TouchWin

TP Series Touch Screen

User's Manual

Xinje Electronic Co., Ltd

TouchWin Human Machine Interface

TP Series

Touch Screen

User's Manual

Version 2.0

Revision data 11/2007

PREFACE 1

SAFTY PRECAUTIONS 3

HARDWARE PARTS 4

SOFTWARE PARTS 21

APPLICATION PARTS 221

APPENDIX 225

This manual contains notices which you should observe to ensure your own personal safety, as well as to protect the product and connected equipment. These notices are highlighted in the manual by a warning triangle. Please obey the essential electric operation rules which have not indicated in this manual.

DANGER

Please comply with these notices, incorrect handling may cause system working incorrect or abnormal. Severely, may result in property damage.

CAUTION

This device and its components may only be used for the applications described in the catalog or the technical descriptions, and only in connection with devices or components from other manufacturers which have been approved or recommended by Thinget.

This product can only function correctly and safely if it is transported, stored, set up, and installed correctly, and operated and maintained as recommended.

Thinget Electronic Co., Ltd. All rights reserved

The reproduction, transmission or use of this document or its contents is not permitted without express written authority. Offenders will be liable for damages. All rights, including rights created by patent grant or registration of a utility model or design, are reserved.

Disclaim of Liability

We have checked the contents of this manual for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. This manual is subject to change without notice.

2007.11

Table of Contents

PREFACE **1**

SAFTY PRCAUTIONS……..**3**

HARDWARE PARTS……**4**

1 PRODUCT OVERVIEW……..….5

1-1. Features 6

1-2. Workflow 7

2 GENERAL SPECIFICATION 8

3 COMPONENT NAMES 12

4 EXTERNAL DIMENSIONS 16

5 INSTALLATION METHOD 18

6 PORT INSTRUCTION 19

7 REGULAR MAINTANCE AND CLEANING 20

SOFTWARE PARTS **21**

1 GRAPHICS SOFTWARE 22

1-1. Installing The Software 22

1-2. Components Of The Software Screen 24

2 GETTING STARTED 25

2-1. Creating A New Project 25

2-2. Editing Project 30

2-2-1 Basic operation of editing screens and windows 30

2-2-2 Downloading Data 38

3 INTRODUCING MENU 39

3-1. File 39

3-2. Edit 51

3-3. View 52

3-4. Part 53

3-5. Tool 59

3-6. Window 61

3-7. Help 61

3-8. Other Operations 62

4 MAKING GRAPHICS 63

4-1. Line 63

4-2. Arc 67

4-3. Rectangle 76

4-4. Ellipse 78

4-5. Fold/Polygon 79

4-6. Polygon Block 82

4-7. Three-Dimensional Frame 84
4-8. Inserting Map 85
4-9. Changing Dimension 87
4-10. Moving Object 88
4-11. Cut, Copy and Paste for the selected object 89
4-12. Public Unit and Private Unit 90
4-13. Lock 92
4-14. Moving Layer 93
4-15. Adjusting Graphics 95
5 BASIC COMPONENTS 97
5-1. Text 97
5-2. Dynamic Text 102
5-3. Variational Text 104
5-4. Lamp 105
5-5. Button 108
5-6. Button Lamp 111
5-7. Screen Jump 114
5-8. Digital Display 116
5-9. Alarm Display 118
5-10. Text Display 119
5-11. Set Data 120
5-12. Text Input 122
5-13. Set Data 123
5-14. Digital Keyboard 125
5-15. ASCⅡ Keyboard 126
5-16. User Input 127
5-17. Bar Graph 128
5-18. Dynamic Map 130
5-19. Call Window 132
5-20. Window Button 134
5-21. Down Recipe 135
5-22. Up Recipe 138
5-23. Function 139
5-24. Function Field 150
5-25. Discrete Column Map 152
5-26. Continue Cloumn Map 154
6 SPECIAL PART-DISPLAY 156
6-1. Date 156
6-2. Clock 157
6-3. Buzzer 158
6-4. LCD Light Lamp 160
6-5. Instrument 161
6-6. Valve 164
6-7. Pipe 167

6-8. Pump 170
6-9. Auto Wind 172
6-10. Motor 174
6-11. Retort 176
6-12.Invert Alarm Information 178
6-13. Real Time Trend 180
6-14. History Data Map 183
6-15. Event Button 187
6-16. Display Real Time Event 189
6-17. History Event 192
6-18. Sample Save 195
7 ALARM WINDOW 197
8 PRINT WINDOW 199
8-1. Create A New Window 199
8-2. Connection of the printer 201
9 SIMULATE FUNCTION 202
9-1. Simulate Offline 202
9-2. Simulate Online 204
9-3. Configuration 207
10 SPECIAL FUNCTIONS 209
10-1. TP Series Internal Object 209
10-2. Communication between TP and inverters 214

APPLICATIONS 221
1 TP SEREIES OPERATE METHODS 222
1-1. TP series online communication 222
1-2. TP Series Touch Screen Password 222

APPENDIX 225
1 PLC CONNECTING METHODS 225
1-1. Thinget FC/XC Series 225
1-2. Mitsubishi FX Series 227
1-3. Siemens S7-200/300/400 Series 229
1-4. OMRON C Series 230
1-5. Koyo S Series 232
1-6. Delta DVP series 235
1-7. LG Master-k series PLC 237
1-8. Matsushita FP series PLC 240
1-9. Schneider PLC 242
1-10. Fatek FB series PLC 243
1-11. Vigor VB series PLC 245
1-12. Fuji SPB series 247
1-13. Keyence KV series PLC 249
1-14. Emerson EC20 series PLC 250

1-15. OEMax NX7 series 252

PREFACE —Essential introduction about this manual

Thank you for buying TP series touch screen made by Xinje Electronic Co.,Lt ,this manual should be read and understood before attempting relevant operation.

Purpose of this manual

- This manual offers guidance and information about how to use TP correctly and maintenance, including application situations, operations, transportation, storage, installation, maintenance, etc.

- This manual mainly contains four parts: hardware, software, application and appendix.

  - Hardware Parts: Describing the essential features, specifications, dimensions, installations and communication connecting of TP series.
  - Software Parts: Introducing how to use graphics software TouchWin2.7 and connect it with TP.
  - Application Parts: Illustrating how to use TP with practical cases to make user understand deeply.
  - Appendix Parts: Introducing the connection methods between TP and other popular types of PLC.

Qualified Personnel

This manual is intent for the following personnel:

- Terminal Users
- Debug Engineers
- Technique Supporters

Please read and understand the safety precautions very carefully before operating or debugging.

Validity of the Manual

This manual may only be used for TP series touch screen and its graphic software made by Xinje.

Electronic Documents

In addition to our written manuals, we offer electronic documentations of our products by the following ways.

- User CD
  There are software, user manual and application tip of relevant products.

- Website

Please visit Thinget Electronic Co.,Ltd. at www.thinget.com to obtain all variable electronic documents.

Contact

Welcome to contact us if you have any problem.

Tel： 0510-85134136 85123803
Fax： 0510-85111290
Address：4th Floor Building 7, Orignality Industry Park, LiYuan Development Zone, Wuxi City, Jiangsu Province 214072

SAFTY PRECAUTIONS -- Essential introduction about product operation

Please read this manual very carefully before operation and please operate correctly while paying close attention to all the safety points. The following contents only used for TP series touch screen. Please keep this manual properly, place it where can be read easy for the operators and make sure hand it to terminal user.

◎ Notice Items ◎

Notice

- Please do not bind power line and communication cable together or let them too close, keep at least 10 cm distances between them.
- Please do not install experimental module or refit wiring. Otherwise it may cause malfunction, error action, damage or fire.
- Please shut off the power when there is abnormal smell or voice with TP products. (The briefness call made by buzzer after electrifying is normal)
- Please do not strike the touch panel with a hard or pointed object, or press on the touch panel with too much force or with pen, screw, since these may damage the touch panel and cause malfunction.
- Please tighten the screws while installation. If these screws are not tightened firmly, it may cause short-circuit, fire, or malfunction.
- Please transport, store, set up, installed and maintain the product correctly, otherwise it may damage the touch panel.

Danger

- Please be sure the TP's rated voltage is within the designated range, and that the power terminal lines are correctly attached. Otherwise, it may cause damage.
- Please do not touch terminals when power on to avoid causing an electric shock.
- Please do not open the cover board.
- Please cut off all the power while installing or disassembling TP products, otherwise it may cause misoperation and malfunction.
- Please use TP series touch screen in the certain environmental conditions according to this manual , it may cause accident.
- Please do not use the products in the environment with high frequency radiation, high magnetic field or other interferences.

HARDWARE PARTS-- Features, Specifications, Dimensions and Application notes of TP series touch screen

1. Product Overview

2. General Specifications

3. Parts Description

4. External Dimension

5. Installing Method

6. Port Instruction

7. Daily Maintenance and Cleaning

1 PRODUCT OVERVIEW

- Summary of products

TP series touch screen is a device connecting with PLC, inverter and other control devices to carry out digital display, monitor, switch control and other operations. With visual menu, good compatibility, high performance-price ratio, they have been the optimal choice of middle and small size control system.

According to product's sizes, operation modes, there are models in the following table:

Display Size	Display Material	TP Series	
4.7 Inch	Blue-white LCD	TP460-L	
5.7 Inch	Blue-white LCD	TP560-L	TP560-G
	256-Color	TP560-T	TP561-T
7.0 Inch	256-Color	TP760-T	
10.4 Inch	Black-white LCD	TPA60-L	
	256-Color	TPA60-T	TPA61-T

NOTE

All the models' working voltage in the above table is DC24V unless otherwise special noted.

1-1. Features

Thinget TP series touch screen contain products with various dimensions and functions as shown below. Moreover, user friendly graphic editor supporting simulate on line/off line and configuration function will make mastery easier for your control system.

Display

Various models: product size from 4.7” to 10.4”
Abundant displays: Blue-white LCD, 4 bits grey scale, 16 bits grey scale, 256-color, support BMP format with vivid screen.
Multiplicate languages: simplified Chinese, traditional Chinese, English, Japanese, Korean and so on with font setting freely.
Expanding capacity: Add more screens and data

Control

Controlling dynamic digital display and monitor, bar graphics, real trend map, discrete/continues map and switch.
Alarming at real time and record history alarm
Picking up data with timer or setting condition
Setting three grades password limitation
Supporting simulate on line /off line and configuration function which can simulate operations without connecting TP.

Communication

Double-ports communication separately which can connect two different devices simultaneously.
Driving panel printer directly and make the process low cost and flexible.
Supporting freedom protocol and drive program compiled by end-users.

1-2. Workflow

The main operating steps of TP series touch screen are shown in the following figure:

2 GENERAL SPECIFICATION

TP460 series

Item		TP460
Electrical Features	Input Voltage	DC20-DC28V
	Current Consumption	＜180mA
	Allowable Momentary Power-cut	Less than 20ms
	Voltage Endurance	AC1000V-10mA 1 minute（signal and time）
	Insulated Resistance	DC500V-About 10MΩ（signal and time）
Port	Communication Port	Support RS-232/RS-422/RS-485
	Download Port	Support RS-232
Environment	Operating Temperature	0－60℃
	Storage Temperature	-20-60℃
	Ambient Humidity	20-85% (Non condensing, dry bulb)
	Vibration Resistance	10-25HZ（X，Y，Z direction for 30 minutes 2G）
	Interference Rejection	Noise voltage：1000Vp-p、pulse duration 1us、1 minute
	Surrounding Atmosphere	free of corrosive gasses
	Protect Configuration	Accord with IP65
Screen properties	Type	Monochrome
	Using Life	50000 hours upwards，environmental temperature 25℃，24hours running
	Display Area	240*128
	Lighteness Contrast	Adjustable (by regulation resistance)
	Language setting	Chinese: simplified/traditional English ,Japanese, Korean and others
	Character dimension	Discretional font, Discretional dimension
	Touch panel	Matrix type touch
Memorizer	Screen	2MB
	Data	1KB
Configuration	Cooling Manner	Natural air cooling
	External Dimensions(mm)	173.2*121.4*45
	Cutout Dimensions (For front panel) (mm)	164*112

TP560/561 series

Item \ Model		TP560-L	TP560-G	TP560-T	TP561-T
Electrical Features	Input Voltage	DC20-DC28V			
	Current Consumption	<240mA	<240mA	< 280mA	< 280mA
	Allowable Momentary Power-cut	Less than 20ms			
	Voltage Endurance	AC1000V-10mA 1 minute（signal and time）			
	Insulated Resistance	DC500V-About 10MΩ（signal and time）			
Port	Communication Port	Support RS-232/RS-422/RS-485			
	Download Port	Support RS-232			
Environment	Operating Temperature	0－50℃			
	Storage Temperature	-20-60℃			
	Ambient Humidity	20-85% (Non condensing, dry bulb)			
	Vibration Resistance	10-25HZ（X，Y，Z direction for 30 minutes 2G）			
	Interference Rejection	Noise voltage：1000Vp-p、pulse duration 1us、1 minute			
	Surrounding Atmosphere	Free of corrosive gasses			
	Protect Configuration	Accord with IP65			
Screen properties	Type	CCFL monochrome	16 rank grey color	TFT 256-color	TFT 256-color
	Screen Size	5.7 Inch		5.6 Inch	
	Using Life	50000 hours upwards, environmental temperature 25℃，24hours running			
	Display Area	320*240			320*234
	Contrast	Adjustable (by regulation resistance)		Can not adjust	
	Language Setting	Chinese: brief simplified/complex font English ,Japanese, Korean and others			
	Character Size	Discretional font, Discretional dimension			
	Touch Panel	Digital matrix touch			
Memorizer	Screen	4MB			
	Data	2KB		4KB	
Configuration	Cooling Manner	Natural air cooling			
	External Dimension(mm)	200.0*148.0*44.4(mm)			
	Cutout Dimensions (For front panel) (mm)	182.4*134.4(mm)			

TP760 series

Item \ Model		TP760-T
Electrical Features	Input Voltage	DC20-DC28V
	Current Consumption	280mA
	Allowable Momentary Power-cut	Less than 10ms
	Voltage Endurance	AC1000V-10mA 1 minute（signal and time）
	Insulated Resistance	DC500V-About 10MΩ（signal and time）
Port	Communication Port	Support RS-232/RS-422/RS-485
	Download Port	Support RS-232
Environment	Operating Temperature	0－50℃
	Storage Temperature	-20-60℃
	Ambient Humidity	20-85% (Non condensing, dry bulb)
	Vibration Resistance	10-25HZ（X，Y，Z direction for 30 minutes 2G）
	Interference Rejection	Noise voltage：1000Vp-p、pulse duration 1us、1 minute
	Surrounding Atmosphere	Free of corrosive gasses
	Protect Configuration	Accord with IP65
Screen properties	Type	TFT 256-color LCD
	Screen Size	7 Inch
	Using Life	50000 hours upwards, environmental temperature 25℃，24hours running
	Display Area	480*234
	Contrast	Can not adjust
	Language Setting	Chinese: simplified/traditional English ,Japanese, Korean and others
	Character Dimension	Discretional font, Discretional dimension
	Touch Panel	resistance touch
Memorizer	Screen	4MB
	Data	4KB
Configuration	Cooling Manner	Natural air cooling
	External Dimension(mm)	200.0*148.0*44.4
	Cutout Dimension (For front panel) (mm)	182.4*134.4

TPA60/A61

Item \ Model		TPA60-L	TPA60-T	TPA61-T
Electrical Features	Input Voltage	DC20-DC28V		
	Current Consumption	380mA		
	Allowable Momentary Power-cut	Less than 10ms		
	Voltage Endurance	AC1000V-10mA 1 minute（signal and time）		
	Insulated Resistance	DC500V-About 10MΩ（signal and time		
Port	Communication Port	Support RS-232/RS-422/RS-485		
	Download Port	Support RS-232		
Environment	Operating Temperature	0－50℃		
	Storage Temperature	-20-60℃		
	Ambient Humidity	20-85% (Non condensing, dry bulb)		
	Vibration Resistance	10-25HZ（X，Y，Z direction for 30 minutes 2G）		
	Interference Rejection	Noise voltage：1000Vp-p、pulse duration 1us、1 minute		
	Surrounding Atmosphere	Free of corrosive gasses		
	Protect Configuration	Accord with IP65		
Screen properties	Type	4 bits grey scale black-white monochrome	TFT 256-color LCD	TFT 256-color LCD
	Screen Size	10.4 Inch		
	Using Life	50000 hours upwards, environmental temperature 25℃，24hours running		
	Display Area	640*480	800*640	640*480
	Contrast	Can not adjust		
	Language setting	Chinese: simplified/complex font English ,Japanese, Korean and others		
	Character dimension	Discretional font, Discretional dimension		
	Touch Panel	Resistance		
Memorizer	Screen	8MB		
	Data	4KB		
Configuration	Cooling Manner	Natural air cooling		
	External Dimension(mm)	311*234*48		
	Cutout Dimension (For front panel) (mm)	301*224		

3 COMPONENT NAMES

TP460-L：

Front View

Rear View

TP560/561 Series：

Front View

Rear View

TP760-T：

Front View

Rear View

TPA60/A61 Series：

Front View

Rear View

4 EXTERNAL DIMENSIONS

TP460-L Dimension

TP460-L Actual dimensions（Unit: mm）：163.2×111.4×45

Cutout dimensions（Unit: mm）：165×113

TP560/561 Dimension

TP560/561 Actual dimensions（Unit: mm）：200.0×148.0×44.4

Cutout dimensions（Unit: mm）：182.4×134.4

TP760-T Dimension

TP760-T Actual dimensions（Unit: mm）：200.0×148.0×44.4

Cutout dimensions（Unit: mm）：182.4×134.4

TPA60/61 Dimension

TPA60/A61 Actual dimensions（Unit: mm）：311×234×48

Cutout dimensions（Unit: mm）：301×224

5 INSTALLATION METHOD

When you buy a TP, there will be 4 iron install racks with it. There are two square fix holes on the display's upside and downside. Use the mounting bracket to fasten the display tightly in the control tank's install holes.

For Touch screen's temperature will go high if it works too long, be Sure to install the touch screen at least 10cm away from adjacent structures and other equipments (each side 5cm) to keep cross-ventilation.

Step1 Refer to hereinbefore graph's size. Open an square hole on the control tank's panel.

Step2 Add airproof circles in the airproof trough while installing.

Step3 Insert the TP into the cut out of the control tank.

Step4 Set the mounting bracket into the display's side fixing hole and tight the screw.

Step5 Connect the display and PLC communication ports with cables.

Note The communication cable can be offered by the supplier or made by user according to the connecting graphics，give +24V DC power to start working.

6 PORT INSTRUCTION

Pin assignments of TP series touch screen communication port:

TP Communication Port

PIN #	Signal Name
1	TD+
2	RXD1
3	TXD1
4	A1
5	GND
6	TD-
7	B1
8	RDD-
9	RDD+

TP Download Port

PIN #	Signal Name
1	NC
2	RXD2
3	TXD2
4	A2
5	GND
6	BUSY
7	B2
8	DOWN
9	NC

Wiring diagram of TP series touch screen download cable:

Note

1）On the base of above download cable, jump out the eighth pin and fifth pin, then you can download TP with force.

2） Please refer to appendix about communication wiring between TP series touch screen and other mainstream PLC.

7 REGULAR MAINTANCE AND CLEANING

Caution

- Please do not open the rear board by yourself.
- Please do not analyze or rebuild TP series products by yourself
- Please cut off all the power supply while checking.
- Please do not touch terminals in the electriferous products, otherwise, it may cause electric shock.
- Please do not insert or pull out cables with power on or draw the cables while communicating .otherwise, it may cause damage of the cables.
- Please periodically check installation and screws to avoid falling off.
- Please use TP series touch screen in the certain environment conditions according to this manual
- Please keep the product film clean as to keep it delicacy.
- Please clean the products with clean cloths and appropriate amount of detergent

Cleaning

Caution

- Please use clean cloths to clean the screen.
- Please use cloths with appropriate amount of detergent or alcohol while cleaning.
- Natural detergent, without acid, alkali is recommended.
- Keep distance from thrill or strong corrosive gas
- Never spray the detergent directly onto the screen.
- Please do not touch the screen too hard while wiping. otherwise, it will destroy the screen.

Disposal

Caution

- Dispose of the product as industrial waste when it comes into castoff.

SOFTWARE PARTS--Application of TP series touch screen editor software

1. About Graphics Software

2. Getting Started

3. Introducing Menu

4. Making Graphics

5. Basic Components

6. Special Components—Display

7. Alarm Window

8. Print Window

9. Simulate Functions

10. Special Functions

1 GRAPHICS SOFTWARE

This chapter describes TP series touch screen software's project screen and its components, and the components of toolbox, template in addition.

1-1. Installing The Software

1、Operating System: Windows98/2000/XP/ME

2、Installing screen editor software as follows

Double-click "setup.exe" from installation file

↓

Click "next" or "yes" all along until user information dialog box appears.

↓

Input user name、company name and serial number.
The serial number is：Thinget TouchWin（note if the letter is incapital or not and the blank）, then click "next"

Select the target file for software installation, the default address is: “C:\Program Files\THINGET\TouchWin”

Click “next” all along until completing installation and then click “finish”.

After installation, the following icon will appear on the desktop.

1-2. Components Of The Software Screen

Run “TouchWin Edit Tool” from “Start>All Programs> TouchWin” or double-click TP icon on the desktop. Then, Create a new project and you can see the interface as the following figure:

Note: **This manual only introduce the elementary functions of the software. Please refer to other manuals about the advanced functions.**

2 GETTING STARTED

Before you editing TouchWin program, make sure touch screen and PLC models which are the precondition to decide whether the software could download and communicate normally.

2-1. Creating A New Project

1) Click “New” icon in the standard toolbar or click “New” under “File” menu,as shown below:

2) When you create a new project, a pop up dialog box as shown below will appear. Select touch screen model and then click “Next”.

3) In the following figure, you can choose port PLC device with default settings of communication parameters. If you want to modify these parameters, click “Setting…” to open its dialog box.

4) Set communication parameters in the following figure and click “ok” to confirm. Then click “Next” to enter download port setting.

5) Set COM parameters of download device, please refer to above method.

6) After setting, click “ok” to confirm and then click “Next” to continue.

7) Edit name, author and remark as shown in the following below:

8) The edit window is shown below:

9) Select “Save” In the “File” menu or click “ ” in the standard toolbar to save your project ,as shown below

You can choose where to save files, the auto definition suffix is “.twp”

2-2. Editing Project

2-2-1 Basic operation of editing screens and windows

2-2-1-1 Creating a new screen or a window

- Creating new screens

1)There are two ways to create a new screen:

Way A

I. Click “screen” in the project manager to make it turn to highlight color.

II. Click in the operate toolbar, as shown below.

Way B

I. Right-click “screen” in the project manager

II. Then click “Insert” in the pop up menu.

2) The new "Screen" dialog box pops up as shown below. Input screen's ID and screen name and then click "OK" to finish the creature.

- Creating new windows

1) There are also two ways in creating windows:

Way A

I. Click "window" in the project manager to make it turn to highlight color.

II. Click in the operate toolbar.

Way B

Right-click “window” in the project manager and then click “Insert” in the pop up menu.

2) There will pop out a new window dialog box, set the window ID and its name, size and then click “OK” to finish the creature.

2-2-1-2 Title setting for a screen or a window

1) While creating a project screen (window), We often give each screen (window) a different name to identify the screen (window). There are two ways to modify their names.

A Right-click a screen or window in the project manager, then choose “Property” in its pull down menu.

B Select the special screen and the click in the operate toolbox directly

2) “Screen” dialog box appears as shown below:

E.g: you can type “Front Screen” instead of “Screen1”

3) The modification of window property is similar with screen property (as shown below):

2-2-1-3 Cut/Copy of screens or windows

There are two ways to do cut/copy for the created screens or windows.

A

I. Right-click a special screen/window in the project manager and then choose cut/copy in the pull down menu.

II. Right-click Screen/Window, choose "Paste" in the pull down menu.

B Click the screen or window in the project manager, then click “ ” / “ ” .Also, from Edit>Cut or Edit>Copy, this operation can be realized.

Right-click Screen/Window, and then choose “Paste” in the pull down menu.

2-2-1-4 Delete screens or windows

Also, there are two ways.

A

I.Right-click the screen or window needed delete.

II.Choose “Delete” in the pull down menu.

I.

B

I.Click the screen or window needed delete.

II.Click in the Operate Toolbar.

2-2-2 Downloading Data

After editing, connect 9-pin RS-232 port of PC and TP download 9-pin port with download cables. Then confirm that TP has been powered with +24V DC. Click or from File>Download Data to download data. There will pop out a download window to Prompt download process.

If “Time out, check table please” appear ,please re-download

Note Make sure that TP series touch screen can not be powered off while downloading screen data.

When the transmission finished, a pop-up dialog box will appear to show all the project screens have been transferred.

Cut off the power supply of display. Then pull out the cable TP-SYS-CAB0 and connect PLC and the PLC port in TP with communication cable.

Electrify PLC and the display, then you can do data monitoring and other operations under normal communication. Pay attention that incorrect communication parameters and connection can lead to failed communication and there will appear such words “communicating” ,which show that TP is communicating with PLC.

If TP and PLC can not communicate normally, please check following items:

1) PLC model in project should be selected according to the operating one.
2) Communication Cable should be connected.
3) Communication Cable should be connected in the right way.
4) PLC Communication parameters should be set correctly.
5) PLC and display should be electrified.
6)If you still can not find the reason, please contact with suppliers to get help.

3 INTRODUCING MENU

This chapter introduces contents of menu and how to use them.

3-1. File

The function options in the pull down menu of File are used for managing and dealing with the whole project, as shown below:

1) New

It is used for creating a new project, please refer to chapter 2-1 for step introductions.

Also, you can click new icon to finish the same operation.

2) Open

It is used for opening a saved project which type is "*.twp", Also, you can click .After clicking ,a pop-up dialog box will appear. Choose the project you want to open and then double click its icon, or just click the icon and then click "Open".

3) Close

It is used for closing "TouchWin edit tool" software. If you have not saved the updated project, when you choose "Close", the following window will pop out.

If you want to save this project, please click "Yes"; if not, please click "No". Then, you'll quit this project.

4) Save

If the project you want to save is a new one, "Save" dialog box will pop out, please type your project name, then click Save to confirm. After this operation, it will save the new project instead of the old project automatically. has the same function.

When editing the active present project, please click "save" continuously to avoid losing you project .It's dialog box is shown below.

5) Save as

It is different from “Save”, “Save” means save active project with its current project name; while, “Save as” means save the modified project with a new name and do not rebuild the old project. After choosing this option, “save” dialog box will appear ,then type your project name and click “save” to quit.

6) Download

It is used for downloading data in TouchWin edit tool software to TP touch screen, Click can finish the same operation. To get more particular information, please refer to chapter2-2-2.

7) Simulate on line

It is used for realizing simulation on line. Choose this option, you can simulate TP action in TocuchWin Edit Tool after connecting PLC and computer. Click the icon , can finish the same operation.

8) Simulate off line

It is used for realizing simulation off line. Without connecting computer and PLC, or downloading screen data to TP, you can simulate TP action in the software. Click the icon can finish the same operation.

9) Setting… (For system)

It is used for setting or modifying the main parameters and other items, such as “parameter”, “alternation”, “clock”, “panel” , “device”, “color” , “font” , “project”. The following will describe them one by one.

Parameter

As shown above, parameter set is divided into three items: “Screen”, “Password” and “Screen Save”.

- Screen

It is used for setting the start screen, namely the first screen after TP electrified. Generally, we set this screen as the main menu or the most used screen, it is set by screen No.

- Password

➢ To improve the safety of machines, the data in TP series touch screen can only be modified by special personnel. Therefore, TP touch screen can help user protect data more efficiently.

➢ Password has three grades: common, advance and system. Common password can only carry out functions with itself, advance password can carry out function with “advance” and “common”, and system password can carry out all the password operation.

➢ There passwords usually for hiding or encrypting the parts or screens. Only type right password, you can open or do the relevant operation.

➢ The “password” input box showing above is for common one, if you want to enter advance and system grades, please click Advance and type password as shown below:

- Screen Save

This function operate automatically when touch screen has not been sprung for a long time. When it arrives the setting time, touch screen will close the black lamp or jump to the assigned screen, you can only choose one from the two operations. You can set "latency time" as well as canceling "screen save". When you click "shown screen", you can type screen number in the blank box to assign screen which you want the TP jump to.

Alternation

▪ "Change Screen Control: PLC can switch screen by modifying the register's value. After ticking it, choose the suitable "Device" (PLC port or Download port), "Station" and "Object".

"Object" is used to set register of PLC which assign the screen number, as shown above ,the object is D0 ,it means that screen number is determined by the value in D0 of PLC

- "Report Current Screen ID": input current screen No. into certain register and transfer the status of panel to PLC

- Pay attention to that there is an "Indirect" box behind "object", it is similar with the function of indirect addressing. After ticking it , you can see the following change.

Click D0 to open the following window.

"Object" is used for save address offset, as shown in the above figure, set "5"(decimal) in D10,it means

current screen ID is saved in D(0+D(10)),namely saved in D(0+5)=D5.In “Data” box ,you can choose Word of Dword (double word).

In “Data” dialog box ,you can choose data format from “Dec”, “Hex”, “Float” and “Unsigned”. Also ,you can set “Times”, if still set “5” in D10, “3” in “Times” box, it means that the address stored is D(0+3*D(10))=D15.

Clock

TP series touch screen set clock inside, as shown above, this function can educe and save the current time.

Tick “Use RTC”, set device, station and particular address in the device. As shown in the above figure, storage current time in D11 of the device with PLC port , station NO. 1

The function of “Indirect” is as same as described in P46.This manual will not introduce this function in the following chapters, please refer to P45 for detail introductions.

Panel

This function mainly describes the touch screen and how to set internal storage space. As shown above, the current touch screen is TP-A60-T, if you want to change its internal storage space setting, please click “Set parameter” to open the following window.

About touch screen internal space, please refer to chapter 10 to get particular introductions.

Device

As shown above, this function is to setting PLC port and Download port. When you want to change device or communication parameters while editing, modify the relevant options in “Device” .

C

"Color" is used for setting background color, there are 256 kinds of color can be choose in this software. Please pay attention that once the color is set, it will effect all the project screens, as shown below:

Font

"Font" is used for setting words in the project screen. click "setting…"to open Font window as shown below:

You can set font, font style, size, effects, color, sample, script and so on. These functions will be introduced particularly in the next chapter.

Project

As shown above, you can add name, author and remark in “project set” dialog box.

10) Build SCADA

When click “Build SCADA ,there will create some files, Also, a pop-up window will appear to prompt where to save these files. After editing ,find this folder ,execute “AutoWin.exe” can realize configuration function.

11) Last File

If you have open or edited some projects recently, the software can store the names of these projects automatically to help user find these more convenient. Instead of finding the project’s paths, click their names can open it to modify.

12) Exit

Different from “Close”, ”Exit” means exit from TP edit tool .If you have not save the modified project before exiting, the software will pop out a window to make sure if you want to save .This operation can protect you to avoid losing project.

3-2. Edit

"Edit" menu is used for carrying out operations of components. This menu contains "Cut", "copy", "paste", "public unit" and "private unit'.

1) Cut " "

Removes the components from the project and places it on the clipboard. To accomplish this, select component(s), then click cut under the edit menu; you may also right-click the component and then choose **"cut"** in its pull-down menu.

2) Copy " "

Copy the component(s) to the clipboard. To accomplish it, select component(s), then click "copy" under the exit menu, you may also right-click then component(s) and then choose "copy" in its pull-down menu.

The differences between "Copy" and "Cut" are that, when cut component(s), it will disappear, while, when copy component(s), it will still exist.

3) Paste " "

Place the contents of the clipboard at the insertion point, it is used to match "Copy" and "Cut". After clicking "Copy" and "Cut", you can click "Paste" to displace or copy the original component(s).

4) " "Public unit

It is used for applying a certain component to all the project screens. To accomplish it, click "public unit" under the edit menu; also, you may right-click on the components and choose "public unit" in its pull-down menu.

5) Private unit " "

It is only used after a certain component that has been set public. It has the opposite function from "Public Unit" and it can be used in the current screen only. When use it, select a certain component, click "Private Unit" under the edit menu; you may also right-click the component and choose "Private Unit" in its pull-down menu. After accomplishing, this component will be only saved in the current active screen and deleted in other screens.

3-3. View

The “View” menu is used for display the toolbars. It contains Standard, Status, Project, Paint, Zoom, Status Change, Operate, Part, Align, Advance, Advance2, Panel. Among these, Advance and Advance 2 is in grey color as shown below meaning that they are not sprung. They are available when TouchWin Edit Tool has advanced function.

In general, the default setting will show all of these components to convenient operations.

3-4. Part

The “Part” menu is used for editing components in the screen .It has the function with the Part Toolbar.

1) Text

There are “Text”, “Dynamic Text” and “Variational Text” supporting various language, font, size, color and art effect ion.

- Text “ A ”

Using it, you can type common characters which are usually static ones. Once you type them, they can not be modified. Refer to chapter 5-1 for particular usage.

- Dynamic Text “ AA ”

Display corresponding text to prompt user while data in the assigned register changing. Dynamic text can support 16 contents of state, corresponding values are 0-15.Refer to chapter 5-2 for particular usage.

- Variational Text “ AA ”

Allow user set data values and text prompt of the relevant value. There is no restriction of data number. Refer to chapter 5-2 for particular usage.

2) Operate

It contains “Lamp”, “Bit Button”, “Lamp Button” and “Screen Jump”, all of which are used for operating coil.

- Lamp “ ”

Show the switch status in order to match the operation of button. Refer to chapter 5-4 for particular usage.

- Button “ ”

Open/Close a certain operation to control the bit component. Refer to chapter 5-5 for particular usage.

- Lamp Button “ ”

Carry out the operations of both lamp and button. Refer to chapter 5-6 for particular usage.

- Screen Jump “ ”

Let the current screen jump to a certain screen. Refer to chapter 5-7 for particular usage.

3) Display

It contains “Digital Display”, “Alarm Display” and “Text Display”, all of which are used for reading data or characters from registers.

- Digital Display “ ”

Read data from registers and support various digital format, data length and font. Refer to chapter 5-8 for particular usage.

- Alarm Display “ ”

Read digital values from register, and you can set max and min range, If the data in the register over this range, the reading out value will twinkle to alarm. Refer to chapter 5-9 for particular usage.

- Text Display “ ”

Read characters from registers and support multi-words display, without restriction of length. Refer to chapter 5-10 for particular usage.

4) Input

It contains “Digital Input”, “Text Input” and “Set Data”, all of which are used for typing information into register(s).

- Digital Input “ ”

Input user’s data into assigned register(s). Refer to chapter 5-11 for particular usage.

- Text Input “ ”

Input text into assigned register(s).Refer to chapter 5-12 for particular usage.

- Set Data “ ”

Similar with Function Button, it can deal with “＋、－、×、÷”for the data in assigned register(s). Refer to chapter 5-14 for particular usage.

5) Keyboard

It contains “Digital keyboard”, “ASC” and “User Input”, all of which are used for typing digital or text .These input components support pop-up keyboard without setting by user.

- Digital Keyboard “ ”

Place keyboard on the screen and support typing digital only. Refer to chapter 5-15 for particular usage.

- Text Keyboard “ ”

Place keyboard on the screen and support typing characters only. Refer to chapter 5-15 for particular usage.

- User Input “ ”

Type a certain value as a key in keyboard. Refer to chapter 5-15 for particular usage.

6) Bar

It contains Vertical Bar and Horizontal Bar, both of which are used for describing use’s data with graphics.

- Vertical Bar “ ”

Show the value stored in certain registers and display real time changes of values. Refer to chapter 5-18 for particular usage.

- Horizontal Bar “ ”

Have the similar usage with “Vertical Bar”, the only difference is that it is level.

7) Dynamic Map

- Dynamic Map “ ”

Show the changing value in the assigned register(s) via map, it is similar with “Dynamic Text”. There are 16 kinds of map in the software, Also, you can use your own maps. Refer to chapter 5-19 for particular usage.

8) Window

It contains “Call Window” and “Window Button” which are used for switching screen and window.

- Call Window “ ”

Control the pop-up window by a bit component of appointed coil of a register, usually it is sprung under certain conditions. Refer to chapter 5-20 for particular usage.

- Window Button
- “ ”。

Without controlling coil, only press this button can open or close the appointed window.

9) Recipe

It contains “Down Recipe” and “Up Recipe” which are used for realizing recipe functions.

- Down Recipe “ ”

Download recipe data from touch screen to PLC. Refer to chapter 5-22 for particular usage.

- Up Recipe “ ”

Opposite from down recipe, it is used for uploading recipe data form PLC to touch screen. Refer to chapter 5-23 fro particular usage.

10) Function

It contains “Function” and “Function Field” which are used for carrying out some special functions. These functions are “Set Coil”, “Reset Coil”, “Reverse Coil”, “Copy Coil”, “Screen Jump”, “Set Data”, “Copy Register”, “User Input”, “Open Window”, “Close Window”, “Down Recipe”, “Up Recipe”, “Data Block Transmit”, “Arithmetic” and so on.

- Function “ ”

When you click this function button, touch screen will carry out certain operation(s).One function button can spring many functions. Refer to chapter 5-24 for particular usage.

- Function Field “ ”

It is similar with “Function”, however, their spring manner are different as “Function Field” can be sprung by button, timer, scan and so on. Refer to chapter 5-25 for particular usage.

11) Column Map

It used for showing comparison of several data groups by column map containing discrete column map and continue column map.

- Discrete Column Map “ ”

It is mainly used for comparison of several data groups that addresses are discrete distributed. There is no limitation of data numbers. Refer to chapter 5-26 for particular usage.

- Continue Column Map “ ”

It is mainly used for comparison of several data groups that addresses are continuous distributed. Also, there is no limitation of data numbers. Refer to chapter 5-27 for particular usage.

12) Basic Tool

It contains “Date”, “Clock”, “Buzzer” and “LCD light control” which are used for some assistant functions such as prompt, alarm and so on.

- Date “ ”

With this function, you can display date on the touch screen. So it may make relevant operational convenience and can prompt operators.

- Clock “ ”

It is similar with Date as it is used for display time on the touch screen to make relevant operation of time convenient.

- Buzzer “ ”

Spring buzzer by controlling a certain coil or a bit component in a certain register. This function can carry out alarm and prompt functions. Refer to chapter 6-3 for particular usage.

- LCD Light Control “ ”

Similar with buzzer, it is used for starting light to prompt user while using TP by controlling a certain coil or a bit component of a register. Refer to chapter 6-4 for particular usage.

13) Device

It contains devices such as “Instrument”, “Valve”, “Pipe”, “Pump”, “Auto Wind”, “Motor” and “Retort”, which are widely used in industry automatization. These device buttons can be used in graphics software directly, therefore, the workload can be reduced.

- Instrument “ ”

It is point to dial instrument used for prompting and reading numerical value as voltage meter and ampere meter. Refer to chapter 6-5 for particular usage.

- Valve “ ”

Its meaning and usage are similar with valves which used in normal industrial control area. Refer to chapter 6-6 for particular usage.

- Pipe “ ”

Show the change and flow direction of numerical value by liquid format. Refer to chapter 6-7 for particular usage.

- Pump “ ”

It is similar with pump used in normal industrial control area. Refer to chapter 6-8 for particular usage.

- Auto Wind “ ”

It is similar with Auto Wind used in normal industrial control area. Refer to chapter 6-9 for particular usage.

- Motor “ ”

It is similar with motor used in normal industrial control area. Refer to chapter 6-10 for particular usage.

- Retort “ ”

It is similar with retort used in normal industrial control area. Refer to chapter 6-11 for particular usage.

14) Invert Alarm Information

- “ ” Invert Alarm Information

It is specially used for invert alarm. With it, you can set max or min value of each alarm information and

can type alarm contents. Refer to chapter 6-12 for particular usage.

15) Map

It contains “Real Trend Map”, “History Data Map”, “Event Button”, “Display Real Time Event” and “Display History Event”. They are used for changing or comparing data as well as recording or displaying alarm event or spring event.

- Real Trend Map “ ”

  Observe and compare sole datum or several data by real trend map.

- History Data Map “ ”

  It can picking sole datum or several data to form history data and then show them with curve, therefore, you can handle changing situation of data clearly. Refer to chapter 6-14 for particular usage.

- Event Button “ ”

  It used for page turning, confirming and clearing the tables recording events, matching “History Data Map” ,Refer to chapter 6-15 for particular usage.

- Display Real Time Event “ ”

  Alarm and display several alarm information. When the alarm release, the event will disappear automatically. Refer to chapter 6-16 for particular usage.

- Display History Event “ ”

  With it, user can record several alarm information which have been sprung. It also can display the time of event sprung. Refer to chapter 6-17 for particular usage.

16) Sample Save

- Sample Save “ ”

  This function is used for picking data of a certain register with no limitation of number or time. The picked data can be saved in a section registers of touch screen. Refer to chapter 6-18 for particular usage.

3-5. Tool

"Tool" Menu mainly contains several basic tools, such as "Line", "Rectangle", "Ellipse", "Fold", "Map" and "Option".

Note: "Arc", "Polygon Block", "Frame" can be used from "Draw" toolbar.

- Line "\"

  Describe line or bias, both of which can be set line weight, line length and color.

- Arc "◠"

  Draw arc, and use these arcs to form sector .Also, you can set their size, line weight, position, color and filling pattern.

- Rectangle "□"

It is used for protracting rectangle or square, which can be set line weight, size, color, position and filling pattern.

- Ellipse "○"

It is used for protracting ellipse. It's setting is similar with rectangle, containing line weight, color, position and filling pattern.

- Fold/Polygon "⬠"

It is used for protracting Fold or Polygon and its setting contains line weight, color, position, rotary angle and so on.

- Polygon Block "⬙"

  It is like a container, you can set block value ,color, direction and so on.

- Frame "▣"

It is similar with rectangle, but it has third dimension as its effect ion is three-dimensional .Also, you can set its color and position.

- Map “ ”

It is used for adding bitmap file into screen and it only support suffix “*.bmp” .

- Option

As shown above, there are “Grid Size”, “Auto Save”, “Communicate”, “View” in option dialog box.

➢ Grid Size

Move Size: the least grid number of moving object.

Show Size: setting the density of grid in the screen, the smaller of the value you set, the more dense the grids are.

➢ Auto Save

With this option, you can set time of “Auto Save” to avoid losing operation .Also, you can save project(s) manually.

➢ Communicate

You can set default port from COM1-COM16 for downloading.

➢ View

Set default view proportion, namely scaling. Normally, the default ratio is 100%.

3-6. Window

Window menu is used for dealing with screen. It contains “New”, “Cascade”, “Tile” and “Arrange Icon”.

- New

Copy the current screen to create a new screen.

- Cascade

  Arrange all the open screens with cascade pattern.

- Tile

  Arrange all the open screens with file pattern.

- Arrange icon

  Arrange the icons.

3-7. Help

- About “ ? ”

  There are imprint and copyright instruction of TP touchwin edit tool.

3-8. Other Operations

- Graphics Adjustment

As shown above, the Align toolbar is used when several objects need to be arranged.

①Align Left ②Align Center③Align Right④Align Top ⑤Align Middle⑥Align Bottom

- Zoom

Zoom toolbar is used for making the whole screen or window display more clear to convenient some particular operations. The icons from left to right are: ①zoom in ②current scaling (can be chose from the pull-down menu) ③zoom out ④grid

- Status

4 MAKING GRAPHICS

This chapter introduces how to edit graphics with draw toolbar.

Draw toolbar

4-1. Line

1) Select "\"from the Draw toolbar and draw the line by clicking at the starting point and dragging the line to the finishing point. (Please press ESC or right-click your mouse to cancel the operation).

2) Change its position , drag and drop its size ,rotate its angle and so on.

3) Click the straight line to choose it (as shown above), then double-click your mouse or click "" in the Operate toolbar; also, you can right-click your mouse to open the pop-up menu and choose "property", then the following dialog box appears:

,

3) Setting Color

There are 256 kinds of color. (Only black and white can be chose when the touch screen is unicolor).

4) Setting Position

- "Position": set the coordinates of the start point.
- "Size": In its box, "Width" points to the horizontal length of the line and "Height" points to the vertical length of it.
- "Animal": set horizontal and vertical movement. When ticking "horizontal", a change will appear as following below.

As shown in the above figure, there add a button with the name "Alm Code0".Click this button to open its dialog box.

"Object" option mainly used for Changing the offset of object coordinates (unit: pixel).It contains the following setting options: "Device"(PLC port and Download port can be chose), "Station" (number of device), "Object" (Internal space of relevant device), "Data" (Word and Dword can be chose).

Note: "Indirect" have the same usage as described in chapter 3-1, please refer to P46.

"Format" option can help you select data format from "decimal, hex, float and unsigned"

▪ Lock: ticking it, the line will be fixed in the current position while other operations can be done.

5) Click "OK" to save setting.

Examples of straight line (various thickness)

4-2. Arc

1) Select the icon “ ” from draw toolbar, click at the starting point with pressing down the left mouse button and then release it until dragging the cursor to the finish point.

2) Editing arc

① Drag the border Point to change the width and height of arc.

② Drag the starting point or finish point to change the length of arc.

3) Property of Arc

- Thick: integer between 0-255, the larger the value, the thicker the line.

- Coordinates of points: change the position and angle of starting point and finish point, as shown below:

- Conversion between arc and pie: ticking “pie” can realize this conversion.

After[c1][c2][c3][c4] conversion, it turns to pie as shown below:

▪ Fill (this option can be only used when the graph is pie): There are 256 kinds of color and 7 kinds of fill pattern.

Fill Pattern:

A. None: showing border without fill pattern.

B. Solid: filling graph with the selected color.

C. Dot: filling graph's inside with dot.

D. Meek: Filling the graph with color desalted.

As shown above, the original color is greenish black and ratio is 7%, therefore the last filled color is light than the original color.

E. Hatch: Filling the graph with hatch chose.

As shown above, the left bar is used for setting and the right bar is used for choosing hatch.There are 53 kinds of hatch can be chose .Also, you can set origin, forecolor and backcolor at will.

F. Linear: Filling the graph with linear gradual change color.

As shown above, the left window is used for setting, and the right window is used for set detail effect. Firstly, set color of starting point(first color) and finish point(last color);Secondly, set the middle color freely; Thirdly, control the transition. There are five directions can be selected, you can set angle at will after ticking “Angle”

.

F. Centerar: Filling the graphic with setting color radially.

As shown below, the left window is used for setting format and the right window is used for setting effect. Here you can choose center color and brink color freely ,Also, you can change the center position(default position is the centre of a circle) as well as the ratios of X,Y

- Frame Color: There are 256 kinds of color can be selected and the default color is black.

▪ Position: set the position and size of a certain object accurately by modifying its coordinates, width and height.

Example of a pie

4-3. Rectangle

1) Click “ ” in the draw toolbar. Press down the left mouse button at the starting point and drag the cursor to the finish point, then release the left mouse button to finish painting.

As shown above, there are 8 reference points on the border of rectangle. With these points, you can change the length, width and size of the rectangle.

2) Setting line weight: integer between 0-255, the larger the value, the thicker the line.

3. Color

   There are 256 kinds of selected color which are only for the borders of rectangle .Its setting interface is similar with pie.

4. Fill

   It has the same setting with pie, please refer to above chapter.

5. Position

   Please refer to P78 as its setting is as same as a pie.

Examples of rectangle filling. (Here we only show the popular setting examples):

4-4. Ellipse

Please refer to the instruction of Rectangle as Ellipse has the same operation with Rectangle.

Note: only the color option is a little different as there are usually “Fill Color” and “Frame Color” can be selected. If there is no “ √ ” in the box before “Fill”, just “Frame Color” can be chose. As shown below:

Examples of ellipses

4-5. Fold/Polygon

1) Click " " in the Draw toolbar and press down the left mouse button to confirm the position of acme.

2) Let the left key go to confirm the second acme, If you increase the acme number, please repeat doing this.

3) Double-click at the end acme to finish drawing polygon.

4) The diversion of fold and polygon

The default setting is "Fold", while it will connect the first acme and the last acme automatically after you let the "Fold" without the tick, the fill mode of polygon is default.

5) Revolve

Click “Revolve” in “Polygon” option to open the following dialog box, type value (positive value means counterclockwise rotation, negative value means clockwise rotation) in “Angle” box and then click “OK” to confirm.

6) Fill

It can be used when the graphic is close type such as polygon. Please refer to relevant chapter of painting pie for setting method.

7) Position: Please refer to previous chapters.

Examples of fold

Examples of polygon

4-6. Polygon Block

1) Click “ ” in the toolbar and press down left mouse button at the starting point of polygon to confirm acme.

2) Let the left key go to confirm the second acme. If you increase the acme number, please repeat doing this.

3) Double-click at the end acme and you will finish drawing a polygon block.

4) Drag eight reference points to change size, width and height of the block.

5) Double-click the graphic to open its property window. From “Polygon Block”, you can set direction and block value, as show below:

Here, we set “Up-Down” in direction box ,type “40” in block box and set color as shown above .Then you can see the final graphic as shown below:

4-7. Three-Dimensional Frame

1) Click “ ” ,then press down the left mouse button and drag the cursor to form a rectangle ,let the left button go to finish painting a three-dimensional frame, as shown below:

2) Drag eight reference points to adjust the height, width and size of three-dimensional frame.

3) Double-click the graphic to open its property window for setting color and position. Do the following setting and you can see the final effect as shown below:

4-8. Inserting Map

1) Click " " and press down left mouse button to open the following window after the cursor becomes cross shape.

2) The software only can support BMP format at present. If you choose "flower.bmp", double-click its icon to open it ,then ,the map will be added to the current screen automatically with size and position can be dragged freely, as shown below:

3) Double-click the map to open its property window. There are two options: "Map" and "Position". Here we mainly introduce "Map" tab as shown below:

The default select is "***Normal***", if you want to tick ***Transparency***, please select ***Mask*** as well

Step: After ticking "Mask", click "Changing" to open its dialog from which you can choose maps. Masked map should be black and white map with the same size

Please refer to the following example for better understanding.

As shown above, map1 is the original map. Next we deal with this map.
Map2 is a masked map with same size and it should be black and white.
Map3 is the final map after transparence worked.

4-9. Changing Dimension

The following describes how to change the size of graph and object which show how to extend or shrink. There are two ways can finish this operation.

Way 1

错误！未找到引用源。 Choose one that you want to extend or shrink.

错误！未找到引用源。 On the , press down left mouse button and drag the cursor when it becomes

错误！未找到引用源。 Let the mouse's left key go to fin ish changing the size.

Way 2

Choose "position" in the property dialog box, input the object's horizontal width and vertical height in the "Width" and "Height", then click "OK".

4-10. Moving Object

The following describes how to move maps and objects.

Way 1

错误！未找到引用源。Choose the map or object you want to move.

错误！未找到引用源。 Move the cursor to the map or object, then the cursor will become .

错误！未找到引用源。Press down the left mouse button and drag the cursor to the aim position.

错误！未找到引用源。 Let the left key go to confirm the position of maps or objects.

Way 2

Choose “position” in the property dialog box, choose the coordinates you want（the coordinates’norm is in the up-left）。

4-11. Cut, Copy and Paste for the selected object

The following describes how to cut, copy and paste a graphics or an object

1. Choose the one you want to copy
2. Click *Cut* "" or *Copy*"" in the toolbar.
3. Click *Paste* "" in the toolbar.

Shortcut key as shown below

Cut：Ctrl+X

Copy：Ctrl+C

Paste：Ctrl+V

4-12. Public Unit and Private Unit

In order to improve the work efficiency, we offer “Public Unit” and “Private Unit”. “Public Unit” lets one or more units in the current screen be used by all the screens；”Private Unit” has the opposite function with “Public Unit”, it can be used by the current screen only.

Example

We create two screens in all. In screen 1， we add a rectangle（other units and components also can be used）and choose it，just as the following map。

Then we click the Public Unit “ ”, we will find in same place of screen 2, it adds a rectangle automatically.

If we only want to keep the rectangle in the second screen, we can use “Private Unit”. Choose the rectangle in screen 2.

Then click Private Unit button “ ”, you can find that only screen 2 has a rectangle and in screen 1 it disappears.

4-13. Lock

Set a**n** object on the screen and right-click it, then you can see **"**Lock**"** in the pop-up menu.

Click "Lock", then the object will be locked and it can not move or zoom.

Please pay attention to the locked object that the eight reference points become small rectangles. If you want to unlock the object, please right-click on it and select "Unlock" that change from "Lock", Clike "unlock" and the you can release the object, as shown below:

4-14. Moving Layer

TP series touch screen has a layered function in one screen. At present, there are three layers, namely top layer, bottom layer and middle layer which are used for superposing or hiding the objects. When there are more than two objects in one screen, this function will be sprung.

As shown below, firstly, we put two rectangles in the screen and right-click one rectangle, then there will be added a function named “Bottom Layer” in the pop-up menu, correspondly, there will be added a function named “Top Layer” in the pop-up menu of the other rectangle.

Click “Bottom Layer” and move the small rectangle to the middle of the big one. In default status, the small rectangle will be coved by the big rectangle as they are in the same layer. However, you can find that the small rectangle still can be seen as it is set in the top layer, as shown below.

If there are three objects, set the biggest rectangle with “Bottom Layer”, the smallest one “Top Layer” and the third one with default setting, then superpose them together. Finally, you can see the following effect:

If you want to change this setting, right-click the selected object to open its pop-up menu and choose relevant options. While please note that there are “Bottom Layer” and “Top Layer” withhout “Middle Layer”.

4-15. Adjusting Graphics

This function is used for aligning and adjusting the maps or components in horizontal or vertical direction.

1) Firstly, Place some components and maps on the project screen, as shown below:

2) Select all of these objects to spring the Align buttons, try to use each of them and you can see the following effect.

Align Left “ ”:

Align Center “ ”:

Align Right “ ”:

Align Top “ ”:

Align Middle “ ”:

Align Bottom “ ”:

5 BASIC COMPONENTS

This chapter introduces how to use components in Part toolbar which are used mostly .As shown below there are “Text”, “Dynamic Text”, “Variational Text”, “Lamp”, “Button”, “Lamp Button”, “Screen Jump”, “Digital Display”, “Alarm Display”, “Text Display”, “Digital Input”, “Text Input”, “Set Data”, “Digital Keyboard”, “ASC 错误！未找到引用源。 Keyboard”, “User Input”, “Bar”, “Dynamic Map”, “Call Window”, “Window Button”, “Down Recipe”, “Up Recipe”, “Function Button”, “Function Field”, “Discrete Column Map” and “Continue Column Map” from left to right.

Part Toolbar

5-1. Text

1) Click “ A ”icon in the part toolbar.

2) Drag cursor into the screen , click the left mouse button to place the text（click the right button or press the ESC key to cancel your place）。

3) Double click the left key or choose icon “ ”, there will pop out a text setting dialog box.

错误！未找到引用源。 Display： This contains “Content”, “Frame” and “Align mode” boxes.

Tick “Aspect” and click “Changing….” Button to open the following window:

Gallery1: there are 30 kinds of multicolor pattern

Gallery 2: there are 3 kinds of white and black pattern

Note: All the colors of these patterns can be changed by user containing the white and black pattern.

错误！未找到引用源。I Font: Containing font setting and word art setting

① Click "Setting..." to pop out "Font" dialog box, as shown below:

② Click "Art" to pop out "Style" dialog box.

错误！未找到引用源。II Color: as shown below

Note: Each component has its own color dialog box and there are some different of color parameters as the structure of components are not same. We'll not introduce more about these in this manual, you can set freely or refer to color setting of other components.

错误！未找到引用源。V Position: It contains "Position" and "Animal" setting, as shown below:

Modify the position and size of the Text frame.

ove the component simply and swift.

Note: we'll not introduce "Position" of the other components as the position dialog box of each component has the same functions. you can set freely or refer to the above introductions.
Next we'll show how to set "Animal".

Firstly, tick "Horizontal", then a button shown as "

" will appear on its right. Click it and you can see a dialog box with "Station", "Object" and "Data". Here, we take "D0" as an example.

Changing the value of D0, the component will move horizontally to correspond.
"Vertical" has the same method as "Horizontal" with only changing the direction to vertical.
Do it by yourself and you can find that the operation is easy.

5-2. Dynamic Text

In the industry control process, there may be several status of machine. By these dynamic texts the machine can display different status. This makes the operation much convenient and can improve the work efficiency.

1) Click "AA" icon in the Part toolbar.

2) Move cursor to the screen, click the left mouse button to place it on the screen（click the right button or press ESC key to cancel place）

3) After selecting the Dynamic Text ,double-click to open its property dialog box (as shown below).There are "Station", "Object", "Data" in "Object" property page.

Station: stands for the device communicating with display. The setting values are different as station numbers are not the same when using different devices. Normally, we use default value need not to change by user.

Object: Setting a number for the register which can be set as internal space of touch screen or communicating device.

Take D0 for example (internal data register of Thinget XC series), the display can monitor the changing value of D0 directly.

Data: Namely data type, normally we select "Word" stands for separate word

4) Each register corresponds to 16 status ， each part's corresponding value is 0~15, when the register's value is 0，the dynamic text will display the content of text 0.The rest may be deduced by analogy. You can also select align type and text frame, as shown below

5) Font, Color and Position option are as same as “Text” components, please refer to above chapters.

5-3. Variational Text

In the industry control process, there are several status of machine. By these dynamic texts the machine can display different status. While the dynamic text can only display 16 kinds of status and it will has less advantages in these places where need more status indications. Now the Variational Text can fill this need. It has no difference with dynamic text in usage, however, the display content of “Variatioanal Text” can be added while “Dynamic Text” is fixed with 16 kinds of status, as shown below:

5-4. Lamp

In the operation process, in order to display clearly which operation is being taken or which status the machine is in, “Lamp” offer fast way for the operation and monitoring.

1) Click “ ” icon in the Part toolbar.

2) Move cursor into the screen, click the left mouse button to finish placing the lamp（Click the right button or press ESC key to cancel placing）.

3) Open its property dialog box containing “Object”, “Lamp”, “Twinkle”, “Color”, “Position”. The first tab is “Object”, as shown below:

Station No.

Spring Coil

Note:

Click “Object” box to open its pull-down menu and then choose the object type and its value. As show in the right image: the relevant object can be a certain bit of relay or register as the lamp is a double status parts.

4) From the property page of “Lamp”, you can modify “Aspect” and “Use Text” as shown below:

Simulate the displays of tow status directly

Change aspect of the lamp

The default setting of it has no tick. After ticking it ,you can set font and align for the text

Click “Change Aspect”to open “Figure” dialog box:

There are Gallery 1 and Gallery 2

Gallery1 has 46 kinds of multicolor pattern

Gallery 2 has 5 kinds of white and black pattern

5) Next, we introduce property page of “Tinkle” as shown below: when select “ON” or “OFF” ,you can set

speed of twinkle. Twinkle can be set as alarm in the project application as it can abstract operators' attention.

6) Here we do not introduce the property pages of "Color" and "Position", you can refer to previous chapters for more information.

5-5. Button

1) Click Button icon “ ” .

2) Move cursor into the screen, click your left key to finish placing the button(click your right key or press ESC to cancel placing)

3) Open property dialog box containing property pages of “Object”, “Operate”, “Button”, “Color”, “Position”. Now we introduce property page of “Object” firstly. As shown below: It’s content is as same as Lamp’s and the button is also a double status part.

The differences between Button and Lamp

Button is used for controlling while not displaying status of the object. Lamp is used for pointing while not controlling the status of the object.

4) The following figure shows the tab page of Operate with the default status “Set ON”

Set ON while pressing, Set OFF while releasing

Reverse relay status

Set OFF for relay status

Set ON for relay status

5) Following below is "Button" tab page containing "Password", "Aspect", "Use Text" and so on.

"Normal", "Advance" and "System" are available only after setting "Password" in File>setting.

Set content, font and align of button display.

Set button aspect. After ticking "***Hide Button***", the button will become transparency.

Click "Change Aspect" to open the following window:

There are Gallery 1 and Gallery 2:

Gallery 1 has 20 kinds of multicolor pattern

Gallery 2 has 23 kinds of white and black pattern

6) Here we do not introduce the property pages of “Color” and “Position”, you can refer to chapter before.

5-6. Button Lamp

The lamp button has a function of both lamp and button. It can control as well as display and each function is relevant with a separated relays .In TP software, the default display and control are pointed to the same relay.

1) Click Lamp Button " " to place a lamp button on the screen.

2) Setting property of Lamp Button

Status display and status control point to the same relay without ticking "***Watch Object***".

3) General

4 kinds of Button Operate, as same as "Button"

3 kinds of twinkle, as "Lamp"

Set Twinkle Speed, as Lamp

Default setting has no password. You can set password with three grades. They are available only after you type right password

4) Aspect

Set aspect and you can preview the display in the screen window

Please refer to relevant information about Use Text introduced before.

Click "Change Aspect" to open the following window:

There are two galleries:

Gallery 1 with 24 patterns

Gallery 2 with 4 patterns

5) Please refer to “Lamp” and “Button” to get relevant introduction about “Color” and “Position”

5-7. Screen Jump

This function is used for jumping among different screens.

1) Click " " and place it on the screen (right-click or press ESC to cancel placing).

2) Open its property dialog box and type number in Screen ID box.

3) Next, we choose "Button" tab page and modify its aspect and use display.

4) Please refer to chapters before to get particular introduction of “Color” and “Position”.

5-8. Digital Display

In the industrial control process, the working parameter of the machine could tell whether it is ok or not. So, it is display's another advantage to display the machine's action in figure. This function is the contribution of "Digital Display".

1) Click Digital Display part "999"

2) Move the cursor to the screen and click left mouse button to finish placing the digital display part (right-click or press ESC to cancel placing).

3) Open its property dialog box, as shown below, the property page of object is used for pointing address that you want to display:

4) “Display” tab page is shown below:

Set format of the display digital

Set bit length of the display digital

Set align of the display digital

Refer to “Text” for instruction about “Aspect”

5) “Font”，“Color” and “Position” are similar with these in “Text”, you can set them freely.

5-9. Alarm Display

In order to protect the operation, some data must have certain restriction. Data alarm display will glitter when the data exceed the restriction. This will awoke the operator to take action.

1) Click Alarm Display icon “ ” in part toolbar.

2) Move the cursor to the screen and click left mouse key to finish placing alarm display (Right-click or press ESC can cancel placing).

3) Click “Property” to open its dialog box. Compared with “Digital Display”, they have the same setting except that alarm display add a “Range” tab page. In the following, we mainly introduce “Range” tab page. Without it, “Alarm Display” has the same usage with “Digital Display”.

Set the max range of alarm: it will twinkle to alarm when data exceed its max value

Set the min range of alarm: it will twinkle to alarm when data exceed its min value

5-10. Text Display

"Text display" is used to display the register data in the form of text in the touch screen. So we can display text more easily. We can see its intuitionistic advantage when save different files or do the relevant operations according to different names. Its properties are as same as Digital Display.

Difference between "Text Display" and "Digital Display": "Text Display" can show data in the form of Text while "Digital Display" shows data directly. Here we illustrate this in the following figure.

1) Click Text Display part " " and place it on the screen, as shown below:

2) Open its property dialog box

Set length of display Text

Note: One word is composed by two bytes, one character's size is one byte and one register's size is one word. Thus, you can set the register's number (namely the length)to change the content of displayed characters .As shown above, the register's number is 1 as default setting ,then it will display two characters.

5-11. Set Data

"Data input" is used to modify the working parameters of the machine freely by touch screen .It is another way of human machine connection. But when inputting data there must be a digital keyboard .So "Data Input" must be used with keyboard.

1) Place Data Input " " on the screen, if you want to modify several data, you can put more components, as shown below:

2) Property setting of "Digital Input" is similar with it of "Digital Display". The only difference is that there add on "Input" function. Here we introduce "Input" tab page. Open its property dialog box to do some setting.

Set input limitation. you can not input anything until open password.

Set range of Input, the normal status has no setting.

Set pop-up keyboard, without ticking, you should add a digital keyboard manually.

2) Press " " to enter "Simulate Offline" status. Supposing there is no password while operating, click

“Digital Input” and a pop-up digital keyboard will appear, as shown below:

3) Press “ENT” to confirm input after typing data. If you want to type data once more, press “CLR” to clear the input box and if you want to exit without modification, please press “ESC”.

5-12. Text Input

Just like “Data Input”, when input text there should be a small text keyboard with it. It’s properties are as same as “Text Display”.

The following introduces how to input text：

1) Place Text Input “ ” on the screen, if you want to modify several characters, you can put more “Text Input” components, as shown below:

2) Press “ ” to enter “Simulate Offline”. If there is no password while operating, a pop-up keyboard for text input will appear after you click “Digital Input”. The effect is shown below:

3) Please refer to “Digital Input” and “Text Display” for particular introduction about its property.

5-13. Set Data

"Set Data" is used for evaluating register .Although it is not used too often, it is simple and swift in some places. Normally, we use relays to stand for two status and the relay is controlled by button and other components. While ,sometimes we use data to control and "Set Data" can make this operation more simple.

1) Add one Set Data component " " ,as shown below:

2) Open its property dialog box, the first tab is "Object" which you modified object in it.

3) The second tab is “Operate”

± :Add operand to the current object

: Subtract operand from the current object

× Multiply operand to the current object

/ Divide operand to the current object

Constant set the current value as operand

4) Please refer to previous chapters for particular introduction about other tab pages.

5-14. Digital Keyboard

1) In the process of input and modifying data, keyboard plays an important role in linking people and machine. As it is simple and convenient, the current operator is more likely to use it.

2) You can refer to others to place the small digital keyboard.

3) Small digital keyboard should be used with data input.
In the "Data Input" we have introduced before, we adopt the keyboard's use mode as the default state, this is pop out mode. But we can modify data input and character input property at the same time. Such as the following map:

Cancel the pop-up digital keyboard. When typing data, you should add a digital keyboard manually.

4) As shown below, add " " to the screen: there should only one digital input component can be sprung for the current screen, then the digital keyboard will connect to the input part automatically. Please press "ENT" to finish inputting after typing data. Thus, set one digital keyboard can be used for all the digital input components to type data.

5) Open property tab page of keyboard, there are “Color” and “Position” can be set. From “Color” ,you can change the keyboard color which contains Fore Color ,Black Color and Frame Color.

5-15. ASCⅡ Keyboard

Similar with “Digital Keyboard”, ASCⅡ keyboard should be used with “Text Input” .You could refer to Digital Keyboard for usage.

Click ASCⅡ Keyboard icon “ ” to add it to the screen, as shown below:

5-16. User Input

All the buttons of “Digital Input” and “Text Input” are fit together with “User Input” and each button value correspond to one ASCII value, therefore , the data inputted can be divided. With this function button, you can make a keyboard by yourself. Click “ 1 ” and place it on the screen, as shown below:

Open its property window:

The following shows relationship between normally used button values and ASCII values.

1 — 0X31	6 — 0X36	ESC — 0X1D
2 — 0X32	7 — 0X37	CLR — 0X7F
	8 — 0X38	ENT — 0XD
4 — 0X34	9 — 0X39	
5 — 0X35	0 — 0X30	

5-17. Bar Graph

"Bar Graph" can be used widely in Industrial control area. It is more intuitionistic and convenient to show simulated data than "Digital Display". So it can be used for displaying analog parameters such as temperature, pressure, flux and so on.

1) Add Bar part "" (vertical and horizontal bar use the same icon), as shown below:

From Property>stick>mode, you can change it to horizontal bar graph

2) Open its property dialog box containing "Object", "Stick", "Color", "Position", as shown below:

3) Her mainly describe the contents of stick tab page.

Take an example to illustrate the setting of bar graph.

Supposing there is a simulate value input of pressure, max data of A/D is 4095, min data of A/D is 0;Scale is divide into 4 sections each of which has 3 slave scales. As shown below:

5-18. Dynamic Map

The setting of "Dynamic Map" is similar with "Dynamic Text". If the register's value is different, they will all display different text (or map). The register value ranges from 0 to 15 (16 states). As the register value (0-15) is different, it will display different maps.

1) Click " " and place it on the screen.

2) Property setting: there are "Object", "Map" and "Position" tab pages. "Object" is used for setting object that need to control.

3) From “Map”, there are 16 maps, choose the map No. from the left box and click “ Changing.. ” button to change map.

Note: The format of these maps should be “.bmp”

5-19. Call Window

"Call Window" is used for opening the needed window by controlling coils (open or close).The following describes how to use it:"

1) Create a new window to be transferred. Set the window's size, name and other information.

2) Click "" in Part toolbar and place it on the screen.

3) Click the property button. Set the relay's type and address in object tab page and set the window No. called in Window tab page. When the middle relay is in the state of ON, the window to be called will popout. When it is OFF, the window will be close. As shown in the following maps.

Set address

Set Window No.

5-20. Window Button

We have introduced calling the window before. But in the process of invoking the window, you may discover that you need a relay and that make operation so trivial, also, when we open the window, we couldn't close it in the current window. Window button can solve all of these problems.
The following introduces how to use the "Window Button".

1) Create a new screen, click "" in Part Toolbar and place it on the screen.

2) Open the property setting dialog box, click "Operate" and type the window's ID which you want to operate. If you want to operate the current window, just choose "current window". Then, the window ID color will turn to gray .In the "Act" column, you could set act mode: open, close and hold .You could also set the window hide or show.

2) In the "display" column, you can modify the text content which will display on the button .If you want to close a window by this button, you can change it to "close".

5-21. Down Recipe

Recipe function is very important in dealing with data in the industrial area, especially for craftwork recipe. There are recipe upload and recipe download, upload means save the device data in locale to recipe database while download means transfer the data in recipe database to device database in locale. We describe how to use recipe download in the following:

1) Firstly, click " " to add recipe download function button on the screen.

2) Double-click to open its property dialog box: There are "Device Data" and "Recipe Data" in "Object" tab page. "Device Data" is used for typing head address of the data invoked in work locale and "Recipe Data" is used for saving head address of the recipe database in personal computer, as shown below:

A Recipe can be seen as a combination of several continued registers. Its concrete meaning is defined by the user in their programs. Usually, recipe data are considered as parameters in user's program, therefore,

different recipes correspond to different parameters and user can change recipes to come to the application of different technics. The combined parameters length means the recipe length.

3) “Count” in “Recipe” tab page stands for the total number of current recipes, as shown below:

How can we differentiate recipe No. in application? Now we offer a internal register PSW40 as a skip of the recipe No. When the value of PSW40 change, the recipe will change .Therefore, we can change the value of PSW40 to finish all the recipe operations.

4) Next we take an example to deeply understand the recipe operating.

Supposing what we operate is a technical recipe needed 6 parameters and 20 groups recipe. the device address is D10-D15 (This data section is used for saving recipe parameters).The head address of recipe database is set as PFW 300,as shown in the left graph

From "***Recipe***", we type "20" in "***Count***" box

5) Add a "Digital Input" part to the screen and set PSW40 as its object.

6) Set "1" as the value of PSW40 while system operating. When we press "Down recipe" button, recipe data will transfer the data with PFW300＋PSW40*6 as their address and 6 continued register groups as their length to D10-D15 data section

5-22. Up Recipe

The usage of "Up Recipe" is nearly as same as its of "Down Recipe", the only difference is that the direction of up recipe is reversed.

1) Click " " to add an upload button to the screen.

2) Please refer to "Down Recipe" for the setting method of "Object" .

5-23. Function

"Function" button gathers the function of all buttons .It can choose functions for the button and then make the button carry out different functions.

1)Click Function icon " " and place it on the screen.

2) Double-click function button or select property after right-click it, a pop-up dialog box will appear. The tab page of "Function" is shown below:

➢ Function

The function button has four types, they separately stand for four states: released, pressed, releasing, pressing. We could add different function to the four states at one time.

➢ Option

It shows that the button's certain status can add the following function operation: Set Coil, Reset Coil, Reverse Coil, Copy Coil, Screen Jump, Set Data, Copy Register, User Input, Open Window, Close Window, Down recipe, Up recipe, Data Block Transmit, Arithmetic.

➢ Add

Click a certain function from "All" box in the right, and then "Add" button will be sprung, Click "Add ", this function will be displayed in the left box showing addition is successful.

➢ Modify

After add a certain function successfully, the “Modify” button will be sprung. Click “Modify” to open its dialog box and do the relevant setting.

➢ Delete

If you want to delete a certain function, click it in the left box to turn over its color and then click “Delete” to finish this operation.

➢ Move Down/Up

When there are more than two functions, “Move Down/up” can be sprung. Click a certain function to turn over its color and then click “Move Down/Up” can move this function. If you want to move several steps ,click it continuously.

➢ Password

Password can affect the limitation of added function, Click “password” to open the following window. If you choose “None”, all the user can carry out this function. If you choose “Normal”, “Advance”, “System”, user should input correct password and then can carry out this function.

If you tick "Limited By Coil", it will be available in the case that setting coil has been sprung. Then Click "M0", The following window will appear.

3) Concrete setting for function component

➢Set coil

Set"1"to certain relay or bit. Click "Modify" to enter its setting dialog box, then modify the object address which take MO as default, as shown below:

➢ Reset Coil

Set"0"to certain relay or bit. Setting method is as same as its of "Set Coil".

- Reverse coil

Reverse certain relay or bit, alternating “0”, “1”of the coil. Please refer to “Set Coil” for setting method.

- Copy Coil

Copy the source coil’s data to the object coil. Please refer to “Set Coil” for setting method.

- Screen Jump

Make the screen jump to the appointed screen. Click “Modify” and then set screen ID in the pop-up window as shown below:

- Set Data

Set the appointed value to the appointed object. Click “Modify” and then modify the object address and set data in the pop-up dialog box, as shown below:

- Copy Register

Copy the source register’s value to the object register. Click “Modify” and then modify address and data type in the source register and target register, as shown below:

a

➢ User Input

Input button codes, the codes are in the form of ASC. Click “Modify” and then a pop-up window will appear, as shown below:

➢ Open Window

Open the appointed window by the window ID. Click “Modify” and then set window ID and open mode in the pop-up dialog box, as shown below:

➢ Close Window

Close the appointed window by the window ID. Click “Modify” and then set window ID in the pop-up window, as shown below:

➢ Down Recipe

Download the recipe data (touch screen etc.) to the device data (PLC).Click “Modify” and then a dialog box as shown below will appear. Please refer to “Down Recipe” part for more information.

- Up recipe

Upload the device data (PLC) to the recipe data (touch screen etc.).Click “Modify” and then its dialog box will appear. Please refer to “Up Recipe” part for more information.

- Data Block Transmit

Transfer a data block starting from the appointed source ID register to the corresponding destination ID register. You can set source address, target address and register number, as shown below:

- Arithmetic

Do arithmetic with the set register’s data, then save the final value in the assigned Register. The arithmetic object can be a constant as well as a variable.

As shown above, Click “Modify” after add “Arithmetic” to the left box, then a pop-up dialog box will appear. The first graphics shows the tab page of “Object” which is used for assigning address saving final value; the second graphics shows the tab page of “Operand” which is used for setting two operands .When you select “Use Constant”, please input relevant value type in its back box, the default type is algorism; When you select “Use Variable”, please click “ ... ” to open its setting dialog box, then set variable address in it ,as shown below:

4) “Button” is mainly used for modifying text content, button aspect and so on.
In its tab page, there are passwords, font, align manner and aspect setting, Please refer to previous chapters for more information.

5) “Limit” supply a function of limitation, After ticking “Limit Button”, the function button will be available when the status of control coil is ON; otherwise, the button will be void. As shown below:

Click "M0" and then the following dialog box will appear in which you can set coil address, as shown below:

6) Please refer to previous chapters for introduction about "Color" and "Position".

5-24. Function Field

The usage of "Function Field" is similar with 'Function" button, but they are not the same. The difference is on the function's trigger action. Function button can set different operations to the four trigger actions. But the function field has only one trigger action, and must be sprung under logic conditions of system internal or pre-setting instead of different button actions. Besides, function field is in hidden manner, so it can not be seen in the screen.

1) Click Function Field " " and place it on the screen.

2) Double-click it's property dialog box then you can see the main difference between it and Function button is that it has a "Mode" tab.

Act Mode （you can only choose one spring action）

- Start Screen

When the screen in which the function field is invoked, the function field's ever has function will be carried out.

- Coil spring

When the appoint coil jump from 0 to1, the function field's existing function will be carried out.

- Time (sec.)

When the screen in which the function field is invoked, the function field's existing function will be carried out. These functions will be carried again in a certain time (which can be set)

- Continue

When the screen in which the function field is invoked, it will carry out the existing function in continually.

- First scan after down

The function of Function Field will be operated once after downloading the project.

- First scan after power

The functions in Function Field will be operated once after every starting.

3) The option tab's function is the same to the function button. Just add them to the existing function. Please refer to previous chapters for concrete information.

5-25. Discrete Column Map

Discrete column graph's horizon axis takes discrete register as fold line object, and presents each register's value with graph.

1) Click " " and place it on the screen.

2) Open its property dialog box. You can see the first tab is "Object":

3) Double-click items in the list or click “Modify” button to pop out its property dialog box. Then the display objects can be set in it.

The following is “Display” tab page

5-26. Continue Cloumn Map

Continue column graph's horizontal axis takes continue registers as its objects. Display each register's value in the form of graph. It has the same usage with "Discrete Column Map", the only difference is that one is for displaying discrete data ,and the other is for displaying continue data

1) Click " " and place it on the screen.

2) Double-click its property dialog box and set the head address of digital display in "Object" tab page. The following take D0 as an example.

3) The following describes the property of “Display” tab page. “Data Number” means the total number of continues data. “Range” set the range of digital display, the default format is “None” and the default pattern is “Column” graph. These setting can be changed by yourself.

6 SPECIAL PART-DISPLAY

Display components are very useful in the project making process. Here we take a separate chapter to illustrate each component's usage and operations. As shown below, from left to right are: "Data", "Clock", "Buzzer", "LCD light lamp", "Instrument", "Valve", "Pipe", "Pump", "Auto Wind", "Motor", "Retort", "Invert Alarm Information", "Real Time Map", "History Data Map", "Event Button", "Display Real Time Event", "Display History Event", "Sample Save".

Panel Toolbar

6-1. Date

1) Click " " in the Panel Toolbar to add it to the screen, as shown below:

2) Open its property dialog box containing "Display", "Font", "Color" and "Position". Firstly, we introduce how to set Display with the following figure:

There are two manner for display

3) Please refer to previous chapters for introduction about "font", "color" and "position" tab.

6-2. Clock

1) Click “ ” in Part toolbar and place it on the screen.

2) Open its property dialog box and set relevant parameters for “Display”, as shown below:

3) Please refer to previous chapters for introduction about “Font”, “Color” and “Position”.

6-3. Buzzer

1) Click “ ” and place a buzzer on the screen with click left mouse button in the screen, as shown below

Pay attention to the buzzer, this is a hidden part, meaning it will not display in the screen. But it will act when conditions are sprung.

2) Double-click “Buzzer” to open its property dialog box containing “Object”, “Buzzer” and “Position” tabs. The following tab is “Object”, in which you can set coil address which is used for springing buzzer.

3) There are two bell modes, the first is “One” and the second is “Continue”. Do the setting in the tab page of “Buzzer” as shown below:

4) Refer to previous chapters for relevant setting information about “Position”.

6-4. LCD Light Lamp

1) Click " " and press left mouse button on the screen to add it .As shown below:

2) Double-click on the screen to open its setting dialog box containing "Object" and "Position" tabs. "Object" is mainly used for setting coil address that control the LCD light.

3) Please refer to previous chapters for relevant introduction about "Position".

6-5. Instrument

1) Click " " and press left mouse button on the screen to add an instrument, as shown below:

2) Double-click the instrument in the screen to open its property dialog box. As shown below, the first tab is "Object", which you can modify data address that needed to display in instrument.

3) With modifying “Display” tab (with various aspects), you can add Text, set align manner, change aspect of instrument and so on.

Click “Changing” button at the bottom of “Aspect” box, then you can open gallery for choosing suitable aspect. There are 6 patterns can be chose as shown below. Also, you can select color freely in the tab page of “Color”.

4) From tab page of “Set”, you can set direction, pointer thick, main scale, slave scale, alarm data, danger data as shown below:

5) Please refer to previous chapters for relevant introduction about “Font”, “Color” and “Position”.

6-6. Valve

1) Click " " and press left mouse button to Place it on the screen, as shown below:

2) Open its property dialog box

Object:
When its status is ON, valve displays as open and when its status is OFF, valve diaplays as closed.

Utter Object:
When its object's status is ON, valve displays as flow and when its object's status is OFF, valve displays as stillness

3) Open “Valve” dialog box, you can set valve manner, flowing direction and act mode

Act:
Set lve obj with the status “O
Set off: let the valve object with the status “OFF”
Reverse: let the valve object turns to opposite status
Instant: set “ON” when pressing valve object and set “OFF” when releasing

Click “Change ”button to pop out gallery, there are 24 patterns can be chose .The following graphs are part of them.

Valve_T_R_002_A

Valve_T_R_001_A

Valve_T_R_003_A

Valve_T_R_004_A

Valve_T_R_005_A

Valve_T_R_006_A

4) “Speed” tab page is used for setting flow speed of valve, you can set speed range and the current speed, as shown below:

After ticking "Register", there will be pop out a button named "SD32768", click it you can open register window, in which address of register can be changed, as shown below:

5) Please refer to preview chapters for relevant introduction about "Color" and "Position".

6-7. Pipe

1) Click " " and press left mouse button on the screen to add it, as shown below:

2) Double-click it on the screen to open its property window. The first tab is "Object".

Object: means the object flow in the pipe .When its status is ON, the liquid in the pipe will start to flow and when its status is OFF, the liquid in the pipe will stop flowing

3) Open "Aspect" tab page, the aspect of pipe and the direction of liquid can be changed, as shown below:

Click "Change Aspect" button, then the gallery of pipe will pop out. There are 11 patterns offered. As shown in the following figure, there are some examples:

4) "Speed" tab page is used to set flow speed for liquid, its usage is similar with that of "Valve", Please refer to up chapter for relevant introduction.

5)Please refer to previous chapters for relevant introduction about “Color” and “Position”.

6-8. Pump

1) Click “ ” and press left mouse button to add a pump to the screen, as shown below:

2) Double-click the pump on the screen ,its property dialog box will pop out containing “Object”, “Aspect”, “Speed”, “Color”, “Position”. In “Object” tab page, control address of the pump can be set, as shown below:

3) From “Aspect” tab page, the aspect and direction of the pipe can be set ,as shown below:

Click “ Change Aspect ”, a pattern gallery with 10 pattern graphs will pop out, the following are part of them:

Pump_T_A_001

Pump_T_A_002

Pump_T_A_003

Pump_T_A_004

Pump_T_A_005

4) Please refer to previous chapter for relevant setting instruction about “Speed”, “Color”, “Position”.

6-9. Auto Wind

1) Click " " and press left mouse button to add Auto Wind to the screen, as shown below:

2) Double-click Auto Wind and open its property dialog box (Setting as pipe).

3) There are nine patterns in “Aspect” tag page, the following is part of them:

AutoWind_T_A_003

AutoWind_T_A_002

AutoWind_T_A_001

AutoWind_T_A_004

AutoWind_T_A_005

4) Please refer to “Valve” for setting method about “Speed”, “Color”, “Position”.

6-10. Motor

1) Click " " and press left mouse button to add it to the screen, as shown below:

2) Double-click it to open its property dialog box. Then click "Object" tab, the address controlling motor switch can be set in this tab page. Other setting have the same setting method with Pipe, as shown below:

3) Motor aspect can be set in “Aspect” tab page, as shown below:

Click “Change Aspect” button, then four maps will appear, as shown below:

4) Please refer to previous chapters for introduction about “Color” and “Position”.

6-11. Retort

1) Click " " and press left mouse button to add a retort to the screen, as shown below:

2) Double-click it to open its property dialog box containing "Object", "Range", "Manner", "Scale", "Color" and "Position". You can set address of the retort in the "Object" tab page, as shown below:

3) In "Range" tab page, you can set max and min values which can be concrete value as well as values assigned by registers with ticking variable. The alarm is used for starting alarm function when the value

over the alarm value set.

There are four maps in “Manner” tab page

Retort_T_001_A

Retort_T_002_A

Retort_T_003_A

Retort_T_004_A

5) “Scale” tab page, in which you can set scale values is shown below:

6-12.Invert Alarm Information

Inverter alarm information is used for alarming, it will spring alarm under certain conditions. This function can display multi-characters which can be used as multi –item alarm

1) Click and press left mouse button to add it to the screen, as shown below:

2) Double-click it to open its property dialog box, the first tab is “Object” which is used for assigning data address of alarm.

3) “Display” tab page is used for setting alarm contents correspond to values. The display characters can be set by ticking “aspect”, as shown below:

4) Please refer to previous chapters for relevant introduction about other tabs .

6-13. Real Time Trend

"Real Time Trend" is used for reacting the real time status of a certain simulate value. There are various display manner for you to choose ,such as curve, column map ,dot map and other manner. Real Time Trend is often used for prompting temperature, pressure, liquid and so on. Therefore, it plays an important role in the projects.

1) Click and press left mouse button on the screen to add it, as shown below:

2) Double-click it to open its property dialog box.The first tab is "Trend Map":

Add object, one object correspond to one trend curve

Modify objects' property

Object: data acquisition source

3) Double-click “0 D0” or click “Modify” after selecting “0 D0” can open its property dialog box in which data object can be change (default object is “D0”)

4) In trend map tab page, data number, picking period, data format, map mode, display mode and data range can be set, as shown below:

5) Set save area and then save the picking data to the assigned address.

6) Please refer to pervious chapters for setting method about “Pick” and “Color”.

6-14. History Data Map

"History Data Map" is similar with "Real Time Trend". As described in the above chapter, "Real Time Trend" can only display the current data in the display area. While "History Data Map" can save the current data in the display area in the format of history data, then you can view and analyze them.

1) Click " " and press left mouse button on the screen to add it, as shown below:

Vertical line shows the current data

2) Double-click it to open its property dialog box. As shown below, the first tab is "Trend Source":

Add: increase objects

Modify: change address and range of the selected item.

Delete: delete the selected object.

3) Click “Modify” button to open “History Trend Source” dialog box ,as shown below:

Set data of picking data

Set min and max values for picking objects .The default value are 0~1024

4) From History Data Map >Display, page data, total data, pick period , the place of display position and how to save current data can be set in this tab page.

Page Data: amount of data that can be displayed in one screen.

Total Data: Total amount of picking data

When Page Data are less than Total Data, you can use "Event Button" to switch displaying of different data.

Pick period: interval between two picking data

Ticking "current Data", then the current data and time will place from PSW500 to PSW506 (default save address) .If you want to modify save address, please click " " and modify address in the pop-up dialog box. The current data will not save without ticking "current data".

5) “Save” tab page can be used for storing picking data and it set “Auto Locate” as default. Also, you can set save address with ticking out “Auto Locate” and modifying object address, as shown below:

6-15. Event Button

"Event Button" is used for viewing history data or multi-page data with operating the cursor of data save components to cooperate with "History Data Map" and "History Event".

1) Click " " and press left mouse button on the screen to add it, as shown below:

2) Double-click it to open its property dialog box. Firstly, set the action of button ,as shown below:

Event Button integrates several function buttons, as shown below:

Prev Page -- Page up the data objects and displays them
Next Page -- Page down the data objects and displays them
Prev Item -- Point to previous item of the current data item
Next Item -- Point to next item of the current data item
OK --Confirm all the data items and record the current time.
Reset Content –Clear all the data in the data object

The following is “Button” tab page, please refer to previous chapters for relevant introduction.

4) Please refer to relevant chapters for introduction about “Color” and “Position”.

6-16. Display Real Time Event

"Display Real Time Event" is used for reflecting the currents event at real time and describing them with text. In project application it is often used as information note, alarm and so on.

1) Click " " and press left mouse button to add it ,as shown below:

2) Double-click it to open its property dialog box. The first tab is "Aspect" with which name, rows, row parameters, align manner can be set.

3) In "Event" tab page, you can set spring address, information and others. Also, you can add several items of event information, as shown below:

Click “Modify” or double-click the alarm information in the first line, the following dialog box will appear:

Modify the alarm information in “Information” tab page, as shown below:

4) Please refer to relevant chapters for introduction about “Font”, “Color” and “Position”.

6-17. History Event

It is similar with Display Real Time Event. The difference between them is that “Display Real Time Event” displays the current status of data source and “History Event” can display and save them.

1) Click “ ” and press left mouse button on the screen to add it, as shown below:

2) Double-click it to open its property dialog box. The following is “Aspect” tab page in which title name, align manner, number of rows, total number of events and if show year can be set.

3) In “Event” tab page, you can set spring address, spring manner and alarm information and so on.

Click “Add” button can add event; Click “Modify” button can modify the selected event, as shown below:

Event Source
Coil
Event
Descript
Over volt
Spring
Ascend Edge
Descend Edge
OK
Cancel
Apply
Spring Event
Spring Manner

6-18. Sample Save

This function is used for picking assigned registers every certain time and saving these data in a section of assigned address.

1) Click " " and press left mouse button on the screen to add it, as shown below:

2) Double-click it to open its property dialog box .The first tab is "Object" in which you can add, modify, delete and set sequence of the samples.

3) In "Pick" tab page, you can set total amount of data , pick period ,manner of time and so on .

4) In “Save” tab page, you can modify the samples’ save address which is internal address of touch panel, as shown below:

5) Please refer to relevant chapters for setting introduction about “Position”.

7 ALARM WINDOW

Alarm window is used to display alarm message when triggering. It controls message display by a bit address of PLC.

1) Create a new alarm window. It is similar to creating a new window. So, it has two ways.

A：①Click “Alarm” in the manage column with the left mouse button to make it in the highlight color.

②Click New icon “ ” in the Operate Toolbar.

B：Insert a window in the project manager. (The detail operations are as the following)
Click the window in the project manager with your left key to make it turn to hightlight color. Then right-click it and choose “Insert” in the pop-up menu.

2) There will come out a new alarm window dialog box. Set the window’s name, width, height, register and pop period and then click “OK” to confirm.

Signal address which can spring alarm

"No repeat pop" means when the alarm window pop one time, it will not alarm again. "5 sec" means after Alarm window pop out and press "OK" to cancel, the alarm window will appear every five seconds. "10sec", "30sec", "1min", "5min", "10min", "30min" are the same as "5 sec"

3) The finished alarm window is showing in the following figure;

4) Double-click "Alarm" and "Alarm Define" and then a Text dialog box will open in which information and details can be modified, as shown below:

5) When alarm happens, a window will pop out automatically. The operator can take effective measures at once to solve the problem. Press "OK" to close the alarm window.

8 PRINT WINDOW

This chapter introduces the essential operation of Print Window

8-1. Create A New Window

It is a bit address message of PLC to control the pop of print window and spring the print action. The window's content is the print content.

1. Create a new window. It is similar to creating a new window. So, it has two ways.

A：①Click "Print" in the project manager with the left mouse button to make it turn to highlight color.

. ②Click new icon "" in the Operate toolbar.

B：Insert a window in the project manager (The following are the details)
Click the window in the project manager with the left mouse button to make it turn to highlight color. Then right-click it and choose "Insert" in the pop menu.

2) There will pop out a new print window dialog box. Set its name, width, and height, spring object and print direction. Then, click "OK" to confirm setting.

A register bit of PLC. Take M0 as an example, when M0=1, the print window pops, at the same time prints the window's content. When you don't want to print them, spring object's value will be set 0.

3) Add the print content you want in the print window's corresponding position and you will finish print window's setting. (the left map is a new screen window and the right one is the finished)

8-2. Connection of the printer

Parameter setting:

Baud Rate: 9600, Parity Check: Even, Handshake: has no limitation

9 SIMULATE FUNCTION

Simulate Function is used for simulating actions and debugs of touch screen in the software without downloading program to TP. With this function, operator can do the project more convenience with less work..

9-1. Simulate Offline

Simulate offline function is used for simulating button actions in TouchWin software in PC without downloading data to touch screen, also, the data address read is local address. Therefore, you can browse the edit effect directly, moreover, you can modify the dissatisfied effect at will which can save time and make the operation more convenient.

Take the following as an example:

1) Firstly, edit a new screen and save it, then place a button and a lamp on the screen with two object addresses as default value: PSB0, as shown below:

2) Click “ ” or from File>Run Offline, you can enter the simulating state. The following shows the effect:

As shown above, the lamp is red which shows the button value is “0”, when you click Control button, the button value will be set “1”, then the lamp will change, as shown below:

9-2. Simulate Online

This function is used for reading data from PLC and simulating touch screen actions in PC software with connecting PC and PLC. Also, this function can help operator save time as the project needed not to download to the touch screen. Please pay attention that set right connection between PC and PLC as well as COM port

Take the following as an example:

1) Firstly, place a lamp on the project screen which will controlled by PLC. Here we choose Thinget XC series, as shown below:

2) After saving this screen , click " " in the Operate toolbar or from File> Run online, you can enter Simulate Online state, as shown below:

3) Right-click on the simulating screen, a pop-up menu will appear (as shown above).Pay attention to "Com Port" and click it, then you can see the following window:

4) Please set PLC and Download Ports correctly, otherwise "Communicating" will appear in the screen and it can't simulate, as shown below:

5) Turn on the X0 of PLC, namely set "1" for X0, and then observe what will change in the simulating screen, as shown below:

6) Now, the PLC succeeds to simulate the control process without connecting touch screen.

9-3. Configuration

This function is similar with “Simulate Online”. The only difference is that Configuration can do the simulating function separately without opening graphics edit software.

1) Firstly, edit a project screen and save it .
2) From File menu, select “Build SCADA”
3) Then, a window will pop out which is used for saving configuration files, as shown below:

4) Select address to save files, then click “OK” to finish it.
5) In the address of saving, you may find there have been add some files:

6) When you need to simulate operations, please click “AutoWin.exe” to enter its state, as shown below

7) Please refer to Simulate Online for more information about how to set COM port .

10 SPECIAL FUNCTIONS

This chapter mainly introduces the internal address of TP series touch screen and **relevant** operations between TP and inverts.

10-1. TP Series Internal Object

- There are three kinds of TP series internal object: PSB**,** PSW and PFW

PSB： Bit

PSW： Word object need power

PFW： Word object which can maintenance without power

1) The following figure shows internal object's range of various types of inverter.

Type / Object	TP460-L	TP560\561	TP760-T	TPA60\A61
PSB	PSB256~PSB1023			
PSW	PSW256~PSW1023			PSW256~PSW4095
PFW	PFW256~PFW1023			PFW256~PFW4095

2) The range of PFW can be set by yourself, the above figure describes the default value of system. How to set PFW is shown below:

①Click "Setting" from "File" menu, as shown below:

②From “panel”, click “set parameter” can modify the number of PFW, as shown below:

- 0~255 internal objects are used for system to realize special functions. The following figure shows part of these functions with high frequency used.

Bit object: PSB

Object Name	Function	Illustration
PSB0	Normal Closed Coil	
PSB1	Normal Open Coil	
PSB2	Set the coil "On" when frist scan after TP starts up	
PSB3	Pulse coil with 100ms as period	
PSB4	Pulse coil with 1s as period	
PSB5	Pulse coil with 1 minute as period	
PSB6	Pulse coil with 300ms as period	
PSB10	Flag coil of general password	(1: password open, 0:password closed)
PSB11	Flag coil of advance password	(1:password open, 0:password closed)
PSB12	Flag coil of system password	(1: password open, 0:password closed)
PSB15	Flag of failed communication	0:communication successful 1:communication failed
PSB16	Flag of one successful screen scan	
PSB30	first scan after downloading	
PSB31	first scan after electrifying	
PSB39	Close touch screen	

Word Object: PSW

Object Name	Function	Illustration
PSW0	Start screen No.	
PSW1	Current screen No.	
PSW20	Screen width	（Read only ）
PSW21	Screen height	（Read only）
PSW26	Total Number of PSB	（ Read only）
PSW27	Total Number of PSW	（ Read only）
PSW28	Total Number of PFW	（Read only）With PSW28 and PSW 29
PSW30	Year	（Hex）（Read only）
PSW31	Month	（Hex）（Read only）
PSW32	Day	（Hex）（Read only）
PSW33	Hour	（Hex）（Read only）
PSW34	Minute	（Hex）（Read only）
PSW35	Second	（Hex）（Read only）
PSW36	Week	（Hex）（Read only）
PSW40	Recipe index	
PSW54	Number of Device	
PSW60	COM 1(Download) Times of successful communication	
PSW61	COM 1 (Download) Times of failed communication	
PSW62	COM 1(Download) Times of overtime communication	
PSW63	COM 1 (Download) Times of communication data turn wrong	
PSW64	COM 1(Download) Device version	
PSW65	COM 1(Download) Device Type	
PSW70	Times of successful communication of COM 2 (PLC)	
PSW71	Times of failed communication of COM 2(PLC)	
PSW72	Times of overtime communication of COM 2 (PLC)	
PSW73	Times of error data communication of COM 2 (PLC)	
PSW74	Device version of COM 2 (PLC)	
PSW75	Device Type of COM 2 (PLC)	

Note: PSW60~ PSW65 shows communication condition when use COM 1(Download) to connect slave PLC

Word Object: PFW

Object Name	Function	Illustration
PFW1	Start Screen No.	
PFW2	Black color Setting	0~255（256 color）
PFW4	Common password	PFW4、PFW5
PFW6	Advance password	PFW6、PFW7
PFW8	System Password	PFW8、PFW9
PFW10	Time for start screen protect	
PFW11	Displayed screen No. for screen protect	
PFW20	COM 1(Download) baud rate	4800、9600、19200、38400、115200、187500
PFW21	COM 1(Download) data bit	7,8
PFW22	COM 1(Download) stop bit	0-1 bit, 1-1.5 bits, 2-2 bits
PFW23	COM 1(Download) parity check	0-None, 1-Odd, 2-Even
PFW24	COM1(Download) station No.	
PFW25	COM 1(PLC) Send delayed data	Unit: ms
PFW30	COM 2(PLC) baund rate	4800、9600、19200、38400、115200、187500
PFW31	COM 2 (PLC) data Bit	7,8
PFW32	COM 2 (PLC) stop bit	0-1 bit, 1-1.5 bits, 2-2 bits
PFW33	COM 2(PLC) parity check	0-None, 1-Odd, 2-Even
PFW34	COM 2(PLC) station No.	
PFW35	COM 2 (PLC) send delayed data	Unit : ms

10-2. Communication between TP and inverters

TP series touch screen add a new function to communicate with inverter on the base of original function. The following will take Mitsubishi FR series transducer as example to describe.

1）Firstly, open TouchWin Edit Tool to create a new project:

2) Choose a corresponding display, click “next”:

3) Choose Mitsubishi FR series inverter in the table, take “setting” as system default and then click “next”:

4) Type name, author, remark and so on, then click “Finish” to enter the edit screen.

Here TP control forward, reverse, stop of the motor by modifying internal parameters, input frequency of inverter .At the same time, touch screen can display the alarm code, output frequency, output voltage, output current and other status. The following will give a detail presentation for the unit.

Place the “Digital Display” component on the screen and open its property dialog box. From default tab “Object”, you can select object type from the object list.

- Alm Code: Correspond to the alarm codes inside the inverter. You can use Chinese to display the alarm message
- Set Frequency: Correspond to the set of inverter's frequency.
- Out Frequency: Correspond to the output frequency of the inverter.
- Out (I): Correspond to the output current of the inverter
- Out (V): Correspond to the output voltage of the inverter
- Parameters: Correspond to the different parameters inside the inverter, the you can appoint a certain pa rameter in the inverter and display it on the touch screen.
- Code: Correspond to the different command codes inside the inverter, you can assign a certain order code to control the frequency and make it do the corresponding action.

Click "Display" and set it with screen clue and technical requirements, as shown below:

②. Place “ ” (inverter alarm information) on the screen, as shown below:

The object tab of Inverter Alarm Information is same to digital display’s. The following describes relevant parameters of Display tab:

Description presentation:

➢16 Over-circuit is cut off when speeding up

➢17 Over-circuit is cut off when speed is determined

➢18 Over-circuit is cut off when speeding down

- 32 Regenerative over-voltage is cut off when speeding up
- 33 Rebirth over-voltage is cut off when speed is determined
- 34 Rebirth over-voltage is cut off when speeding down or stop
- 48 Inverter over-load open circuit
- 49 Electric machine over-load open circuit
- 64 Radiator is over the temperature
- 96 Loss speed precaution
- 112 Control-action transistor alarm
- 128 Output side connect to the ground over-circuit protection
- 129 Output wrap the phase protect
- 144 Outside hot relay act
- 160 Choose unit abnormal
- 176 Parameter memory abnormal
- 177 Parameter unit drop off
- 178 Retry times exceeds
- 243 Choose unit abnormal
- 246 CPU error
- 247 CPU error
- 0 No alarm information

③. Place “ ” on the screen and open its property dialog box, as shown below:

The following mainly introduce object type in object tab page. you can refer to other components for more information about other tab pages.

- Forward/Stop corresponds to forward status or stop status of inverter, ON stands for forward, OFF stands for reverse and stop.
- Reverse/Stop correspond to reverse status or stop status of inverter, On stands for forward, OFF stands for reverse, OFF stands for forward and stop
- Run Status correspond to running status of inverter, On stands for running, OFF stands for stop running.
- Rolling status correspond to rolling status of inverter, ON stands for forward, OFF stands for not forward.
- Alarm correspond to current internal alarm code of inverter

④. Please refer to previous chapters for introduction about relevant properties.

APPLICATION -- This chapter takes connecting communication of TP series touch screen and password setting as examples to describe how to operate TP in applications

1. TP series operate methods

1-1. TP series online communication

1-2. TP series touch screen password

1 TP SEREIES OPERATE METHODS

Take TP's communication and password application as examples.

1-1. TP series online communication

After the screen's data download is finished, cut the power off and pull out the screen transfer cable OP-SYS-CAB0.Then, connect TP series DOWNLOAD port and PLC communication port with PLC communication cable. Check that if the PLC's communication parameters are correct. Meanwhile, electrfy PLC and TP（TP series use DC 24V power）, the display will enter the status of run at once.

NOTE : No matter whether PLC is in the status of running or programming, TP series touch screen can work regularly.

1-2. TP Series Touch Screen Password

In order to improve the machine's safety, the data on the touch screen must be modified only by the professional personnel. So, this demands that the touch screen must have the function of data protection. The following we will introduce the touch screen's password setting.

1) Firstly, from File/Setting, set the system's parameter.
2) There will pop out a system setting dialog box, input the password and then click "OK" to confirm it

The password has three grades: Common, Advanced and Systemic
Common password can only carry out password protection function of normal grade. Advanced grade password can carry out password protection function of high grade and common grade. When input system password, you can carry out all the password operations.

3) Create a project screen, set a “Screen Jump” button with which it can jump to password page.

4) Press “Screen Jump” button to jump to the password screen

5) Press “open password” button to enter password input screen..

6) Press "ENT" after inputting the password. If the password is right, it will prompt password is open, otherwise, it will prompt password is wrong, as shown below:

Prompt after inputting correct password

Prompt after inputting wrong password

7) Press "Close password", pop out the close password dialog box, but the operation that has password protection cannot be carried out.

8) Press "back" button to return to the original screen.

APPENDIX -- connecting methods with popular PLC

1 PLC CONNECTING METHODS

The following introduces communication setting and connecting of TP and various popular types of PLC.

1-1. Thinget FC/XC Series

TP Software Setting

Parameters	Recommend
PLC model	Thinget FC/XC series
COM port	RS232
Data bits	8
Stop bits	1
Parity bits	Odd
Baud rate	9600
Station No.	1

Device Address:

FC ID type	Range	Format	Introduction
M	0~383	DDD	Assistant point inside
W	0~2047	DDDD	Data memorizer
D stands for decimal data			

XC ID type	Range	Format	Presentation
M	0~7999	DDDD	Assistant point inside
D	0~7999	DDDD	Data memorizer
D stands for decimal data			

TP-FC- CAB0 Wiring Diagram

8P Mini DIN Male（Port1、Port2）

1-2. Mitsubishi FX Series

TP software setting

Parameters	Recommend
PLC model	Mitsubishi FX series
Data bits	7
Stop bits	1
Parity Check	Even
Baud rate	9600
Station No.	0

Device Address:

PLC Address Type	Range	Format	Introduction
X①	0~267	O	Exterior input terminals
Y①	0~177	O	Exterior output terminals
M①	0~1023	D	Internal assistant terminals
S①	0~999	D	Special assistant terminals
T（as status）	0~255	D	Timer status
C	0~255	D	Counter terminals
C16	0~199	D	16 bits counter
（C32）	200~255		32 bits counter
D	0~8255	D	Data memorizer
T（as register）	0~255		Current Value
①X、Y、M、S can be extend as registers			

TP-FX-CAB0 Wiring Diagram

1 CPU Unit

2 Communication Modules RS232BD

3 Communication Module RS485BD

1-3. Siemens S7-200/300/400 Series

Software Setting

Parameters	Recommend
PLC Model	S7-200
COM Type	RS485
Data Bits	8
Stop Bits	1
Parity Check	Even
Baud Rate	9600
Station No.	2

Device Address

PLC Address Type	Range	Format	Introduction
VB	0~4095	DDDD	Data register (byte)
VW	0~4095	DDDD	Data register (word)
M	0~255.7	DDD.O	Internal assistant terminals
VD	0~4095	DDDD	Data register (double-word)
Memo: D stands for decimal data			

TP-S7-CAB0 Wiring Diagram
CPU Unit

TP series touch screen side
9P D-SUB Male

FX series RS485 BD module
RS485 port
5 wiring terminals

1-4. Omron C Series

Software Setting

Parameters	Recommend
PLC Model	OMRON
COM Type	RS232
Data Bits	7
Stop Bits	2
Parity Check	Even
Baud Rate	9600
Station No.	0

Device Address

PLC Address Type	Range	Format	Introduction
IR	00000~24315	DDD（BB）	As terminals and registers
SR	24400~25515	DDD(BB)	As terminals and registers
HR	0000~9915	DD（BB）	PLC As terminals and registers
AR	0000~2715	DD（BB）	PLC As terminals and registers
LR	0000~6315	DD（BB）	As terminals and registers
TC	0~512	DDD	Status value of Timer/Counter
DM	0~6655	DDDD	Data register
PV	0~512	DDD	Current value of Timer/Counter

TP-CQM-CAB0 Wiring Diagram

Memo: A）Set OMRON plc in “Monitor Run” mode. Operation: change the value in DM6600 to H0201 and electrify afresh ,then it will operate.

B）Communicating with CPM1A, you need to use CIF01 cable supplied by Xinje Electronic Co.,Ltd.

1-5. Koyo S Series

Software Setting

Parameters	Recommend
PLC Model	KOYO
COM Type	RS232
Data Bits	8
Stop Bits	1
Parity Check	Odd
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type	Range0	Format	Introduction
I	0~477	OOO	Exterior input terminals
Q	0~477	OOO	Exterior output terminals
M	0~377	OOO	Internal assistant terminals
T	0~177	OOO	Timer terminals
C	0~177	OOO	Counter terminals
S	0~777	OOO	Step terminals
R	0~41037	OOOOO	Data register
Memo: O stands for octal data			

TP-SZ-CAB0 Wiring Diagram

1. CPU Unit (DL05/DL105/DL230/DL250/DL350/DL450 RS232 Port)

Memo:

DL05 series port1＆2、DL240's port1＆2、DL250' port1、DL350's port1 and DL450's port2 are all hardware ports of RJ-11, the wiring diagram as shown above.

6P RJ-11 Phone Jack

2. CPU Unit（DL250 CPU Unit Port2 RS422）

Memo: DL250 unit's Port2 combines RS232 and RS422 these two electric ports, when using, please pay attention to their type setting.

3. CPU Unit（DL430/DL440/DL450 CPU Unit Port1&DL350 CPU Unit Port2 RS232）

1-6. Delta DVP series

Software Setting

Parameters	Recommend
PLC Model	Delta DVP
COM Type	RS232
Data Bits	7
Stop Bits	1
Parity Check	Even
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
X①	0~377	OOO	Exterior input terminals
Y①	0~377	OOO	Exterior output terminals
M①	0~1279	DDDD	Internal assistant relay
S①	0~1023	DDDD	Step terminals
T	0~255	DDD	Timer terminals
C	0~255	DDD	Counter terminals
D	0~1279	DDDD	Data register
TD	0~255	DDD	Current value of timer
CD	0~255	DDD	Current value of counter
Memo: D stands for decimal number, O stands for octal ①X、Y、M、S all could be extend as registers			

TP-DVP-CAB0 Wiring Diagram

Memo:

Delta DVP series PLC contain DVP-14/24/32/60ES00 and DVP-XXESO1 etc model, all can be connected with TP touch screen by program communication port on CPU unit.

1-7. LG Master-k series PLC

Software Setting

Parameters	Recommend	
PLC Model	LG Master-k	
PLC COM	PORT2	PORT1
protocol	Modbus Slave	PRG
Data Bits	8	8
Stop Bits	1	1
Parity Check	Even	None
Baud Rate	9600	34800
Station No.	1	1

Device Address

PLC Address Type	Range	Format	Introduction
P①	0~127F	DDDH	Input/Output terminals
K①	0~31F	DDH	Guard relay terminals
M①	0~191F	DDDH	Internal assistant terminals
L①	0~63F	DDH	connect relay termials
F①	0~63F	DDH	Read only
T	0~255	DDD	Timer Terminals
C	0~255	DDD	Counter Terminals
TD②	0~255	DDD	Current value of Timer
CD②	0~255	DDD	Current value of Counter
D②	0~5119	DDDD	Data register
SD②	0~100	DDD	Step
① As register ② Can be extended as register.			

TP-LG-CAB0 Wiring Diagram

1. PORT1

5 GND
5 GND

2.PORT2

TP series touch screen side
9P D-SUB Female
Master k series CPU
RS232 port
9P D-SUB Female
2 RXD
3 TXD
5 GND
4 RXD
7 TXD
5 GND

1-8. Matsushita FP series PLC

Software Setting

Parameters	Recommend
PLC Model	Panasonic FP
COM Type	RS232
Data Bits	8
Stop Bits	1
Parity Check	None
Baud Rate	9600
Station No.	1

Usually we default FP series PLC's station number as 1, but FP3 has special control, the station number must be 0. Please pay attention to communication setting of PLC when connecting.

Device Address

PLC Address Type	Range	Format	Introduction
X	0~12F	DDH	Exterior input terminals
WX	0~12	DD	As registers
Y	0~12F	DDH	Exterior output terminals
WY	0~12	DD	As registers
R	0~62F 90~903F	DDDH	Internal assistant terminals
WR	0~62 900~903		As registers
T	0~99	DD	Timer terminals
C	100~143	DD	Counter terminals
SV	0~143	DDD	setting value of timer or counter
EV	0~143	DDD	Current value of timer of counter
DT	0~9999	DDDD	Data registers

TP-FP-CAB0 Wiring Diagram

Memo: NAIS FP series PLC contains FP0/1/2/3/2SF/10SH etc. all of them can be connected to TP touch screen by program port on CPU or communication port.

1. CPU Unit RS232

5P MiniDin Female

Memo:

In FP0 series only FP0-CXXCXX model has RS232 communication port.

1-9. Schneider PLC

TP Software Setting

Parameters	Recommend
PLC Model	Schneider
COM Type	RS485
Protocol	MODBUS
Transfer Frame MODE	RTU
Data Bits	8
Stop Bits	1
Parity Check	Even
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type	Range	Fromat	Introduction
M	0~2047	DDDD	Internal terminals
MW	0~2047	DDDD	Register terminals

TP-NEZA-CAB0 Wiring Diagram

7

1-10. Fatek FB series PLC

TP Software Setting

Parameters	Recommend
PLC Model	Fatek FB
COM Type	RS232
Data Bits	7
Stop Bits	1
Parity Check	Even
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type0	Range	Format	Introduction
X①	0~255	DDD	Exterior input terminals
Y①	0~255	DDD	Extrior output terminals
M①	0~2001	DDD	Internal input terminals
S①	0~999	DDD	Sequence control terminals
T（As status）	0~255	DDD	Timer status
C	0~255	DDD	Counter terminals
C16	0~199	DDD	16 bits counter
（C32）	200~255	DDD	32 bits counter
R	0~9000	DDDD	Data Memory
D	0~3071	DDDD	Data Memory
TD（As register）	0~255	DDD	Timer
①X、Y、M and S all could be expand as register			

TP-FB-CAB0 Wiring Diagram

MA series standard CPU unit offer one HCMOS COM port, MC series offer three COM ports (1HCMOS & 1RS232 & 1RS485). MA series CPU unit can be connected after you let HCMOS transfer to RS232/RS485 visa communication module FB-DTBR or FB-DTBR-E.

1) RS232 Port

2) Communication Module FB-DTBR/DTBR-E

3) RS485 port

1-11. Vigor VB series PLC

TP Software Setting

Parameters	Recommend
PLC Model	Vigor VB
COM Type	RS232
Data Bits	7
Stop Bits	1
Parity Check	Even
Baud Rate	19200
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
X①	0~777	O	Exterior input terminals
Y①	0~777	O	Exterior output terminals
M①	0~9255	D	Internal assistant terminals
S①	0~999	D	Special assistant terminals
TSTATUS	0~255	D	Timer status
CSTATUS	0~255	D	Counter terminals
TCOIL	0~255	D	
CCOIL	0~255	D	
C16	0~199	D	16 bits counter
C32	200~255	D	32 bits counter
D	0~9255	D	Data memory
TW（As register）	0~255	D	Current value
①X、Y、M and S could be expanded as registers			

TP-VB-CAB0 Wiring Diagram

1-12. Fuji SPB series

TP Software Setting

Parameters	Recommend
PLC Model	Fuji SPB
COM Type	RS485
Data Bits	8
Stop Bits	1
Parity Check	Odd
Baud Rate	19200
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
X	0~63	D	Exterior input terminals
Y	0~63	D	Exterior output terminals
M	0~63	D	Internal assistant terminals
L	0~255	D	Special assistant terminals
T	0~511	D	Timer status
C	0~255	D	Counter terminals
SM	32768~33279	D	
WX	0~63	D	
WY	0~63	D	
WM	0~63	D	
WL	0~255	D	
WSM	32768~33023	D	
D	0~8191	D	Data memory
TW（As register）	0~511	D	Timer
CW	0~255	D	Counter
LD	0~10000	D	
SD	32768~33023	D	

TP-SPB-CAB0 Wiring Diagram

TP series touch screen side
9P D-SUB Female

Fuji SPB side
8P D-SUB Male

1-13. Keyence KV series PLC

TP Software Setting

Parameters	Recommend
PLC Model	KV
COM Type	Program Port RS232
Data Bits	8
Stop Bits	1
Parity Check	Even
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
R	0~999	D	Coil terminals
DM	0~8000	D	Data memory

TP-SPB-CAB0 Wiring Diagram

1-14. Emerson EC20 series PLC

TP Software Setting

Parameters	Recommend
PLC Model	EC20
COM port	RS232
Data Bits	8
Stop Bits	1
Parity Check	Even
Baud Rate	19200
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
X	0~377	O	Exterior input terminals
Y	0~377	O	Exterior output terminals
M	0~2047	D	Internal assistant terminals
S	0~1023	D	Special assistant terminals
T	0~255	D	Timer Status
C	0~255	D	Couter terminals
SM	0~9999	D	
D	0~7999	D	Data register
SD	0~255	D	
Z	0~15	D	
T	0~255	D	Timer
C16	0~199	D	16 bits counter
C32	200~255	D	32 bits counter

TP-EC20-CAB0 Wiring Diagram

RS232 communication

RS485 communication

1-15. OEMax NX7 series

TP Software Setting

Parameters	Recommend
PLC Model	NX7
COM Type	RS232、RS485
Data Bits	8
Stop Bits	1
Parity Check	None
Baud Rate	9600
Station No.	1

Device Address

PLC Address Type	Range	Format	Introduction
R	0~127	D	
L	0~63	D	
M	0~127	D	
K	0~127	D	
F	0~15	D	
TC	0~255	D	
W	0~6000	D	
SV	0~255	D	
PV	0~255	D	
SR	0~511	D	

TP-NX7-CAB0 Wiring Diagram

MEMO

无锡市信捷科技电子有限公司
江苏省无锡市蠡园开发区
创意产业园 7 号楼四楼
邮编： 214072
电话： 86-510-85134136
传真： 86-510-85111290

Thinget Electronic Co., Ltd.
4th Floor Building 7,Orignality Industry park, Liyuan Development Zone, Wuxi City, Jiangsu Province 214072
Tel: 86-510-85134136
Fax: 86-510-85111290