
|------------------------------|---|---|---|---|-------|---|---|------|---|------|----|---|-----|---|---|---|---|---|---|---|---|----------|
| need to convert              |   | : | : | • | · ·   |   | M | ØØ   | Ø | ."e  | 90 | H | 4   | : | : | : | : | : | : | : | : | · ·      |
|                              | • | • | • | • | <br>  | • | • | <br> | : | <br> | •  | • | · · | : | : | : | : | Į | Y | Ŗ | Ţ | E .      |
| · · · Des data · · ·         |   |   |   |   |       |   |   |      |   |      |    |   |     |   |   |   |   |   |   |   |   |          |
| Dec data                     | ÷ | : | : | : | : :   | ė |   |      |   |      |    |   |     | ÷ | ÷ | • | : | ÷ | ÷ | ÷ | : | •••      |
| Dec data<br>after conversion |   |   |   | • | · · · | H | M | -0   | Ø | 20   | Ø  | H |     |   |   | • |   |   |   |   |   | <br><br> |

Step8: Trough "offline simulation" to observe the effects, enter "float data" in the Floating-point input box, immediately the Dec display box will display the converted Dec data .as follows:



**Example 2:** The data range from 0 to 1000 stored in the D0 converted into the data range from 0 to 100, and stored in D2.

| Step1: Pla   | cing one | "read" | ₹, one | "write"          | <b>E</b> and | one "convert" | 🗰 compo | nents on the |
|--------------|----------|--------|--------|------------------|--------------|---------------|---------|--------------|
| screen, as f | ollows:  |        |        |                  |              |               |         |              |
|              |          |        |        |                  |              |               |         |              |
|              |          |        |        |                  |              |               |         |              |
|              |          |        |        | · · · · <u>·</u> | <u> </u>     |               |         |              |
|              |          | Conv   | ert ]  | :::: <b>R</b>    | EAD          |               |         |              |
|              |          |        |        |                  |              |               |         |              |
|              |          |        |        |                  |              |               |         |              |
|              |          |        |        |                  |              |               |         |              |
|              |          |        |        |                  |              |               |         |              |

**Step2:** Double click "conversion" part, in the pop-up list, set source format and result format as "Dec", To "source", the upper limit is 1000, the lower limit is 0, To "result", the upper limit is 100, the lower limit is 0.

WRITE

| Cor | nversion        |         |      |   |                 |     |       | × |
|-----|-----------------|---------|------|---|-----------------|-----|-------|---|
| T   | ansform P       | osition |      |   |                 |     |       |   |
|     | Source          |         |      | 1 | Result          |     |       |   |
|     | <u>F</u> ormat  | Dec     | •    |   | F <u>o</u> rmat | Dec | •     |   |
|     | Max             |         | 1000 |   | M <u>a</u> x    |     | 100   |   |
|     | M <u>i</u> n    |         | 0    |   | Mi <u>n</u>     |     | 0     |   |
|     | <u>O</u> perand |         | 0    |   |                 |     |       |   |
|     |                 |         |      |   |                 |     |       |   |
|     |                 |         | 确定   |   | 即               | 消   | 应用(A) |   |

**Step3:** Double-click the "Read" component, here the modify type is register, object is D0 and data type is WORD.

| Read                         |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register 💌 |
| Station                      |
| Device PLC Port              |
| VirStaND 0 Station 1         |
| Object                       |
| Object D 💌 0                 |
| Indirect                     |
| Data                         |
| Data Type Word 💌             |
|                              |
| 确定 取消 应用(A)                  |

**Step4:** "Source value" of convert component property contain "read" component.

| <b>Advance</b>  |                            |
|---|----------------------------|
| Convert 0_(0)  Convert 0_(0)  Self Property  Min Source Value Min Source Value Min Target Value Max Target Value  Contain Unit  READ0_(1) | Unit Name<br>Unit Property |

**Step5:** Double-click the "Write" component, here the modify type is register, object is D2 and data type is WORD.

| Vrite                        | × |
|------------------------------|---|
| Object Position              |   |
| Type<br>Unit Type Register ▼ |   |
| Station                      |   |
| Device PLC Port -            |   |
| VirStaNO 0 Station 1         |   |
| Object                       |   |
| Object D 2                   |   |
| 🔲 Indirect                   |   |
| Data                         |   |
| Data Type Word 💌             |   |
| Set Data                     |   |
|                              |   |
| 确定 取消 应用 (A)                 |   |

Step6: "Input value" of Write component property contain "convert" component

| <b>Advance</b>                                    |               |  |  |  |  |  |
|---|---------------|--|--|--|--|--|
| WRITE0_(0)     ⊕ Self Property     ⊖ Contain Unit | Unit Name     |  |  |  |  |  |
| ⊡ Convert 0_(1)                                   | Unit Property |  |  |  |  |  |

**Step7:** Put one "digital input" and one "digital display" on the screen, To "digital input", the modify type is register, object is D0, data type is WORD and data format is "Dec". To "digital display", the modify type is register, object is D2, data type is WORD and data format is "Dec"

|   |     |   | - |   |   | - |   |           |     | -         | -  | - | - | - | - | -  | -  | -  | - |
|---|-----|---|---|---|---|---|---|-----------|-----|-----------|----|---|---|---|---|----|----|----|---|
|   | ·   | · | · | · | · | · | · | ·         | ·   | ·         | ·  | · | · | · | · | •  | ·  | ·  | · |
| The later that the second s | ·   | · | · | · | · | · | · | ·         | ·   | ·         | ·  | · | · | · | · | ·  | ·  | ·  | · |
| ···· Ine date   | ·   | · | · | · | · | · | · | 1         |     |           |    |   |   |   |   |    |    | 6  | · |
| ••••••••••••••••••••••••••••••••••••••  | ;   | · | · | · | · | · | · | Н         |     | _         | Ø  | Ø | М | Ю | Ø | HI | М  | Ł  | · |
| The date<br>need to conver  | 1   | · | · | · | · | · | · |           |     |           | -  | - | - |   |   |    |    | Ł  | · |
|   | Ť   | · | · | · | · | · | · |           |     |           |    |   |   |   |   |    |    | ۰. | · |
|   | ·   | · | · | · | · | · | · | ·         | ·   | ·         | •  | • | · | • | • | •  | •  | ·  | · |
|   | ·   | • | · | • | • | · | · | Ð         | 1.7 | ini<br>ni | T  | - | · | • | • | •  | •  | ·  | · |
|   | ·   | • | · | • | • | · | · | Ľ         | Y   | н         | 11 | E | · | • | • | •  | •  | ·  | · |
| · · · · · · · · · · · · · · · · · · ·   | ·   | · | · | · | · | · | · | ·         | •   | •         | •  |   | • | • | • | •  | •  | •  | • |
| ····The data ···  | ·   | · | · | · | · | · | · | ÷         | ·   | ·         | ·  | · | · | · | · | ·  | ·  | ·  | · |
| <b></b>   | ·   | · | · | · | · | · | · | $\square$ | V   |           |    | Н | M |   | _ |    | Π. | ·  | · |
| a ft an la anna an la   | · · | · | · | · | · | · | · | 1         |     | -         | Ø  | Ø | Ø | Ø | Ø |    |    | •  | • |
| The data<br>after conversion  | ÷   | · | · | · | · | · | · |           |     |           |    |   |   |   |   |    |    | ·  | · |
|   | ·   | · | · | · | · | · | · | ·         | ·   | ·         | ·  | · | · | · | • | •  | ·  | ·  | · |
|   |     |   |   |   |   | · | · |           |     |           |    |   |   |   |   |    | •  | •  |   |

**Step8:** Trough "offline simulation" to observe the effects, enter "800" in the input box, immediately the display box will display the converted data "80". As follows:



## 4.2.16 Range check FW

•Overview: Used with "read" unit, Check whether the range of data overrun and to implement the corresponding action.

Example: Check the data of D0, when its value is more than 100, set M0, otherwise reset M0.

**Step1:** Placing one "IF", one "read" <sup>▲</sup>, two "write" <sup>▲</sup> and one "range check" <sup>₩</sup> components on the screen, as follows:



**Step2:** Double-click "range check" component, set Max value to 100 and set Min value to 0. as shown below:

| Range                                       | ×                                       |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|
| Object Position                             |   |  |  |  |  |  |  |
| Data<br>Value 0                             | Max<br>Check<br>Value<br>100            |  |  |  |  |  |  |
| Format<br>© Dec O Hex<br>O Float O Unsigned | Min<br>Chec <u>k</u><br>Valu <u>e</u> 0 |  |  |  |  |  |  |
|   |   |  |  |  |  |  |  |

Step3: Double-click the "Read" component, here the modify type is register, object is D0.

| Read  |        |
|---|--------|
| Object Position                               |        |
| Type<br>Unit Type Register                    |        |
| Station<br>Device PLC Port VirStaNO 0 Station | 1      |
| Object<br>Object D V O<br>Indirect            |        |
| Data<br>Data Type Word                        |        |
| 确定 取消   | 应用 (A) |

**Step4:** "Checking value" of "Range check" component property contain "read" component.



**Step5:** Double-click one "Write" component, here the modify type is bit, object is M0, "set data" is 1.

| Vrite 🔀               |
|-----------------------|
| Object Position       |
| Type<br>Unit Type Bit |
| Station               |
| Device PLC Port -     |
| VirStaND 0 Station 1  |
| Object                |
| Object M 🔽 0          |
| Indirect              |
| Data                  |
| Data Type Bit 💌       |
| Set Data 1            |
|                       |
| 确定 取消 应用 (A)          |

To the "write" component execute "insert unit" operation, as shown below:

| Advance  |               |
|--|---------------|
| <mark>⊟ • IF0_(1)</mark><br>⊕ · Self Property<br>⊕ · Self Unit | Delete Unit   |
| ₩RITE0_(0)   | Unit Name     |
|  | Unit Property |

**Step6:** Double-click the other "Write" component, here the modify type is bit, object is M0, "set data" is 0.

| frite 🔀               |
|-----------------------|
| Object Position       |
| Type<br>Unit Type Bit |
| Station               |
| Device PLC Port       |
| VirStaNO 0 Station 1  |
| Object                |
| Object M 🔽 0          |
| T Indirect            |
| Data                  |
| Data Type Bit ▼       |
| Set Data 0            |
|                       |
| 确定 取消 应用 (A)          |

To the "write" component execute "insert unit" operation, as shown below:

| Advance                     |               |  |  |  |  |  |  |
|-----------------------------|---------------|--|--|--|--|--|--|
| ⊡- <mark>IF0_(1)</mark>     |               |  |  |  |  |  |  |
| ⊡ Self Unit<br>⊕ WRITE0 [2] | Unit Name     |  |  |  |  |  |  |
| WRITEO (0)                  |               |  |  |  |  |  |  |
| . Self Property             | Unit Property |  |  |  |  |  |  |
|                             |               |  |  |  |  |  |  |

Step7: "Current value" of IF component property contain "range check" component.



Step9: Put one "lamp" Component and one "digital input" 23 component on the screen,

To "lamp", point object to M0, To "digital input", point object to D0. as shown below:

| • |   | - |   |    |    |    | •  |    |   |   |   |   |   |   |   |   | - |     |   |   | -   |     |    | -  |    |   |   |   |   |
|---|---|---|---|----|----|----|----|----|---|---|---|---|---|---|---|---|---|-----|---|---|-----|-----|----|----|----|---|---|---|---|
|   | · | • | • | •  | ·  | ·  | ·  | ·  | · | · | · | • | • | • | • | • | • | •   | • | • | ·   | ·   | ·  | ·  | ·  | • | · | • | • |
|   | · | • | • | •  | •  | •  | •  | ·  | · | • | · | • | • | • | • | • | • | •   |   | • | ·   | ·   | ·  | •  | ·  | • | • | • | • |
|   | • | · | · | ·  | ·  | ·  | ·  | ·  | · | · |   | · |   | • | • | · | · | ·   |   | · | ·   | ·   | ·  | ·  | ·  | · |   | · | · |
|   | • | · | · | ·  | ·  | ·  | ·  | ·  | · | · |   | · |   |   | • | · | ÷ | ÷., | - | - | ÷., | ÷.  | ·  | ·  | ·  | · | • | · | · |
|   | • | - |   |    |    |    |    |    | - | · |   |   |   |   |   |   | Ð | 10  |   |   |     | M   | ·  |    |    |   |   |   |   |
|   | • | Ŀ | Ð | a  |    |    | Į۴ | 41 |   |   |   |   |   |   |   |   | 1 | ^   |   |   |     | Λ.  | ·  |    |    |   |   |   |   |
|   | • |   | 1 | 91 | 21 | 21 | 21 | 9  |   |   |   |   |   |   |   |   | 0 |     |   |   |     | 1   | ·  |    |    |   |   |   |   |
|   | • |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   | N |     |   |   |     | γ.  | ·  |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     | _ | _ |     | ۳.  |    |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   | M | 17  |   |   | M   | Π.  |    |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   |     |     |    |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   | .   | ١A. | 70 | ρī | TF | Ē |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   | .   |     |    | ų  | ŢE | - |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   |     |     |    |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   |     |     |    |    |    |   |   |   |   |
|   |   |   |   |    |    |    |    |    |   |   |   |   |   |   |   |   |   |     |   |   |     |     |    |    |    |   |   |   |   |

**Step9:** Download to the touch-screen, When the input data exceed 100, the indicator light will light, when the value is less than 100, the indicator light will OFF. The effect as shown below:



## 4.2.17 Key 🔳

### **Overview:**

This component is the main part to make buttons, performing operations with Write and other component.

Example: make button with yourself, reverse M0 on released state, the date of register D0 self plus one on pressed state, set M1 on releasing state, reset M1 on pressing state.

**Step1:** choose one key, two function filed, two write on the screen, and pulling the button to the touch size you need.

|     |    | :  | :  |   | : |   | : | : | : | : |   | : | : |   | : |     | : | Function Field          |
|-----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|-----|---|-------------------------|
| :   | Ķ  | ey | l, | : | : | : | : | : | : | : | : | : | : | : | : | Ľ   | : | · · · · · · · · · · · · |
|     | •  |    |    |   |   |   |   |   | · | · |   |   |   |   | · | Ι.  |   |                         |
| •   | •  |    |    |   |   |   |   |   |   | · |   |   |   |   | · | Ŀ   |   | Function Field          |
|     |    |    |    |   |   |   |   |   |   | · |   |   |   |   | · | ١.  |   | i <u>ancaoi</u> ti icia |
| •   | •  |    |    |   |   |   |   |   |   | · |   |   |   |   | · | ı÷  |   |                         |
| . I | ١. |    |    |   |   |   |   |   |   |   |   |   |   |   |   | ١.  |   |                         |
| • 1 | •  |    |    |   |   |   |   |   |   |   |   |   |   |   |   | ۰.  |   |                         |
| •   |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   | ·   |   | WRITE                   |
|     |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   | ١.  |   | . <del></del>           |
| •   |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   | I٠  |   |                         |
| . ' | ١. |    |    |   |   |   |   |   |   |   |   |   |   |   |   | ١.  |   |                         |
| I   |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |     |   | WDITE                   |
| .   |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   | I . |   | <u>mpul</u>             |
|     | -  |    |    |   |   | - |   |   |   |   |   |   | - |   |   | ۰.  |   |                         |

**Step2:** Use the rectangle, the text string composed of the following graphics, This will serve as a key shape (Note: You can also use beautifully produced picture), In order to facilitate distinction, Let us put these graphics from left to right named as graphic  $1_{1}$  graphic2, graphic3, graphic4.

| closed    | closed    |           | open      |
|-----------|-----------|-----------|-----------|
| graphic 1 | graphic 2 | graphic 3 | graphic 4 |

Step3: Double-click one of the function filed components, act mode select as "continue"

| Function Field             | ×     |
|----------------------------|-------|
| Mode Function Position     |       |
| Act Mode<br>© Start Screen |       |
| C Coil Spring              |       |
| C Time(Sec.) C Domtinue    |       |
| C First Scan After Down    |       |
| C First Scan After Power   |       |
| Time/Continue Coil Limit   |       |
|                            |       |
|                            |       |
| 确定                         | 立用(4) |

Step4: Adding function: reverse M0

| Function Field  | 1   |   | X      |
|---|---|---|--------|
| Mode Function Position<br>Function<br>Reverse Coil MO | <u>A</u> dd<br><u>Modify</u><br><u>D</u> elete<br>Move D <u>own</u><br>Move <u>Up</u> | Al<br>Set Coil<br>Reset Coil<br>Copy Coil<br>Screen Jump<br>Set Data<br>Copy Register<br>User Input<br>Open Window<br>Close Window<br>Down Scheme<br>Up Scheme<br>Data Block Tran<br>Arithmetic<br>Import CSV Data<br>Export CSV Data |        |
|   | 确定  |   | 应用 (A) |

**Step5:** After finishing function filed production, Because the operation of reverse M0 is carried out under released state of key, so the state of key should be closed, it should be a combination of function filed and graphic 1 into a component.

| Function Field |             |  |  |  |  |  |  |  |  |  |  |  |
|----------------|-------------|--|--|--|--|--|--|--|--|--|--|--|
| clo            | Property    |  |  |  |  |  |  |  |  |  |  |  |
|                | Group       |  |  |  |  |  |  |  |  |  |  |  |
|                | Lock        |  |  |  |  |  |  |  |  |  |  |  |
| ••••••         | Public Unit |  |  |  |  |  |  |  |  |  |  |  |
|                | System      |  |  |  |  |  |  |  |  |  |  |  |
|                | Cut         |  |  |  |  |  |  |  |  |  |  |  |
| grap           | Copy        |  |  |  |  |  |  |  |  |  |  |  |
|                | Delete      |  |  |  |  |  |  |  |  |  |  |  |
|                | Save        |  |  |  |  |  |  |  |  |  |  |  |
|                | Template    |  |  |  |  |  |  |  |  |  |  |  |
|                | Advance     |  |  |  |  |  |  |  |  |  |  |  |
|                | Optimistic  |  |  |  |  |  |  |  |  |  |  |  |
|                | Unlock All  |  |  |  |  |  |  |  |  |  |  |  |
| · · · · ·      | ONLOCK ALL  |  |  |  |  |  |  |  |  |  |  |  |

**Step6:** Double-click the other function filed component, act mode select as "continue", then adding function: arithmetic D0=D0+1

| Function Field  |                                       | ×  |
|---|---------------------------------------|--|
| Function Field<br>Mode Function Position<br>Function<br>Arithmetic<br>D0 = D0 + 0 | Add<br>Modify<br>Delete               | Al<br>Set Coil<br>Reset Coil<br>Reverse Coil<br>Copy Coil<br>Screen Jump<br>Set Data<br>Copy Register<br>User Input<br>Open Window |
|   | Move D <u>o</u> wn<br>Move <u>U</u> p | Close Window<br>Down Scheme<br>Up Scheme<br>Data Elock Transmit<br>Arithmetic<br>Import CSV Data<br>Export CSV Data                |
|   |                                       |  |

**Step7:** The operation of D0 self plus one is carried out under pressed state of key, so the state of key should be open, it should be a combination of function filed and graphic 3 into a component .

| Function | Property    |
|----------|-------------|
| 1 VI     | Group       |
|          | Lock        |
|          | Public Unit |
|          | System      |
|          | Cut         |
| graj     | Copy        |
|          | Delete      |
|          | Save        |
| ::::     | Template    |
|          | -           |
|          | Advance     |
|          | Optimistic  |
|          | Unlock All  |
|          | UNLOCK ALL  |

Step8: Double-click one of the "write" components, point object to M1, Set Date as 1.

| Jrit<br>Obj | ect Position                                    |
|-------------|---|
|             | Type<br>Unit Type Bit                           |
|             | Station<br>Device PLC Port VirStaND 0 Station 1 |
|             | Object M I Indirect                             |
|             | Data<br>Data Type Bit 💌<br>Set Data 1           |
|             |   |

**Step9:** The operation of Set M1 is carried out under pressing state of key, so the state of key should be open, it should be a combination of function filed and graphic 4 into a component.

| 1 | 2   | ū | 76 | รีเว |             |
|---|-----|---|----|------|-------------|
|   | 1   | ( | 5  | n    | Property    |
|   |     | 1 |    | ľ    | Group       |
|   |     |   |    |      | Lock        |
| - |     |   |    |      | Public Unit |
|   |     |   | •  |      | System      |
|   | :   | : | :  | :    |             |
|   |     |   |    |      | Cut         |
|   | 1   | ġ | Ľ  | aj   | Copy        |
| - | • ' | ÷ | -  | ſ    | Delete      |
|   | :   | : | :  |      | Save        |
|   |     |   |    |      | Save        |
|   | •   | • | •  | •    | Template    |
|   | :   | : | :  | :    | Advance     |
|   |     |   |    |      |             |
|   | -   | • | -  |      | Optimistic  |
| : | :   | : | :  | :    | Unlock All  |

Step10: Double-click the other" write" component , point object to M1, Set Date as 0

| Trite 🔀   |
|---|
| Object Position                                 |
| Unit Type Bit                                   |
| Station<br>Device PLC Port VirStaND 0 Station 1 |
| Object M I Indirect                             |
| Data<br>Data Type Bit<br>Set Data 0             |
|   |

**Step11:** The operation of reset M1 is carried out under releasing state of key, so the state of key should be closed, it should be a combination of function filed and graphic 2 into a component.

**Step12:** To the above four generated groups execute the insertion operation on the button, as the following diagram:



In the above diagram, you can see under the key's self unit shows just inserted four components ,up and down the relationship between them are fixed, respectively, from top to bottom represent the four kinds: released  $\$  pressed  $\$  releasing  $\$  pressing . Therefore different sequences represent button in the corresponding states will perform different actions. (Note: up or down through the component to change the sequence of state between the components) ,In addition, the number of components can not exceed 4, if necessary, in some key state to execute multiple functions, then these parts need to be combined into a group to execute insertion action. Finally, placing a M0 indicator light  $\$  M1 indicator light  $\$  D0 digital display on the screen , Download programs to the touch-screen.



When there is no pressed button, Since the released state carried out reverse M0, Therefore, the indicator light of M0 flashing all the time. When pressed the button, Button color from gray to green, and M1 of the indicator light, the date in input box is increasing, when release the button, the indicator of M1 will Off, the date in input box will stop increasing.



## 4.2.18 RTC set clock rtc

### • Overview:

(Year / month / day / hour / minutes / seconds) RTC component used with READ, the user can directly modify the Time of touch-screen.

•Routine: Through D0 to modify the month of touch screen

Step1: Put RTC and READ in the screen

| · 🕞   | -= |    | ; · | •        |   |   |   |   |   |
|-------|----|----|-----|----------|---|---|---|---|---|
| •   F | ₹Т | U. | .   | •        |   | • |   |   | · |
|       | •  | •  |     | •        | • | • | · | · | • |
|       | •  | •  |     | •        | • | • | • | • | • |
| • •   | •  | •  | • • |          | • | • | · | · |   |
|       | Ē  | ١F | δĒ  | ٦.       |   |   |   |   |   |
| • •   | 1  |    |     | <u>-</u> | • | • | · |   | · |
| • •   | •  | •  |     | •        | • | • | · | · | · |
| • •   | •  | •  |     | •        | • | • | · | · | • |
| • •   |    | •  |     | •        | • | • | · | · | • |

| <b>Step2:</b> Double-click the RTC component, set $\underline{\underline{Kind}}$ as |               |          |    |   |       |  |
|---|---------------|----------|----|---|-------|--|
|   | Set Clo       |          |    | X |       |  |
|   | Clock         | Position |    |   |       |  |
|   | <u>K</u> ind  | Month    |    |   |       |  |
|   | <u>V</u> alue | 0        |    |   |       |  |
|   |               |          |    |   |       |  |
|   |               |          |    |   |       |  |
|   |               | 确定       | 取? | 肖 | 应用(A) |  |

Step3: Double-click READ component, point object to D0.

| Read 🔀                       |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register ▼ |
| Station                      |
| Device PLC Port              |
| VirStaNO 0 Station 1         |
| Object                       |
| Object D V O                 |
| Indirect                     |
| Data                         |
| Data Type Word 💌             |
| ,                            |
|                              |

**Step4:** The operand of the RTC property contain READ component.

| Advance  |                |  |  |  |  |  |
|--|----------------|--|--|--|--|--|
| E <sup>+</sup> RTC 0_(0) ∴ Self Property Operand ∴ Contain UnitREAD0_(1) | Delete Contain |  |  |  |  |  |

**Step5:** Put one digital input component and Data in the screen. As follows:

| F | Ŧ | F   | F  | 1     | F          | F          | 1      | F  | F | · | • | · | • |
|---|---|-----|----|-------|------------|------------|--------|----|---|---|---|---|---|
|   |   |     |    |       |            |            |        |    |   | Ċ |   | ÷ |   |
|   | ÷ | ÷   | ÷  | ÷     |            | ÷          | ÷      | ÷  | ÷ | ÷ |   | ÷ |   |
|   | _ | -   | -  | -     | -          | -          | -      |    |   |   |   |   | - |
|   |   | - 1 | Ø. |       |            | - 1        | £      | T. |   | ÷ |   | ÷ |   |
|   |   | L ( | 30 | 20    | 30         | 20         | 2      |    |   |   |   |   |   |
|   |   |     |    |       |            |            |        |    |   |   |   |   |   |
|   |   |     |    |       |            |            |        |    |   |   |   |   |   |
|   |   |     |    |       |            |            |        |    |   |   |   |   |   |
|   |   |     | _  |       |            | _          |        |    |   |   |   |   |   |
| - | - | -   |    |       | _          | _          |        |    |   |   | - | - | - |
|   |   |     |    | В.    | Τí         | CI         |        |    |   |   |   |   |   |
| • | • | •   |    | R     | T.(        | <u>[</u> ] | ŀ      | ·  | • | • | • | • | • |
| • | • | •   |    | R     | <u>T(</u>  | []<br>[]   | ŀ      | •  | • | • | • | • | • |
|   |   |     |    | FIL . | <u>T.(</u> | [          | ·<br>· |    |   |   |   | • | • |

Step6: Double-click digital input component, point object to D0, in the Display option, select
| Digital Input       |                  |                |                  | X |
|---------------------|------------------|----------------|------------------|---|
| Object Display Inpu | t Font           | Color   P      | osition          |   |
| Format              |                  | Bit Leng       | th               |   |
| С Дес 💽 Нех         | )                | T <u>o</u> tal |                  | 5 |
| C Float C Uns       | igned            | F <u>l</u> oat |                  | 0 |
| Aspect              | Align Hor-       |                | -Align Ver-      |   |
|                     | C Left           |                | C Iop            |   |
|                     | C <u>C</u> enter |                | 🖲 <u>M</u> iddle |   |
| Changing            |                  |                | ⊂ <u>B</u> ottom |   |
| □ 0 L <u>e</u> ad   | 🔲 Password       | L              |                  |   |

**Step7:** Click the "off-line simulation" icon on the software **1**, See the following simulation results:

Touch-screen time displayed 2010/01/13, when enter 12 to the D0 data input box, and then the time will immediately changed to 2010/12/13. Through the above approach we can create components which can modify year, day, hour, minutes and seconds.

| 2010 / 01 / 13 |
|----------------|
| нмі нмі        |
|                |
| 2010 / 12 / 13 |
| 2010 / 12 / 15 |
|                |
|                |

# 4.2.19 "Read" 🔳

#### • Overview:

"Read" component is used to achieve data-read function, can be used to read bit state or value of one or more registers. The device is usually used to provide the data source for other advanced components.

Its advanced properties shown as the following diagram:

| ■ Advance                                   |               |
|---|---------------|
| E- READO_(0)<br>E- Self Property<br>Station | Unit Name     |
| - Field1 Value                              | Unit Property |

•Station: When there are multiple external devices connected, you can choose different devices.

• Field1 value: Can select different objects address number

Component property:

| Read   | × |
|--|---|
| Object Position                                    |   |
| Type<br>Unit Type <mark>Bit ▼</mark>               |   |
| Station<br>Device PLC Port<br>VirStaND 0 Station 1 |   |
| Object Object Indirect                             |   |
| Data<br>Data Type Bit ▼                            |   |
|  | ) |

•Type: Manually select Bit, Register or nRegister.

•Station: When there are multiple external devices connected, you can choose different devices.

•Object: Manually specify the object type and address number which need read.

Note: Although in the advanced properties, Station and Field1 value of "read" component can use two respective registers to select indirectly, but it would greatly increase the traffic capacity, reduce operating efficiency. So, be sure to manually specify device Station and object address in "Read Property" immediately .

## 4.2.20 "Write" **Ξ**

#### • Overview:

This section will introduce advanced directive "write" component, users who understand the C language, should know C language has a Read and write capabilities, the following "write "component is equivalent to write function of C language, will be introduced in the equivalent of C language to write functions. write instruction is very widely used in advanced directives, for example: the basic components in the software, the user can use function button or function filed to clear one or more registers or copy to another area, write also can use read element to achieve the above functions, the following will introduce the functions and usage.

Property Description :

Write is to write the data to the appropriate register.

Put one "write" **E** on the screen; open its property dialog box, as shown below:

| Vrite  | ×  |
|--|----|
| Object Position                                    |    |
| Type<br>Unit Type Bit                              |    |
| Station<br>Device PLC Port<br>VirStaNO 0 Station 1 |    |
| Object M  Indirect                                 |    |
| Data<br>Data Type Bit<br>Set Data                  |    |
|  | y) |

#### • Routine

The routine focuses on through Write instruction and read instruction to achieve clearing one or more registers or copy to another registers. Steps are as follows: **Step1:** building a screen, placing parts

Building a new screen, placing the following components on the screen: two text **A**, one

digital input 23, one digital display, one Read **and one Write a**. as follows:

|   |     |     |    |     |    |   | · | · | · |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|---|-----|-----|----|-----|----|---|---|---|---|---|---|---|---|---|---|---|-----|----------|----|----|-----|----|---|---|---|
| · | ·   |     | •  | • • |    |   | · | · | · | · | · | · | · | · | · | · | ·   | ·        | ·  | ·  | ·   | ·  | · | · | • |
|   |     |     | ·  | • • |    | · |   |   |   | · | · | • | · |   |   |   |     |          |    |    |     |    |   |   | • |
|   |     |     | ·T | ex  | t٠ |   | · | · | · |   |   |   |   | · |   |   | T   |          | +  |    |     |    |   |   |   |
|   |     |     |    |     | •  |   |   |   |   |   |   |   |   |   |   |   | Ŧ   | Ę2       | 51 |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   | UR. | 1   | 9Ø |     | 1  |   | • |   |   |   |   |   |   |   |   |   | 5.7 | 1        |    |    | 5.0 |    | ŀ |   |   |
|   |     | Ø   | 20 | Ø   | Ø  |   |   |   |   |   |   |   |   |   |   | П | Ø   | а        | Ø  | Й  | Й   | 1  | ŀ |   |   |
|   |     |     |    |     | _  |   |   |   |   |   |   |   |   |   |   |   | -   | -        | -  | -  | -   |    | ŀ |   |   |
|   |     |     |    |     |    | • |   |   |   |   |   |   |   |   |   | ÷ | •   |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     | .   | RE | A   | ה  |   |   |   |   |   |   |   |   |   |   |   |     | 5        | 7Ē | ρĒ | TFF | ÷. |   |   |   |
|   |     | . ' | ņĽ | -M  | Р, |   |   |   |   |   |   |   |   |   |   |   |     | <u> </u> |    | ų  |     | -  |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |
|   |     |     |    |     |    |   |   |   |   |   |   |   |   |   |   |   |     |          |    |    |     |    |   |   |   |

### Step2: Modify properties

1. Double-click the left "Text" to open the Properties dialog box, In the text editing area, enter the following text:

| Text               |                     |           |
|--------------------|---------------------|-----------|
| Display Font Color | Position            |           |
| Content            |                     |           |
| Input data         |                     | <u> </u>  |
|                    |                     | ~         |
|                    | 17. 17              |           |
| <u>A</u> spect     | Align Hor<br>C Left | Align Ver |
| Text               | © <u>C</u> enter    |           |
| Changing           | C Right             | C Bottom  |
|                    |                     |           |
|                    |                     |           |
|                    | 确定                  | 取消 应用(法)  |

2. Double-click the right "Text" to open the Properties dialog box, In the text editing area, enter the following text:

| Text                       |  | ×  |
|----------------------------|--|--|
| Display Font Colo          | r Position                                 |  |
| Content                    |  |  |
| Read data                  |  | ~  |
| Aspect<br>Text<br>Changing | Align Hor<br>C Left<br>© Center<br>C Right | Align Ver<br>C <u>T</u> op<br>© <u>M</u> iddle<br>C <u>B</u> ottom |
|                            | 确定   |  |

3. Double-click "digital input", open the Properties dialog box, in **Object** option, modify object to PSW300, as follows:

| -Object- |     |   |          |
|----------|-----|---|----------|
| Object   | PSW | • | 300      |
|          |     | Γ | Indirect |

4. Double-click "digital display", open the Properties dialog box, in Object option, modify object to PSW302, as follows:

| Display Digital                                    |        |
|--|--------|
| Object Display Font Color Position                 |        |
| Station<br>Device PLC Port<br>VirStaND 0 Station 0 |        |
| Object<br>Object PSW <b>v</b> 302<br>Indirect      |        |
| Data<br>Data Type Word 💌                           |        |
|  | 应用 (A) |

5. Double-click "Read", open the Properties dialog box, in **Dbject** option, modify object to PSW300, as follows:

| - Object- |     |   |          |
|-----------|-----|---|----------|
| Object    | PSW | - | 300      |
|           | ·   | Г | Indirect |

6. Double-click "Write", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSW302, as follows:

| Vrite 🔀                      |
|------------------------------|
| Object Position              |
| Type<br>Unit Type Register ▼ |
| Station                      |
| Device PLC Port 👻            |
| VirStaN0 0 Station 0         |
| Object                       |
| Object PSW - 302             |
| Indirect                     |
| Data                         |
| Data Type Word 💌             |
| Set Data                     |
|                              |
| 确定 取消 应用 (A)                 |

### Step3: Advanced Operations

1. Select Read and Write at the same time, Right-click the selected area, choose Advanced, as follows:

| Input d | ata   | Read data   |
|---------|---|---|
| REAT    | Property  |   |
|         | Group<br>Lock<br>Public Unit<br>System<br>Cut<br>Copy<br>Delete<br>Save | ·         · |
|         | Save<br>Template<br>Advance<br>Optimistic<br>Unlock All                 |   |

| Advance   |                                   |                               |
|---|-----------------------------------|-------------------------------|
| •• READ0_(0)     •• WRITE0_(1)     •• Self Property     ••• Station     ••• Field1 Value     •••• Input Value | Property Contain<br>Property Link |                               |
|   | OK<br>Cancel                      |                               |
| Click Property Contain  | select <b>⊞ READ0_(0)</b> → cl    | ick Affirm Contain, the final |

effect are shown below:

| Advance  |                |
|--|----------------|
| WRITE0_(1)  Self Property  Self Property  Field1 Value  Input Value  Contain Unit  READ0_(0) | Delete Contain |

5. Click "OK" to complete advanced operation.

| : | j | 'n | 'n | Ū  | it | Ċ  | Ŀ  | it | a |   | : | : | : | : | : | : | : | Ė | 2 | es | a        | Í        | d  | a | ŧ | a | : | : | : |
|---|---|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|----|----------|----------|----|---|---|---|---|---|---|
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| • | · | •  | ·  | ·  | ·  | ·  | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | ·  | ·        | ·        | ·  | · | · | · | · | · | • |
| • | • | •  | •  | •  | •  | ·  | ·  | ·  | • | • | · | • | · | · | · | · | · | · | · | ·  | •        | ·        | ·  | • | · | • | • | • | • |
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| : | ÷ | :  | :  | ÷  | ÷  | ÷  | ÷  | ÷  | ÷ | : | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷  | ÷        | :        | ÷  | : | ÷ | ÷ | ÷ | ÷ | : |
|   |   | ÷  | ÷  |    | ÷  | i. | ÷  | ÷  |   |   |   |   |   |   |   |   |   | ÷ |   |    |          | ÷        |    | ÷ |   |   |   |   |   |
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| • | · | ·  | ·  | ·  | ·  | ·  | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | ·  | ·        | ·        | ·  | · | · | · | · | · | · |
| • | · | ·  | ·  | ·  | ·  | ·  | ·  | ·  | · | · | · | · | · | · | · | · | · | · | · | ·  | ·        | ·        | ·  | · | · | · | · | · | · |
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| - | - | -  | -  | -  | -  | -  | -  | -  |   |   |   |   |   |   |   |   |   |   |   |    | -        | -        | -  |   | - | - | - | - | - |

6. Click the "off-line simulation" icon on the software 🕅 , See the following simulation results:

Input data

Read data







## 4.2.21 Block

#### • Overview:

In practice application, Block directive is useful to dynamic flow chart, Water tank, stick figure, the dynamic part are composed of block instruction with other advanced components, the following, we will introduce the properties of block and functional use.

#### **Property Description:**

1. Click icon, put one Block component on the screen, Double-click Block component,

Open the Properties dialog box, as follows:

#### **Block option:**

| Block           |                  | ×              |
|-----------------|------------------|----------------|
| Block Color     | Position         |                |
| -Align Hor-     | Align Ver        |                |
| C Left          | C Iop            |                |
|                 | ⊙ <u>M</u> iddle |                |
| C <u>R</u> ight | C <u>B</u> ottom |                |
| <u>W</u> idth   | 160              |                |
| <u>H</u> eight  | 120              |                |
|                 |                  |                |
|                 |                  |                |
|                 |                  |                |
|                 | <b>确定 取消</b> 乃   | 2月( <u>4</u> ) |

**Color option:** 

| Block Color Position<br>Kind Color |
|------------------------------------|
| Color<br>More                      |
| <br>确定 取消 应用 (A)                   |

**Position option:** 

| Block                 |                  |
|-----------------------|------------------|
| Block Color Positio   | n                |
| Position              | Size             |
| <u>X</u> 225          | Width 160        |
| <u>¥</u> 65           | Height 120       |
| Animal                |                  |
| ☐ Hori <u>z</u> ontal |                  |
| <u>V</u> ertical      |                  |
| Lock Z                | oom Ratio        |
| 确定                    | <b>取消</b> 应用 (A) |

#### • Functional introductions and use.

Here through create a Water tank to explain block component's functional use. **Step1:** building a screen, placing parts

Building a new screen, placing the following components on the screen: two rectangle  $\Box$ , one



|       |   |  |            |     |   |     |   |     | •        |     |     |          | • •         | -        | •        |   | - |     |
|-------|---|--|------------|-----|---|-----|---|-----|----------|-----|-----|----------|-------------|----------|----------|---|---|-----|
|       |   |  | • •        | • • | · | • • | · | • • | •        |     | • • | •        | • •         | •        | • •      | · | • | • • |
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|       |   |  | ١.         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
|       |   |  | ١.         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
|       |   |  | ١.         |     |   |     |   |     | <u> </u> |     |     |          |             |          |          |   |   |     |
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|       |   |  | <b>.</b> . |     |   |     |   |     |          |     |     | <u> </u> | <del></del> |          | ! .      |   |   |     |
|       |   |  | <b>.</b> . |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
|       |   |  | ι.         |     |   |     |   |     |          |     |     |          |             | <u> </u> |          |   |   |     |
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|       |   |  | Ι.         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
|       |   |  | ι.         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
|       |   |  | ι.         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
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|       |   |  | []         |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |
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|       |   |  |            |     |   |     |   |     |          |     |     |          |             |          |          |   |   |     |

### Step2: Modify properties

1. Double-click the left "rectangle", open the Properties dialog box, in Fill option, select "linear", as the following settings:

| Rectangle    |   |    |        |
|--------------|---|----|--------|
| Line Color F | ill Position  |    |        |
|              |   |    |        |
| Hatch        | First Color   |    |        |
| Linear       | ● Hor     ○ Iop/Left       ○ Ver     ○ Bottom/Right       ○ Angle     0 |    |        |
| Centerar 🔽   |   |    |        |
|              | 确定  | 取消 | 应用 (A) |

2. Click "OK" button, Results are as follows:

| 1 - 1 | <br><b>.</b>                                       |
|-------|--|
|       | <br>   |
| - • • | <br>   |
| - • • | <br>   |
|       | <br>   |
| - • • | <br>la se a se       |
| - • • | <br>Rotate Animal                                  |
| - • • | <br> ···············                               |
| - • • | <br>  · · · · · · · · · · · · · · · · · · ·        |
|       | <br>  · · · · · · <u>· · · · · ·</u> · · · · · · · |
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| · · · | <br>   |
|       | <br>]  |

3. Double-click the right "rectangle", open the Properties dialog box, fill mode is the default Solid mode, set color as blank, as the following settings:

| Rectangle  |  | × |
|------------|--|---|
| Line Color | Fill Position                            |   |
| None       | Graph's filled color is what user chose! |   |
| Solid      |  |   |
| Dot        |  |   |
|            | ✓  |   |
|            |  |   |

4. Click "OK" button, Results are as follows:

|                 |                               |                                       | · · · · · · · · <u></u>               |                                      |
|-----------------|-------------------------------|---------------------------------------|---------------------------------------|--------------------------------------|
|                 |                               |                                       | Rotate .                              | Animal <sub>i</sub>                  |
|                 |                               |                                       | <del>. <del></del> .<del></del></del> | . <del></del>                        |
|                 |                               |                                       |                                       | · · · <u>· · · · ·</u> · · · ·       |
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|                 |                               |                                       |                                       |                                      |
|                 |                               |                                       |                                       |                                      |
| 5 D 11 11       | «D1 1.2» (1 D                 | . 1.1 1                               | 1. 1                                  | Width                                |
| 5. Double-click | "Block", open the Pro         | operties dialog box                   | , click position option               | n, set $as 50$ ,                     |
|                 |                               |                                       |                                       |                                      |
| Height          |                               |                                       |                                       |                                      |
| set             | as 325, as follows:           |                                       |                                       |                                      |
|                 |                               |                                       |                                       | -                                    |
|                 | Block                         |                                       | X                                     |                                      |
|                 |                               |                                       |                                       | 4                                    |
|                 | Block Color Po                | sition                                |                                       |                                      |
|                 | DIOCK   COIOI                 |                                       | 1                                     |                                      |
|                 | Position                      | Size                                  |                                       |                                      |
|                 |                               |                                       |                                       |                                      |
|                 | <u>X</u> 25                   | 0 <u>W</u> idth                       | 50                                    |                                      |
|                 |                               |                                       | _                                     |                                      |
|                 | <u>¥</u> 5                    | 0 <u>H</u> eight                      | 325                                   |                                      |
|                 | ¥   5                         | 0 Hergue                              | 323                                   |                                      |
|                 |                               |                                       |                                       |                                      |
|                 | -Animal                       |                                       |                                       |                                      |

325, as follows:

🗍 Horizontal

6. Click Block button, set Align Ver as

📃 Zoom Ratio

取消

, set

确定

应用 (<u>A</u>)

Width as 50, set Height as

<u>V</u>ertical

Lock

|          | Block  | × |
|----------|--|---|
|          | Block<br>Block Color Position<br>Align Hor<br>C Left<br>C Center<br>Right<br>Middle<br>Bottom<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middle<br>Middl | × |
| 7. Click | 确定 取消 应用 (4)<br>Color button, set color as Color , as follows:   | ) |
|          | Block Color Position   |   |
|          | 确定 取消 应用 (A)   |   |

8. Click "OK" button, Results are as follows:

| 2.1 Support 100 (1998) |  |  |
|------------------------|--|--|
|                        |  |  |
|                        |  |  |
|                        |  | · · · · · · · · · · · · · · · · · · ·      |
| - • •                  |  |  |
| - • •                  |  |  |
| - • •                  |  | Rotate Animal                              |
| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - • •                  |  | · · · · · · · <u>· · · ·</u> · · · · · · · |
| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - · ·                  |  | · · · · · · · · · · · · · · · · · · ·      |
| - · ·                  |  | · · · · · · · · · · · · · · · · · · ·      |
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| - • •                  |  | · · · · · · · · · · · · · · · · · · ·      |
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|                        |  | · · · · · · · · · · · · · · · · · · ·      |
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| · · ·                  |  |  |
|                        |  |  |
|                        |  |  |
|                        |  |  |
|                        |  |  |
|                        | - · · · · · · <del>· · · · · · ·</del> · · · · · |  |
|                        |  |  |
|                        |  |  |
| $\sim$                 |  |  |

Note: 1)The block size can be set according to the size of left side rectangle.

(2) When set block attributes, user should first set up Width and Height in the position option, then set up Width and Height in the Block option, On the contrary, can not be set to the desired results, the user can try.

9. Double-click "Rotate Animal", open the Properties dialog box, set Period as 10000, set

| End | as 325  | finally click "OK" to complete the setting, as follows: |
|-----|---------|---|
|     | us 525, | many check of to complete the setting, as follows:      |

| Rotate Animal   |          |
|-----------------|----------|
| Aminal Position |          |
| Period 10000 ms | 🔽 Enable |
| C Random        | Reset    |
| Continue        | Single   |
| Start 0         | C Trip   |
| End 325         | 🔽 Repeat |
|                 |          |
|                 |          |



Color

as black, as follows:

| Scale      |              |                 |                  |
|------------|--------------|-----------------|------------------|
| Scale Post | ition        |                 |                  |
| Style      |              |                 |                  |
| C Hor      | 💽 Ver        | C Round         | C 3/4Round       |
| C Left     | 🔿 Тор        | 🔘 Right         | C Bottom         |
| C Left/I   | op 🤆 Right/T | op 🔿 Right/Bott | om 🔿 Left/Bottom |
| Parameter  | ·            |                 |                  |
| 🖲 Left     | 🔘 Right      | Main            | 5 ÷              |
| 🦵 Hide H   | lorder       | Slave           | 5                |
|            |              | Color           |                  |
|            |              | 确定 即            | 2消 应用(A)         |

#### Step2: Advanced Operations

1.Select the "Block" and "Rotate Animal "at the same time, Right-click the selected area, Pop-up the following dialog box :



choose Advanced, in the advanced dialog box, Click the plus sign ⊕ in front of BLOCK 0\_[1], then click the plus sign ⊕ in front of Self Property, open its self property., as follows, select Block Height:

| Advance  |                                   |
|--|-----------------------------------|
| <ul> <li>Rotate Animal0_(0)</li> <li>BLOCK 0_(1)</li> <li>Self Property</li> <li>Area Horizon Coordinal</li> <li>Area Vertical Coordinal</li> <li>Area Width</li> <li>Align Horizon</li> <li>Align Vertical</li> <li>Block Color</li> <li>Block Height</li> <li>Block Width</li> </ul> | Property Contain<br>Property Link |
|  | OK<br>Cancel                      |

2. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

|    |        | Advance  |    |            |          |         |           |    |         |      |
|----|--------|--|----|------------|----------|---------|-----------|----|---------|------|
|    |        | <ul> <li>Rotate Animal0_(0)</li> <li>BLOCK 0_(1)</li> <li>Self Property</li> <li>Area Horizon Coordinal</li> <li>Area Vertical Coordinal</li> <li>Area Width</li> <li>Align Horizon</li> <li>Align Vertical</li> <li>Block Color</li> <li>Block Height</li> <li>Block Width</li> </ul> |    | Affirm Cor |          |         |           |    |         |      |
| 3. | Select | ₽ Rotate Animal0_(0) ,   | bı | utton      | Affirm ( | Contain | immediate | ly | changed | into |

operational status , as follows:



Step4: Combination.

1. Select the right rectangle then drag it to the left rectangle, as follows:



2. Select "Block" then drag it to the second rectangle  $\rightarrow$  adjusted to the appropriate location , as follows:



3. Select "scale", drag it to Block, But can not see the scale component, as follows:



4. Do not release the mouse, Right-click, in the pop-up dialog box, select **Bottom Layer**, as follows::



5. Then you can see the scale component:



6. Select the scale component, adjust the size of the scale, and placed it in a suitable location, as follows:



7. Thus a simple bar graph production is completed, Click the "off-line simulation" icon on the software .See the following simulation results:



# 4.2.22 Count CT

#### • Overview:

Counter is used to pulse counting device, when the count reaches the set value, the counter state to ON, to counter a reset pulse signal, counts will be cleared, while the counter state to OFF. Timing diagram is as follows:



Advanced property:



- •Count signal: Count pulse signal.
- •Reset signal: Reset pulse signal.
- •Assign value: Count set value (can be specified with register)
- •Current value: Current count value (which can be used to monitor counter state)
- Status: Counter current state (up to assign value / does not meet the assign value)

**Example:** Set PSW300 as the source of assign value, PSB300 and PSB301 respectively as the count signal and reset signal source. PSW301 as the current value display, PSB302 to reflect the counter status.



#### **Composition diagram**

Step1: Building a screen, placing parts

T

ډ۰,

AT

1.Building a new screen, placing the following components on the screen: three "read", two

| rite" 📩, one | "count    | " <u>CT</u> , | as foll        | ows:         |         |          |                |       |           |
|--------------|-----------|---------------|----------------|--------------|---------|----------|----------------|-------|-----------|
|              |           |               |                |              |         |          |                |       |           |
|              |           |               |                | • •          | • • •   |          |                | • •   |           |
|              |           | COL           | JNT            |              |         |          |                |       |           |
| READ         |           | • • • •       | <br>           | · ·          |         | W        | RITE           |       | · · · · · |
| READ         |           |               |                |              |         |          |                |       |           |
|              | · · · · · |               | · · · ·        | · · ·<br>· · | · · · · |          |                |       | · · · · · |
| READ         | <br>      |               | · · ·<br>· · · | · ·<br>· ·   | · · ·   | <b>E</b> | <b>YRIT</b> EJ | · · · | · · · · · |
|              |           |               |                | • •          |         |          |                |       |           |
|              |           |               |                | • •          |         |          |                | • •   |           |

2. As the following set: 3 "read" components point separately to PSB300, PSB301, PSW301. 2 "write" elements are point separately to PSB302, PSW301.

#### Step2: Advanced Operations

1.Select the three "read" and the "count" component at the same time, Right-click the selected area, In the Pop-up dialog box ,choose Advanced, advanced dialog box as shown below:

| Advance  |                                   |
|--|-----------------------------------|
| READ0_(0) READ0_(1) READ0_(2) COUNT0_(3) Self Property Count Signal Reset Signal Assign Value Current Value Status | Property Contain<br>Property Link |

2. "Count signal" property contain-PSB300 "read" component.

"Reset signal" property contain-PSB301 "read" component.

"Assign signal" property contain-PSW301 "read" component.

| Count Signal           | Property Contain | > | ₽ READO_(0) |    | Affirm Contain |  |
|------------------------|------------------|---|-------------|----|----------------|--|
| Reset Signal           | Property Contain | · | ∎ READ0_(1  | }→ | Affirm Contain |  |
| - Assign Value         | Property Contain |   | BEADO_(2)   |    | Affirm Contain |  |
| nally click "OK" to qu | it. As follows:  |   |             | _  |                |  |

3. Finally click "OK" to qu

| • | · | · | · | · | ·  | ·  | ·  | ·        | · | · | · | · | · | · | · | · | ·    | · | ·  | ·  | · | · | · | · | · | · | · |
|---|---|---|---|---|----|----|----|----------|---|---|---|---|---|---|---|---|------|---|----|----|---|---|---|---|---|---|---|
|   | : | : | R | Ċ | )( | Īh | ĪT | Ţ        | : | : | : | : | : | : | : | : | :    | : | :  | :  | : | : | : | : | : | : | : |
|   |   | • | • | • | •  | •  | •  | <b>.</b> |   |   |   |   |   |   |   |   |      |   |    |    |   |   |   | • | • | • | • |
| • | · | · | · | · | ·  | ·  | ·  | ·        | · | · | · | · | · | · |   | Y |      |   |    |    | · | · | · | · | · | · | · |
| : | Ċ | Ċ | ÷ | : | :  | Ċ  | Ċ  | :        | : | Ċ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷    | ÷ | ÷  | Ċ  | : | ÷ | ÷ | Ċ | : | Ċ | Ċ |
|   |   |   |   |   |    |    |    |          |   |   |   | ÷ |   | ÷ |   |   |      |   |    |    |   |   |   |   |   |   |   |
|   |   |   |   |   |    |    |    |          |   |   |   |   |   |   |   |   |      |   |    |    |   |   |   |   |   |   |   |
|   | · | · | · | · | ·  | ·  |    | ·        | · | · | · | · |   |   |   | · | _    | _ |    | -  |   |   | · | · | · | · | · |
|   | · | · | · | · | ·  | ·  | ·  | ·        | · | · | · | · |   |   |   | Μ | /F   | ۱ | FE | ΞI | · | · | · | · | · | · | · |
| : | : | : | : | : | :  | :  | :  | :        | : | : | : | ÷ | ÷ | : |   |   | · :- |   | -  |    | : | : | : | : | : | : | : |
|   |   |   |   |   |    |    |    |          |   |   |   |   |   |   |   |   |      |   |    |    |   |   |   |   |   |   |   |
|   |   |   |   |   |    |    |    |          |   |   |   |   |   |   |   |   |      |   |    |    |   |   |   |   |   |   |   |
|   | · | · | · | · | ·  | ·  | ·  | ·        | · | · | · | · | · | · |   |   | ·    | · | ·  | ·  | · | · | · | · | · | · | · |
|   |   |   |   |   |    |    |    |          |   |   |   |   |   |   |   |   |      |   |    |    |   |   |   |   |   |   |   |

4. Select the "count" component and two "Write" at the same time, Right-click the selected area, In the Pop-up dialog box ,choose "group", advanced dialog box as shown below:

| Advance                           |               |
|-----------------------------------|---------------|
|                                   | Unit Name     |
| • • • • • • • • • • • • • • • • • | Unit Property |

In the Write0\_(1) self property, float the "input data" into the group.

In the "Write0\_ (2)" self property, float the "input data" into the group. In the "count0\_ (3)" self property, float the "current value" and "status" into the group. After the completion of the following diagram:

| Advance   |   |
|---|---|
| Group0_(0)     Self Unit     WRITE0_(1)     WRITE0_(2)     COUNT0_(3)     Self Property     Float Property     WRITE0_(1)ofInput Value     WRITE0_(2)ofInput Value     COUNT0_(3)ofCurrent Value     COUNT0_(3)ofStatus | Property Link<br>Delete Property<br>Modify Name |
|   |   |

"Write0\_ (1) of input data" property link"count0\_ (3) of "current value" "Write0\_ (2) of input data" property link"count0\_ (3) of "Status"

| <b>Advance</b>   |   | Advance   |   |  |  |
|--|---|---|---|--|--|
| Group0_(0)     Self Unit     WRITE0_(1)     WRITE0_(2)     COUNT0_(3)     Self Property     Float Property     WRITE0_(1)ofInput Value     WRITE0_(2)ofInput Value     COUNT0_(3)ofCurrent \     COUNT0_(3)ofStatus  | Delete Link<br>Delete Property<br>Modify Name | Group0_(0)     Self Unit     WRITE0_(1)     WRITE0_(2)     Groupoty     Float Property     WRITE0_(1)ofInput Value     WRITE0_(2)ofInput Value     WRITE0_(2)ofInput Value     COUNT0_(3)ofCurrent Value     COUNT0_(3)ofStatus | Delete Link<br>Delete Property<br>Modify Name |  |  |
| 5.Put two "indicator button" (a), one digital input (23), one digital display (24), one lamp<br>(24) on the screen, to "indicator button", point to PSB300 and PSB3001. set button operate<br>mode as (1) Instant; to digital input, point to PSW300, to digital display, point to PSW301. |   |   |   |  |  |
| to "lamp", point to PSB302.  | After the completion                          | n of the following diagram:   |   |  |  |

| Count signal PSB300                   | · · · · · · · · · · ·   |
|---------------------------------------|---|
| Réset signal PSB301 : O               | WRITE   |
| Assign signal                         | WRITE   |
| current value                         | · · · · · · · · · · · · · · · · · · ·   |
| Status PSB302                         | ·       · |
| · · · · · · · · · · · · · · · · · · · | · · · · · · · · ·   |

### 4.2.23 Pulse

• Overview:

"Periodic pulse" actually is equivalent to the counter function. the difference is: to "Periodic Pulse", When the count reaches to assign value, it will produce a transient pulse output, and conduct self-resetting; but to "counter" is turned into ON state, and need to be carried out manually reset count. Therefore, use the component to the pulse cycle, we must give it a reference frequency signal source. Timing diagram is as follows:



The formation of a certain cycle of the pulse

#### Advanced property:

| Advance   |                            |
|---|----------------------------|
| <ul> <li>□- Pulse0_(0)</li> <li>□- Self Property</li> <li>□- Permit Signal</li> <li>□- Source Signal</li> <li>□- Period Number</li> </ul> | Unit Name<br>Unit Property |

- •Permit signal: Whether to allow "periodic pulse" component of work
- •Source signal: As a count signal source (reference frequency signal source)

•Period Number: Count set value (the value generated by the decision of the pulse and reference signal cycles multiple relationships)

**Example:** Set PSB300 as Permit signal, set PSB301 as Source signal and PSW301 as Period Number, PSB302 as Periodic pulse of the output bit.



#### **Composition diagram**

Step1: Building a screen, placing parts

1.Building a new screen, placing the following components on the screen: three "read", one"

| write" <b>E</b> , one "pulse' | , ~ | _, a | s fo | ollo | ws:   |      |   |   |   |     |   |     |     |    |     |          |  |
|-------------------------------|-----|------|------|------|-------|------|---|---|---|-----|---|-----|-----|----|-----|----------|--|
|                               |     |      |      |      |       |      |   |   |   |     |   |     |     |    |     |          |  |
|                               | • • | • •  | ·    | · _  | · · · |      | · | · | · | • • | • | ·   | ·   | ·  | • • | ·        |  |
|                               | • • | • •  | ·    | · F  | Pul   | se   | · | · | · | • • | • | ·   | ·   | ·  | • • | ·        |  |
|                               | • • | • •  | •    | · C  |       | 2 74 | · | · | · | • • | • | ·   | ·   | ·  | • • | ·        |  |
|                               | • • | • •  | •    | ·    | • •   | • •  | • | • | · | • • | • | ·   | •   | •  | • • | •        |  |
| EE IN                         | • • | • •  |      | •    | • •   | • •  |   | • |   |     |   |     | •   |    | • • |          |  |
| READ                          |     |      |      |      |       |      |   |   | : |     |   |     |     | :  |     |          |  |
|                               |     |      |      |      |       |      |   |   |   |     |   | _   |     |    |     |          |  |
|                               |     |      |      |      |       |      |   |   |   |     |   | - 1 | ٨YI | RI | TE  | ·        |  |
|                               |     |      |      |      |       |      |   |   |   |     |   |     | -   | •  | •   | <b>.</b> |  |
| READ                          | • • | • •  | •    | ·    |       | • •  | · | · | • |     | • | ·   |     | ·  | • • | •        |  |
| · · · · · · · · ·             | • • | • •  | ·    | ·    | • •   | • •  | · | · | · | • • | • | ·   | ·   | ·  | • • | ·        |  |
|                               | • • | • •  | •    | ·    | • •   | • •  | · | · | · | • • | • | ·   | ·   | ·  | • • | ·        |  |
|                               | • • | • •  | •    | ·    | • •   | • •  | • | • | • | • • | • | ·   | ·   | ·  | • • | ·        |  |
| (READ)                        |     |      | ÷    |      |       |      | ÷ | : |   |     |   |     | ÷   |    |     | ÷        |  |
|                               |     |      | ÷    |      |       |      | ÷ |   |   |     |   |     |     |    |     | ÷        |  |

2. As the following set: 3 "read" components point separately to PSB300, PSB301, PSW300. to "write" element, point to PSB302.

#### Step2: Advanced Operations

1.Select the three "read" and "pulse" component at the same time, Right-click the selected area, In the Pop-up dialog box ,choose Advanced, advanced dialog box as shown below:

| Advance   |                                   |
|---|-----------------------------------|
| <ul> <li>Pulse0_(0)</li> <li>Self Property</li> <li>Permit Signal</li> <li>Source Signal</li> <li>Period Number</li> <li>PEAD0_(1)</li> <li>PEAD0_(2)</li> <li>READ0_(3)</li> </ul> | Property Contain<br>Property Link |

2. "Permit signal" property contain-PSB300 "read" component.

"Source signal "property contain-PSB301 "read" component.

"Period Number "property contain-PSW300 "read" component.

| Property Contain  | → 🛱 READ0_(1))             | Affirm Contain |
|---|----------------------------|----------------|
| Source Signal Property Contain  | → 📴 READ0_(2)              | Affirm Contain |
| Property Contain  | → 💼 <mark>READ0_(3)</mark> | Affirm Contain |
| <b>Advance</b>  |                            | <              |
| <ul> <li>Pulse0_(0)</li> <li>Self Property</li> <li>Permit Signal</li> <li>Source Signal</li> <li>Period Number</li> <li>Contain Unit</li> <li>READ0_(1)</li> <li>READ0_(2)</li> <li>READ0_(3)</li> </ul> | Unit Name<br>Unit Property |                |

5. Finally click "OK" to quit. As follows:



6. Select "pulse" component and "Write" at the same time, Right-click the selected area, In the Pop-up dialog box ,choose "advanced", advanced dialog box as shown below:

| Advance      |                                   |
|--------------|-----------------------------------|
| ■·WRITE0_(0) | Property Contain<br>Property Link |

"input value" of "Write0\_ (0)" self property , property contain "pulse" After the completion of the following diagram:

| Advance  |  |   |
|--|--|---|
| WRITEO_(0)  Self Property  Station Field1 Value  Input Value  Contain Unit  Pulse0_(1) | Delete Contain   |   |
| Put two "indicator button" 🧕, one  | digital input 23, one la   | mp 🗵 on the screen, to one  |
| ndicator button", point to PSB300  | , set button operate mod   | le as <b>Eeverse</b> , to the other   |
|  |  | as • ON Instant; to "lamp",   |
| Permit signal PSB300   |  | WRITE   |
| Source signal PSB301   |  |   |
| Period Number PSW300   | 60000  | · · · · · · · · · · · · · · · · · · ·   |
|  |  |   |
|  | ■ WRITE0_(0)         ■ Self Property         ■ Station         ■ Field1 Value         ■ Contain Unit         ■ Pulse0_(1)    Put two "indicator button" ● SB300 ndicator button", point to PSB301, int to PSB302. After the completion of Permit signal PSB300        Source signal PSB301 | • WRITE0_(0)       • Self Property         • Station       - Station         • Field1 Value       Input Value         • Pulse0_(1)       • Pulse0_(1)         Put two "indicator button" • O, one digital input • Pulse0, one la         ndicator button" , point to PSB300, set button operate mode         ndicator button" , point to PSB301, set button operate mode         int to PSB302. After the completion of the following diagram:         Permit signal PSB300         Source signal PSB301         Period Number PSW300 |

## 4.2.24 LED LIGHT 📧

"LED LIGHT" component is the OP560 series of touch-screen settings, it can control 16 button keypad light/ OFF on the panel according to the value of register (word). Each light corresponds to bit of the register (word), bit to ON, the corresponding lamp light, The distribution

of light and the position is as follows:



Note: This involves the decimal or 16 hex numbers to binary number conversion. To decimal as examples:

| Dec | Hex   | - Light status (only listed bright lights) |
|-----|-------|--|
| 5   | 101   | Bit2, Bit0                                 |
| 18  | 10010 | Bit1, Bit4                                 |

Analogy:

Advanced property:

| Advance       |               |
|---------------|---------------|
| ED Light0_(0) | Unit Name     |
| L. Use Data   | Unit Property |
|               |               |



#### Routine

Use PSW300 as a source of control data, using a decimal number to control the button light.



#### **Composition diagram**

1. Building a new screen, placing the following components on the screen: one "LED LIGHT"

, one "read" , To read , point to PSW300.

2.Box selecting them, Right-click the selected area, In the Pop-up dialog box ,choose Advanced, advanced dialog box as shown below:



"Use Data" property contain "read"

| Advance   |                |
|---|----------------|
| ■- LED Light0_(0)     □- Self Property     □- Use Data     □- Contain Unit     ❶- READ0_(1) | Delete Contain |

3. Double click "LED LIGHT" to open the property dialog box, Add two data in the left blank area, as shown below:

| LED Light  |                                     | ×      |
|------------|-------------------------------------|--------|
| LED Positi | on<br><u>A</u> dd<br><u>D</u> elete |        |
|            |                                     | 应用 (4) |

4. Put one "digital input" on the screen, point object to PSW300, After the completion of the following diagram:

| · · · · · · |               | · · · · · · · |           |             |
|-------------|---------------|---------------|-----------|-------------|
| [Control    | lRegister     | PSW300        | 00000     |             |
| · · · · · · | · · · · · · · | · · · · · · · |           | · · · · · · |
| · · · · · · | · · · · · · · |               | LED Light |             |
|             |               |               |           |             |
|             | · · · · · · · |               |           |             |
|             |               |               |           |             |

## 4.2.25 Print 🖻

• Overview: "Print" component is used to designate a print area on the screen, when the device is triggered all the contents of the regions will be print out(the premise is correct connected to the printer).

#### **Advanced property:**



Top-left Horizon : Top-left Horizon of print area Other attributes, and so on, will not do tired out.

#### • Routine

Use PSB300 as a print trigger bit, print the contents of screen region.



1. Place a "Print" component, manually pull into a rectangular area, double-click bring up the Properties dialog box.

|                                       | Print 🔀   |
|---------------------------------------|---|
|                                       | Print Position<br>Direction<br>C Left-Right<br>(• Right-Left)                   |
| Note:                                 | Set Print Direction to <b>Right-Left</b> , or the print results would be wrong. |
| 2.Place                               | one "IF" component IF, one "read" I on the screen, to "read", point object to   |
| PSB300                                | , as follows:   |
|                                       |   |
| · ·<br>· ·<br>· ·                     | Print [F  |
| · · · · · · · · · · · · · · · · · · · |   |
| · ·<br>· ·<br>· ·                     |   |
|                                       |   |

3. Select "IF", "read" and "print" at the same time, Right-click the selected area, Pop-up the following dialog box :

| <b>Advance</b>  |                                   |
|---|-----------------------------------|
| Print0_(0)     IF0_(1)     Self Property     Top-Left Horizon     Top-Left Vertical     Bottom-Right Horizon     Bottom-Right Vertical     Current Value     PREAD0_(2) | Property Contain<br>Property Link |
| Current Value Property Contain  | READ0_(2)     Affirm Contain      |
| Print0_(0)  |                                   |

As shown below:

| <b>Advance</b>   |                |
|--|----------------|
| ■•IF0_(1)     ■•Self Property         Top-Left Horizon         Top-Left Vertical         Bottom-Right Horizon         Bottom-Right Vertical <u>Current Value</u> ●•Contain Unit     ●•READ0_(2)     ●•Self Unit     ●•Print0_(0) | Delete Contain |

4. Place one "button" so on the screen, point object to PSB300, set button operate as

• **In Instant**. In the print area, you can place any parts or graphic. After the completion of the

| 0 0       |             |   |             |      |
|-----------|-------------|---|-------------|------|
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| . Fint.   | rugger i    | oit PSB300  |             | UN . |
|           |             |   |             |      |
|           |             |   |             |      |
|           |             |   |             |      |

**Description:** Mini printer can only print black / white 2-color, if there are color graphics in the printing area, they will be color distortion.

## 4.2.26 Sin sin

#### • Overview:

following diagram:

This section we will introduce the sin trigonometric function, trigonometric function is mainly used in numerical computing, many users use instructions of PLC programming tool to achieve the trigonometric functions Numeric Conversion. Sin instructions can also achieve numerical triangle Conversion through the use of write, read advanced instructions. The following will describe the properties and function use of sin instruction.

Property Description

• Property Description:

Click the software icon sin , put sin trigonometric function on the screen, double-click it to open property dialog box, as follows:

| Trigonometric Function |                  |                 |  |  |  |  |  |  |
|------------------------|------------------|-----------------|--|--|--|--|--|--|
| Trigonometric Position |                  |                 |  |  |  |  |  |  |
| Kind<br>Sin            | Format<br>(* Dec | Unit<br>• Angle |  |  |  |  |  |  |
| C Cos                  | С Нех            | C Arc           |  |  |  |  |  |  |
| C Tan                  | C Float          |                 |  |  |  |  |  |  |
| C Ctan                 | O Unsigned       |                 |  |  |  |  |  |  |
| Operand 0              |                  |                 |  |  |  |  |  |  |
|                        |                  |                 |  |  |  |  |  |  |

| Property Name | explain   |
|---------------|---|
| Kind          | We can select sin ,cos, tan ,ctan depending on which kind of Numeric  |
|               | Conversion we want.   |
| Format        | There are four types of date like Dec, Hex, Float and unsigned in     |
|               | Numeric Conversion.   |
|               | Angle or Arc participate in operation depending on which type users   |
| Unit          | choose .  |
| Operand       | Input the data needed to Numeric Conversion ,users can input it       |
|               | indirectly by registers each time, also can enter the conversion data |
|               | again.  |

#### • Routine:

Step1: Build screen, place parts on the screen :

Build a new project, put the following parts on the screen: two text **A**, one digital display **m**,

one digital input 23, one sin, one read **E**, one write **E**, as follows:

| · | · | ·  | T  | محم | +  | · | · | · | · | · | · | ·  | ·  | ÷  | ·  | ÷  | · | • | ·  | · | ·        | ·          | ·  | · | · | · | • |
|---|---|----|----|-----|----|---|---|---|---|---|---|----|----|----|----|----|---|---|----|---|----------|------------|----|---|---|---|---|
| · | · | ·  | +  | Q2  | 71 | · | · | · | · | · | · | ·  | ·  | Т  | eΣ | ςt | · | · | ·  | · | ·        | ·          | ·  | · | · | · | · |
| • | · | •  | •  | ·   | ·  | · | · | · | · | · | · | ·  | ·  | ·  | ·  | ·  | · | · | ·  | · | ·        | ·          | ·  | · | · | · | • |
| • | · | ·  | •  | ·   | ·  | · | · | · | · | · | · | ·  | ·  | ·  | ·  | ·  | · | · | ·  | · | ·        | ·          | ·  | · | · | • | • |
| • | • | •  | •  | •   | ·  | • | • | · | · | · | · | ·  | •  | ·  | ·  | ·  | · | · | ·  | · | •        | ·          | •  | • | • | • | • |
|   | : | :  |    | :   | :  | : | : | : | : | : | Ċ | :  |    | Ċ  | ·  | •  | • | · | •  | • | •        |            | :  | : | : | : | : |
|   |   | Ċ. | ÷  | ÷   |    | ÷ | ÷ | ÷ |   |   | ÷ | ÷  |    | ÷  | н  | M  |   | _ | -  | M |          |            |    |   |   |   |   |
|   |   | h  | Ø  | Й   | Ø  | Й | й | ŀ |   |   |   |    |    |    | 1  | Ø  | Ø | Ø | Ø  | Ø |          | ŀ.         |    |   |   |   |   |
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| · | · | ·  | ·  | ·   | ·  | · | · | · | · | · | · | ·  | ·  | ·  | ·  | ·  | · | · | ·  | · | ·        | ·          | ·  | · | · | · | · |
| · | · | ·  | •  | ·   | ·  | · | · | · | · | · | · | ·  | ·  | ·  | ·  | ·  | · | · | ·  | · | ·        | ·          | ·  | · | · | · | · |
| • | · | ·  | ·  | ·   | ·  | · | · | · | · | · | · | ·  | ·  | ·  | ·  | ·  | · | · | ·  | · | ·        | ·          | ·  | · | · | · | · |
| • | • | 6  | i  | Т   | ·  | · | · | · | · |   | D | Ē. | ٨Ī | 'n | ·  | ·  | · | · | ٠, | ÷ | <u>.</u> | . <u>.</u> |    |   | • | • | • |
|   | • | P! | İn | 2   | •  | • | • | • | • | • | 1 | ÷  | -  | 2  | ·  | ·  | • | · | Ľ  | M | Έ        | <b>{ </b>  | ΓE |   | • | • | • |
|   | : | :  | :  |     | ÷  |   |   |   | : | : | ÷ | ÷  | ÷  | ÷  | ÷  | :  | : | ÷ | .' |   |          |            |    | - |   |   |   |
|   |   |    |    |     |    |   |   |   |   |   |   |    |    |    |    |    |   |   |    |   |          |            |    |   |   |   |   |
|   |   |    |    |     |    |   |   |   |   |   |   |    |    |    |    |    |   |   |    |   |          |            |    |   |   |   |   |

Step2: Modify properties

1. Modify the basic component properties

a. Double-click the left text, open the Properties dialog box, In the text editing area, enter the following text:

| Text              |                 | X                |
|-------------------|-----------------|------------------|
| Display Font Col  | or Position     |                  |
| -C <u>o</u> ntent |                 |                  |
| Input degree      |                 | ~                |
|                   |                 |                  |
| Aspect            | Align Hor       | Align Ver        |
| Text              | C Left          | С Іор            |
| ICAL              | Center          | ⊙ <u>M</u> iddle |
| Changing          | ○ <u>R</u> ight | C Bottom         |
|                   |                 |                  |
|                   | 确定              | <b>取消</b> 应用 (A) |

b. Double-click the right text, open the Properties dialog box, In the text editing area, enter the following text:
| Text              |  |  |
|-------------------|--|--|
| Display Font Col  | or Position  |  |
| -C <u>o</u> ntent |  |  |
| Read the function | n value  |  |
| Text<br>Changing  | Align Hor<br>C Left<br>© Center<br>C <u>R</u> ight | Align Ver<br>C Iop<br>@ Middle<br>C Bottom |
|                   | 确定   | <b>取消</b> 应用 (A)                           |

c. Double-click the left "digital input", open the Properties dialog box, in Object option , modify object to PSW300, as follows:

| - Object — |     |   |          |
|------------|-----|---|----------|
| Object     | PSW | - | 300      |
|            |     | Г | Indirect |

\_

d. Double-click the right "digital display", open the Properties dialog box, in Object option,

| modify object to PSW302, set | Data Type | as | DWord 💌 | , as follows: |
|------------------------------|-----------|----|---------|---------------|
|------------------------------|-----------|----|---------|---------------|

|                | Display Digital 🛛 🔀   |
|----------------|---|
|                | Object Display Font Color Position                          |
|                | Station<br>Device PLC Port<br>VirStaND 0 Station 0          |
|                | Object<br>Object PSW 302<br>Indirect                        |
|                | Data<br>Data Type DWord                                     |
|                |   |
| e. In the      | display option, set Format as Float , in the Bit Length, se |
| T <u>o</u> tal | 8 , Float 6 , as the following setting:                     |

| Display Digital                |                 |                |                                   | ×     |
|--------------------------------|-----------------|----------------|-----------------------------------|-------|
| Object Display Font            | Color           | Positio        | n                                 |       |
| Format                         |                 | -Bit Le        | ength                             |       |
| С Дес С Нех                    |                 | T <u>o</u> tal |                                   | 8     |
| 🖲 <u>F</u> loat C <u>U</u> ns: | igned           | F <u>l</u> oat |                                   | 6     |
| Aspect                         | -Align }        | lor            | Align Ver-                        |       |
| <b>9.00</b> 200                | C Lef           |                | ⊂ <u>T</u> op<br>⊙ <u>M</u> iddle |       |
| Changing                       | ○ <u>R</u> ight |                | C <u>B</u> ottom                  |       |
| ☐ O L <u>e</u> ad              |                 |                |                                   |       |
|                                | 确               | 锭              | 取消                                | 应用(4) |

2. Property modification of advanced command.

a. Double-click sin, open the Properties dialog box, set Kind- as Sin, set Format as

• Float

as the following setting:

| Trigonometric Function 🛛 🛛 🔀   |   |                      |  |  |  |
|--|---|----------------------|--|--|--|
| Trigonometric Position   |   |                      |  |  |  |
| Kind<br>© <u>S</u> in<br>© C <u>o</u> s<br>© <u>T</u> an<br>© <u>C</u> tan | Format<br>C Dec<br>C Hex<br>© Float<br>C Unsigned | Unit<br>Angle<br>Arc |  |  |  |
| Operand  | 0   |                      |  |  |  |
|  | 确定 取注   | 肖 应用(A)              |  |  |  |

b. Double-click the "Read", open the Properties dialog box, modify <sup>Object</sup> to PSW300, as follows:

| Read  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaNO 0 Station 0 |
| Object<br>Object PSW V 300<br>Indirect          |
| Data<br>Data Type Word                          |
| 确定 取消 应用 ( <u>A</u> )                           |

c. Double-click "Write", open the Properties dialog box, modify Object to PSW302, set data

Type as DWord , as follows:

| Vrite   | X |
|---|---|
| Object Position                                 |   |
| Type<br>Unit Type <mark>Register ▼</mark>       |   |
| Station<br>Device PLC Port VirStaNO 0 Station 0 |   |
| Object<br>Object PSW 302<br>Indirect            |   |
| Data<br>Data Type DWord 💌<br>Set Data           |   |
|   |   |

d. Property set belonging to these parts are completed, the final results are as follows:

| • | Input de      | egree     | · · · · · · | Read           | the functio   | n value           |
|---|---------------|-----------|-------------|----------------|---------------|-------------------|
| : |               |           |             |                |               |                   |
| : |               |           |             |                |               |                   |
| : | 0000          | 90        | · · · · ·   | i <b>do</b> ma | iooooo        | · · · · · · · · · |
| : |               |           | · · · · · · |                |               |                   |
| : | · · · · · ·   | · · · · · | · · · · · · |                |               | · · · · · · · ·   |
| : | · · · · · · · | · · · · · | · · · · · · | <br>           |               | · · · · · · · ·   |
| : | <u> sin  </u> | · · · · · |             | <u></u>        | WRITE         | ]                 |
| : | · · · · · ·   | · · · · · | · · · · · · |                | · · · · · · · |                   |
|   |               |           |             |                |               |                   |

## Step3: Advanced Operations

**1.** Select sin Read Write at the same time, Right-click the selected area, choose Advanced ,as follows:



2. Pop-up the following advanced dialog box:

| <b>∐</b> Advance |               |
|------------------|---------------|
| <pre></pre>      | Insert Unit   |
|                  | Unit Name     |
|                  | Unit Property |
|                  |               |
|                  |               |
|                  | ОК            |
|                  | Cancel        |

3. Click the small plus sign ± in front of directive WRITEO\_[2], in the self property, select



4. "Input value " property contain sin 0 (0) , as the following step:

| Advance  |   |
|--|---|
| Advance<br>FEADO_(1)<br>WRITEO_(2)<br>Self Property<br>Station<br>Field1 Value<br>Input Value<br>Contain Unit<br>Sin 0_(0) | Insert Unit<br>Unit Name<br>Unit Property |
|  | ОК  |
|  | Cancel                                    |

5. Open the self property of  $-\sin 0$  (0), select operand to property contain  $-\text{READ0}_{(1)}$ , the steps are shown below:

| Advance  |   |                |
|--|---|----------------|
| READ0_(1)     WRITE0_(2)     Self Property     Self Property     Field1 Value     Input Value     Contain Unit     Sin 0_(0)     Self Property | Property Contain<br>Property Link<br>Property Float |                |
| Operand.   | OK<br>Cancel  |                |
| Operand     Property Contair   | •►  | Affirm Contain |

The effects dialog box:

| Advance  |                                  |
|--|----------------------------------|
| WRITEO_(2)  Self Property  Field1 Value  Contain Unit  Self Property  Self Property  Contain Unit  READ0_(1) | Property Float<br>Delete Contain |

6. At this point, all operations have been completed; the final picture is as follows

| · | ·  | •   | ·   | •  | ·  | ·  | ·    | ·   | · | · | · | · | · | · | · | ·  | ·   | · | ·  | ·  |     | ·   | ·  | ·  | ·   | · |    | •  | ·  | · |
|---|----|-----|-----|----|----|----|------|-----|---|---|---|---|---|---|---|----|-----|---|----|----|-----|-----|----|----|-----|---|----|----|----|---|
| · | ٠T | ÷.  | di. | +  | а. | d, | ÷.   | d'a | ÷ | · | · | · | · | · | Т | ×. | à.  | А | +h | à  | fi  | in  | d. | i. | ÷   | ÷ | -1 |    |    | · |
| · | ц. | щ   | Ņυ  | łŀ | γ₽ | Ęξ | 54.1 | C,C | • | · | · | · | · | · | т | ν¢ | a   | 4 | ų. | ιç | τu  | ιtt | Ļι | τc | 11  | Ņ | ąц | ψ¢ | 2. | · |
| · | ·  | ·   | ·   | ·  | ·  | ·  | ·    | ·   | · | · | · | · | · | · | · | ·  | ·   | · | ·  | ·  | ·   | ·   | ·  | ·  | ·   | · | ·  | ·  | ·  | · |
| · |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    | ·   |     |    |    |     |   |    |    |    | · |
| · |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    | ·   |     |    |    |     |   |    |    |    | · |
| · |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    | ·   |     |    |    |     |   |    |    |    | • |
| • |    | 18  | 41  |    |    | 1h | 41   |     | · | · | · | • | • | · | 1 |    | 5.7 |   |    |    | h d |     |    |    | h d |   |    | •  | •  | • |
| • |    | Į ( | 30  | 90 | 20 | 31 | ð'   |     | • | • | · | • | • | · | • |    | Ø   | Ø | ١. | Ø  | Ø   | Ø   | Ø  | Ø  | Ø   |   | ľ  | •  | •  | • |
|   |    |     |     | _  |    |    |      |     |   |   |   | ÷ |   | Ċ |   |    |     |   |    |    |     |     |    |    |     |   | I. |    |    |   |
| ÷ |    | ÷   | ÷   |    | ÷  | ÷  | ÷    |     |   | ÷ |   |   |   | ÷ | ÷ | ÷  | ÷   |   | ÷  | ÷  |     | ÷   | ÷  | ÷  | ÷   | ÷ | ÷  | ÷  | ÷  | ÷ |
|   |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    |     |     |    |    |     |   |    |    |    |   |
|   |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    |     |     |    |    |     |   |    |    |    |   |
|   |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   |    |    |     |     |    |    |     |   |    |    |    |   |
|   |    |     |     |    |    |    |      |     |   |   |   |   |   |   |   |    |     |   | F  |    | RI  | _   | =  |    |     |   |    |    |    |   |
|   |    |     |     |    |    |    |      |     | · | · | · | · |   |   |   |    |     |   | Ŋ  | M  | R   | ł   | ÷  |    |     |   |    |    |    |   |
| · | ·  | ·   | ·   | ·  | ·  | ·  | ·    | ·   | · | · | · | · | · | · | · | ·  | ·   | · | -  |    | ·   | ·   |    | •  | ·   | · | ·  | ·  | ·  | · |
| · | ·  | ·   | ·   | ·  | ·  | ·  | ·    | ·   | · | · | · | · | · | · | · | ·  | ·   | · | ·  | ·  | ·   | ·   | ·  | ·  | ·   | · | ·  | ·  | ·  | · |

7. Click the "off –line simulation" 🛣 icon on the software, See the following simulation results:

(1) Input data in the digital input box :



(2) the input data converted into the corresponding sin values.

Input degree

Read the function value



**Note:** (1) in the digital input box, input data must be positive, if the input value is negative, the converted sin value will be wrong.

(2) Read function value must be float, otherwise, The value obtained is not very accurate.

## 4.2.27 Arcsin **sin**

## • Overview:

This section will introduce the arcsin anti trigonometric function, like sin trigonometric function, mainly used in the numerical computation, the only difference is that arcsin anti trigonometric function is the inverse process of sin trigonometric function. value is converted to angle or Radian. The following will describes arcsin directive's properties and functions use.

## • Property Description:

Click the software icon sin , put arcsin anti trigonometric function on the screen, double-click

| it to open property dialog box, as follows:       |              |  |  |  |
|---|--------------|--|--|--|
| AntiTrigonometric                                 | ×            |  |  |  |
| AntiTrigonometric Position                        |              |  |  |  |
| -Kind   |              |  |  |  |
| • arcsin C arccos                                 |              |  |  |  |
| Carc <u>t</u> an Carc <u>c</u> tan                |              |  |  |  |
| Return Units<br>O <u>A</u> ngle (© <u>R</u> adian |              |  |  |  |
| Operand 0   |              |  |  |  |
| <b>确定 取消</b> 应用                                   | ( <u>A</u> ) |  |  |  |

| Property Name | explain  |  |  |  |
|---------------|--|--|--|--|
| Kind          | We can select sin ,cos, tan ,ctan depending on which kind of Numeric   |  |  |  |
|               | Conversion we want.  |  |  |  |
| Return Units  | Function value return value, which can be angle or radian.   |  |  |  |
| Operand       | Input the data needed to Numeric Conversion, users can input it<br>indirectly by registers each time, also can enter the conversion data<br>again. |  |  |  |

## •Routine:

Step1: Build screen , place parts

Build a new project, put the following parts on the screen: two text **A**, one digital display



Step2: Modify properties

1. Modify the basic component properties

a. Double-click the left text, open the Properties dialog box, In the text editing area, enter the following text:

| Text                               |            |                  |               | X               |  |  |  |
|------------------------------------|------------|------------------|---------------|-----------------|--|--|--|
| Display                            | Font Color | Position         |               |                 |  |  |  |
| Content                            |            |                  |               |                 |  |  |  |
| Enter trigonometric function value |            |                  |               |                 |  |  |  |
|                                    |            |                  |               | ~               |  |  |  |
|                                    | spect      | Align Hor        | Align Ve      | r               |  |  |  |
|                                    | Text       | ○ <u>L</u> eft   | С <u>Т</u> ор |                 |  |  |  |
|                                    | ICIL       | 💽 <u>C</u> enter | ⊛ Middl       | Le              |  |  |  |
| Cha                                | anging     | 🔿 <u>R</u> ight  | C Botto       | m               |  |  |  |
|                                    |            |                  |               |                 |  |  |  |
|                                    |            | 确定               | 取消            | 应用 ( <u>A</u> ) |  |  |  |

b. Double-click the right text, open the Properties dialog box, In the text editing area, enter the following text:

| Text               |  | $\mathbf{X}$   |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|
| Display Font Col   | or Position  |  |  |  |  |  |  |
| Content            |  |  |  |  |  |  |  |
| Convert into Angle |  |  |  |  |  |  |  |
| Text<br>Changing   | Align Hor<br>C Left<br>C Center<br>C <u>R</u> ight | Align Ver<br>C <u>T</u> op<br>@ <u>M</u> iddle<br>C <u>B</u> ottom |  |  |  |  |  |
|                    | 确定   | <b>取消</b> 应用 (A)   |  |  |  |  |  |

c. Double-click the left "digital input", open the Properties dialog box, in Object option ,

| modify object to PSW300, set | ata rype as | DWord 💌 | as follows: |
|------------------------------|-------------|---------|-------------|
|                              |             |         |             |

| Digi              | tal Input 🛛 🔀   |
|-------------------|---|
| Obje              | ct Display Input Font Color Position  |
|                   | Operate Object Station Device PLC Port  VirStaND Object Object Data Data Data Data Type DWord |
| d. In the display | option, set Format as Float , in the Bit Length, se   |
| <u>l</u> oat      | 1, as the following setting:  |

| Digital Input                            |                     |                  | × |  |  |  |  |  |
|--|---------------------|------------------|---|--|--|--|--|--|
| Object Display Input Font Color Position |                     |                  |   |  |  |  |  |  |
| Format Bit Length Total 5                |                     |                  |   |  |  |  |  |  |
| • Float C Unsi                           | igned F <u>l</u> os | at 1             |   |  |  |  |  |  |
| Aspect                                   | Align Hor           | Align Ver        |   |  |  |  |  |  |
|  | C Left              | С <u>Т</u> ор    |   |  |  |  |  |  |
|  | C <u>C</u> enter    | ⊙ <u>M</u> iddle |   |  |  |  |  |  |
| Changing                                 | 💽 <u>R</u> ight     | C Bottom         |   |  |  |  |  |  |

e. Double-click the right "digital display", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSW302, as follows:

|                | - Object   |        |          |         |       |             |
|----------------|------------|--------|----------|---------|-------|-------------|
|                | Object     | PSW    | -        |         | 302   |             |
|                |            |        | Γ        | Indirec | t     |             |
|                |            |        |          | ~       |       |             |
| f. In the disp | lay optior | n, set | Format — | as      | Decj, | as follows: |

| Format          |                    |
|-----------------|--------------------|
| • Dec           | С <u>Н</u> ех      |
| C <u>F</u> loat | 🔘 <u>U</u> nsigned |

- 2. Property modification of advanced command.
  - a. Double-click arcsin, open the Properties dialog box, set Kind- as ercsin, set

-Return Units - as • Angle , as the following setting:

| AntiTrigonome     | tric               | ×     |
|-------------------|--------------------|-------|
| AntiTrigonometri  | Position           |       |
| Kind              |                    |       |
|                   | C arcc <u>o</u> s  |       |
| C arc <u>t</u> an | C arc <u>c</u> tan |       |
| Return Units-     | C Radian           |       |
| Operand           | 0                  |       |
|                   | 确定 取消 )            | 应用(4) |

b. Double-click the "Read", open the Properties dialog box, modify <sup>Object</sup> to PSW300, set data

|         | DV-7  | _          |             |
|---------|-------|------------|-------------|
| Type as | DWord | <b>_</b> , | as follows: |

| Read 🛛 🔀   |
|--|
| Object Position                                    |
| Type<br>Unit Type <mark>Register ▼</mark>          |
| Station<br>Device PLC Port<br>VirStaNO 0 Station 0 |
| Object<br>Object PSW 		 300<br>Indirect            |
| Data<br>Data Type DWord 💌                          |
| <b>确定 取消</b> 应用 ( <u>a</u> )                       |

c. Double-click "Write", open the Properties dialog box , modify <sup>Object</sup> to PSW302, as follows:

| Vrite   |       |
|---|-------|
| Object Position                               |       |
| Type<br>Unit Type Register ▼                  |       |
| Station<br>Device PLC Port VirStaNO 0 Station | 0     |
| Object PSW                                    |       |
| Data<br>Data Type Word<br>Set Data            |       |
| 确定取消  | 应用(A) |

d. Property set belonging to these parts are completed, the final results are as follows:

| • | · | ·  | ·  | · | ·   | ·   | ·  | ·  | · | •  | ·   | ·  | ·  | ·  | ·   | ·   | ·  | ·   | · | ·   | ·   | ·   | · | ·  | ·  | · | ·   | ·  | ·   | •   | ·   | ·   | ·   | ·  | •  | • • |     |    |
|---|---|----|----|---|-----|-----|----|----|---|----|-----|----|----|----|-----|-----|----|-----|---|-----|-----|-----|---|----|----|---|-----|----|-----|-----|-----|-----|-----|----|----|-----|-----|----|
| • | · | •  | •  | • | •   | •   | •  | •  | • | •  | •   | •  | •  | •  | •   | •   | •  | •   | · | ·   |     |     |   |    |    |   |     |    |     |     |     |     | ·   |    |    |     |     | -  |
| • | F | 'n | tè | ŕ | t'n | įġ, | ót | iò | π | ιė | tin | iċ | Ť  | ìù | nic | :fi | ót | 'n  | ý | alı | цiе | ÷   | · | ·  | ·  | · | ٠,  | à  | · . | · · | · . | ÷   | in  | Ľ. | ۰, |     | _1  |    |
| • | - |    |    |   |     | œ   |    |    | ~ |    |     | •• |    |    |     |     |    |     | T |     |     | ••• | • | •  | •  | • | . 1 | ات | or  | 10  | ei  | τ   | 111 | ю  | 15 | ш   | gr  | e. |
| • | • | •  | •  | • | •   | •   | •  | •  | • | •  | •   | •  | •  | •  | •   | •   | •  | •   | • | •   | •   | •   | • | •  | •  | • | •   | •  | •   | •   | •   | ·   | •   | •  | •  | • • | • • |    |
| • | · | •  | •  | • | •   | •   | •  | •  | • | •  | •   |    |    |    |     |     | ·  |     |   |     |     |     |   |    |    |   |     | •  | •   | •   | ·   | ·   | ·   | •  | •  | • • | • • | -  |
| • | · | •  | ·  | • |     |     |    |    |   |    | ·   |    |    |    |     |     |    |     |   |     |     |     | · | ·  | ·  | · | ·   | ·  | ·   | ·   | ·   | ·   | ·   | ·  | •  | • • | • • | •  |
| • | · | •  | ·  | • | ·   | ·   | •  | ·  | · | •  | ·   | ·  | ·  | ·  | ·   | ·   | ·  | ·   | · | ·   | ·   | ·   | · | ·  | ·  | · | •   | •  | ·   | ·   | •   | ·   | ·   | ·  | •  | • • |     | •  |
|   | · |    |    |   |     |     |    |    |   |    |     |    |    | _  |     |     | _  | · • | • | ·   | ·   |     |   |    | ·  | • | •   |    | 10  |     |     |     | Ø   |    | ŀ  | • • |     |    |
|   |   |    |    |   |     |     |    |    |   |    | 98  |    | -  |    | -11 | ¥١  |    | •   |   |     |     |     |   |    |    |   |     |    | Ø   | Ø   | Ø   | Ø   | Ø   |    | ŀ  |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    | 24  | 21 | 21 | 2  | • • | Ø   |    |     |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    | ŀ  |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     | Ξ. | ١.  |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    |    |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     |    |     |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    |    |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     |    |     |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    |    |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     |    |     |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    |    |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     |    |     |   |     |     |     |   | -  | Π. |   |     |    | . 1 |     | -   | ιī. | тг  | -  |    |     |     |    |
|   |   |    |    |   |     |     |    |    |   |    |     | a  | rc | SI | IŅ  | L.  |    |     |   |     | ١t  | ٩Ŀ  | A | ιU | Ľ. |   |     |    |     | M   | ٢H  | ł   | ŢĘ  | -1 |    |     |     |    |
|   |   |    | •  |   |     | •   |    |    |   |    |     |    |    |    | -   | _   |    |     |   |     | 1   |     |   | -  |    | • | •   | •  |     | -   |     |     |     | -  |    |     |     |    |
| • | • | •  | •  | • | •   | •   | •  | •  | • | •  | •   | •  | ·  | •  | •   |     | •  | •   | ÷ | •   | :   | •   | • | •  | •  | • | •   | •  | •   | •   | •   | •   | •   | •  | •  | • • | • • |    |
| • | • | •  | •  | · | •   | •   | ·  | ·  | · | •  | •   | ·  |    |    |     |     |    |     |   |     |     |     |   |    |    |   | ·   | ·  | •   | •   | •   | •   | •   | •  | •  | • • | • • |    |
| • | • | •  | •  | · | •   | •   | •  | ·  | · | ·  | •   | ·  | ·  | •  | •   | •   | ·  | ·   | • | •   | •   | •   | · | ·  | •  | • | ·   | ·  | •   | ·   | •   | •   | •   | •  | •  | • • | • • |    |
| • | • | ·  | •  | · | •   | •   | ·  | ·  | · | •  | •   | ·  | ·  | •  | ·   | •   | •  | ·   | • | •   | •   | •   | · | ·  | •  | • | ·   | ·  | •   | ·   | •   | ·   | ·   | •  | •  | • • | • • | -  |
|   |   |    |    |   |     |     |    |    |   |    |     |    |    |    |     |     |    |     |   |     |     |     |   |    |    |   |     |    |     |     |     |     |     |    |    |     |     |    |

## Step3: Advanced Operations

1. Select  $\arcsin$  Read Write at the same time, Right-click the selected area, choose Advanced ,as follows:



2. Pop-up the following advanced dialog box:

| <b>Advance</b>        |               |
|-----------------------|---------------|
| arcsin 0_(0) <b> </b> | Insert Unit   |
|                       | Unit Name     |
|                       | Unit Property |

3. Click the small plus sign in front of WRITEO\_(2), in the self property, select Input Value,

as follows:

| Advance  |                                  |
|--|----------------------------------|
| arcsin 0_(0)     READ0_(1)     WRITE0_(2)     Self Property     Station     Field1 Value     Input Value | Affirm Contain<br>Cancel Contain |

4. "Input value " property contain **arcsin 0\_(0)** , as the following step:

| Input Value  | Property Contain                  | → arcsin 0_(0) | Affirm Contain |
|--|-----------------------------------|----------------|----------------|
| <b>Advance</b>   |                                   |                | ×              |
| ■ READ0_(1) WRITE0_( Self Proputation Self Proputation Field1 Input • Contain U • arcs | 2)<br>erty<br>n<br>Value<br>Value | Delete Contain |                |

5. Open the self property of **□** arcsin **0\_(0)**, select "operand" to property contain **READ0\_(1)**, the steps are shown below:

| Property Contain  | Affirm Contain                   |
|---|----------------------------------|
| Advance   |                                  |
| WRITE0_(1) Contain Unit Contain Unit Self Property Contain Unit Property READ0_(0) Contain Unit Self Property | Property Float<br>Delete Contain |

| Ē | 'n | te | r | t'n | iġ | ót | nja | 'n | ıė | t'n | İ¢ | f  | ü | nic | ti | or | ı. | ý; | alı | įe |   | : | : | • | • | . ( | ġ | or | 1V  | e | t  | in | to |   | L | 1g     | de    |
|---|----|----|---|-----|----|----|-----|----|----|-----|----|----|---|-----|----|----|----|----|-----|----|---|---|---|---|---|-----|---|----|-----|---|----|----|----|---|---|--------|-------|
| • | •  | •  |   |     | •  | •  | •   | •  | ·  | ·   | •  | •  | • | •   | •  | •  | •  | •  | •   | •  | • | • | • | • | • | ·   | · | ·  | ·   | · | •  | ·  | •  | • | • | $\sim$ | ' · . |
| • | •  | •  |   | •   | •  | •  | •   | •  | ·  | ·   | •  | •  | • | •   | •  | •  | •  | •  | •   | •  | • | • | • | • | • | ·   | · | ·  | ·   | · | •  | ·  | •  | • | • | •      | •     |
| • |    |    |   |     |    |    |     |    |    | ·   |    |    |   |     |    |    |    |    |     |    |   | • | • |   |   |     |   |    |     |   |    |    | •  | • | • |        |       |
| • |    |    |   |     |    |    |     |    |    |     |    |    | · |     |    |    |    |    |     | ·  |   |   |   |   |   | ·   |   | ·  |     | · |    |    |    |   |   |        |       |
| • |    |    |   |     |    |    |     |    |    |     |    |    | _ |     |    | -  |    |    |     |    |   |   |   |   |   |     |   | V  |     |   |    | 10 |    | ŀ |   |        |       |
| • |    |    |   |     |    |    |     |    |    | ЦP  | 4  | 21 |   | ΗĐ  | 21 |    |    |    |     |    |   |   |   |   |   |     | - | Ø  | Ø   | Ø | Ø  | Ø  |    | ŀ |   |        |       |
| • |    |    |   |     |    |    |     |    |    | 24  | 91 | 91 | 9 | • • | 2  |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    | ŀ |   |        |       |
|   |    |    |   |     |    |    |     |    |    | -   |    |    |   |     |    | Ξ. |    |    |     |    |   |   |   |   |   | •   |   |    |     |   |    |    |    | - |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    | ٦Ū, | Ŋ | DÌ | IT | Ē  |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    | Ľ   | 1 | ņ  | Ţ  | IJ |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |
|   |    |    |   |     |    |    |     |    |    |     |    |    |   |     |    |    |    |    |     |    |   |   |   |   |   |     |   |    |     |   |    |    |    |   |   |        |       |

6. At this point, all operations have been completed; the final picture is as follows:

7. Click the "off –line simulation " 🌋 icon on the software, See the following simulation results:

(1) Input data in the digital input box :



(2) the input data converted into the corresponding angle and Radia.

Enter trigonometric function value Convert into Angle





Note: 1) input data must be float , and decimal places can not be too much, otherwise the contained angle or Radia.will not very accurate.

# 4.2.28 Power X<sup>\*</sup>

## • Overview:

This section will introduce "pow" function, familiar with sin trigonometric function, arcsin anti trigonometric functions, mainly used in the numerical computation, users who not familiar with Advanced directives, typically using "set data" button, function button or a function filed to achieve it, but the production process is more complex, and not very flexible. The following will describes Pow directive's properties and functions use.

#### • Property Description:

"Pow" definition is that specified data will be multiplied by several times, similar to involution, but the mathematics is different from the power function. In mathematics where a function is just part of one of them.

Click the software icon X, put Pow on the screen, double-click it to open property dialog box, as follows:

| Pow                |          | ×    |
|--------------------|----------|------|
| Pow Function       | Position |      |
| X <u>O</u> perand  | D        |      |
| X <u>F</u> ormat   | Dec      |      |
| Y Ope <u>r</u> and | 0        |      |
| Y For <u>m</u> at  | Dec 💌    |      |
|                    |          |      |
|                    | 确定 取消 应用 | 目(点) |

| Property Name | explain   |
|---------------|---|
| X operand     | Implementation of the operation data, similar to the mathematical     |
|               | power function in the base.   |
| X Format      | Data Type :Dec、Hex、Float、Unsigned                                     |
|               | Operands implementation of several actions to develop, similar to the |
| Y operand     | mathematical power function in the index                              |
| Y Format      | Data Type :Dec, Hex, Float, Unsigned                                  |

## • Routine

Step1: build screen , place parts:

Build a new project, put the following parts on the screen: three text **A**, one digital display



 $\blacksquare$ , two digital input  $\square$ , one  $\checkmark$ , two read  $\blacksquare$ , one write  $\blacksquare$ , as follows:

|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          | •   |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |
|---|---|-----|-----|----|----|-----|----|----|---|---|---|---|---|----------|----|-----|----------|-----|-----|---|----|----|---|---|----|----|----|----|------------|-----|----|---|---|
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |
|   |   |     |     | -  |    |     |    |    |   |   |   |   |   |          |    | •   |          |     |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |
|   |   |     |     | 1  | ez | ¢,  |    |    |   |   |   |   |   |          | _1 | l e | хt       |     |     |   |    |    |   |   |    |    | _  |    |            |     |    |   |   |
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   |    |    | Τ. | e۶ | đ.         |     |    |   |   |
| • | • | •   | •   | •  | •  | •   | •  | •  | • | • | • | • | • | •        | ·  | •   | •        | •   | •   | • | •  | •  | • | • | •  | •  | -  | ~- |            | •   | •  | • | • |
| · | • | •   | •   | •  | •  | •   | ·  | •  | • | • | • | • | • | ·        | ·  | •   | •        | •   | •   | • | •  | •  | • | • | •  | ·  | •  | •  | •          | •   | •  | • | • |
| · | · | •   | •   | •  | •  | ·   | ·  | ·  | • | · | · | · | · | ·        | ·  | ·   | ·        | ·   | ·   | · | ·  | ·  | · | · | ·  | ·  | ·  | •  | •          | •   | ·  | • | • |
| · |   | •   | •   | •  | •  | •   | ·  | •  | • | · | · | · | · | ·        | ·  | ·   | ·        | ·   | ·   | · | ·  | ·  | · | · | ·  | ·  | ·  | •  | •          | ·   | ·  | • | • |
|   |   | 5.7 |     |    |    | 5.0 |    | ŀ  |   |   |   |   |   | 5.0      |    |     |          | 5.2 |     | ŀ |    |    |   |   |    |    |    |    |            |     |    |   |   |
|   |   | Й   | i 🗵 | 1Ø | Й  | Й   | 1  |    |   |   |   |   | ч | Й        | Ю  | Ø   | Й        | Й   | 1   |   |    |    |   |   |    | 41 |    |    |            | 41  | а. |   |   |
|   |   | -   |     | -  |    | -   |    |    |   |   |   |   |   | -        | -  | -   | -        | -   |     |   |    |    |   |   | ١ċ | άċ | ac | аċ | ab         | 411 |    |   |   |
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   | 15 |    |    |    |            | •   |    |   |   |
| Ċ |   |     |     |    |    | •   |    | •  |   |   |   |   |   |          | ·  |     | •        |     |     |   |    | •  |   |   | -  | -  | -  | -  | -          | -   | -  |   |   |
|   | • | •   | •   | •  | •  | •   | •  | •  | • | • | • | • | • | •        | •  | •   | •        | •   | •   | • | •  | •  | • | • | •  | •  | •  | •  | •          | •   | •  | • | • |
| · | • | •   | •   | •  | •  | •   | ·  | •  | • | • | • | • | • | ·        | ·  | •   | •        | •   | •   | • | •  | •  | • | • | •  | ·  | •  | •  | •          | •   | •  | • | • |
| · | · | •   | •   | ·  | ·  | ·   | ·  | ·  | • | · | · | · | · | ·        | ·  | ·   | ·        | ·   | ·   | · | ·  | ·  | · | · | ·  | ·  | ·  | ·  | ·          | ·   | ·  | • | • |
| · | • | •   | •   | •  | F  | _   | -  | ٦. | • | • | • | • | • | ·        | ·  | ·   | ·        | ·   | ·   | · | •  | •  | · | · | •  | ·  | •  | •  | •          | •   | ·  | • | • |
|   |   |     |     |    | ŀ  | 0י  | 14 | 1. |   |   |   |   |   | Ð        | E. | ٨Ī  | 7        |     | · 1 | Ð | E. | ٨Ī | 7 |   |    |    | -Γ | IJ | ЪÌ         | т   | ĒI |   |   |
|   |   |     |     |    | ÷  | -   |    | ۰. |   |   |   |   |   | <u>ר</u> | Ŀ  | 끤   | <u>)</u> |     | . 1 | ņ | Ŀ  | 삔  | 4 |   |    |    | Ľ  | 1  | <u>n</u> u |     | IJ |   |   |
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |
|   | • | •   | •   | •  | •  | •   | •  | •  | • | • | • | • | • | ·        | •  | •   |          |     | •   |   |    | •  | • | • | •  | •  | •  | •  | •          |     | •  |   | • |
|   |   |     |     |    |    |     |    |    |   |   |   |   |   |          |    |     |          |     |     |   |    |    |   |   |    |    |    |    |            |     |    |   |   |

## Step2: Modify properties

1. Modify the basic component properties

a. Double-click the left text, open the Properties dialog box, In the text editing area, enter the following text:

| Text              |                 |                  |
|-------------------|-----------------|------------------|
| Display Font Col  | Lor Position    |                  |
| -C <u>o</u> ntent |                 |                  |
| Y input           |                 |                  |
| Aspect            | Align Hor       | Align Ver        |
| Text              | C Left          | C Iop            |
| ICAL              | Center          | ⊙ <u>M</u> iddle |
| Changing          | ○ <u>R</u> ight | C Bottom         |
|                   |                 |                  |
|                   | 确定              | 取消 应用 (A)        |

b. Double-click the middle text, open the Properties dialog box, In the text editing area, enter the following text:

| Text               |                  |       | ×      |
|--------------------|------------------|-------|--------|
| Display Font Color | r   Position     |       |        |
| Content            |                  |       |        |
| X input            |                  |       | ~      |
| Aspect             | Align Hor        | Align | Ver    |
| Text               | C <u>L</u> eft   | O Iop | ,      |
| ICAL               | 🖲 <u>C</u> enter | ● Mid | ldle   |
| Changing           | ○ <u>R</u> ight  | C Bot | tom    |
|                    |                  |       |        |
|                    | 确定               | 取消    | 应用 (A) |

c. Double-click the right text, open the Properties dialog box, In the text editing area, enter the following text:

| Iext              |  | X                 |
|-------------------|--|-------------------|
| Display Font Cold | or Position  |                   |
| -C <u>o</u> ntent |  |                   |
| fower function vs | lue  |                   |
|                   |  | <u> </u>          |
| Aspect            | Align Hor  | Align Ver         |
| Text              | C Left   | С Іор             |
|                   | <u> <u> <u> </u> /u></u> | Middle     Middle |
| Changing          | ○ <u>R</u> ight  | C Bottom          |
|                   |  |                   |
|                   | 确定   | 取消 应用(A)          |

d. Double-click the left "digital input", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSW300, as follows:

| PSW | -    | 300     |
|-----|------|---------|
|     | ⊢ Ir | ndirect |
|     | PSW  |         |

e. Double-click the middle "digital input", open the Properties dialog box, in **Dbject** option, modify object to PSW301, as follows:

| - Object<br>Object | PSW    | 301 |
|--------------------|--------|-----|
| Data<br>Data Typ   | e Word | •   |

f. Double-click the right "digital display", open the Properties dialog box, in Object option, modify object to PSW302, as follows:

| Dis | play Digital   | × |
|-----|--|---|
| ОЪј | ect Display Font Color Position                      |   |
|     | Station<br>Device PLC Port 💌<br>VirStaND 0 Station 0 |   |
|     | Object<br>Object PSW <b>v</b> 302<br>Indirect        |   |

2. Property modification of advanced command.

a. Double-click the left "Read", open the Properties dialog box, modify Object to PSW300, as follows:

| Read                         | × |
|------------------------------|---|
| Object Position              |   |
| Type<br>Unit Type Register ▼ |   |
| Station                      |   |
| Device PLC Port              |   |
| VirStaNO 0 Station 0         |   |
| Object                       |   |
| Object PSW 💌 300             |   |
| 🗖 Indirect                   |   |
| Data                         |   |
| Data Type Word               |   |
|                              |   |
| 确定 取消 应用 (4                  | 9 |

b. Double-click the right "Read", open the Properties dialog box, modify Object to PSW301, as follows:

| Read 🛛 🔀  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaNO 0 Station 0 |
| Object<br>Object PSW                            |
| Data<br>Data Type Word                          |
| 确定 取消 应用 ( <u>A</u> )                           |

c. Double-click "Write", open the Properties dialog box , modify <sup>Object</sup> to PSW302, as follows:

| Trite 🔀  |
|--|
| Object Position                                    |
| Type<br>Unit Type Register ▼                       |
| Station<br>Device PLC Port<br>VirStaNO 0 Station 0 |
| Object Object S02                                  |
| Data<br>Data Type Word 💌<br>Set Data               |
|  |

d. Property belonging to this part is completed; the final result is as follows:

| ÷ | ÷ | ÷ | ÷ | ÷ | ÷  | ÷        | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | ÷     | ÷ | ÷   | ÷  | ÷  | ÷  | ÷ | ÷ | ÷ | ÷ | ÷ | ÷  | ÷ | ÷   | ÷   | ÷  | ÷   | ÷  | ÷   | ÷  | ÷  | ÷  | ÷ |
|---|---|---|---|---|----|----------|---|---|---|---|---|---|-------|---|-----|----|----|----|---|---|---|---|---|----|---|-----|-----|----|-----|----|-----|----|----|----|---|
| : | • |   | Y | n | ıp | ut       |   | • | • | • | • | • | •     | X | C 1 | 'n | ρi | ıţ | • | • | • | • | ₽ | ¢. | ŵ | er  | f   | ür | iċ  | tí | o'n | ί, | ra | ļų | ė |
| ÷ | : | : | : | : | :  | :        | : | : | : | : | : | : | :     | : | :   | :  | :  | ÷  | : | : | : | : | ÷ | :  | : | :   | :   | :  | ÷   | :  | :   | :  | :  | :  | : |
| : | H | Ø | Ø | 0 | Ø  | Ø        | T | ł | : | : | : | : | Η     | Ø | Ø   | 0  | Ø  | Ø  |   | ŀ | : | : | : | İ  | 1 | 4   |     |    |     | 41 | İ   | :  | :  | :  | : |
| : | Ì | : | : | : | :  | :        | 1 |   | : | : | : | : | Ì     | : | :   | 1  | :  | :  | 1 |   | : | : | : |    | • | 3 E | 3 E |    | 31£ | э  |     | :  | :  | :  | : |
| : | : | : | : | : | :  | :        | : | : | : | : | : | : | :     | : | :   | :  | :  | :  | : | : | : | : | : | :  | : | :   | :   | :  | :   | :  | :   | :  | :  | :  | : |
| : | : | : | : | : | ļ  | <u>,</u> | W | 1 | : | : | : | : | :<br> | R | Ē   | Ą  | D, | :  | ÷ | Ŗ | Ē | Ą | j | :  | : | :   | Į   | Y  | Ŗ   | Ī  | Ē   | :  | :  | :  | : |
| : | : | : | : | : | :  | :        | : | : | : | : | : | : | :     | : | :   | :  | :  | :  | : | : | : | : | : | :  | : | :   | :   | :  | :   | :  | ÷   | :  | :  | :  | : |
|   |   |   |   |   |    |          |   |   |   |   |   |   |       |   |     |    |    |    |   |   |   |   |   |    |   |     |     |    |     |    |     |    |    |    |   |

## Step3: Advanced Operations

1. Select Pow, two Read, Write at the same time, Right-click the selected area, choose Advanced ,as follows:

| Y input | Xinput | . Power fünction value                          | • |
|---------|--------|---|---|
| 00000   | 00000  | 00000   | • |
| Pow     | READ   | Property  | • |
|         |        | Group<br>Lock<br>Public Unit<br>System          |   |
|         |        | Cut<br>Copy<br>Delete<br>Save                   |   |
|         |        | Template<br>Advance<br>Optimistic<br>Vnlock All |   |

2. Pop-up the following advanced dialog box:



3. Click the small plus sign  $\doteq$  in front of directive  $\Rightarrow$  WRITE0\_[3], in the self property, select



| Advance  |                                   |
|--|-----------------------------------|
| Pow0_(0) READ0_(1) READ0_(2) WRITE0_(3) Self Property Station Field1 Value Input Value | Property Contain<br>Property Link |

4. "Input value" property contain **Pow0\_(0)**, as the following step:



5. Open the self property of **Pew0\_00**, select "X" to property contain **READ0\_(1)**, the steps are shown below:

| <b>Advance</b>                                       |                  |                    |
|--|------------------|--------------------|
| ■ READ0_(1) ■ READ0_(2) ■ WRITE0_(3)                 | Property Contain |                    |
| ⊡- Self Property<br>Station<br>Field1 Value          | Property Link    |                    |
| ⊡ Input Value<br>⊡ Contain Unit<br>⊡ <b>Pow0_(0)</b> | Property Float   |                    |
| i⊟- Self Property                                    |                  |                    |
|  | ОК               |                    |
|  | Cancel           |                    |
| Property Contain                                     | EADO             | (1) Affirm Contain |

The effects of dialog box:

| Advance   |                                  |
|---|----------------------------------|
| READ0_(2)     WRITE0_(3)     Self Property     Station     Field1 Value     Ontain Unit     Pow0_(0)     Self Property     Y     E- Contain Unit     Pow0_(1) | Property Float<br>Delete Contain |
|   | ок                               |
|   | Cancel                           |

6. Select "Y" to property contain<sup>**PREAD0**[2], the steps are shown below:</sup>

| Advance   |                  |                |
|---|------------------|----------------|
|   | Property Contain |                |
| Station<br>Field1 Value<br>Input Value                    | Property Link    |                |
| Ė∽ Contain Unit<br>Ė∽ <b>Pow0_(0)</b><br>È∽ Self Property | Property Float   |                |
| ⊡ · Contain Unit  |                  |                |
| ⊡ READ0_(1)   | ОК               |                |
|   | Cancel           |                |
| Property Contain  | ► [              | Affirm Contain |

The effects of dialog box:

| Advance  |                            |
|--|----------------------------|
| WRITE0_(3)     Self Property     Self Property     Self Prolety     Field1 Value     Input Value     Contain Unit     Pow0_(0)     Self Property     Self Property     Y     Contain Unit     PREAD0_(1)     F.READ0_(2) | Unit Name<br>Unit Property |
|  | ок                         |
|  | Cancel                     |

7. At this point, all operations have been completed; the final picture is as follows

| · · · · | Ymp  | ut · · · · · · · · ·      | Xinput : : : : | Power function value                  |
|---------|------|---------------------------|----------------|---------------------------------------|
|         |      |                           |                |                                       |
|         |      |                           |                | · · · · · · · · · · · · · · · · ·     |
|         | 0000 | 0                         | 00000          |                                       |
|         |      | <del> </del> <del>.</del> |                |                                       |
|         |      |                           |                |                                       |
|         |      |                           |                | · · · · · · · · · · · · · · · · · ·   |
|         |      |                           |                | CONTRACTOR STREET                     |
|         |      |                           |                | · · · · · · · · · · · · · · · · · · · |
|         |      |                           |                |                                       |

8. Click the "off –line simulation " 🛣 icon on the software, See the following simulation

## results:

 $\bigcirc$  Y is similar to mathematical index



(5) X is similar to the mathematical base



(6) Read the value of power function



# 4.2.29 Sqrt 🗾

#### • Overview:

This section will introduce the sqrt square root function, similar with sin trigonometric function, arcsin anti trigonometric function, pow function, mainly used in the numerical computations. Referred to earlier sin trigonometric and arcsin anti trigonometric function is a set of positive and negative function, the same to power function and sqrt square root function. The following describes the attributes and function use of pow instruction

### • Property Description:

Click the software icon , put sqrt square root function on the screen, double-click it to open property dialog box, as follows:

| Pow                |                              | × |
|--------------------|------------------------------|---|
| Pow Function       | Position                     |   |
| X <u>O</u> perand  | D                            |   |
| X <u>F</u> ormat   | Dec 💌                        |   |
| Y Ope <u>r</u> and | 0                            |   |
| Y For <u>m</u> at  | Dec                          |   |
|                    | <b>确定 取消</b> 应用 ( <u>A</u> ) |   |

| Property Name | Explain   |
|---------------|---|
| X operand     | Implementation of the operation data, similar to the mathematical     |
|               | power function.   |
| X Format      | Data Type :Dec, Hex, Float, Unsigned                                  |
|               | Operands implementation of several actions to develop, similar to the |
| Y operand     | mathematical power function in the index                              |
| Y Format      | Data Type :Dec, Hex, Float, Unsigned                                  |

## • Routine:

**Step1:** build screen, place parts

Build a new project, put the following parts on the screen: three text **A**, one digital display



#### Step2: Modify properties

1. Modify the basic component properties

a. Double-click the left text, open the Properties dialog box, In the text editing area, enter the following text:

| Iext               |  |   | ×      |
|--------------------|--|---|--------|
| Display Font Color | Position                                   |   |        |
| -C <u>o</u> ntent  |  |   |        |
| Y : Sprt times     |  |   | ~      |
| Text<br>Changing   | Align Hor<br>C Left<br>© Center<br>C Right | Align Ver<br>C <u>T</u> op<br>C <u>M</u> iddl<br>C <u>B</u> ottor | e      |
|                    | 确定   | 取消  | 应用 (4) |

b. Double-click the middle text, open the Properties dialog box, In the text editing area, enter the following text:

| Display Font Col            | or Position  |  | X          |
|-----------------------------|--|--|------------|
| Content<br>X: radicand      |  |  |            |
| Aspect<br>Text<br>Changing, | Align Hor<br>C Left<br>© Center<br>C <u>R</u> ight | Align Ver<br>C <u>T</u> op<br>@ <u>M</u> iddle<br>C <u>B</u> ottom |            |
|                             | 确定   | 取消 应用(   | <u>a</u> ) |

c. Double-click the right text, open the Properties dialog box, In the text editing area, enter the following text:

| Iext              |  |  |
|-------------------|--|--|
| Display Font Col  | or Position  |  |
| -C <u>o</u> ntent |  |  |
| Sqrt function val | Lue  |  |
| Text<br>Changing  | Align Hor<br>C Left<br>© Center<br>C <u>R</u> ight | Align Ver<br>C <u>T</u> op<br>@ <u>M</u> iddle<br>C <u>B</u> ottom |
|                   | 确定   | 取消 应用 (4)  |

d. Double-click the left "digital input", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSW300, as follows:

| PSW | -    | 300     |
|-----|------|---------|
|     | ⊢ Ir | ndirect |
|     | PSW  |         |

e. Double-click the middle "digital input", open the Properties dialog box, in **Dbject** option, modify object to PSW301, as follows:

| - Object -<br>Object | PSW 301  |
|----------------------|----------|
|                      | Indirect |

f. Double-click the middle "digital display", open the Properties dialog box, in **Dbject** option, modify object to PSW302, as follows:

| Display Digital  |       |
|--|-------|
| Object Display Font Color Position<br>Station<br>Device PLC Port<br>VirStaND 0 Station 0 |       |
| Object<br>Object PSW I 302<br>Indirect   |       |
| Data Type <b>DWord</b>   |       |
|  | 应用(A) |

g. In the display option, set Format as Float , in the Bit Length, set Float as 2, as follows:

| Display Digital    |               |                |            |        |  |  |  |  |  |  |  |  |  |  |
|--------------------|---------------|----------------|------------|--------|--|--|--|--|--|--|--|--|--|--|
| Object Display For | t Color       | r   Positio    | n          |        |  |  |  |  |  |  |  |  |  |  |
| Format             |               |                | Bit Length |        |  |  |  |  |  |  |  |  |  |  |
| C Dec C He         |               | T <u>o</u> tal |            | 5      |  |  |  |  |  |  |  |  |  |  |
| • Float O Ur       | nsigned       | F <u>l</u> oat |            | 2      |  |  |  |  |  |  |  |  |  |  |
| Aspect             | Align         |                | -Align V   |        |  |  |  |  |  |  |  |  |  |  |
| 600.00             |               |                |            |        |  |  |  |  |  |  |  |  |  |  |
|                    |               |                | ⊙ Mide     |        |  |  |  |  |  |  |  |  |  |  |
| Changing           | ⊙ <u>R</u> i∉ | gnt            | C Bott     | tom    |  |  |  |  |  |  |  |  |  |  |
| 🔽 O L <u>e</u> ad  |               |                |            |        |  |  |  |  |  |  |  |  |  |  |
|                    |               |                |            |        |  |  |  |  |  |  |  |  |  |  |
|                    | Ť             | 角定             | 取消         | 应用 (A) |  |  |  |  |  |  |  |  |  |  |

- 2. Property modification of advanced command.
  - a. Double-click the left "Read", open the Properties dialog box, modify Object to PSW300, as

follows:

| Read  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaND 0 Station 0 |
| Object<br>Object PSW V 300<br>Indirect          |
| Data<br>Data Type Word                          |
| 确定 取消 应用 (A)                                    |

b. Double-click the right "Read", open the Properties dialog box, modify Object to PSW301, as

follows:

| Read   |
|--|
| Object Position                                      |
| Type<br>Unit Type Register 💌                         |
| Station<br>Device PLC Port v<br>VirStaNO 0 Station 0 |
| Object<br>Object PSW 		 301<br>Indirect              |
| Data<br>Data Type Word                               |
| 确定 取消 应用 ( <u>A</u> )                                |

c. Double-click "Write", open the Properties dialog box, modify Object to PSW302, set data

Type as DWord , as follows:

| Vrite 🔀   |
|---|
| Object Position                                 |
| Type<br>Unit Type <mark>Register ▼</mark>       |
| Station<br>Device PLC Port VirStaND 0 Station 0 |
| Object<br>Object PSW 		 302<br>Indirect         |
| Data<br>Data Type DWord<br>Set Data             |
|   |

d. Property set belonging to these parts are completed, the final results are as follows:

| : | Y  |   |   | j<br>Sp | it | t  | iin | ie | Ś | : | : | • | X  | . 1 | rà. | di | ¢۵ | ain | đ | : | : | : | . 22 | ģ | li.t | fi | in | ¢t | ic  | 'n | V | álı | ie  |   | • |
|---|----|---|---|---------|----|----|-----|----|---|---|---|---|----|-----|-----|----|----|-----|---|---|---|---|------|---|------|----|----|----|-----|----|---|-----|-----|---|---|
|   |    |   |   |         |    |    |     |    |   |   |   |   |    |     |     |    |    |     |   |   |   |   |      |   |      |    |    |    |     |    |   |     |     |   |   |
| · | ÷. | · | · | ·       | ·  | ·  | ·   | ·  | ÷ | · | · |   | ·  | ·   | ·   | ·  | ·  | ·   | · | · | · | · | ·    | · | ·    | ·  | ·  | ·  | ·   | ·  | • | •   | . · | · | • |
| : | :  |   | Ø | Ø       | Ø  | Ø  | Ø   | Г  | ŀ | : | : | ł | -( | a   | 30  | 30 | 30 | a   | 1 | : | : | : | :    | : | Η    | Ø  | 0  | 0  | F   | Ø  | Ø |     | ł   | : | : |
| • | ۰I | 2 |   |         |    |    |     |    | ŀ | • | • |   |    |     |     |    |    |     |   | • | • | • | •    | • |      |    |    |    |     |    |   |     | ŀ   | • | • |
| : |    | : | : |         |    | :  |     | :  | : |   |   |   |    |     | ÷   | ÷  | ÷  | :   | ÷ |   |   |   |      |   |      |    | :  | :  | :   | :  | : | :   |     |   |   |
|   |    |   |   |         |    |    |     |    |   |   |   |   |    |     |     |    |    |     |   |   |   |   |      |   |      |    |    |    |     |    |   |     |     |   |   |
|   |    |   |   |         |    |    |     |    |   |   |   |   |    |     |     |    |    |     |   |   |   |   |      |   |      |    |    |    |     |    |   |     |     |   |   |
| · | •  | · | · | •       | E  | 'n | rt  | ŀ  | · | · | · | • | 5  | =   |     | 5  | ·  | ·   | · | · | • | 5 | F    |   | 2    | •  | •  | •  | ·   | •  | • | •   |     | • |   |
| · | ·  | · | · | ·       | ۲  | Ч  |     | •  | · | · | · | • | н  | Ē,  | AL  | J. | ·  | ·   | · | · | • | н | Ŀ.   | Ą | U,   | ·  | ·  | ·  | - 1 | W  | Ŕ | ĪT  | Ē   | · | • |
| · | •  | · | · | ·       | ·  | ·  | ·   | ·  | · | · | · | · | ·  | ·   | ·   | ·  | ·  | ·   | · | · | · | • | ·    | · | ·    | ·  | ·  | ·  | ٠L  |    | - |     | -   | • | • |
| · | •  | · | · | •       | ·  | ·  | ·   | ·  | · | · | · | · | ·  | ·   | ·   | ·  | ·  | ·   | · | · | · | · | ·    | · | ·    | ·  | ·  | •  | •   | •  | • | •   | • • | • | • |
|   |    |   |   |         |    |    |     |    |   |   |   |   |    |     |     |    |    |     |   |   |   |   |      |   |      |    |    |    |     |    |   |     |     |   |   |

Step3: Advanced Operations

1. Select sqrt, two Read, Write at the same time, Right-click the selected area, choose Advanced ,as follows:



2. Pop-up the following advanced dialog box:

| Advance  |   |
|--|---|
| <pre> ■ Sqrt0_(0)  ● READ0_(1)  ● READ0_(2)  ■ WRITE0_(3) </pre> | Insert Unit<br>Unit Name<br>Unit Property |
|  | OK<br>Cancel                              |

3. Click the small plus sign ⊕ in front of directive ⊕ ₩RITE0\_(3), in the self property, select to property contain ⊕ Sqrt0\_(0), the steps are shown below:

| Advance  |                                   |
|--|-----------------------------------|
| <ul> <li>Sqrt0_(0)</li> <li>READ0_(1)</li> <li>READ0_(2)</li> <li>WRITE0_(3)</li> <li>Self Property</li> <li>Station</li> <li>Field1 Value</li> <li>Input Value</li> </ul> | Property Contain<br>Property Link |
| Input Value Property Contain   | → Sqrt0_(0)  Affirm Contain       |

4. Open the self property of Sqt0\_(0), select X to property contain **READ0\_(1)**, the steps are shown below:



The effects of dialog box:

| <b>Advance</b>  |                                  |
|---|----------------------------------|
| READ0_(2) WRITE0_(3) Self Property Self Property Field1 Value Input Value Contain Unit Pow0_(0) Self Property Self Property Self Property Self Property READ0_(1) | Property Float<br>Delete Contain |
|   | ОК                               |
|   | Cancel                           |

5. Select "Y" to property contain<sup>**PREAD0**\_[2], the steps are shown below:</sup>



The effects of dialog box:

| Advance  |                            |
|--|----------------------------|
| WRITEO_(3)  Self Property  Self Property  Field1 Value  Input Value  Contain Unit  Pow0_(0)  Self Property  K K K Contain Unit  READ0_(1)  READ0_(2) | Unit Name<br>Unit Property |
|  | ОК                         |
|  | Cancel                     |

6.At this point, all operations have been completed, the final picture is as follows

|   | :<br>]} |   | : | ;<br>Sip | ;<br>vit | :<br>t | iin | ;<br>ne | :<br>S | :           |   | <br> | :<br>X | :<br>: t | :<br>a | :<br>di | ;<br>i¢a | :<br>ain | ;<br>iđ | : | : |   | . S2 .      | ļ | ŗt | :<br>fi | in | ;<br>i¢1 | i<br>àc | ;<br>n | i<br>i jv | ;<br>rái      | :<br>lüe   | e |   | : |
|---|---------|---|---|----------|----------|--------|-----|---------|--------|-------------|---|------|--------|----------|--------|---------|----------|----------|---------|---|---|---|-------------|---|----|---------|----|----------|---------|--------|-----------|---------------|------------|---|---|---|
| • | •       |   | 0 |          |          |        | Ø   | T       | Ì      | ·<br>·<br>· |   |      |        |          |        |         |          |          |         |   |   |   | ·<br>·<br>· |   |    | e       | Ie | De       | H.      | 1<br>E | )<br>9    | 3             | i          | • | • | • |
|   |         | : | : |          | :        | :      | :   | :       | •      | :           |   | •    |        |          | :      |         | :        | :        | :       | : | : | : | :           | • | :  | :       | •  | •        | :       |        |           |               | :          | : |   |   |
|   |         | : |   |          |          |        |     |         |        |             |   |      |        |          |        |         |          | •        | •       |   |   |   |             |   |    |         |    |          |         | M      | 7F        | <u>ب</u><br>۲ | <u>F</u> E |   |   |   |
| : | :       | : | : | :        | :        | :      | :   | :       | :      | :           | : | :    | :      | :        | :      | :       | :        | :        | :       | : | : | : | :           | : | :  | :       | :  | :        | :       | :      | :         | :             | :          | : | : | : |

7. Click the "off –line simulation " 🛣 icon on the software, See the following simulation results:

(8)Y is similar to Sprt times



 $\bigcirc$  X is similar to radicand



(8) Read the value of Sqrt function value



## 4.2.30 Buzzer 👂

## • Overview:

This section will introduce the buzzer, touch-screen software system built-in buzzer, users can flexibly use it according to the need, such as the system in the alarm, need prompt information to tell the system may appear failure. Here's the Introduction of buzzer's attributes and functions usage

## • Property Description:

1.Click *icon*, put one buzzer component on the screen, Double-click buzzer component,

Open the Properties dialog box, as follows:

Beep option:
| Buzzer   |                             |    |    | ×            |
|--|-----------------------------|----|----|--------------|
| Beep Position<br>Diabolo Mode<br>© Dne<br>C Continue | Spring<br>© Open<br>© Close |    |    |              |
|  | 确定                          | 取消 | 应用 | ( <u>A</u> ) |

### Position option:

| Buzzer           | ×     |
|------------------|-------|
| Beep Position    |       |
| Position         |       |
| <u>X</u> 225     |       |
| <u>100</u>       |       |
| 🗌 Lock 🔽 Yisible |       |
|                  | <br>) |
|                  |       |

### • Routine

**Step1:** building a screen, placing parts

Building a new screen, placing the following components on the screen: one indicator button

| one buzzer | ₿, one 🖪            | s, as follows:                        |  |
|------------|---------------------|---------------------------------------|--|
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     | H <b>ara</b> M                        |  |
|            |                     |                                       |  |
|            | <b>6</b>            |                                       |  |
|            | Buzzer              |                                       |  |
|            | · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · |  |
|            |                     |                                       |  |
|            |                     | READ                                  |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |
|            |                     |                                       |  |

### Step2: Set properties

1. Double-click the indicator button to open the Properties dialog box, in Object option, modify object to PSB300, as follows:

| -Object- |     |      |         |
|----------|-----|------|---------|
| Object   | PSB | •    | 300     |
|          |     | □ Ir | ndirect |

2. In General option, modify button operate to Reverse, as follows:

Button Operate C S<u>e</u>t ON C Se<u>t</u> OFF 🕞 <u>Reverse</u> C ON <u>I</u>nstant

3. 3. Double-click "Buzzer", open the Properties dialog box, set
 -Diabolo Mode as Continue, as follows:

| Buzzer                                       |                             | ×     |
|--|-----------------------------|-------|
| Beep Positi                                  | on                          |       |
| Disbolo Mode<br>C O <u>n</u> e<br>C Continue | Spring<br>© Open<br>© Close |       |
| [  | 确定取消                        | 应用(A) |

4. Double-click "Read" component to open the Properties dialog box, in **Object** option, modify object to PSB300, as follows:

| -Object- |     |            |  |
|----------|-----|------------|--|
| Object   | PSB | ▼ 300      |  |
|          |     | 🕅 Indirect |  |

## Step3: Advanced Operations

1.Select Buzzer and Read at the same time, Right-click the selected area, choose Advanced ,as follows:

| 1 | B | ū | zz | ze | •••••••     | :  |
|---|---|---|----|----|-------------|----|
|   |   |   | •  |    | Property    | ŀ  |
|   |   |   |    |    |             | Ι. |
|   |   |   |    |    | Group       | ŀ  |
| ÷ | • | · | ·  | •  | Lock        | Ŀ  |
| ÷ |   |   |    |    |             | Ľ  |
|   | • |   | •  | •  | Public Unit | Ľ  |
|   | • |   | •  | •  | <b>C</b>    | Ľ  |
|   | • |   | •  | •  | System      | Ľ  |
|   | • | • | •  | •  |             | Ľ  |
|   | • | • | •  | •  | Cut         | Ľ  |
|   | • | • | •  | •  | oat         | Ľ  |
|   | : |   | :  | :  | Сору        | Ľ  |
|   |   |   |    |    |             | Ŀ  |
|   |   |   |    |    | Delete      | Ŀ. |
|   |   |   | ·  |    | Save        | ŀ  |
| • | • | • | •  | ·  |             | Ŀ  |
| • | · | · | ·  | ·  | Template    | Ŀ  |
| • | · | · | ·  | •  |             | Ŀ  |
| • | · | · | ·  | •  | Advance     | Ŀ  |
| • | · | · | ·  | •  | Optimistic  | Ŀ  |
| • | · | · | ·  | ·  | optimistic  | ŀ  |
| · | • | · | ·  | ·  | Unlock All  | ŀ  |
| • | • | • | •  | ·  |             | Ľ  |
| • | • | • | •  | •  |             |    |

2. Pop-up the following advanced dialog box:



3. Click the small plus sign in front of directive Buzzer0\_[0], Successively click the front plus sign in , open Buzzer0\_[0] directive's self property, then select "spring", as follows:

| Advance       |                  |
|---------------|------------------|
| ■ Buzzer0_(0) | Property Contain |
|               | Property Link    |

4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance                                    |  |
|--|--|
| E-Buzzer0_(0)<br>E-Self Property<br>Spring | Affirm Contain                               |
| ⊡•READ0_(1)                                | Cancel Contain                               |
|  |  |
|  |  |
| 5. Select EREADO_(1), button               | immediately changed into operational status, |
| then click Affirm Contain, as follows:     |  |



6. Finally click "OK" button, complete advanced operational. The final screen effects are shown below:



7. Click the "off-line simulation" icon on the software *1*, See the following simulation results:
(1) Spring value is 0.



(2) Spring value is 1, at the same time you can hear the buzzer tweet all the time.



## 4.2.31 Back Light

### • Overview:

User who often use touch-screen should be familiar with the screen Protection (that is, whether turn off back light ). With the advances in technology for industrial touch-screen have become increasingly demanding, we have a high requirement on the touch screen at the same time should pay attention to the use of protective measures, In which the use of background light is one of a kind, Users can directly through the software system configuration to set the background light can also through advanced command to control the background light. Here we will introduce advanced instruction background light component.

### • Routine

Step1: building a screen, placing parts

Building a new screen, placing the following components on the screen: one text **A**, one

| bac | k li | gł | nt | 2   | <b>%</b> | <u>,</u> | 0 | ne | e l | Re | ea | d  | cc | on | np  | or      | ne | nt |   | 2 | 5 |   | as | fo | oll | lo | W  | s: |   |   |   |   |   |   |   |
|-----|------|----|----|-----|----------|----------|---|----|-----|----|----|----|----|----|-----|---------|----|----|---|---|---|---|----|----|-----|----|----|----|---|---|---|---|---|---|---|
|     |      |    |    |     |          |          |   |    |     |    |    |    |    |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   | , |
|     |      |    |    |     |          |          |   |    |     |    |    |    |    |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   |   |
|     |      |    |    |     |          |          |   |    |     |    |    |    |    |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   | , |
|     |      |    |    |     |          |          |   |    |     |    |    |    |    |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   |   |
|     |      |    |    |     |          |          |   |    | ·   | ·  | ·  | ·  | ·  | ·  |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   |   |
|     |      | ·  | ī  | ſ   | 'n       | 11       | ī | пŤ | ١t  | ć  | ń  | nt |    | J. | ·   | ·       | ·  | ·  | · | · | · | · | Ē  | 26 | ٨   | n  | ١. | ·  | · |   | : |   |   |   | , |
|     |      | ·  | ŀ  | -24 | P        |          | - | 9  | Ľ.  | ž  | é  |    |    | ï  | ·   | ·       | ·  | ·  | · | · | · | · | 2  | ų  |     | 2  | J. | ·  | · |   |   |   |   |   |   |
|     | •    |    | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · | · | ·  | •  | ·   | ·  | ·  | ·  | · | • | • | • | • | • |   |
|     | •    | •  | •  | •   | ·        | •        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | •   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | •  | · | • | · | · | · | • |   |
|     | •    | •  | •  | •   | ·        | •        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | •   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | •  | · | • | · | · | · | • |   |
|     | •    | ·  | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  |    |   |   | · |   |   |   |   |
|     | •    | •  | •  | •   | ·        | •        | · | ·  | ·   | ·  | ·  | ·  | ·  | •  | P.  | . राज   | ÷  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | ·  | · | · | : | · | · | · |   |
|     | •    | •  | •  | •   | ·        | •        | · | ·  | ·   | ·  | ·  | ·  | ·  |    | L C | ι,<br>Δ | ۰. | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | ·  | · | · | · | · | · | · |   |
|     | •    | •  | •  | •   | ·        | •        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · |   |    |    |     |    |    |    |   |   | · |   |   |   |   |
|     | •    | ·  | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   | · |   |   |   |   |
|     | •    | ·  | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | ·  | · | • | · | · | · | • | , |
|     | •    | ·  | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | ·  | · | • | · | · | • | • | , |
|     | •    | ·  | ·  | ·   | ·        | ·        | · | ·  | ·   | ·  | ·  | ·  | ·  | ·  | ·   | ·       | ·  | ·  | · | · | · | · | ·  | ·  | ·   | ·  | ·  | ·  | · | · | · | · | · | · |   |
|     |      |    |    |     |          |          |   |    |     |    |    |    |    |    |     |         |    |    |   |   |   |   |    |    |     |    |    |    |   |   |   |   |   |   |   |

### Step2: Set properties

1. Double-click "Text" to open the Properties dialog box, In the text editing area, enter the following text:

| Text  |  |  |
|---|--|--|
| Display Font Color<br>Content<br>Through the intern | r   Position  <br>Nal XO of PLC to com     | ntrol background   |
| <b>A</b> spect<br><b>Text</b><br>Changing           | Align Hor<br>C Left<br>© Center<br>C Right | Align Ver<br>C <u>T</u> op<br>C <u>M</u> iddle<br>C <u>B</u> ottom |
|   | 确定   | <b>取消</b> 应用 (A)   |

| 2.Double-click "Read" component, point object to X0, as follows |
|---|
|---|

| Read  | X  |
|---|----|
| Object Position                                 |    |
| Type<br>Unit Type Bit                           |    |
| Station<br>Device PLC Port VirStaN0 0 Station 1 |    |
| Object Object Indirect                          |    |
| Data<br>Data Type Bit                           |    |
| 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一           | 4) |

3. The final screen effects are shown below:

| • | · | ·   |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          | •  |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   | · | • | • |
|---|---|-----|---|----|---|----|----|---|----|-----|-------|----|----|----|---|----|----|----|----|----|----|---|---|----|---|---|---|---|---|-----|----|----|----------|----|---|---|---|---|---|---|---|---|---|---|---|----------|---|----|---|---|---|---|
|   | : | :   | : | :  | : | :  | :  | : | :  | :   | :     | :  | :  | :  | : | :  | :  | :  | :  | :  | :  | : | : | :  | : | : | : | : | : | :   | :  |    |          |    | : | ÷ | : | : | : | : | : | : | : | : | : | :        | : | :  | : | : | : | : |
|   | - | [·] | h | ro | J | 19 | gh | Ŀ | tł | lt  | • j   | in | ıt | eı | 7 | 18 | al | -2 | Č  | Ò  | 0  | f | F | 'n |   | Ċ | t | 0 | • | co  | )1 | ıt | r        | ol | ł | a | C | k | g | ľ | 0 | u | h | đ | ŀ | ig       | E | ŧt |   |   |   |   |
| • | • | •   | • | ·  | • | 2- |    | • | •  | ·   | •     | •  | •  | •  | • | •  | •  | •  | •  | •  | •  | • | • | •  | • | • | • | • | • | •   | •  | •  | • •      | •  | • | · | · | • | ~ | • | • | • | • | • | • | <u> </u> |   | •  | • | • | • | • |
| • | • | •   |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          | •  |   |   |   |   |   |   |   |   |   |   |   |          |   | •  | · | • | • | • |
| • | • | •   |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          | •  |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   |   |
|   | · | •   | • | ·  | • | ·  | •  | • | ·  | •   |       | _  | ~  |    |   |    |    | _  | -  |    | -  | - | • | •  | · | • | · | • | • | · . | •  | •  |          | •  | · | · | · | · | · | · | • | · | • | · | · | ·        | • | •  | • | · | • | • |
|   | • | •   | • | •  | · | •  | ·  | · | •  | •   | Ŀ     | υL | J. | Ŀ  | g | ht | I. | 20 | IN | ŧr | ٥l | · | • | ·  | • | · | • | • | • | Ē   | F  | ۸Ī | n'       |    | • | • | · | • | • | • | · | • | · | • | • | •        | • | •  | · | • | • | • |
|   | • |     | • |    |   |    | •  | • | •  | • ' | • • • | ·  |    | ·  | ÷ |    | ·  |    | •  | ·  |    | • | • | •  | • | • | • | • | • | -   | _  |    | <u>_</u> | •  | • | • | • | • | • | • | • | • | • | • | • | •        | • | •  | • | • | • | • |
|   |   |     |   |    | · |    | ·  | · |    |     | ·     |    | ·  |    | · | •  | •  | •  | •  | ·  | •  | • | • | •  | • | • | • |   | • | •   |    | •  |          | •  |   |   | • | • | • | • | • |   | · |   | • | •        |   | •  | • | • | • | • |
|   |   |     |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          | •  |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   | • |
|   |   |     |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          | •  |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   |   |
|   |   |     |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          |    |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   |   |
|   |   |     |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          |    |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   |   |
|   |   |     |   |    |   |    |    |   |    |     |       |    |    |    |   |    |    |    |    |    |    |   |   |    |   |   |   |   |   |     |    |    |          |    |   |   |   |   |   |   |   |   |   |   |   |          |   |    |   |   |   |   |

### Step3: Advanced Operations

1. Select the Back light and Read at the same time, Right-click the selected area, choose Advanced:

| LCD Light Cr |             | · · · · · · · · |  |
|--------------|-------------|-----------------|--|
|              | Property    | READ            |  |
|              | Group       |                 |  |
|              | Lock        |                 |  |
|              | Public Unit |                 |  |
|              | System      |                 |  |
|              |             |                 |  |
|              | Cut         |                 |  |
|              | Сору        |                 |  |
|              | Delete      |                 |  |
|              | Save        |                 |  |
|              | Template    |                 |  |
|              | Advance     |                 |  |
|              | Advance     |                 |  |
|              | Optimistic  |                 |  |
|              | Unlock All  |                 |  |
|              |             |                 |  |

2. Pop-up the following advanced dialog box:



the front plus sign 1, open  $\textcircled{LCD Light Control0_(0)}$  directive's self property, then select "spring", as follows:



4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance   |                          |                               |
|---|--------------------------|-------------------------------|
| - LCD Light Control0_(0) - Self Property - Spring | Affirm Contain           |                               |
| ⊡·READ0_(1)                                       | Cancel Contain           |                               |
| 5. Select <b>READO_(1)</b> , button Affin         | m Contain immediately ch | anged into operational status |



6. Click Affirm Contain button, complete property contain, as follows:

| Advance                   |                |
|---------------------------|----------------|
| ■• LCD Light Control0_(0) | Delete Contain |

7. Finally click "ok" to complete the advanced operations, the final screen shown below:

| Through the internal X0 of PLC                        | C to control background light           |
|---|---|
| · · · · · · · Ø. · · · · · · · · · · · ·              |   |
|   |   |
| · · · · · · · · · · · · · · · · · · ·                 |   |
| LCD Light Control                                     |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
|   |   |
| Step4: The system back light settings                 |   |
| 1. Open <b>File</b> , In the drop-down list to select | t Se <u>t</u> ting Ctrl+T , as follows: |

| file         | <u>E</u> dit  | <u>V</u> iew | <u>P</u> art | <u>T</u> o |
|--------------|---------------|--------------|--------------|------------|
| <u>N</u> ev  | ,             |              | Ctrl+N       |            |
| <u>Op</u> e  | 2 <b>n</b>    |              | Ctrl+O       |            |
| <u>C</u> 10  | )se           |              | Ctrl+Q       |            |
| <u>S</u> av  | /e            |              | Ctrl+S       |            |
| Sav          | re <u>A</u> s |              | Ctrl+A       |            |
| Dov          | nload         |              | Ctrl+D       |            |
| Rur          | OnLine        | e (B)        | Ctrl+B       |            |
| Rur          | OffLin        | te (M)       | Ctrl+M       |            |
| PFY          | / Set (P      | 9            | Ctrl+P       |            |
| Set          | ting          |              | Ctrl+T       |            |
| Bui          | la SCA        | JA           |              |            |
| Las          | st File       | 1            |              |            |
| E <u>x</u> i | t             |              |              |            |
|              |               |              |              |            |

2. In the Pop-up advanced dialog box, click Para button, set Latency Time as

After 1 Minute , click "OK" to complete the setting, as follows:

| Project Set 🛛 🗙                                     |
|---|
| Device Font Project<br>Para Alternation Clock Panel |
| Screen<br>Start Screen                              |
| Passowrd  |
| Level Leveli <u>P</u> assword 0                     |
| Screen Save   |
| Latency <u>T</u> ime After 3 Minute <b>v</b>        |
|   |
|   |
|   |
|   |

3. Download the program to the touch screen. X0 default OFF state, observe the touch screen, you will find 1 minute later, touch-screen background light will turn off, at this time trigger X0 input point to set as ON state, touch-screen background light will turn on immediately.

# 4.2.32 Serial port send

### • Overview:

This section will introduce the serial port send, its role is real important to send data to the individual, In practice, many users want can only external device send data to the touch screen but touch screen is unable to send data to touch screen. Can only receive data sent by external devices when necessary, through the serial port to send a command to an external device. Here are the properties of function and serial port to send feature. Here introduce the property function and function use of serial port to send.

Property Description:

Serial port to send options

Click the software Icon Serial port to send component can be placed on the screen,

Double-click cycle component, Open the Properties dialog box, as follows:

| Com Ser          | nd       | × |
|------------------|----------|---|
| COM Send         | Position |   |
| <u>C</u> OM ID   | COM2     |   |
| C <u>o</u> ntent |          |   |

| Property Name | explanation   |
|---------------|---|
| Serial Number | Select touch-screen device port that sends data to an external device . |
| Send Content  | the information you want to publish on the external device              |

| Com Send           | × |
|--------------------|---|
| COM Send Position  |   |
| Position           |   |
| <u>X</u> <u>30</u> |   |
| ¥ 160              |   |
| 🔽 Lock 🔽 Yisible   |   |

| Property Name | explanation  |
|---------------|--|
| position      | the location of Serial port to send component on the screen, Formed by the X position and Y position. Users can enter data in the X and Y position input box to change the location of component, You can also through draging the component to change its position. |
| Lock          | When selected, the component location is fixed, can not be moved freely, otherwise, on the contrary  |
| Visible       | Check box is selected, the component visible on the screen, otherwise not visible.   |
| •Routine      | e the use of serial port send function through a simple operation  |

Here introduce the use of serial port send function through a simple operation. Step1: building a screen, placing parts

Building a new screen, placing the following components on the screen: one rectangular

| one advanced command button    | , two NOP | advanced command          | <b>N</b> , one Serial port send |
|--------------------------------|-----------|---------------------------|---------------------------------|
| advanced command , as follows: |           |                           |                                 |
|                                |           |                           |                                 |
|                                |           |                           |                                 |
|                                | . Ke      | ∑ <u>No</u> p <u>No</u> p | Com Send                        |
|                                |           |                           |                                 |
|                                |           |                           |                                 |
|                                | ]         |                           |                                 |

Step2: Set properties

1. Double-click the button to open the Properties dialog box, in the Key option, Width

Height

| setting | Midth  | to200 and setting | <u>n</u> eight | to | 100. | as i | follov | ws: |
|---------|--------|-------------------|----------------|----|------|------|--------|-----|
| [       | -Touch |                   |                |    |      |      |        |     |

| <u>W</u> idth  | 200 |
|----------------|-----|
| <u>H</u> eight | 100 |

2. Sc

| reen Effe   | cts |               |         |         |             |     |                     |            |
|-------------|-----|---------------|---------|---------|-------------|-----|---------------------|------------|
|             |     |               |         |         | <br>        |     |                     | · ·        |
|             |     |               |         |         | <br>        |     |                     | · ·        |
|             |     |               |         |         | <br>        |     |                     | · ·        |
|             |     | · · · · · · · | Key     | · · · · | <br>• • • • |     |                     | · ·<br>· · |
|             |     |               |         |         | <br>ĪŌP     | NOP | Cam Sena            | ī;         |
| ·           |     |               |         |         |             |     | · · · · · · · · ·   | - · ·      |
|             |     |               |         |         | <br>        |     | · · · · · · · · · · |            |
| · · · · · · |     |               | ·: :::: |         | <br>        |     |                     | ::         |
|             |     |               | · 📥 · 💻 |         | <br>• —     | ·   | <b></b>             |            |
|             |     |               |         |         | <br>        |     |                     |            |

3. Double-click Com send component, open the Properties window, in the

'Send Content", enter the following:

| ( | Com Send         |                        |    |   | l     |
|---|------------------|------------------------|----|---|-------|
|   | COM Send Po      | sition                 |    |   |       |
|   | <u>C</u> OM ID   | COM2                   | •  |   |       |
|   | C <u>o</u> ntent | 01, 05, 48, 00, FF, 00 |    |   |       |
|   |                  | ,                      |    |   |       |
|   |                  | 确定                     | 取消 | 1 | 应用(A) |

## Step3: Advanced Operations

1. Select the rectangle, key, two Nop and Com send at the same time, in the alignment icon on the



2. Right-click the selected area, choose Advanced:

| k | e | ÿ |   | • |   | • |   | ·<br>· | • |                 |
|---|---|---|---|---|---|---|---|--------|---|-----------------|
| ŀ | : |   |   |   |   | 3 | Ē | o      | N | Öurender •∴•    |
| ŀ | : |   |   |   |   |   |   |        | - | Property        |
| ŀ |   |   |   |   | : |   | : | :      |   | Group           |
|   | : | : | : | : | : | : | : | :      |   | Lock            |
| : | : | : | : | : | : | : | : | :      | : | Public Unit     |
| ÷ | ÷ | ÷ | : | : | : | ÷ | ÷ | :      | ÷ | System          |
|   |   |   |   |   |   |   |   |        |   |                 |
| · | · | • | · | · | · | · | · | ·      | · | Cut             |
| : | : | : | : | : | : | : | : | :      | : | Copy            |
| : | : | : | : | : | : | : | : | :      | : | Delete          |
| • | · | · | · | · | · | · | · | ·      | · | Save            |
| : | : | : | : | : | : | : | : | :      | ÷ |                 |
|   |   |   |   |   |   | · |   | ·      |   | Template        |
| ÷ | ÷ | : | : | : | ÷ | ÷ | : | :      | ÷ | Advance         |
|   |   |   |   |   |   |   |   |        |   | Optimistic      |
| · | · | · | · | · | · | · | · | ·      | · | -<br>Unlock All |
| : | : | : | : | : | : | : | : | :      | : |                 |

3. Pop-up the following advanced dialog box:

| Advance   |                          |
|---|--------------------------|
| <ul> <li>■ Com Send0_(0)</li> <li>■ Rectangle0_(1)</li> <li>■ Key0_(2)</li> <li>■ NOP0_(3)</li> <li>■ NOP0_(4)</li> </ul> | Insert Unit<br>Unit Name |
|   | Unit Property            |
|   | ок                       |
|   | Cancel                   |
|   |                          |
| (1)   | Insert Unit              |

4. Select Rectangle0\_[1], Click the right button in the dialog box, the button

will be grayed-out non-operational status, while text changed into "affirm insert", as follows:



| 5. Select | Key0_[2], button immediately changed into operational status, as follows: |       |   |            |                                |            |
|-----------|---|-------|---|------------|--------------------------------|------------|
|           |   |       | Advance   |            |                                |            |
|           |   |       | Com Send0 Rectangle0 Con Key0 (2) NOP0 (3) NOP0 (4) |            | Affirm Insert<br>Cancel Insert |            |
|           |   |       |   |            |                                |            |
|           |   |       |   |            | OK                             |            |
|           |   |       |   |            | Cancel                         |            |
| 6.Click   | Affirm Insert   | butto | on, complete  | ë Key0_(2) | Component                      | insertion. |

| Advance  |   | ×                  |
|--|---|--------------------|
| Com Send0_(0)     Key0_(2)     Self Property     Self Unit     Prectangle0_(1)     NOP0_(3)     NOP0_(4) | Insert Unit<br>Unit Name<br>Unit Property |                    |
|  | OK<br>Cancel                              |                    |
| lect NOPO_(3), Click the right button  | Insert Unit                               | in the dialog box, |

grayed-out non-operational status, while text changed into "affirm insert", as follows:

|                                 | Advance   |                              |                 |               |
|---------------------------------|---|------------------------------|-----------------|---------------|
|                                 | Com Send0_(0)     Key0_(2)     Self Property     Self Unit     Bectangle0_(1)     NOP0_(3)     NOP0_(4) | Affirm Insert Cancel Insert  |                 |               |
| 8. Select <mark>⊕ Key0</mark> _ | 2 , button immediatel   | Cancel<br>y changed into ope | rational status | , as follows: |
|                                 | Advance   |                              |                 |               |
|                                 | Com Send0_  | Affirm                       | el Insert       |               |
|                                 |   |                              | IK              |               |
| 9. Click Affirm                 | button, compl   | ete E Key0_[2]               | Component       | insertion.    |

| Advanc                          | e                            |                                       |
|---------------------------------|------------------------------|---------------------------------------|
|                                 | 2)     Move L       Property | Init                                  |
|                                 | OK                           |                                       |
| 10. Select -NOPO_(4) , Click th | e right button               | in the dialog box, the button will be |

grayed-out non-operational status, while text changed into "affirm insert", as follows:

| Advance  |                             |
|--|-----------------------------|
| Com Send0_(0) <ul> <li>Key0_(2)</li> <li>Self Property</li> <li>Self Unit</li> <li>Rectangle0_(1)</li> <li>NOP0_(3)</li> </ul> | Affirm Insert Cancel Insert |
|  | OK                          |
|  | Cancel                      |

11. Select Key0\_(2) , button immediately changed into operational status , as follows:

| Advance   |                                |
|---|--------------------------------|
| Com Send0_(0)<br>Key0_(2)<br>Self Property<br>Self Unit<br>Rectangle0_(1)<br>NOP0_(3)<br>NOP0_(4) | Affirm Insert<br>Cancel Insert |
|   | OK<br>Cancel                   |

| 12. Click  | Affirm Insert button, comple                | te <b>Key0_(2)</b> Co | omponent insertion. |            |
|------------|---|-----------------------|---------------------|------------|
|            | <b>Advance</b>                              |                       | $\mathbf{X}$        |            |
|            | ←Com Send0_(0)     ←Key0_(2)                | Move Up               |                     |            |
|            | Self Unit<br>• Rectangle0_(1)<br>• NOP0_(3) | Delete Unit           |                     |            |
|            | NOP0_(4)                                    | Unit Name             |                     |            |
|            |   | Unit Property         |                     |            |
|            |   | ок                    |                     |            |
|            |   | Cancel                |                     |            |
| 13. Select | Com Send0_(0), Click the right              | Insert Unit           | in the dialog box,  | the button |

will be grayed-out non-operational status, while text changed into "affirm insert", as follows:

| Advance   |                             |
|---|-----------------------------|
| Com Send0_(0)     Key0_(2)     Self Property     Self Unit     Rectangle0_(1)     NOP0_(3)     NOP0_(4) | Affirm Insert Cancel Insert |
|   | OK                          |
|   | Cancel                      |

14. Select Key0\_(2) , button immediately changed into operational status , as follows:

|                           | Advance  |  |
|---------------------------|--|--|
|                           | ← Com Send0_(0)     ← Key0_(2)     ← Self Property     ← Self Unit | Affirm Insert  |
|                           | Pectangle0_(1)<br>NOP0_(3)<br>NOP0_(4)                             | Cancel Insert  |
|                           |  | OK.<br>Cancel  |
| 15. Click                 | Affirm Insert button, comp   | plete E Key0_[2] Component insertion.                    |
|                           | Advance  |  |
|                           | ─Key0_(2) ● Self Property ● Self Unit                              | Move Up  |
|                           | Rectangle0_(1)     NOP0_(3)  | Delete Unit  |
|                           | ■ Com Send0_(0)  | Unit Name  |
|                           |  | Unit Property  |
|                           |  | ОК   |
|                           | 1  | Cancel   |
| 16.Finally of are shown b |  | anced operations are completed. The final screen effects |
|                           | <b>.</b>   | · · · · · <b>4</b> ·                                     |
|                           | ••   | · · · · · · · · · · · · · · · · · · ·                    |
|                           |  |  |
|                           | • • •  |  |
|                           | :::  |  |
|                           |  | · · · · · · · · · · · · · · · · · · ·                    |
|                           |  |  |

17. Download to the touch screen, insert touch screen RS232 programming port to the PLC port,



open Thinget Serial debugging tools T-COM

, monitoring data through

touch-screen sent to the PLC port, Data are as follows:

| 秦 显示通信数据  |   |
|---|---|
| 发送数据:   | 🔒 💊 🚨 🔗 😫   |
| 0 1 0 5 4 8 0 0 F F 0 0<br>30 31 30 35 34 38 30 30 46 46 30 30<br>30 31 30 35 34 38 30 30 46 46 30 30 | <ul> <li>周期发送 1000 毫秒</li> <li>RTS控制</li> <li>Enable(0) ● HandShake</li> <li>Disable(1) ● TrAv</li> <li>显示字符 ▼ 显示HEX码</li> <li>校验码 ● 交換</li> <li>校验码 ● 交換</li> <li>CRC-Modbus FFFF</li> <li>CRC-ITU</li> <li>CRC-CLITU</li> <li>CRC-CLITT</li> <li>CRC-IBM</li> <li>LRC</li> <li>SUM</li> </ul> |
| <b>•</b>  | COM3 19200 D8 S1 Even   |

## 4.2.33 Cycle element

#### • Overview

This section will introduce the cycle component of advanced instruction, Users are familiar with C language environment, should be an understanding of For loop. But the the cycle component of touch-screen advanced instruction and C also have some difference, The following will introduce its attributes and the use of functions.

### • Property Description

Cycle is repeatedly executing some statements of program. Similar to C, One group statements, repeatedly execute, were called loop, Can

Continue to repeat, determined by the termination conditions of the cycle. Loop statements formed by loop and loop termination conditions of the two parts.

Click the software icon, placing the loop component on the screen,

Double-click cycle component, open the Properties dialog box, as follows:

Loop option:

| or                 |     |    |                 | X |
|--------------------|-----|----|-----------------|---|
| Step Posit         | ion |    |                 | _ |
| <u>R</u> un Value  | 3   |    |                 |   |
| <u>S</u> top Value | 0   |    |                 |   |
| St <u>e</u> p      | 1   |    |                 |   |
|                    |     |    |                 |   |
|                    | 确定  | 取消 | 应用 ( <u>k</u> ) |   |

| Property Name | Explanation |
|---------------|-------------|
| Run value     |             |
| Stop value    |             |
| Step          |             |

Position option:

| For    |               | ×      |
|--------|---------------|--------|
| Step   | Position      |        |
| X<br>Y | 235<br>110    |        |
|        | ock 🔽 Yisible |        |
|        | 确定取消          | 应用 (4) |

| Property Name | explanation  |
|---------------|--|
| position      | the location of Serial port to send component on the screen, Formed by the X position and Y position. Users can enter data in the X and Y position input box to change the location of component, You can also through draging the component to change its position. |
| Lock          | When selected, the component location is fixed, can not be moved freely, otherwise, on the contrary  |
| Visible       | Check box is selected, the component visible on the screen, otherwise not visible.   |

At this point the properties introduction of circular element have been finished.

## • Routine

In the beginning of this section has already been mentioned the use of cycle component function, the following we will specifically introduce the use of cycle component function

#### Step1: Building a screen, placing parts

Building a new screen, placing the following components on the screen: one digital input

| ane Indicator button one function button , one For advanced command , one If       |
|--|
| advanced command $\overline{4}$ , one , one transformed advanced command two write |
| advanced command , as follows;   |
|  |
| F <u>or</u><br>FF READ   |
|  |
|  |

### **Step2:** Modify properties

1. Modify the basic component properties

a. Double-click "digital input", open the Properties dialog box, in **Object** option, modify object to PSW300, as follows:

| -Object- |     |   |         |
|----------|-----|---|---------|
| Object   | PSW | - | 300     |
|          |     |   | ndirect |

b. Double-click "Indicator button", open the Properties dialog box, in Object option, modify

| 0 | bject to PS | SB300, in | General | option, r | nodify button o | operate to | Reverse, | as follows: |
|---|-------------|-----------|---------|-----------|-----------------|------------|----------|-------------|
|   | Object-     |           |         |           |                 |            |          |             |
|   | Object      | PSB       | -       | 300       |                 |            |          |             |
|   |             |           |         | direct    |                 |            |          |             |

| -Button Operate      |  |
|----------------------|--|
| •                    |  |
| 🗌 🖸 Set ON 💭 Set OFF | 🖲 <u>R</u> everse 🔿 ON <u>I</u> nstant |

c. Double-click "function button", open the Properties dialog box, as follows:

| unction Pressing   | A11  |
|--|--|
| <u>A</u> dd<br><u>M</u> odify<br><u>Delete</u><br><u>Move Dov</u><br><u>Move Ur</u><br><u>P</u> asswor | Set Data<br>Copy Register<br>User Input<br>Open Window<br>Close Window<br>Down Scheme<br>Data Block Transmit<br>Arithmetic<br>Import CSV Data<br>Export CSV Data |

d. Open **Function** option, in the right option **All** select "set data", then click button, That added a function in the left blank area. As shown on the right :

<u>A</u>dd



Properties dialog box:

| Fun   | ction-Set Data 🛛 🔀  |
|-------|---|
| ОЪј   | ject  |
|       | Station<br>Device PLC Port<br>VirStaND 0 Station  |
|       | Object D Indirect   |
|       | Data<br>Data Type Word V<br>Set Data 0  |
|       |   |
| Mo    | dify object to PSW300, as follows:<br>Object PSW 300<br>Indirect                                    |
| . Sel | ect Button option, in the text input box inputting " clear"<br>Use Text<br>Content<br>Font<br>Clear |

- f.
- as follows: g

| ✓ Use Text<br>Content Clear |                        |
|-----------------------------|------------------------|
| Font                        | ~                      |
| C Align <u>L</u> eft        | C Align <u>T</u> op    |
| Align Center                | ⊙ Align <u>M</u> iddle |
| 🔘 Align <u>R</u> ight       | ○ Align <u>B</u> ottom |

- 2. Property modification of advanced command.
- a. Double-click "For", open the Properties dialog box, set "stop value" as 100000, as follows:

| For                |       |    | ×     |
|--------------------|-------|----|-------|
| Step Posit         | ion   |    |       |
| <u>R</u> un Value  | 0     |    |       |
| <u>S</u> top Value | 10000 |    |       |
| St <u>e</u> p      | 1     |    |       |
|                    |       |    |       |
|                    |       | 取消 | 应用(A) |

b. Double-click the top "Read", open the Properties dialog box, modify <sup>Object</sup> to PSB300, as follows:

| - Object |     |      |         |
|----------|-----|------|---------|
| Object   | PSB | -    | 300     |
|          |     | ∏ Ir | ndirect |

c. Double-click "compare" is component, open the Properties dialog box, set Kind as

| < | <u>R</u> ight Operand | set to 200,as follows:  |
|---|-----------------------|-------------------------|
|   | ,=                    | set to 200, as follows: |

| Compare              |      |     |                 |
|----------------------|------|-----|-----------------|
| Compare Posit        | i on |     |                 |
| Kind                 | <    | •   |                 |
| <u>F</u> ormat       | Dec  | •   |                 |
| <u>L</u> eft Operand |      | 0   |                 |
| <u>R</u> ight Operan | a    | 200 |                 |
|                      |      | 取消  | 应用 ( <u>A</u> ) |

d. Double-click the middle of the READ component, open the Properties dialog box ,set

| Read 🛛 🔀                   |
|----------------------------|
| Object Position            |
| Type<br>Unit Type Register |
| Station                    |
| Device PLC Port            |
| VirStaND 0 Station 0       |
| Object                     |
| Object PSW V 300           |
| Indirect                   |
| Data                       |
| Data Type Word             |
|                            |
| 确定 取消 应用(A)                |

e. Double-click the above "Write" component, open the Properties dialog box, set Unit Type as

Register , Object set to PSW300, as follows:

| lype<br>Unit Type             | Register 💌 |
|-------------------------------|------------|
| Station<br>Device<br>VirStaNO | PLC Port   |
| – Object<br>Object            | PSW 300    |

f. Double-click Arithmetic + component, open the Properties dialog box , set Right Operand of Value to 1. as follows:

| Arithmetic                  | X                   |
|-----------------------------|---------------------|
| Rule Operation Position     |                     |
| Kind                        |                     |
| Plus(+)                     |                     |
| Left Original Right         | L. O                |
| Left Operand<br>Type<br>Dec | ht Operand<br>Dec 🔻 |
| Value 0 Va                  | <u>l</u> ue 1       |
|                             |                     |
| <br>确定                      | 取消 / 应用 (A)         |

g. Double-click the following component "READ", open the Properties dialog box , set Unit Type

| as Register , Object set     | to PSW300,as follows:  |
|------------------------------|--|
|                              | Type<br>Unit Type Register 💌                                       |
|                              | Station<br>Device PLC Port VirStaNO 0 Station 0                    |
|                              | Object Object PSW I 300<br>Indirect                                |
| h. Double-click the followin | g component "Write", open the Properties dialog box, set Unit Type |

g , xoo

| as | Register | • | Object | set to PSW300, | Set Data | set to 0,as follows: |
|----|----------|---|--------|----------------|----------|----------------------|
|----|----------|---|--------|----------------|----------|----------------------|

r

| Туре                 |
|----------------------|
| Unit Type Register 💌 |
| Station              |
| Device PLC Port -    |
| VirStaND 0 Station 0 |
| - Object             |
| Object PSW - 300     |
| Indirect             |
| Data                 |
| Data Type Word 👻     |
| Set Data 0           |

i. Property set belonging to these parts are completed, the final results are as follows:

|                                       | :   | Í   |            |            | M  | · ·  | : | : |   | : | : | :   | :  | : |            |
|---------------------------------------|-----|-----|------------|------------|----|------|---|---|---|---|---|-----|----|---|------------|
|                                       |     |     |            |            |    | · ·  | : | : | ĺ | Γ | c | Ľl. | ea | r |            |
|                                       | : N | лī, |            | Ņ          | Ι. | <br> | : | : |   |   |   |     |    |   |            |
|                                       |     | :   | · ·        | :          | :  | · ·  | : | : | : | : | : | :   | :  | : | · ·        |
|                                       | · · | :   | · ·        | :          | :  | <br> | : | : | : | : | : | :   | :  | : | · ·        |
|                                       |     | •   | · ·<br>· · | :          | :  | · ·  | : | : | : | : | : | :   | :  | : | · ·<br>· · |
| · · · · · · · · · · · · · · · · · · · |     | •   | · ·        | :          | :  | · ·  | : | : | : | : | : | :   | :  | • | · ·        |
|                                       |     | :   | <br>       | :          | :  | <br> | : | : | : | : | : | :   | :  |   | <br>       |
| · · · · · · · · · · · · · · · · · · · |     | :   | · ·        | :          | :  | · ·  | : | : | : | : | : | :   | :  |   |            |
|                                       | : [ | RE  | AD         | <u>]</u> : | :  | <br> | : | : | : | : | : | :   | :  | : | <br>       |
|                                       |     | :   | · ·        | :          | :  | · ·  | : | : | : | : | : | :   | :  | : | · ·        |
|                                       | • • | ·   | • •        | ·          | •  | • •  | • | · | · | · | · | ·   | ·  | • | • •        |

**Step3:** Advanced Operations

1. Select two IF, three Read, two Write, one Solution one selected area, choose Advanced , as follows:



2. Pop-up the following advanced dialog box:

| Advance  |   |
|--|---|
| <ul> <li>IFO_(0)</li> <li>IFO_(1)</li> <li>IFO_(2)</li> <li>IFCADD_(3)</li> <li>IFCADD_(4)</li> <li>IFCADD_(5)</li> <li>IFVRITEO_(6)</li> <li>IFO_(8)</li> </ul> | Insert Unit<br>Unit Name<br>Unit Property |
|  | ОК  |
| ]  | Cancel                                    |

3. Click the small plus sign ⊕in front of directive IFO [0] , Successively click the front plus sign ⊕ , open IFO [0] directive's self property, then select "current value", as follows:

| <ul> <li>IF0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Value</li> <li>+ 0_(1)</li> <li>&lt; 0_(2)</li> <li>READ0_(3)</li> <li>READ0_(3)</li> <li>READ0_(5)</li> <li>WRITE0_(6)</li> <li>WRITE0_(7)</li> <li>IF0_(8)</li> </ul> | Advance   |               |
|--|---|---------------|
|  | Self Property     Top-Left Horizon     Top-Left Vertical     Bottom-Right Horizon     Current Value     + 0_(1)     < 0_(2)     READ0_(3)     READ0_(4)     READ0_(5)     WRITE0_(6)     WRITE0_(7) | Property Link |

4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance  |                               |
|--|-------------------------------|
| □-IF0_(0)         □-Self Property         □-Top-Left Horizon         □-Top-Left Vertical         □-Bottom-Right Horizon         □-Bottom-Right Vertical         □-Urrent Value         □-+0_(1)         □- <th>Affirm Contain Cancel Contain</th> | Affirm Contain Cancel Contain |
| 5. Select 🗉 <b>READ0 (3)</b> ,   | button Affirm Contain         |

immediately changed into operational status,

as follows:

| Advance   |                                  |
|---|----------------------------------|
| <ul> <li>□ IF0_(0)</li> <li>□ Self Property</li> <li>□ Top-Left Horizon</li> <li>□ Top-Left Vertical</li> <li>□ Bottom-Right Horizon</li> <li>□ Bottom-Right Vertical</li> <li>□ Current Value</li> <li>□ + 0_(1)</li> <li>□ &lt; 0_(2)</li> <li>□ READ0_(3)</li> <li>□ READ0_(3)</li> <li>□ READ0_(4)</li> <li>□ READ0_(5)</li> <li>□ WRITE0_(6)</li> <li>□ WRITE0_(7)</li> <li>□ IF0_(8)</li> </ul> | Affirm Contain<br>Cancel Contain |

- 6. Click Affirm Contain button, complete IFO (0) directive's Component contain, select
- .as follows:

| □-IF0_(0)       Insert Unit         □ Top-Left Horizon       Unit Name         □ Bottom-Right Horizon       Unit Name         □ Bottom-Right Vertical       Unit Name         □ Current Value       Unit Property         □ Contain Unit       + + 0_(1)         □ - FEAD0_(4)       OK         □ - WRITE0_(6)       OK | Advance   |  |                 |
|---|---|--|-----------------|
|   | Self Property         Top-Left H         Top-Left V         Bottom-Ri         Bottom-Ri         Current Va         ⊕ Contain Unit         ⊕ + 0_(1)         € < 0_(2)         ⊕ READ0_(4)         ⊕ READ0_(5)         ⊕ WRITE0_(6)         ⊕ WRITE0_(7)         € | lorizon<br>ertical<br>ght Horizon<br>ght Vertical<br>lue<br>Unit F | Name<br>roperty |

7. Click the right button in the dialog box, the button will be grayed-out

non-operational status, while text changed into "affirm insert", as follows:

| Advance  |                                |
|--|--------------------------------|
| <ul> <li>IF0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Value</li> <li>Contain Unit</li> <li>+ 0_(1)</li> <li>&lt; 0_(2)</li> <li>READ0_(4)</li> <li>READ0_(5)</li> <li>WRITE0_(6)</li> <li>WRITE0_(7)</li> <li>F0_(8)</li> </ul> | Affirm Insert<br>Cancel Insert |
|  | Cancel                         |

| <ul> <li>□ F0_0</li> <li>□ Self Property</li> <li>□ Top-Left Horizon</li> <li>□ Top-Left Vertical</li> <li>□ Bottom-Right Horizon</li> <li>□ Bottom-Right Vertical</li> <li>□ Current Value</li> <li>□ Contain Unit</li> <li>□ + 0_(1)</li> <li>□ &lt; 0_(2)</li> <li>□ READ0_(4)</li> <li>□ READ0_(5)</li> <li>□ WRITE0_(6)</li> </ul> | Affirm Insert<br>Cancel Insert |  |
|---|--------------------------------|--|
| ⊕-WRITE0_(7)<br>⊕-IF0_(8)   | OK                             |  |
|   | Cancel                         |  |

9. Click

8. Select **IFO\_(0)**, button immediately changed into operational status , as follows:

sign  $\oplus$  in front of self property of  $^{1F0}(0)$ , open the self property of  $^{\pm}$   $^{1F0}(8)$ , select "current value", as follows:

| Advance   |   |   |
|---|---|---|
| <ul> <li>→IF0_(0)</li> <li>☆ Self Property</li> <li>☆ Contain Unit</li> <li>⇒ Self Unit</li> <li>⇒ Self Unit</li> <li>⇒ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property</li> <li>☆ Self Property<td></td><td>Property Contain<br/>Property Link<br/>Property Float</td></li></ul> |   | Property Contain<br>Property Link<br>Property Float |
| ■ READ0_(4)<br>■ READ0_(5)  |   | ОК  |
| ⊕ WRITEO_(6)<br>⊕ WRITEO_(7)  | ~ | Cancel  |

10. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:



11. Select (1) < 0.[2], button immediately changed into operational status, as follows:

| Advance  |   |                |
|--|---|----------------|
| •••••••••••••••••••••••••••••••••  |   | Affirm Contain |
| <ul> <li>■ READ0_(4)</li> <li>■ READ0_(5)</li> <li>■ WRITE0_(6)</li> <li>■ WBITE0_(7)</li> </ul> | ~ | OK<br>Cancel   |

12. Click Affirm Contain button, complete  $\ddagger$  [F0\_8] Component contain. click the plus sign  $\ddagger$  in front of property of  $\ddagger$  [F0\_8], successively open the self property of  $\ddagger$  [F0\_8], select "left operand", as follows:

| Advance                              |                  |
|--------------------------------------|------------------|
| E- <b>IF0_(0)</b><br>E-Self Property | Property Contain |
| i⊞⊸ Contain Unit<br>i⊟⊸ Self Unit    |                  |
| É⊷ <b>IF0_(8)</b><br>È Self Property | Property Link    |
| 🖃 Contain Unit                       | Property Float   |
| " < 0_(2)                            |                  |
| Left Operand<br>Right Operand        |                  |
|                                      |                  |
| READO_(5)                            | ок               |
| I⊕-WRITE0_(6)<br>I⊕-WRITE0_(7)       |                  |
| <                                    | Cancel           |

13. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance   |   |
|---|---|
| <ul> <li>□-IF0_(0)</li> <li> <ul> <li>if Self Property</li> <li>if Contain Unit</li> <li>if Self Unit</li> <li>if Self Property</li> <li>if Self Property</li> <li>if Contain Unit</li> <li>if &lt; 0_(2)</li> <li>if Self Property</li> <li>if Self Operand</li> <li>if Self Opera</li></ul></li></ul>  | Affirm Contain Cancel Contain               |
| Hight Operand     Hight | OK<br>Cancel                                |
| Affirm Contain  | immediately changed into operational status |

| Advance  |                                  |
|--|----------------------------------|
| <ul> <li>→IF0_(0)</li> <li> <ul> <li>Self Property</li> <li>Contain Unit</li> <li>Self Unit</li> <li>→ IF0_(8)</li> <li>→ Self Property</li> <li>→ Contain Unit</li> <li>→ Contain Unit</li> <li>→ Contain Unit</li> <li>→ Self Property</li> <li>→ Left Operand</li> <li>→ Right Operand</li> <li>→ Right Operand</li> </ul> </li> </ul> | Affirm Contain<br>Cancel Contain |
| <ul> <li>■ READ0_(5)</li> <li>■ WRITE0_(6)</li> <li>■ WRITE0_(7)</li> </ul>  | OK                               |
| K  | Cancel                           |

15. Click Affirm Contain button , complete ⊡ € € 22 Component contain. Select " ⊕ WRITEO\_6 "as follows: Advance □ ↓ Self Property ⊕ Contain Unit ⊕ Self Unit □ ↓ Self Property ⊕ Self Property

Unit Property

ΟK

Cancel

🖃 Contain Unit

(5)

+ 0\_(1)
 READ0

WRITEO\_6) WRITEO\_(7)

16 Click the right button in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm insert", as follows:

| Advance |                             |
|---------|-----------------------------|
|         | Affirm Insert Cancel Insert |
|         | OK<br>Cancel                |

17. Select (FO\_18), button immediately changed into operational status, as follows:

| Advance   |                                |   |
|---|--------------------------------|---|
| <ul> <li>□-IF0_(0)</li> <li>⊕ Self Property</li> <li>⊕ Contain Unit</li> <li>⊕ Self Unit</li> <li>⊕ Self Property</li> <li>⊕ Self Property</li> <li>⊕ Contain Unit</li> <li>⊕ &lt; 0_(2)</li> <li>⊕ + 0_(1)</li> <li>⊕ READ0_(5)</li> <li>⊕ WRITE0_(6)</li> <li>⊕ WRITE0_(7)</li> </ul> | Affirm Insert<br>Cancel Insert |   |
|   | OK<br>Cancel                   |   |
| 18. Click Affirm Contain button, complete   | ± <b>F0_(8)</b> Componen       | t contain $\circ$ click the plus sign $+$ |
| in front of property of 😟 WRITEO_6, select  | "Input Value", as follo        | WS:                                       |

| Advance |   |
|---------|---|
| Advance | Property Contain<br>Property Link<br>Property Float |
|         | ОК  |
|         | Cancel  |
| 1       |   |

19. Click the right button Property Contain in the dialog box, the button will be grayed-out



Input Value

Cancel

non-operational status, while text changed into "affirm contain", as follows:

21. Click Affirm Contain button, complete 🖻 WRITEO\_(6) Component contain click the plus sign in front of property of WRITEO\_6, successively open the self property of + + 0\_(1) ,select "Left Operand", as follows: Advance 🗄 Self Property ^ 🗄 - Contain Unit Property Contain 🗄 - Self Unit Ė **IFO\_(8)** Property Link E Self Property 🗄 Contain Unit 🗄 - Self Unit Property Float 🗄 Self Property 🖃 Contain Unit **⊡** + 0\_(1) Self Property Left Operand Right Operand ΟK READ0\_(5) ⊳WRITE0\_(7) Y Cancel >

Property Contain 22. Click the right button in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance   |                     |                              |
|---|---------------------|------------------------------|
| Self Property     Contain Unit     Self Unit     Self Property     Self Property     Contain Unit     Self Unit     Self Property     firm Contain      |                              |
| Right Operand<br>WRITE0_(7)   | OK<br>Cancel        |                              |
| 23. Select - <b>READO (51</b> , button follows:   | immediately changed | into operational status , as |

| Advance          |                |
|------------------|----------------|
|                  |                |
| Self Property    | Affirm Contain |
| 🕀 Contain Unit   |                |
| 🖻 - Self Unit    |                |
| ⊨ IF0_(8)        | Cancel Contain |
| ⊕ Self Property  |                |
| 🗄 - Contain Unit |                |
| ⊡ - Self Unit    |                |
| □ WRITE0_(6)     |                |
| i Self Property  |                |
| 🖻 - Contain Unit |                |
| Ē + 0_(1)        |                |
| ⊡ Self Property  |                |
| Left Operand     | ок             |
| Right Operand    |                |
|                  | 1              |
| ⊡-WRITE0_(7)     | Cancel         |

24. Click Affirm Contain button, complete  $= + 0_{1}$  Component contain select

| Advance          |   |               |
|------------------|---|---------------|
|                  | ~ |               |
| 庄 - Contain Unit | _ | Insert Unit   |
| 🖻 Self Unit      |   |               |
| ⊡ IF0_(8)        |   |               |
| E Self Property  |   | Unit Name     |
| 🖅 - Contain Unit |   |               |
| 🖃 Self Unit      |   | Unit Property |
| B WRITE0_(6)     |   |               |
| En Self Property |   |               |
| 🖃 Contain Unit   |   |               |
| <b>□</b> + 0_(1) |   |               |
| Self Property    |   |               |
| - Left Operan    |   |               |
| Right Opera      | t | ок            |
|                  |   |               |
| WRITEO_(7)       | ~ | 1             |
| < >              |   | Cancel        |

25. Click the right button Insert Unit in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm insert", as follows:


28. Finally click button, Advanced operations are completed. The final screen effects are shown below:

| 00000                                  | lear  |
|--|-------|
|  | (IH.W |
| For                                    |       |
| · · · [· <u></u> ]· · · · · · ·        | <br>  |
|  | <br>  |
| ······································ | <br>  |
| <u>YPRIE</u>                           | <br>  |
|  | <br>  |

29. Click the "off-line simulation" icon on the software 🕼 , See the following simulation results:



# 5. Advanced functions integrated application

# 5.1 Register over the value of cleared

### • Overview

When the value of register exceeds upper limit value, cleared the register or set to other values. Here we use PFW300 as an example, when the value of PFW300 exceeds 16, cleared PFW300.

# • Routine

Step 1: Building a screen, placing parts

Building a new screen, placing the following components: one "If" component, one "compare" component, one "read" and one "write" component.

| · | • | • | •   | ·  | •  | · | ·  | ·  | · | ·  | · | ·  | ·  | ·  | • | • | · | • | • |
|---|---|---|-----|----|----|---|----|----|---|----|---|----|----|----|---|---|---|---|---|
| • | • | • | •   | •  | •  | • | •  | ·  | · | •  | • | •  | •  | •  | • | • | • | • | • |
|   |   |   |     |    | ·  | · |    | ·  | · | >  |   |    |    |    |   |   |   |   |   |
|   |   |   |     |    | ·  |   |    | ·  | · | 17 |   |    |    |    |   |   |   |   |   |
|   |   |   | 5   |    | ·  |   |    |    | · |    |   |    |    |    |   |   |   |   |   |
|   |   |   | JI. | Ē  | ·  |   |    |    | · |    |   |    |    |    |   |   |   |   |   |
|   |   |   | ÷   | ÷  |    |   |    |    |   | •  | _ | =  | -  | _  |   |   |   |   |   |
|   |   |   |     |    |    |   |    |    |   | .  | R | E. | Al | D, |   |   |   |   |   |
|   |   |   |     |    |    |   |    |    |   |    | • | •  |    | -  |   |   |   |   |   |
|   |   |   |     | ٦, | IJ | Ъ | IT | Ē  | • |    |   |    |    |    |   |   |   |   |   |
|   |   |   |     | Ľ  | 1  | Ū | U. | IJ |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |     |    |    |   |    |    |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |     |    |    |   |    |    |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |     |    |    |   |    |    |   |    |   |    |    |    |   |   |   |   |   |

Step 2: Double-click "Read", point object to PFW300; Double-click "compare" component, choose kind as  $\nearrow$ , set right operate as 16.

| Read                                    | Compare 🛛 🗙        |
|---|--------------------|
| [Object] Position                       | [Compare Position] |
| Type<br>Unit Type Register ▼<br>Station | Kind >             |
| Device PLC Port  VirStaND 0 Station 0   | Eormat Dec 💌       |
| Object                                  | Left Operand 0     |
| Object PFW                              | Right Operand 16   |
| Data<br>Data Type Word                  |                    |

Step 3: Box selecting "compare" and "Read", Right-click the selected area, choose Advanced, Pop-up the following advanced dialog box:

|              | Advance  |                     |                 | l        |        |
|--------------|--|---------------------|-----------------|----------|--------|
|              | <b>⊕- <mark>READ0_(0)</mark><br/>⊡- &gt; 0_(1)</b> |                     | Insert Unit     |          |        |
| 1            |  |                     | Unit Name       |          |        |
|              |  |                     | Unit Property   |          |        |
|              |  |                     |                 |          |        |
| Step 4: Clic | ck Left operate of                                 | f <b>&gt; 0_(1)</b> | click "property | contain" | choose |
|              | click  | Affirm Contain      |                 |          |        |

| Advance   |                                   | Advance  |                |
|---|-----------------------------------|--|----------------|
| READ0_(0)     Sol Property     Left Operand     Right Operand | Property Contain<br>Property Link | ⇒ 0_(1) Self Property Left Operand Right Operand Contain Unit <b>•</b> READ0_(0) | Delete Contain |
|   | OK<br>Cancel                      |  |                |

Step 5: Box selecting "compare" component and "If", Right-click the selected area, choose Advanced, with the same operations, Current Value of If component property contain  $\geq 0_{-1}$ :



Step 6: Double-click "Write", open the Properties dialog box, in Object option, modify object to PFW300, set data as 0, as follows:

| Object<br>Object | PFW  | •       | 300     |  |
|------------------|------|---------|---------|--|
|                  |      | <u></u> | ndirect |  |
| - Data           |      |         |         |  |
| Data Type        | Word | •       |         |  |
| Set Data         |      | 0       |         |  |
|                  | -    |         |         |  |

Step 7: Drag "write" into "If", will pop-up "Are you sure add selected unit to alter?", select "Yes", add "write" into "If" component's self unit.



Step 8: Put one digital input an the screen, modify object to PFW300.



Finally, the production of functional components has been finished. When you enter one data exceeds 16, it will be automatically cleared.

# 5.2 Three-position switch

### • Overview

Here we learn how to make a three-position switch on Thinget touch screen, what does three-position switch mean? For example: Fan stall selection, rotating a switch, you can select a file wind, two stalls wind, can also choose to stop. Here, we need to make a switch. As shown below:



switch08

If the initial position is in manual state, this time M0 Set, M1, M2 reset, click on the touched area first time, the switch will be in off state, this time M1 set, M0, M2 reset; clicking the touched area second time, the switch will turn to automatic state from off state, then M2 set, M0, M1 reset. Such as the cycle.

#### • Routine

Before building advanced function, we have to sort our ideas basing on the function we want. Step 1: switch pictures

(1) because we need to switch the three kinds of pictures, so it would be best to use the value of registers to switch pictures. (As an example, here we use the register PFW300 which the value can be saved when power-down).



(2)On the touch screen, use the "Insert picture" function, insert the following four pictures. This represents several states of a button.



(3) Put four pictures together.



(4)Place one "Switch" part and one "READ" part on the screen.

|   |   |    |   | ·  | ·  | · | ·  | · | · |   |   |    |   |   |            |   | · |
|---|---|----|---|----|----|---|----|---|---|---|---|----|---|---|------------|---|---|
|   | • |    |   |    | ·  | · |    | · |   | • |   |    |   |   |            |   |   |
| · | • | k. | Ŵ | 11 | Γſ | Ī | ł  | : | · |   | · | ·  | · | · | ·          | · | · |
| • | • | Υ. |   |    | -  | - | ٩, | · | · | · | · | ·  | · | · | •          | • | · |
| • | • | •  | • | •  |    |   | ·  |   | • |   |   |    |   | • | •          | • | • |
|   | · |    |   | ·  |    | · | ·  | · | · | · | F |    |   | _ | <b>1</b> . | · |   |
| · | · | ·  | · | ·  | ·  | · | ·  | · | · | · | ł | łŁ | A | D | ŀ.         | · | • |
|   | • |    | • | •  | ·  | · | ·  | · |   | · |   | •  | • | • | •          |   | • |
|   |   |    |   |    |    |   |    |   |   |   |   |    |   |   |            |   |   |
|   |   |    |   |    |    |   |    |   |   |   |   |    |   |   |            |   |   |

<sup>(5)</sup> Double-click the Read part, in the dialog box, modify the object types as PFW300, clicking OK to return.

| Read 🔀  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register 💌                    |
| Station<br>Device PLC Port VirStaNO 0 Station 0 |
| Object Object PFW I 300                         |
| Data<br>Data Type Word                          |
|   |

(6) Box select "Switch" and "READ" two parts, right-click, in the pop-up menu, select "advanced"

| 3 | 5 | Ŵ | ן<br>נו | CH READ     | : |
|---|---|---|---------|-------------|---|
|   |   | ÷ |         | Property    | • |
|   |   |   |         | Current     | • |
| : | : | : | :       | Group .     | : |
|   |   |   |         | Lock        |   |
| : | ÷ | : | :       | Public Unit | : |
| • |   |   |         | System ·    | • |
| : | : | : | :       | i           | : |
| • | · | · |         | Cut ·       | • |
| : | : | : | :       | Copy        | : |
| : | ÷ | ÷ | :       | Delete      | : |
| • |   |   |         | Save        | • |
| : | : | : | :       | Template    | : |
| : | : | : | :       | Advance     | : |
| : | ÷ | ÷ | ÷       | Optimistic  | : |
|   | • |   | •       | Unlock All  |   |
| : | : | : | :       |             | : |

(7)The Switch part of the "current index" property contain "READ"part. After property contain, results are as follows, click OK to exit.



(8) Put the part and just mentioned four pictures together, then box select them.

|            |          |                  | HHMMI  |      |
|------------|----------|------------------|--|------|
| H          | * SWI    | TCH              | 1944<br>- Nanger<br>Nanger<br>Nanger<br>Hangar<br>Hangar | И    |
| HANNI H    | HIMMIN   | TINIT !          | -HANN H  | -111 |
|            | NI - IMA | (it)             | ni 🛉 Heighi  |      |
| ihi HÞ     | HNNI F P | engi Hi          | HANNI HA   | HNH  |
| -14/8/11/1 | H        | HIMMI            | HERE   | H    |
|            | ni Haan  | hi <b>d</b> Hark | ni" H <b>r</b> a   | 11   |
| and the    | nato t   | Notice In        | Holtor 1   | 11/2 |

(9) After box selecting, right-click then in pop-up menu, select "Advanced", Inset the four pictures into "Switch" part one by one  $_{\circ}$ 

(10) Through move up and move down to change position of pictures. (Note: in self unit, while the top picture value is 0, it shows, those underling represent value of 1, 2, 3)

**Step2:** Put one "function Button" on the screen, In the button option, check **File Button**, The "function Button" to implement the operation of PFW300 self plus one.

unction Button to implement the operation of 11 w 300 se



(1) Add "function Button" on the screen,

(2) Double-click "function Button", set the function as "PFW300=PFW300+1", as shown below:

| Function Button                                   |   |  | ×    |
|---|---|--|------|
| Function Button Limit                             | Color   Positi  | on   |      |
| Function Pressing  Arithmetic PFW300 = PFW300 + 1 | <u>A</u> dd<br><u>Modify</u><br><u>D</u> elete<br>Move D <u>own</u><br><u>Move Up</u><br><u>P</u> assword | All<br>Set Coil<br>Reset Coil<br>Reverse Coil<br>Copy Coil<br>Screen Jump<br>Set Data<br>Copy Register<br>User Input<br>Open Window<br>Close Window<br>Down Scheme<br>Up Scheme<br>Data Block Transmit<br>Arithmetic<br>Import CSV Data<br>Export CSV Data |      |
|   |   | 定 取消 应   | 用(A) |

(3) Select "button" option, check Fide Button

| Function Button  |   |
|--|---|
| Function Button Limit Col  | lor Position  |
| Key Type<br>Touch<br>C Enter <u>C</u> ode  | P <u>a</u> ssword<br>l <u>e</u> vel Level1 ▼  |
| <ul> <li>✓ Hide Button</li> <li>✓ Normal Change Aspect</li> <li>User Defined</li> <li>○ Press Save Aspect</li> </ul> | Vse Text<br>Cont <u>e</u> nt<br>Func  |
| Func   | C Align Left C Align Top<br>C Align Center C Align Middle<br>C Align Right C Align Bottom |
|  |   |

(4) Then, move the hide function key to the picture which created in the previous step.



Step3: control coil output

(1) We not only need picture display, but also output of function coil, pictures in the different state can output different coils, it also means that output different coils under the different value of register .



(2) In order to achieve the above purpose, need to use "IF", "Read", "Write", "comparison" parts, Here began to make coil output command. in case of PFW300 = 0.



(3) Double-click "comparison" part, set compare kind as , as the following figure:

| Compare               |     |    | X     |
|-----------------------|-----|----|-------|
| Compare Positi        | on  |    | 1     |
| <u>K</u> ind          | =   | •  |       |
| <u>F</u> ormat        | Dec | •  |       |
| <u>L</u> eft Operand  |     | 0  |       |
| <u>R</u> ight Operand |     | 0  |       |
|                       | 确定  | 取消 | 应用(4) |

(4) Double-click "Read", open the Properties dialog box, in Object option, modify object to PFW300, as follows:

| Read  |
|---|
| Object Position                                 |
| Type<br>Unit Type Register ▼                    |
| Station<br>Device PLC Port VirStaNO 0 Station 0 |
| Object<br>Object PFW                            |
| Data<br>Data Type Word                          |
| 确定 取消 应用 (A)                                    |

(5) Box selecting "Read" and "comparison" parts, Right-click the selected area, In the Pop-up dialog box , the left operand of "compare" attribute contain the "Read", click "OK" to quit :

| Advance   |                                   |
|---|-----------------------------------|
| ■ == 0_(0) Self Property Left Operand ■ Right Operand ● READ0_(1) | Property Contain<br>Property Link |

(6) Box selecting the contained "compare" and "If" components, Right-click the selected area, In the Pop-up dialog box , the current index of "If" attribute contain "compare", click "OK" to quit:

| <b>Advance</b>   |                                   |
|--|-----------------------------------|
| <ul> <li>=== 0_(0)</li> <li>= IF0_(2)</li> <li>= Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Value</li> </ul> | Property Contain<br>Property Link |

(7) Double-click the first "Write", open the Properties dialog box, point object to M0, modify Set Data as 1, as follows:

| Vrite 🗙   |
|---|
| Object Position                                 |
| Type<br>Unit Type Bit                           |
| Station<br>Device PLC Port VirStaNO 0 Station 1 |
| Object<br>Object M V O<br>Indirect              |
| Data<br>Data Type Bit<br>Set Data 1             |
|   |

(8) Double-click the second "Write", point object to M1, modify Set Data as 0, Double-click the third "Write", point object to M2, modify Set Data as 0. box select them , right-click the selected area, In the pop-up menu, select "combination", as follows:

| • |            | W        | Ŗ <u>IT</u> Ę   | • |
|---|------------|----------|-----------------|---|
|   |            | <u> </u> |                 |   |
| · | ٠ <b>1</b> | M        | Property        | • |
| ÷ |            | •        | . If oper cy    | : |
| · | 1          | W        | Group           | • |
|   | :          |          | Lock            |   |
|   |            |          |                 |   |
| · |            | •        | · Public Unit · |   |
| · | ·          | •        | ·               | • |
| · | ·          | •        | · System ·      | • |
| · | •          | •        |                 | • |
| : | :          | :        | Cut             |   |
|   |            |          | · Сору ·        |   |
| · |            | •        | . copy          |   |
| · | ·          | •        | · Delete ·      | • |
| · | ·          | •        | ·               | • |
| · | ·          | •        | · Save ·        | • |
| · | ·          | •        | . Template .    | · |
| · | •          | •        | . remprate .    | • |
|   |            | •        | Advance         |   |
| ÷ |            |          |                 |   |
|   |            |          | Optimistic      |   |
|   |            |          | Unlock All      |   |
|   |            |          | . SHOCK ALL     |   |
|   |            |          |                 |   |
| · | ·          | •        |                 | • |

(9) After the combination of the three "Write" parts , move the combination to the "IF" part which has been produced in above step , will pop-up "Are you sure add selected unit to alter?", Select "Yes"

| IVIN 区<br>Are you sure add selected unit to alter?<br>是① 斉① | · · · · · · | · · |    |     | · ·<br>· · | :  | · ·<br>· · | •    |     | · ·<br>· · | :  | · ·<br>· · | :  | : | : | : | •   | :   | • | · · |
|---|-------------|-----|----|-----|------------|----|------------|------|-----|------------|----|------------|----|---|---|---|-----|-----|---|-----|
| Are you sure add selected unit to alter?                    | : WRII      | ŢĒĪ |    |     | · ·        | :  | · ·        |      |     | · ·        | :  | · ·        | :  | : | : | : | •   | :   | : | • • |
|   | IVin        |     |    |     |            |    |            |      |     |            |    |            |    |   |   |   |     | >   | < |     |
| <u>是(1)</u> 否(10)   |             |     |    |     |            |    |            |      |     |            |    |            |    |   |   |   |     |     |   |     |
|   | 1           | År  | ej | 70u | su         | re | ad         | ld s | ele | ecto       | ed | un         | it | t | 0 | പ | .te | er' | ? |     |

(10) With the same operation, produce the parts when PFW300 = 1, PFW300 = 2, PFW300 = 3. **Step4:** Use "exceed 16 return 0" approach of the first case, producing a part which PFW300 cleared when the value of PFW300 more than 3, At this point, the case production has been finished.

# **5.3 Button interlock**

# • Overview

In the engineering screen editing process, often used "Button interlock" function. Its specific application is as follows:



The following would be examples of "button interlock" function of the specific application, as follows case, only when PSB401 in the ON state, the button PSB400 will take a counter-action operation.

Step1: building a screen, placing parts

Place two "text", two "indicator" and two "button" on the screen, modify their properties:



**Step2:** Put one "read" component on the screen as PSB400 button's limit condition, point object to PSB401,as follows:

|      | Read                                  |
|------|---------------------------------------|
|      | · · · · · · · · · · · · · · · · · · · |
|      | Object Position                       |
|      |                                       |
|      | Туре                                  |
| READ |                                       |
|      | Unit Type Bit 👻                       |
|      | ,                                     |
|      | Station                               |
|      | Device PLC Part -                     |
|      | Device PLC Port 👻                     |
|      | VirStaNO 0 Station 0                  |
|      |                                       |
|      | - Object                              |
|      |                                       |
|      | Object PSB - 401                      |
|      |                                       |
|      | 🔲 Indirect                            |
|      |                                       |
|      | Data                                  |
|      | Data Type Bit 👻                       |
|      | Para 13bo Bit                         |
|      |                                       |
|      |                                       |

Remove PSB400 component's contain unit "Password", as follows:

Delete Contain

Limit -

| Advance   |                               |                         | Advance  |   |
|---|-------------------------------|-------------------------|--|---|
| □-Key0_(0)<br>□-Contain Unit<br>①-Password0_(1)<br>①-Self Unit<br>①-Self Property<br>□-Float Property<br>□-Innt | Delete Contain<br>Modify Name | Click Delete<br>Contain | <ul> <li>► Key0_(0)</li> <li>← Contain Unit</li> <li>← Self Unit</li> <li>← Self Property</li> <li>← Float Property</li> <li>← Float Property</li> <li>← Limit</li> <li>● Password0_(1)</li> </ul> | Property Contain<br>Property Link<br>Delete Property<br>Modify Name |
|   | OK<br>Cancel                  |                         |  | OK<br>Cancel  |
|   |                               |                         |  |   |

Delete "password", select the button and "read" components

| Α  |  |
|--|--|
| <u></u>  |  |
|  |  |
| Devenue a service serv |  |
| Reverse  |  |
| ··· PEAD····   |  |
| ··· <del>··································</del>  | Reverse READ   |
|  | e a construction de la construct |
|  | · · · · · · · · · · · · · · · · · · ·  |
| Dackword   |  |
| <u>Fas</u> swulu   |  |
|  |  |
|  |  |
|  |  |

Add "read" as "Key" component's contain unit, as follows:

| Advance                                 |   | Limit Property Contain  |                               |
|---|---|---|-------------------------------|
|   | Property Contain                                | Affirm Contain  | _(0)                          |
| ⊕ - Self Property<br>⊡ - Float Property | Property Link<br>Delete Property<br>Modify Name | Advance  Advance  Self Unit  Self Property  Float Property  Contain Unit  READ0_(0) | Delete Contain<br>Modify Name |

**Step3:** Click the "off-line simulation" icon on the software **1**, See the following simulation results:



# 5.4 Coil control invisibility

#### • Overview

In practical application, some users often use the control signals to control operand's invisible or visible, that means when a control signal is ON, there will turn up a operating button, when the control signal is OFF, the operating button is invisible. To summarize this section, coil control invisibility can satisfy the functions which users ask for.

### • Routine

Step1: Building a screen, placing parts

Building a new screen, placing the following components on the screen: two Indicator button



Step2: Modify properties

1.Double-click the left "Indicator button", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSB300, as follows:

|       | - Object<br>Object | PSB 🔽 🗌                | 300<br>direct |         |
|-------|--------------------|------------------------|---------------|---------|
| 2. In | General            | option, set button ope | erate as      | Reverse |

| Button Operate |                        |
|----------------|------------------------|
| •              | 🖲 Reverse C ON Instant |

3. Double-click the right "Indicator button", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSB301, as follows:

, as follows:

| - Object |     |          |     |
|----------|-----|----------|-----|
| Object   | PSB | - 3      | 101 |
|          | -   | Indirect |     |
|          |     |          |     |

4. In General option, set button operate as Reverse, as follows:

| -Button Operate |                        |
|-----------------|------------------------|
| •               | 🖲 Reverse C ON Instant |
|                 |                        |

5. Double-click "Read", open the Properties dialog box , modify Object to PSB300, as follows:

| Object- |     |   |          |
|---------|-----|---|----------|
| Object  | PSB | - | 300      |
|         |     | Γ | Indirect |

# Step3: Advanced Operations

1. Select the right "Indicator button", IF component and Read component at the same time, Right-click the selected area, choose Advanced, as follows:

| • H <b>MAN</b> M • • • • • • • • • • • • • | V            |
|--|--------------|
|  | <u> </u>     |
|  | Programme    |
|  | Property ·   |
|  |              |
| мі ни                                      | Group        |
|  |              |
|  | Lock         |
| · · · · · · · · · · · · · · · · · · ·      | Public Unit  |
|  |              |
|  | System -     |
| · · · · · · · · · · · · · · · · · · ·      | I ·          |
|  | Cut          |
|  |              |
|  | Copy         |
|  | Delete       |
|  | DeTere       |
|  | Save         |
|  | - I -        |
|  | Template 🛛 🖓 |
|  | Advance      |
|  |              |
|  | Optimistic   |
|  |              |
|  | Unlock All   |
|  |              |
|  |              |

2. Pop-up the following advanced dialog box:

| Advance  |                           |
|--|---------------------------|
| E Key0_(0)<br>■ IF0_(35)<br>■ READ0_(36)       | Insert Unit               |
|  | Unit Name                 |
|  | Unit Property             |
| 3.Select <sup>➡</sup> Key0_(0), Click the righ | Insert Unit in the dialog |

in the dialog box, the button will be

grayed-out non-operational status, while text changed into "affirm insert", as follows:

| Advance     |               |
|-------------|---------------|
| <pre></pre> | Affirm Insert |
|             | Cancel Insert |

4. Select + FO (35) , button immediately changed into operational status , as follows:

| Advance                              |  |
|--------------------------------------|--|
|                                      | Affirm Insert                                    |
|                                      | Cancel Insert                                    |
| 5. Click Affirm Insert button, compl | lete • Key0_0 Component insertion click the plus |

sign  $\pm$  in front of self property of  $\pm$  [F0\_35], open the self property, select "current value", as follows:

| Advance   |                                   |
|---|-----------------------------------|
| <ul> <li>IF0_(35)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Value</li> <li>Self Unit</li> <li>Key0_(0)</li> <li>READ0_(36)</li> </ul> | Property Contain<br>Property Link |

6. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance  |   |
|--|---|
| <ul> <li>□-IF0_(35)</li> <li>□- Self Property</li> <li>□- Top-Left Horizon</li> <li>□- Top-Left Vertical</li> <li>□- Bottom-Right Horizon</li> <li>□- Bottom-Right Vertical</li> <li>□- Current Value</li> <li>□- Self Unit</li> <li>□- Key0_(0)</li> <li>□- READ0_(36)</li> </ul> | Affirm Contain Cancel Contain                             |
| 7. Select + HEADO [30], button as follows:   | firm Contain immediately changed into operational status, |
| Advance  | al Cancel Contain   |

8. Click Affirm Contain button, complete  $\exists$  [F0\_(35)] Component contain.

Key0\_(0)

READ0 I

+





10. Click the "off-line simulation" icon on the software 😰, See the following simulation results:







# 5.5 Color conversion of font

### • Overview

In practical applications, in order to monitor the machine expediently, many customers use the change of control signal to change color of font on the current operation screen .This section will introduce how to change the current font's color by modifying the data of register.

### • Routine

Step1: building a screen, placing parts

Building a new screen, placing the following components on the screen: one text  $\mathbf{A}$ , one

| advanced instruction Read  | 舌、      | one digital input | , as the following diagram: |
|----------------------------|---------|-------------------|-----------------------------|
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            | U       | 00000             |                             |
| · · READ, · · ·            |         | 00000             |                             |
| · · <del>· · ·</del> · · · | · · · • | <del></del>       |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |
|                            |         |                   |                             |

## Step2: Basic components' properties modification

1.Double-click "text", open the Properties dialog box, select Font option, click

```
Setting... button.
```

2. Accordance with the above operation to set the font, then click <sup>Color</sup> option, In front of the transparent back remove the checkmark , Set the foreground color black, as follows:

| Text 🔀                      |
|-----------------------------|
| Display Font Color Position |
| Kind Color<br>Back Color    |
| Fore Color                  |
| More                        |
|                             |
| Transparent Back            |
|                             |
|                             |
|                             |
|                             |
|                             |
| <b>确定 取消</b> 应用 (a)         |

3. Double-click "Read", open the Properties dialog box, here the modify type is register; object is PSW300, as follows:

| Type<br>Unit Type | Register 💌 |
|-------------------|------------|
| Station<br>Device | PLC Port 💌 |
| VirStaNO          | O StationO |
| Object            | 200        |
| object            | PSW _ 300  |

4. Double-click "Digital input", open the Properties dialog box, point object to PSW300, as follows:

| Object- |     |          |    |
|---------|-----|----------|----|
| Object  | PSW | - 3      | 00 |
|         |     | Indirect |    |
|         |     |          |    |

5. Completion of all the attributes modification, the final picture is as follows:



# Step3: Advanced Operations

1.Select "Text" and "Read" at the same time, Right-click the selected area, Pop-up the following dialog box :



2. Choose Advanced, advanced dialog box as follows:

| Advance                 |               |
|-------------------------|---------------|
| ■ READ0_(0) ■ Te×t0_(1) | Insert Unit   |
|                         | Unit Name     |
|                         | Unit Property |
|                         |               |
|                         |               |
|                         | ОК            |
|                         | Cancel        |

3. Click the plus sign  $\overline{\textcircled{1}}$  in front of  $\overline{\textcircled{1}}$   $\overline{\texttt{Text0}}$ , then click the plus sign  $\overline{\textcircled{1}}$  in front of  $\overline{\textcircled{1}}$  Self Property, open its self property, as follows, select Fore Color:

| Advance   |                                   |
|---|-----------------------------------|
| READ0_(0)     Text0_(1)     Self Property     X Coordinate     Y Coordinate     Height     Width     Align Horizon     Align Vertical     Fore Color     Is Transparence     Back Color     Display Content | Property Contain<br>Property Link |
| Integer Length<br>Float Bit Length<br>O Lead  | ок                                |
| Display Character   | Cancel                            |

4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:



Affirm Contain

5. Select **READO** (0) , button

immediately changed into operational status,



| Self Property     X Coordinate     Y Coordinate     Y Coordinate     Width     Align Horizon     Align Vertical     Fore Color     Is Transparence     Back Color     Is Transparence     Back Color     Is Transparence     Self Property     Integer Length     Float Bit Length     O Lead |               |
|---|---------------|
| Y Coordinate     Height     Width     Align Horizon     Align Vertical     Fore Color     Is Transparence     Back Color     Display Content     Integer Length     Float Bit Length     O Lead   | ffirm Contain |
| Align Horizon     Align Vertical     Fore Color     Is Transparence     Back Color     Display Content     Integer Length     Float Bit Length     O Lead   | ancel Contain |
| Is Transparence<br>Back Color<br>Display Content<br>Integer Length<br>Float Bit Length<br>O Lead  |               |
| Display Content<br>Integer Length<br>Float Bit Length<br>0 Lead   |               |
| ···· O Lead   | or 1          |
|   | OK            |
| Display Character   | Cancel        |

6. Click

Affirm Contain

button, complete Component contain.

| Advance  |                            |
|--|----------------------------|
| <ul> <li>Text0_(1)</li> <li>Self Property</li> <li>X Coordinate</li> <li>Y Coordinate</li> <li>Height</li> <li>Width</li> <li>Align Horizon</li> <li>Align Vertical</li> <li>Fore Color</li> <li>Is Transparence</li> <li>Back Color</li> <li>Display Content</li> <li>Integer Length</li> </ul> | Unit Name<br>Unit Property |
| <ul> <li>Float Bit Length</li> <li>O Lead</li> <li>Display Character</li> <li>⊂ Contain Unit</li> <li>⊕ READ0_(0)</li> </ul>   | OK<br>Cancel               |

7. Click "OK" button to complete the advanced operations, the final picture is as follows:

|   | · | • | · | · | · | • | · | · | · | · | · | · | · | · | · | · | · | ·  | · | ·  | ·  | ·  | · | · | · | · | · |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|----|----|---|---|---|---|---|
| • |   |   |   |   |   |   | · | · | · | · | · | · | · | · | · | · | · | ·  | · | ·  | ·  | •  | • | • | • | • | · |
| • | - |   | _ |   |   |   |   | • | · | · | • | · | · | · |   |   |   |    |   |    |    |    | • | • | • | • | • |
|   |   |   | e | ъ | ĸ | Τ | ÷ | · |   | · | · | · | · | · | H | M |   |    |   | M  | I. | ŀ  | · | · | · | · |   |
|   |   |   |   |   |   |   |   |   | : |   |   |   |   |   |   | e | 2 | 12 | 2 | 12 |    | ŀ  |   |   |   |   |   |
|   |   |   |   |   |   |   | · | · |   | · |   |   | · |   |   |   |   |    |   |    |    | ٩. |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   | · |   |   |   | · |    | · |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   | · |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |    |    |   |   |   |   |   |

8. Trough "offline simulation" to observe the effects, as follows:



# **5.6 Register control switch pictures**

#### • Overview

Users who are familiar with the basic functions of touch-screen may have some knowledge about

"Dynamic Map" 💣 component in the software, but the number of added pictures is limited, this can not satisfy customer's requirement. So we introduce the use of advanced function to achieve pictures switch.

### • Routine

Step1: Building a new create, placing pictures on the screen:

Click the material library icon *m*, open the Properties dialog box, as follows:

Laterial library × Transparent 🕀 🧰 🕀 00.BMP 01.BMP 02.BMP 03.BMP 04.BMP 05.BMP 06.bmp 07.bmp Add Material Del Material 08.BMP 09.BMP Open Cancel Add File Del File Add Material 2. Click button, pop-up the following dialog box:

3. In the drop-down list of my document, find the pictures what you want:

4. Click "open" button, you can add pictures to a blank area of the right material library, as shown below:



5. Select the picture you want to add, click "open" button, You can add pictures to the screen, as shown below:

| Material library         |                    |                          |      | ×   |
|--------------------------|--------------------|--------------------------|------|---|
| ₩- Î Map                 | 01. bmp<br>03. bmp | 02. bmp<br>04. bmp       |      | Transparent Add Material Del Material Open Cancel |
| Add File Del File        |                    |                          |      |   |
|                          |                    |                          | Open | 1   |
| 6. Click 🛅 again, select | 02. bmp            | in the dialog box, click | open | button, the                                       |



picture can be added to the screen, In turn add screen as shown below:



(Note: Due to the use of material library icon 1, all pictures added to the screen in the default location (0,0), so you can see the above phenomenon ,actually it overlay by four pictures. Similarly, users can use touch-screen software of tool bar pictures it to add pictures ,also users who use 1 can freely control the size of pictures, while using 1 to add pictures, Picture size is the default size of the image itself, To the specific operations of 1, please refer to the third TP Edition touch screen manual. Step2: Add the following components: one digital input 1, one "Switch" and one "read"

Step2: Add the following components: one digital input indicate switch and one re

advanced command

| HMI HMI HMI HMI HMI HMI HMI HM        |       |
|---------------------------------------|-------|
|                                       | 00000 |
|                                       |       |
| ····································· |       |
|                                       |       |
|                                       |       |
|                                       |       |
|                                       |       |
| HALL HALL HALL HALL HALL HALL         |       |
| HMI HMI HMI HMI HMI HM                |       |
| HMI HMI HMI HMI HMI HMI HMI HMI H     |       |
|                                       |       |
| SWITCH                                |       |
|                                       |       |

### Modify properties:

1. Double-click "digital input", open the Properties dialog box, in **Object** option, modify object to PSW300, as follows:

| - Object |     |   |         |
|----------|-----|---|---------|
| Object   | PSW | - | 300     |
|          |     |   | ndirect |

2. In the Input option, set Max as 3, set Min as 0, as follows:

| Max             |   | Min             |   |
|-----------------|---|-----------------|---|
| 🔽 <u>C</u> heck |   | 🔽 Chec <u>k</u> |   |
|                 | 3 |                 | 0 |

3. Double-click "Read", open the Properties dialog box, in <sup>Object</sup> option, modify object to PSW300, as follows:

| Object- |     |   |          |
|---------|-----|---|----------|
| Object  | PSW | • | 300      |
|         |     |   | Indirect |

### Step3: Advanced Operations

1. Select all the parts at the same time, Right-click the selected area, choose Advanced ,as follows:



2. Pop-up the following advanced dialog box:

| Advance  |   |
|--|---|
| <ul> <li>●·图片0_(0)</li> <li>●·图片0_(1)</li> <li>●·图片0_(2)</li> <li>●·图片0_(3)</li> <li>●·SWITCH0_(4)</li> <li>●·READ0_(5)</li> </ul> | Insert Unit<br>Unit Name<br>Unit Property |
|  | OK<br>Cancel                              |

3.Select 图片0 (0), Click the right button

in the dialog box, the button will

be grayed-out non-operational status, while text changed into "affirm insert", as follows:

Insert Unit



4. Select **SWITCHO** [4], button immediately changed into operational status, as follows:

| Advance   |                                |
|---|--------------------------------|
| <ul> <li>●、图片0(0)</li> <li>●、图片0(1)</li> <li>●、图片0(2)</li> <li>● 图片0(3)</li> <li>● SWITCH0(4)</li> <li>● READ0_(5)</li> </ul> | Affirm Insert<br>Cancel Insert |

| 5. Click | Affirm Insert | button, | complete | SWITCHO | [4] | Component insertion. |
|----------|---------------|---------|----------|---------|-----|----------------------|
|----------|---------------|---------|----------|---------|-----|----------------------|



6. With the same operations ,to 图片0 [1] 、图片0 [2]、图片0 [3], In turn inserted into **SWITCH0 [4]**. The final screen effect is shown below:

| Advance  |                                 |                             |
|--|---------------------------------|-----------------------------|
| □··· <b>图片</b> 0_(3) □···································· | Affirm Insert<br>Cancel Insert  |                             |
|  | OK<br>Cancel                    |                             |
| ick <sup>⊕</sup> before <b>SWITCH0 [4]</b> , open          | Self Property, select Current I | <sup>ndex</sup> , as follow |

| Advance  |                                   |
|--|-----------------------------------|
| <ul> <li>□ SWITCH0 (4)</li> <li>□ 目身属性</li> <li>□ 左上角横坐</li> <li>□ 左上角繊坐</li> <li>□ 左上角繊坐</li> <li>□ 右下角横坐</li> <li>□ 右下角横坐</li> <li>□ 百月元件</li> </ul> | Property Contain<br>Property Link |
| ●、樹片0(0) ●、陶片0(1) ●、陶片0(2) ●、图片0(2) ●、图片0_(3) ●、READ0_(5)  | OK<br>Cancel                      |

8. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| Advance                       |                |  |
|-------------------------------|----------------|--|
| □ SWITCH0_(4)<br>□ □ 目身属性     | Affirm Contain |  |
| □ □ 左上角横坐;<br>□ 左上角横坐;        | Cancel Contain |  |
| 二 右下角横坐                       |                |  |
| 一右下角纵坐:<br>一 <b>当前序号</b>      |                |  |
| □·自身元件<br>□· <b>图 片0 (0</b> ) |                |  |
| □ 限片0 (1) □ 限片0 (2)           | 0K.            |  |
|                               | Cancel         |  |
| ∎ • READ0_(5)                 |                |  |

Click Affirm Contain button, complete property contain, as follows:

| Advance  |                | Advance  |   |
|--|----------------|--|---|
| □ SWITCH0 (4)<br>□ 目身属性<br>□ 左上角横坐:<br>□ 左上角繊坐:<br>□ 右下角横坐:<br>□ 右下角繊坐:<br>□ 自身元件<br>□ 图片0 (0) | Affirm Contain | ■ SWITCHO (4) ○ 自身属性 正 左上角横坐: 正 左上角线坐: 二 右下角横坐: 二 右下角横坐: 当前序号 □ 自身元件 ① 图片0(0)                          | Insert Unit<br>Unit Name<br>Unit Property |
| ● 图片0 (1) ● 图片0 (2) ● 图片0_(3) ■ READO_(5)  | OK<br>Cancel   | <ul> <li>● 图片0 (1)</li> <li>● 图片0 (2)</li> <li>● 图片0 (2)</li> <li>● 图片0_(3)</li> <li>● 包含元件</li> </ul> | OK<br>Cancel                              |

10. Finally click the "Ok" button to complete the advanced operation.



11. Click the "off-line simulation" icon **a** on the software, According to the different input data values, display different images, See the following simulation results:

UL HU





| HMI  | HMI    | HMI        | HMI           | HMI      | HMI      | HMI   | HM     |
|------|--------|------------|---------------|----------|----------|-------|--------|
| HIN  | 4 Hh   | H Hb       | 41 141        | di Lik   | 41. 1.16 | HIM   | d1   F |
| м    | akar 🖕 | Hole.      | Hinder-       | Likin -  | Higi I   |       | ны     |
| HM   | 1 HIN  |            | - E114        | 1.0-1.41 | Himi     |       | HÞ     |
| II H | MI E   | alles itil |               | MICH     |          | Y HI  | MI     |
|      | RM 🗯   | EU I       | I MIL C       |          | T MILL   | Her.  | HMI    |
| HI   | HIM    |            | a<br>TouchWin |          | e High   | U M   | F H    |
| ના 📕 | MIL TH |            |               |          |          |       | IMI    |
| HIMI | HM     | HMI        | HMI           | HMI      | ни       | HMI   | HM     |
| HIM  | 11 HN  | 1 HM       | di Hh         | AI HN    | 41 HM    | II HM | dl F   |



MI HUI




# 5.7 Word control coil output

## • Overview

It is similar to revolving lantern. Revolving lantern is auto controlled by process, Words control coil output can be manually controlled, or auto controlled, In practical application, many projects like fractionize every word to every bit. this section we will introduce Words control coil output

3

## • Routine

Step1: Building a screen, placing parts

Building a new screen, placing the following components on the screen: four lamp

digital input 23, four function field 23, one 1, four 3, four 3.

| F <u>unction</u> Field<br>WRITE<br>SWITCH | Function Field<br>WRITE | Function Field<br>WRITE | Function Field |
|---|-------------------------|-------------------------|----------------|

Step2: Modify properties

1. Double-click the first "lamp", open the Properties dialog box, in **Object** option, modify object to PSB300, as follows:

| - Object |     |   |          |
|----------|-----|---|----------|
| Object   | PSB | - | 300      |
|          |     |   | Indirect |

2. Double-click the second "lamp", open the Properties dialog box, in **Object** option, modify object to PSB301, as follows:

| -Object- |     |           |      |  |
|----------|-----|-----------|------|--|
| Object   | PSB | •         | 301  |  |
|          | ,   | 🗌 🔲 Indir | rect |  |

3. Double-click the third "lamp", open the Properties dialog box, in **Object** option, modify object to PSB302, as follows:

| Object- |     |    |        |  |
|---------|-----|----|--------|--|
| Object  | PSB | -  | 302    |  |
|         | ,   | In | direct |  |

4. Double-click the second "lamp", open the Properties dialog box, in **Dbject** option, modify object to PSB303, as follows:

| Object- |     |   |          |  |
|---------|-----|---|----------|--|
| Object  | PSB | • | 303      |  |
|         |     |   | Indirect |  |

5. Double-click "digital input", open the Properties dialog box, in Object option,

modify object to PSW300, as follows:

| Object PSW V 300  |
|---|
| 6. In the Input option, set Max as 3, set Min-as 0, as follows:   |
| Max<br>V Check<br>3<br>0  |
| 7. Double-click the first "function field", open the Properties dialog box, in Mode option,   |
| select Coil Spring ,then click button, in the pop-up dialog   |
| box, modify object to PSB300, as follows:   |
| Object PSB  |
| 8. Open Function option, in the Al ,select Reset Coil, continuous hit Add   |
| button three times, in the left Function area, you can see the right picture:   |
| AL<br>Set Coil<br>Reverse Coil<br>Copy Coil<br>Screen Jump<br>Set Data<br>Copy Register<br>User Input<br>Open Window<br>Close Window<br>Down Scheme<br>Up Scheme<br>Data Block Transmit<br>Arithmetic<br>Import CSV Data<br>Export CSV Data |
|   |

9. Double-click the first "Reset Coil", open the Properties dialog box, in **Dbject** option, modify object to PSB301, as follows:

| -Object- |       |                 |
|----------|-------|-----------------|
| Object   | PSB 🔽 | 301<br>Indirect |

10. The same operational, to the second and third "Reset Coil", point separately to PSB302 and PSB303, as follows:

| Function<br>Reset CoilPSB301<br>Reset CoilPSB302<br>Reset CoilPSB303  |
|---|
| 11. Double-click the second "function field", open the Properties dialog box, in Mode   |
| option, select Coil Spring ,then click button, in the pop-up  |
| dialog box, modify object to PSB301, as follows:  |
| Object PSB I 301<br>Indirect  |
| 12. Open Function option, in the Al ,select Reset Coil, continuous hit Add  |
| button three times, modify the property of the three "Reset Coil", point separately to PSB300, PSB302 and PSB303, as follows: |
| <u>Function</u><br>Reset CoilPSB300<br>Reset CoilPSB302<br>Reset CoilPSB303   |
| 13. Double-click the third "function field", open the Properties dialog box, in Mode  |
| option , select Coil Spring , then click button, in the pop-up  |
| dialog box, modify object to PSB302, as follows:  |
| 14. Open Function option, in the Al ,select Reset Coil , continuous hit   |
| button three times, modify the property of the three "Reset Coil", point separately to PSB300,                                |
| PSB301 and PSB303, as follows:<br><u>Function</u><br>Reset CoilPSB300<br>Reset CoilPSB301<br><u>Reset CoilPSB303</u>          |
| 15. Double-click the fourth "function field", open the Properties dialog box, in Mode   |
| option , select Coil Spring , then click button, in the pop-up  |
| dialog box, modify object to PSB303, as follows:<br>Object PSB 303 Indirect   |

16. Open Function option, in the Al ,select Reset Coil, continuous hit Add

button three times, modify the property of the three "Reset Coil", point separately to PSB300, PSB301 and PSB302, as follows:

| <u>F</u> unction |
|------------------|
| Reset CoilPSB300 |
| Reset CoilPSB301 |
| Reset CoilPSB302 |
|                  |

17. Double-click the first "write", open the Properties dialog box, here the Type- is Bit, set

| Object- as | PSB300,                       | Set Data | is 1,as fo    | llows:     |
|------------|-------------------------------|----------|---------------|------------|
|            | Object<br>Object              | PSB      | ▼ Indir       | 300<br>ect |
|            | Data<br>Data Type<br>Set Data | Bit      | <b>▼</b><br>1 |            |

18. Double-click the second "write", open the Properties dialog box, here the Type- is Bit, set

| Object | t- as PSB | 301, | Set Data | is 1, as foll | lows: |
|--------|-----------|------|----------|---------------|-------|
|        | Object    |      |          |               |       |
|        | Object    | PSB  | -        | 301           |       |
|        |           |      |          | Indirect      |       |
|        | Data      |      |          |               |       |
|        | Data Type | Bit  | •        |               |       |
|        | Set Data  |      | 1        |               |       |

19. Double-click the third "write", open the Properties dialog box, here the <sup>-Type-</sup> is Bit, set

| Object- | as PSB302,  | Set Data | is 1, as follows: |
|---------|-------------|----------|-------------------|
|         | Object      |          |                   |
|         | Object P    | SB 💌     | 302               |
|         |             |          | Indirect          |
|         | - Data      |          |                   |
|         | Data Type B | it 🔽     |                   |
|         | Set Data    | 1        |                   |

20. Double-click the third "write", open the Properties dialog box, here the Type- is Bit, set

| Object- a: | s PSB303,                     | Set Data | is 1, as follows:                             |  |  |
|------------|-------------------------------|----------|---|--|--|
|            | Object                        | PSB •    | <ul> <li>✓ 303</li> <li>✓ Indirect</li> </ul> |  |  |
|            | Data<br>Data Type<br>Set Data | Bit      | <b>-</b>                                      |  |  |
|            |                               |          |   |  |  |

21. Double-click "READ", open the Properties dialog box, set Unit Type as Register , set Object to PSW300, as follows:

| Type<br>Unit Type             | Register 💌        |
|-------------------------------|-------------------|
| Station<br>Device<br>VirStaNO | PLC Port  Station |
| Object<br>Object              | PSW 300           |

## Step3: Advanced Operations

1.Select Switch, Read and four Write at the same time, Right-click the selected area, choose Advanced ,as follows:

| Functio | )<br>Ā Field                                    | Function Field | Function Field | Function Field  |
|---------|---|----------------|----------------|-----------------|
| ₩ŖĬIT   | Property  |                |                | ₩ <u>₿</u> ́ITĒ |
|         | Group<br>Lock<br>Public Unit<br>System          |                |                |                 |
|         | Cut<br>Copy<br>Delete<br>Save                   |                |                |                 |
|         | Template<br>Advance<br>Optimistic<br>Unlock All |                |                |                 |

2. Pop-up the following advanced dialog box:



| Advance  |                                   |
|--|-----------------------------------|
| SWITCH0_(0)  Self Property  Top-Left Horizon  Top-Left Vertical  Bottom-Right Horizon  Bottom-Right Vertical  Current Index  READ0_(1)  WRITE0_(2)  WRITE0_(3)  WRITE0_(4)  WRITE0_(5) | Property Contain<br>Property Link |
|  | OK<br>Cancel                      |

4. Click the right button Property Contain in the dialog box, the button will be grayed-out non-operational status, while text changed into "affirm contain", as follows:

| <b>Advance</b>   |   |
|--|---|
| <ul> <li>SWITCH0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Index</li> <li>READ0_(1)</li> <li>WRITE0_(2)</li> <li>WRITE0_(3)</li> <li>WRITE0_(4)</li> <li>WRITE0_(5)</li> </ul> | Affirm Contain Cancel Contain               |
| Select = READO_(1) , button  | immediately changed into operational status |

follows:

| Advance  |   |
|--|---|
| <ul> <li>SWITCH0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Index</li> <li>READO_(1)</li> <li>WRITE0_(2)</li> <li>WRITE0_(3)</li> <li>WRITE0_(4)</li> <li>WRITE0_(5)</li> </ul> | Affirm Contain<br>Cancel Contain            |
| 6. Click Affirm Contain button, complete   | TCH0_0 directive's Component contain. selec |
| WRITEO_[2], Click the right button   | in the dialog box, the button will be       |
| grayed-out non-operational status, while text chan   | ged into "affirm insert", as follows:       |

| Advance  |                                |
|--|--------------------------------|
| <ul> <li>SWITCH0_(0)</li> <li>Self Property</li> <li>Top-Left Horizon</li> <li>Top-Left Vertical</li> <li>Bottom-Right Horizon</li> <li>Bottom-Right Vertical</li> <li>Current Index</li> <li>Contain Unit</li> <li>READ0_(1)</li> <li>WRITE0_(2)</li> <li>WRITE0_(3)</li> <li>WRITE0_(4)</li> <li>WRITE0_(5)</li> </ul> | Affirm Insert<br>Cancel Insert |

7. Select 🖻 SWITCH0\_(0) , button immediately changed into operational status , as follows:



9. With the same operations completing the other three write components' insertion, the effect is shown below:



Finally click the "Ok" button to complete the advanced operation.

The final screen results are as follows:

| · · · · |                      |       |          |          |     |   |     |      |    |     |     |            |    |   |     |   |     |    |   |     |    |          |      |   |     |   | -   | <del></del> |             | <del></del> | -        | <del></del> | -  |     |
|---------|----------------------|-------|----------|----------|-----|---|-----|------|----|-----|-----|------------|----|---|-----|---|-----|----|---|-----|----|----------|------|---|-----|---|-----|-------------|-------------|-------------|----------|-------------|----|-----|
|         |                      |       |          | •        |     | · | • • |      | ·  |     | ·   |            | •  | · |     | · |     |    | · |     | ·  | • •      | •    | • |     |   |     | 41          |             | ΗN          |          | + +         |    | • • |
|         |                      |       |          | •        | • • | · | • • | • •  | ·  | • • | ·   | • •        | ·  | · | • • | · | • • | ·  | · | • • | ·  | • •      | •    | · | • • | · |     | 00          | 101         | 00          |          | + ·         | ·  | • • |
|         |                      | • • • |          | •        | • • | · | • • | • •  | ·  | • • | ·   | • •        | ·  | · | • • | · | • • | ·  | · | • • | ·  | • •      | •    | · | • • | · |     |             |             | _           |          | t ·         | ·  | • • |
|         |                      | • • • |          | •        | • • | • | • • | • •  | •  | • • | •   | • •        | •  | • | • • | • | • • | ·  | · | • • | •  | • •      | •    | • | • • | • | ·   | • •         | •           | • •         | •        | • •         | ·  | • • |
|         |                      |       |          | •        | • • |   | • • | • •  |    | • • |     | • •        |    |   |     |   | • • |    |   | • • | •  | •        |      | • | • • | • |     | • •         | •           | • •         | •        | • •         |    |     |
|         |                      |       |          |          | : : | ÷ | : : | : :  | ÷  | : : | ÷   | : :        | ÷  | : |     | ÷ | : : | ÷  | : | : : | ÷  | : :      |      | : | : : | : | :   | : :         | :           | : :         | :        | : :         | ÷  |     |
|         |                      |       |          |          |     |   |     |      | ÷  |     | ÷   |            | ÷  |   |     | ÷ |     |    |   |     | ÷  |          |      |   |     |   |     |             |             |             |          |             |    |     |
|         |                      |       |          |          |     |   |     | ·LN  |    |     | ын. | , .        |    |   |     |   |     |    | • |     |    |          |      |   |     |   |     |             | -           | <u>.</u> .  |          |             |    |     |
|         | · · · H              |       | NV.      |          |     |   |     | -7   | 1  |     | Ň   |            |    |   |     |   |     | ÷  |   | -   |    | v.       |      |   |     |   | .   | 1           |             |             | IV.      |             |    |     |
|         | · · ·///             |       | N.       | -        |     |   |     | -11  |    |     |     | · ·        | •  | · |     | • |     | 1  |   |     |    | ۱·       | •    |   |     |   | · / |             |             |             | Λ.       |             |    | • • |
|         |                      |       | •        | •        | • • | · | • • | -11  |    |     |     | ŀ .        | ·  | · | • • | · |     |    |   |     |    | ŀ        | •    | · | • • | • | ·   |             |             |             |          | • •         | ·  | • • |
|         | · · ·                |       |          | -        | • • | · | • • | · 🛯  |    | _   | 1   | • •        | ·  | · | • • | · | • • |    |   |     |    | F        | •    | · | • • | • | - 1 |             |             |             | 1        | • •         | ·  | • • |
|         | ंजो                  |       | Gi i     | •        | • • | • | • • | •M   |    | - 1 | ы   | • •        | •  | • | • • | • | • • | ЪČ |   |     |    | ċ        | •    | • | • • | • | ÷   | ണ           |             | /           | л.<br>ат | • •         | •  | • • |
|         |                      |       |          |          |     | ÷ |     |      | ÷  | : : | ÷   | : :        | ÷  | ÷ |     | ÷ | : : |    |   |     |    |          |      | : | : : | : |     |             |             |             |          |             | ÷  |     |
|         |                      |       |          |          |     |   |     |      |    |     |     |            |    |   |     |   |     |    |   |     |    |          |      |   |     |   |     |             |             |             |          |             |    |     |
|         | ·                    |       | ·        |          |     |   |     | · 1= |    |     |     | <b>.</b> . |    |   |     |   |     |    |   | -   |    | . E      | i al | ы |     |   | Ē.  |             |             | 1           | E:       | ын          | ١. | . , |
|         | Fu                   | nctio | n F      | iel      | d - |   |     | .F   | un | cti | on  | F          | ie | d |     |   |     |    | ų | Ŀų  | U. | <u> </u> | ΙĊ   | ų |     |   | . 4 | <u> </u>    | <u>, ur</u> | <u>1</u> 1  | L IG     | şių         | ۰. |     |
|         | · • · <del>· ·</del> |       | <u> </u> | •        | • • | • | • • | •••  | •  | • • | •   | • •        | •  | · |     | • |     | ·  | · | • • | •  | • •      | •    | • |     | • | •   |             | •           | • •         | •        |             | ·  | • • |
|         |                      | • • • |          | •        | • • | · | • • | • •  | ·  | • • | ·   | • •        | ·  | · | • • | · |     | ·  | · | • • | ·  | • •      | •    | · | • • | • | ·   | • •         | ·           | • •         | ·        | • •         | ·  | • • |
|         |                      |       | <u> </u> | <u> </u> | • • | · | • • | • •  | ·  | • • | ·   | • •        | ·  | · | • • | · | • • | ·  | · | • • | ·  | • •      | •    | · | • • | • | ·   | • •         | ·           | • •         | ·        | • •         | ·  | • • |
|         |                      | _ ₩   | 7RI]     | ΓĒ       | • • | · | • • | • •  | ·  | • • | ·   | • •        | •  | • | • • | · | • • | •  | • | • • | ·  | • •      | •    | • | • • | • | ·   | • •         | •           | • •         | •        | • •         | •  | • • |
|         |                      | · -   |          |          |     | : |     |      | ÷  | : : | ÷   | : :        | ÷  | : |     | ÷ | : : | ÷  | ÷ | : : | ÷  | : :      |      | : | : : | : | ÷   | : :         | :           |             | :        | : :         | ÷  |     |
|         |                      |       |          | •        |     | - |     |      | -  |     | -   | • •        | •  | - | • • | - |     |    |   |     |    |          | •    | - | • • | • | -   |             | -           |             | -        |             | -  |     |

10. Click the "off-line simulation" icon **10** on the software, See the following simulation results:



Note: In the data box, enter 0, the left side of the first indicator light; In the data box, enter 1, the left side of the second indicator light; In the data box, enter 2, the left side of the third indicator light; In the data box, enter 3, the left side of the fourth indicator light;









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## **5.8 Scroll Text**

#### • Overview

Screen production process in the engineering, as the start screen, often related to the company name, brand, or other information Scrolling move in the screen. In the following we will illustrate how to make scroll text which can set travelling speed.

### • Routine

Step1: Building a new screen, placing the following components on the screen: one digital display **11**, one digital input **123**, here modify their property, point separately to PSW300 and PSW301, as follows:



Step2: Add one text A on the screen, In the "position" option, select "Vertical", point to PSW300. as follows:

| Welcome | Iext 🛛 🗙   |  |
|---------|--|--|
| to      | Display Font Color Position<br>Position<br>X 185<br>Y 60<br>Animal       | In the "position" option,<br>select "Vertical", point<br>to PSW300 |
| Thinget | Horizontal<br>✓ Yertical PSW300 []]<br>「Lock ✓ Zoom Ratio<br>确定 取消 应用(A) | 10 F3 W 500  |
| 1       |  |  |

Step3: Achieve the value of PSW300 increased each 100ms, put a "function filed"

component in the screen.

| Function Field   |   |
|--|---|
| Mode Function Position   | Object                                      |
| Act Mode<br>C S <u>t</u> art Screen<br>C Coil Spring<br>C Time(Sec.) | Station       Device       VirStaND       0 |
| C Continue<br>C First Scan After Down                                | Object PSB J 3                              |
| C First Scan After <u>P</u> ower                                     |   |

Note: PSB3 is a pulse coil within 100ms periodic.

Click **Function** option, Add arithmetic to the left function area, as follows:

| Mode Function Position   |  |
|--|--|
|  |  |
| <u>Function</u> Al   |  |
| Arithmetic<br>PSW300 = PSW300 +<br>Add Reset Coil<br>Reverse Coil<br>Copy Coil |  |
| Modify Screen Jump<br>Set Data<br>Copy Register                                |  |
| Delete User Input<br>Open Window<br>Close Window                               |  |
| Move Down Scheme<br>Up Scheme<br>Data Block Transmit                           |  |
| Move Up Arithmetic<br>Import CSV Data<br>Export CSV Data                       |  |

As the following setting: Select operate kind as Object is PSW300 Left operand is PSW300 Right operand is PSW301

Step4: Value comparison operations



| - | • | • | • | • | ·   | ·     | · | · | · | · | •  | •  | •  | ·        | · | • | • | • | • |
|---|---|---|---|---|-----|-------|---|---|---|---|----|----|----|----------|---|---|---|---|---|
| • | • | • | • | • | •   | •     | · | · | · | · | •  | •  | •  | ·        | • | • | • | • | • |
| • |   |   |   |   | •   | -     | _ |   | • | • |    |    |    |          |   |   |   |   |   |
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|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |
|   |   |   |   | Ē |     |       |   |   |   | E | 16 |    | Ð  | η.       |   |   |   |   | : |
|   |   |   | ÷ | ÷ |     |       |   |   |   | 5 | ų. |    | ÷  | ].<br>]. |   |   |   |   |   |
|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |
|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |
|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |
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|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |
|   |   |   |   |   |     |       |   |   |   |   |    |    |    |          |   |   |   |   |   |

Modify their properties:

a. To read component, point object to PSW300.

| Read   | × |
|--|---|
| Object Position  |   |
| Type<br>Unit Type Register 💌                                     |   |
| Station       Device     PLC Port       VirStaND     0   Station |   |
| Object<br>Object PSW I 300<br>Indirect                           |   |
| Data<br>Data Type Word   |   |

b. To compare component, point left operate to read, set right operate as 500.

| 1.4.1   |                | Compare   | ×            |
|---------|----------------|---|--------------|
| Advance | Delete Contain | Compare Position<br>Kind<br>Format Dec<br>Left Operand 0<br>Right Operand 500 |              |
|         |                | 确定 取消 应用  | ( <u>A</u> ) |

c. Implementation of Conditional judgment

Current Value of  $\Box$  IFO\_(0)  $\longrightarrow$  property contain  $\textcircled{} > 0_(2)$ 

| Advance   |   |
|---|---|
| <ul> <li>□-IF0_(0)</li> <li>□ Self Property</li> <li>□ Top-Left Horizon</li> <li>□ Top-Left Vertical</li> <li>□ Bottom-Right Horizon</li> <li>□ Bottom-Right Vertical</li> <li>□ Current Value</li> <li>□ Contain Unit</li> <li>□ &gt; 0_(2)</li> <li>□ WRITE0_(1)</li> </ul> | Delete Contain                                  |
| Choose WRITEO [1]   | Insert Unit, finally complete the insertion.    |
| □ • IF0_(0)   | t Unit Name  READ0_(3) f Property Unit Property |
| Modify Write component's object t   | to PSW300. set date as -100.                    |
| Object PSW 💌  | 300<br>Indirect                                 |

d. Finally the screen is shown below:

Data Type Word

Set Data

•100

Data

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| Function Field                         |        |      |
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| Speed Control                          | This   | ant  |
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Step5: Click the "off-line simulation" icon on the software 🕅, Input value in the speed control box, See the following simulation results:

|                  | W                      | /elcome        |      |
|------------------|------------------------|----------------|------|
| current position |                        | to             | curi |
| Speed Control    | IMI H <mark>y</mark> i | <b>Fhinget</b> | Spe  |
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|                  |                        |                |      |

| come |
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| nget |
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