XINJE

Human Machine Interface

MTG/TG/TE/TH/OP/MP *Series*

XINJE
WUXI XINJE ELECTRIC CO., LTD.

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HMI **Rich product models**

MTG series
TG series
TE series
TH series
OP series
MP series

- The perfect combination of specialization and humanization, lead the new concept of HMI.
- 4.3 inches to 15.6 inches.
- 16.77 million colors, exquisite image quality, the display effect is comparable with LCD.
- High speed response for downloading, startup, running.
- Support C language, free format protocol, programming freely.
- Rich 3D library makes the screen vividly.

Handheld wireless **MTG765-UT**

- 16.77 million colors, resolution 800*480, 7 inches wide screen.
- Delicate appearance, handheld operation, more flexible.
- Wireless communicate with PLC, the max speed is 115200bps, the distance can up to 150m, more stable.
- Built-in mobile power supply, easy to charge, long battery life.
- Built-in flash disk inteface supports data import export and program import.
- High speed response for downloading, startup, running.
- Powerful software can make complicated screen.
- Easy to programming and operate, fit for various applications.

Appearance

DIP switch

baud rate switch

USB-A

communication channel button

USB-B

power supply button

Micro-USB
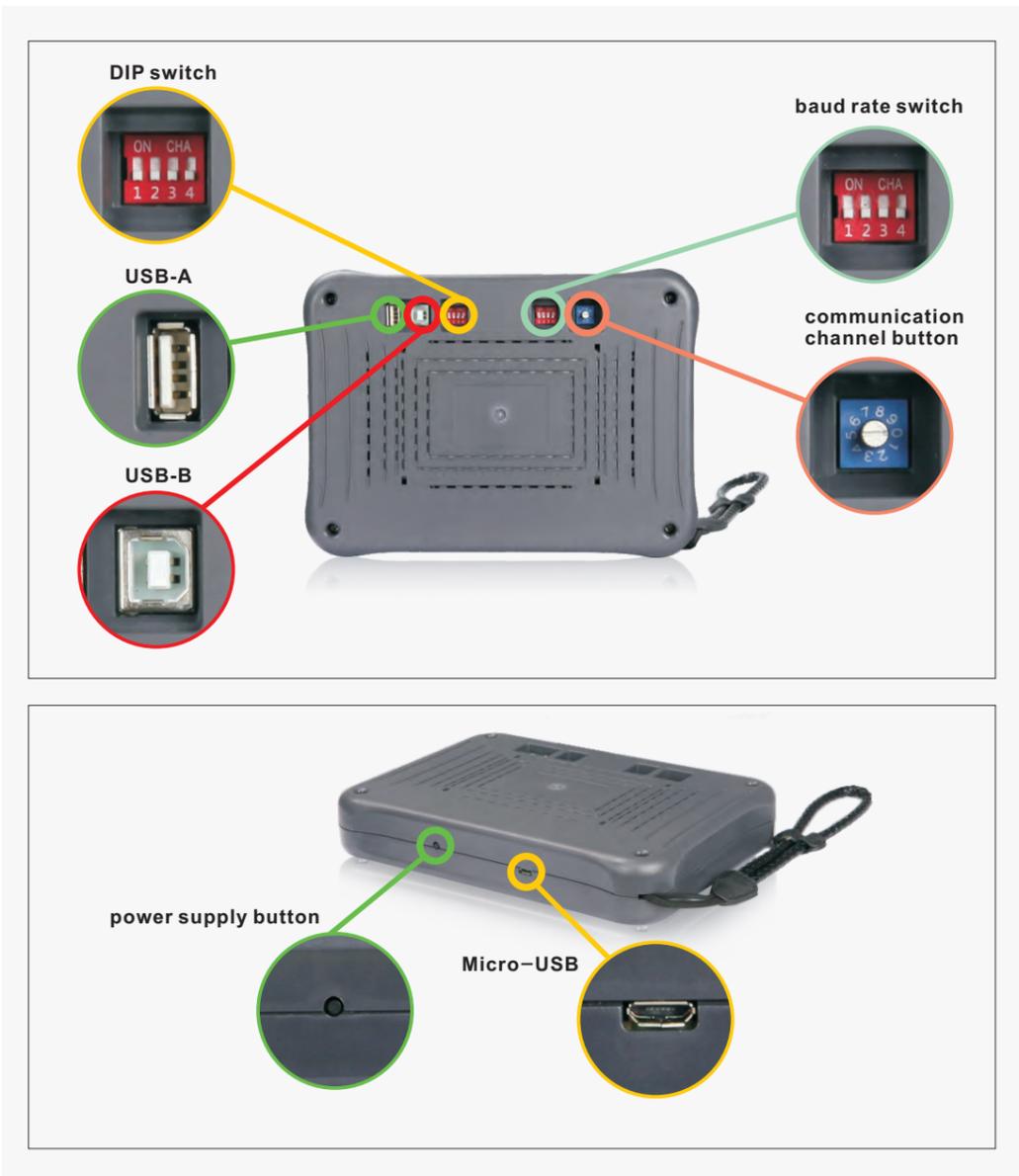
Networking communication

MTG765-UT   **S-BOX**   **PLC**

Product specification

HMI specification

Item		MTG765-UT
Screen	LCD	7.0"
	Colors	16.77 million
	Resolution	800*480
	Brightness	Adjustable (PFW100)
	Touch panel	4-wire resistor touch panel
	Using life	Up 50000 hours, ambient temperature 25℃, 24 hours running
	Language	Chinese, English, Japanese, Korean, German, Russian…
	Character size	Any font and size
Memory	Memory	128MB

Electrical specification

Item		MTG765-UT
Electric	Power	4W
	Charging input parameter	5.0V-2.0A 9.0V-2.0A 12V-1.5A
	Battery life (always ON)	8 hours
	Charging time	< 10 hours
Ambient	Operation temperature	0～45℃
	Ambient humidity	10%RH-90%RH (no condensation)
	Air	No corrosive gas
	Protection	The front cover is accord to IP65
	Cooling mode	Natural cooling
Structure	Dimension (mm)	217.1*158.0*36.6
Interface	PLC port (built-in)	Built-in PLC port integrated wireless communication module
	USB port 1	USB-A (USB2.0), flash disk port
	USB port 2	USB-B (USB2.0), USB download port
	Micro-USB	Micro-USB, USB charging port

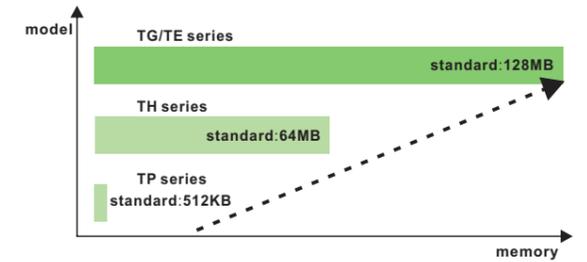## Dimension (unit: mm)

36.6   217.1

158.0
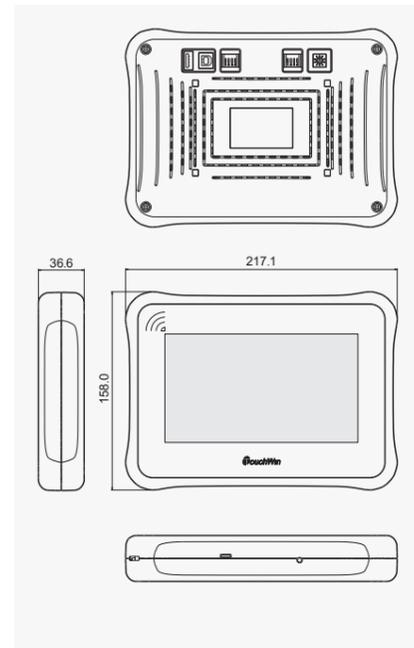
New generation of HMI TG/TE series

TG/TE series HMI has better hardware, faster response, good image quality and rich connectivity.

TG/TE series outstanding performance

Better hardware makes advanced products

● CPU is ARM9 400MHz
● Internal memory 128MB/64MB
● Memory 128MB
● Color 16.77 million

model

TG/TE series   standard:128MB

TH series   standard:64MB
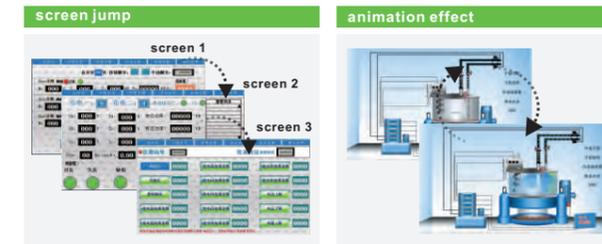
TP series   standard:512KB

memory

High speed response for downloading, start and running

● Download- USB faster data transmission, the speed is 5 times of TH series.

● Start- shorten the start time, improve the start speed.

t $\frac{1}{5}$ t

TH series   TG/TE series

faster program loading speed

Starting...

● Run- smooth effect for screen switching and animation.

● larger power-off retentive range, about 4 million words can be used.

screen jump   **animation effect**

screen 1
screen 2
screen 3

240 thousand   4 million

TH series   TG/TE series
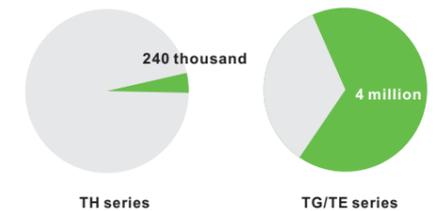
From single HMI to network communication

Support Ethernet communication, improve the communication speed, fit for complicated environment.

● Standard RJ45 Ethernet port
● Construct the open network with Modbus-TCP devices, Siemens S7-1200, Mitsubishi Melsec, T-BOX, G-BOX

switch

T-BOX   Mitsubishi Melsec   Siemens S7-1200   S7-Smart PLC   Modbus-TCP Ethernet device
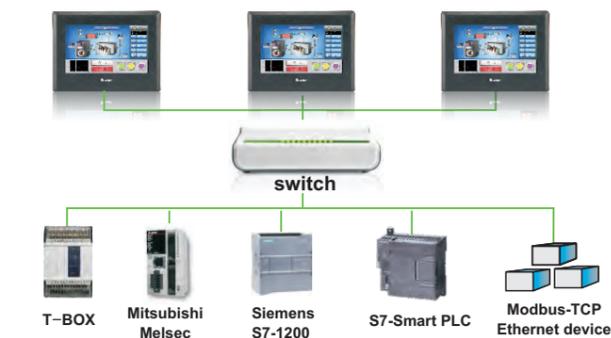
Support X-NET fieldbus, the communication mode includes one HMI one device, one HMI multi-device, multi-HMI one device, multi-HMI multi-device, the max speed can up to 3M.

PLC port   PLC port   PLC port

Pass through function, remote upload and download program via HMI, monitor the PLC state

Cover all the functions of TH series

TH series

TG/TE series

Rich products, complete specifications, meet all your requirements

Best hardware configuration, high speed response, high display quality, from single device to networking, cover all the functions of TH series.

X-NET fieldbus - NT series

10.1 inches
TGA63-NT

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 1024*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485, RS422
  PLC port: RS485
- Model explanation:
  NT: USB-A port, USB-B port, Ethernet port

8 inches
TG865-NT

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485, RS422
  PLC port: RS485
- Model explanation:
  NT: USB-A port, USB-B port, Ethernet port

7 inches
TG765-NT

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485, RS422
  PLC port: RS485
- Model explanation:
  NT: USB-A port, USB-B port, Ethernet port

Advanced model - TG/TE series

15.6 inches
TGC65-ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 1366*768
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  ET: USB-A port, USB-B port, Ethernet port

10.1 inches
TGA63-MT/UT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 1024*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port   UT: USB-A port, USB-B port
  ET: USB-A port, USB-B port, Ethernet port

10.1 inches
TGA62-MT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  ET: USB-A port, USB-B port, Ethernet port

8 inches
TG865-MT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  ET: USB-A port, USB-B port, Ethernet port

7 inches
TG/TE765-MT/UT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  UT: USB-A port, USB-B port
  ET: USB-A port, USB-B port, Ethernet port

4.3 inches
TG465-XT/MT/UT/ET/MT2/UT2

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 480*272
- Memory 128MB
- XT: one serial port
  PLC port: RS232, RS485
- MT/UT/ET: one serial port
  PLC port: RS232, RS485, RS422
- MT2/UT2: 2 serial ports
  PLC port: RS232, RS485, RS422
  Download port: RS232, RS485
- Model explanation:
  XT/MT/MT2: USB-B port
  UT/UT2: USB-A port, USB-B port
  ET: USB-A port, USB-B port, Ethernet port

Fashionable model - TG765S, TGA63S series

Ultra-thin appearance, the thickness is only 38.5mm. The cover is made of PC and ABC alloy, more sturdy and durable. The installation bayonet is sealed to prevent from dust and oil. The communication port is at the bottom, saving the installation space.

New fashionable appearance, better visual effect, comfortable touch feeling, the cover is made of PC and ABC alloy, more sturdy and durable. The installation bayonet is sealed to prevent from dust and oil, prolongging the service life.

7 inches
TG765S-MT/UT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  UT: USB-A port, USB-B port
  ET: USB-A port, USB-B port, Ethernet port

10.1 inches
TGA63S-MT/UT/ET

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 1024*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  ET: USB-A port, USB-B port, Ethernet port

Economical model - TG765-XT-C, TG765S-XT series

Based on advanced model TG765, has one RS232 port.

Based on TG765S, has two RS232 ports and real-time clock.

7 inches
TG765-XT-C

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- PLC port: RS232
- Model explanation:
  XT-C: real-time clock

7 inches
TG765S-XT

- 16.77 million colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232
  PLC port: RS232
- Model explanation:
  XT: USB-B port, real-time clock

Normal model - TH series

Standard model with basic functions, the size includes 4.3 to 10.4 inches.
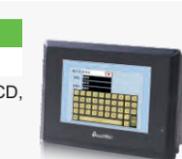
10.4 inches
THA65-MT/UT

- 65536 colors, TFT LCD, LED backlight
- Resolution 800*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  UT: USB-A port, USB-B port

10.1 inches
THA62-MT/UT

- 65536 colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  UT: USB-A port, USB-B port

8 inches
TH865-MT/UT

- 65536 colors, TFT LCD, LED backlight
- Resolution 800*600
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT: USB-B port
  UT: USB-A port, USB-B port

7 inches
TH765-MT/UT/N/NU

- 65536 colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Two serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT/N: USB-B port
  UT/NU: USB-A port, USB-B port

7 inches
TH765-N3/NU3

- 65536 colors, TFT LCD, LED backlight
- Resolution 800*480
- Memory 128MB
- Three serial ports
  Download port: RS232, RS485
  PLC port: RS232, RS485, RS422
  Extension port: RS485 (extend from download port 1A6B)
- Model explanation:
  N3: USB-B port
  NU3: USB-A port, USB-B port

4.3 inches
TH465-MT/UT/MT2/UT2

- 65536 colors, TFT LCD, LED backlight
- Resolution 480*272
- Memory 8MB
- MT/UT: one serial port
  PLC port: RS232, RS485, RS422
- MT2/UT2: two serial ports
  Download port: RS232
  PLC port: RS232, RS485, RS422
- Model explanation:
  MT/MT2: USB-B port
  UT/UT2: USB-A port, USB-B port

Oil proof model

Dimension \ Model	TH series oil proof model	TG series oil proof model	TE series oil proof model
4.3 inches	TH465-MT(P) TH465-UT(P)	TG465-MT(P) TG465-UT(P)	
7 inches	TH765-NT(P) TH765-NU(P)	TG765-MT(P) TG765-UT(P) TG765-ET(P) TG765-XT(P)-C	TE765-MT(P) TE765-UT(P) TE765-ET(P)
8 inches	TH865-MT(P) TH865-UT(P)	TG865-MT(P) TG865-ET(P)	
10.1 inches	THA62-MT(P) THA62-UT(P)	TGA62-MT(P) TGA62-ET(P)	

Oil proof model with suffix P re-design the cover and film. The film back adhesive tape width increased to prevent from the oil. Other functions are the same. The models are fit for the heavy oil environment.

Operate panel - OP/MP series

OP/MP series HMI has compact size and delicate appearance

● 3.7 inches, STN LCD, resolution 192*64, memory 64KB.
● User-defined function buttons, replace the machine button.
● Support most PLC brands in the market.
● Alarm, password, clock, bmp picture display, screen switching by PLC.
● MP series display area can be touched.

3.7 inches
OP320/OP320-S

◈ 7 buttons
◈ Without clock
◈ One communication port
OP320: RS232, RS422
OP320-S: RS232, RS485

3.7 inches
OP320-A/OP320-A-S/OP320-A-N

◈ 20 buttons
◈ With clock
◈ One communication port
OP320-A: RS232, RS422
OP320-A-S: RS232, RS485
OP320-A-N: RS232

3.7 inches
OP325-A/OP325-A-S

◈ 20 buttons
◈ With clock
◈ One communication port
OP325-A: RS232, RS422
OP325-A-S: RS232, RS485

3.7 inches
OP330/OP330-S

◈ 26 buttons
◈ With clock
◈ One communication port
OP330: RS232, RS422
OP330-S: RS232, RS485

3.7 inches
MP325-A/MP325-A-S

◈ 20 buttons
◈ With clock
◈ One communication port
MP325-A: RS232, RS422
MP325-A-S: RS232, RS485

3.7 inches
MP330/MP330-S

◈ 26 buttons
◈ With clock
◈ One communication port
MP330: RS232, RS422
MP330-S: RS232, RS485

Hardware features

● **DIP switch:**

DIP2: forced download.
DIP3: set system clock, adjust the touch area.

● **Power supply interface:**

24V DC power supply.

● **Serial port:**

TG/TE/TH series
PORT1（Download）: RS232/RS485.
PORT2（PLC）: RS232/RS485/RS422.
Extension port: RS485 (only TH765-N3/NU3 support)
−NT series
PORT1（Download）: RS232/RS485/RS422.
PORT2（PLC）: RS485.

● **USB-A port:**

connect flash disk to export and import data (characters and data), download program(TG/TE series support, the version must be v2.d3c and up).

● **USB-B port:**

download and upload program.

● **Ethernet port:**

ET, NT series, remote monitoring, data exchanging, networking based on Ethernet. Support pass through function.

Model explanations
MT: USB-B port.
UT: USB-A port, USB-B port.
ET: USB-A port, USB-B port, Ethernet port.
NT: USB-A port, USB-B port, Ethernet port.

Powerful communication ability

Flexible connectivity, can communicate with multi-device

● Can connect most PLC brands such as Mitsubishi, Siemens, Omron, Schneider and frequency inverter such as Delta, Yaskawa.
● Can communicate with Modbus protocol devices, can connect more than one devices at the same port such as PLC, frequency inverter, servo drive, meter.
● Support free format communication, make program with C language to communicate with various meters.

PLC   VFD ···
meter   servo drive

Support micro printer

● The download port can connect micro needle printer, panel printer, thermal printer. It can real-time print the project data and curve.
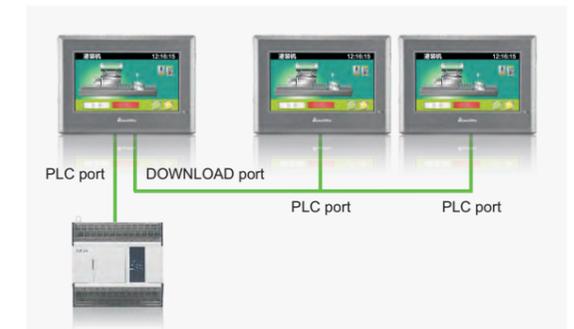
Various networking mode

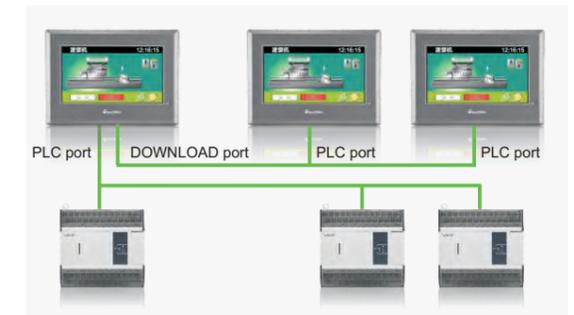Networking as master-slave mode or X-NET fieldbus.

● **One HMI and multi-device**

PLC port / DOWNLOAD port

● **Multi-HMI and one device**

PLC port   DOWNLOAD port
PLC port   PLC port

● **Multi-HMI and multi-device**

PLC port   DOWNLOAD port   PLC port   PLC port

High speed transmission with humanized port

Humanized front USB-A port

● USB-A port can export and import the data. This port is in the front of the cover. It no needs to open the control cabinet when sending the data, easy to operate, improve the working efficiency.

Program download based on USB-B port

● USB-B port accords to USB2.0 standard. The port connects PC through USB cable and high speed downloads the program. It saves the downloading time and easy to debug the program.

Free installation mode

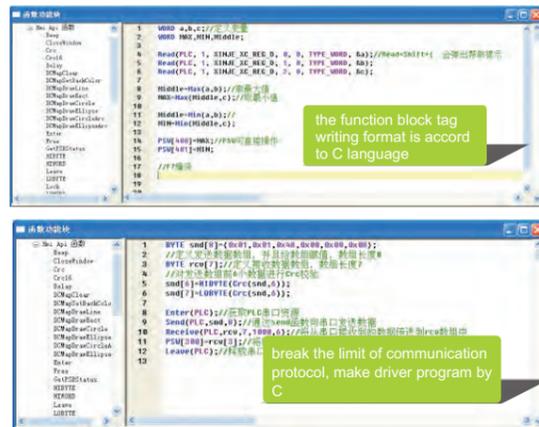● To choose vertical or horizontal installation according to the scene condition (TG/TE series)

Touchwin software

C function block is equal to anything including calculation, command, communication

C function block makes the HMI fit for complicated calculation and communication, improves the system performance.

● **Support most C functions**

the function block tag writing format is accord to C language

break the limit of communication protocol, make driver program by C

● **The C program can be encrypted, user can open the program after inputting the password**
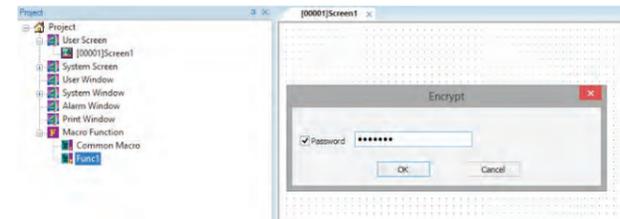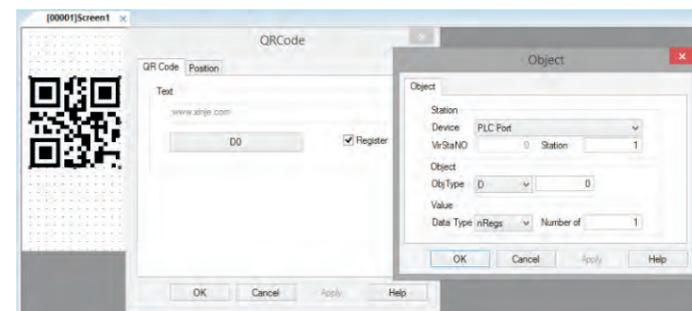
Screen saver

PSB8=1, HMI will be in screen saver mode, PSB8=0, HMI will exit screen saver mode.

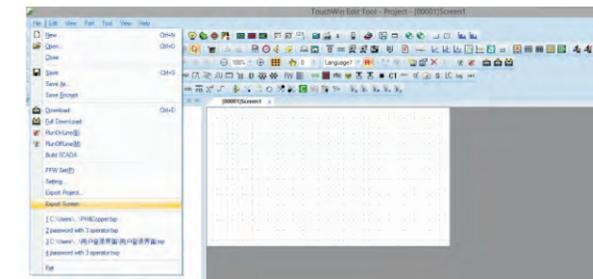## Support QR code generation and display (TG/TE series)

● Set the QR code contents
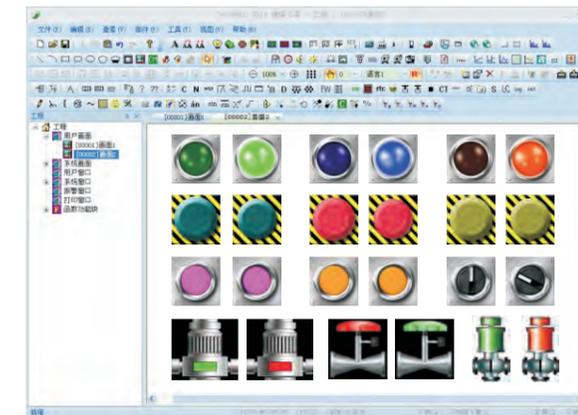
● Dynamic set the QR code contents through registers

NEW

The user screen can be saved as picture

Powerful visual expressive brings new feeling

Rich 3D picture library and element resources

● The picture library has rich icons including meter, valve, pipe, fan, pump, motor, etc.
● Design the icon with the drawing element including line, rectangle, ellipse, broken line, polygon, three dimensional frame.
● Support bmp, jpg and png format picture import.
● Bar graph and cylindrical graph.

Half the time to make the program

● Batch set the font, size, shape of text in different places.
● Batch copy all the components, can set the vertical or horizontal space of communication address, row numbers, row pitch, column numbers, column pitch.
● Display all the component communication address, no need to check each component feature.
● Support picture rotation 90°, 180°, 270°.
● Support unlimited times of undo (Ctrl+Z) and recover (Ctrl+Y) operations.
● The picture settings support equal width, height, size, vertical distance, horizontal distance.
● Ratio transformation for data input and display.
● C programming has function library and examples.

Support multi-language, easy to switch

● Use standard characters corresponding to Unicode character library.
● Switch the language through PFW101.
● Support 8 kinds of language switching online.

PFW101=0, choose the first kind of language

PFW101=1, choose the second kind of language
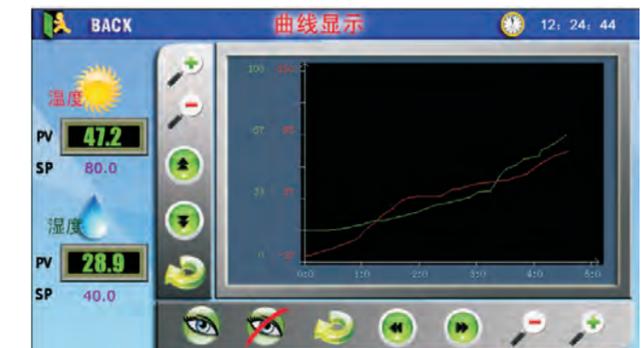
Various fonts and language

● Windows graph font input.
● Support Chinese, English, Japanese, Russian and so on.
● Support any fonts, size, bold, italic, underline.
● Support art effect, projection, stroke, fill.
● Support rolling words, twinkling, dynamic text.

Powerful data processing ability

Process control data acquisition, the trend graph is more visual

● Various graph displaying: real-time trend graph, historical trend graph, time trend graph, XY trend graph, XY curve graph, bar graph.
● Zoom in and out, page up and down, clear the curve with data moving button.
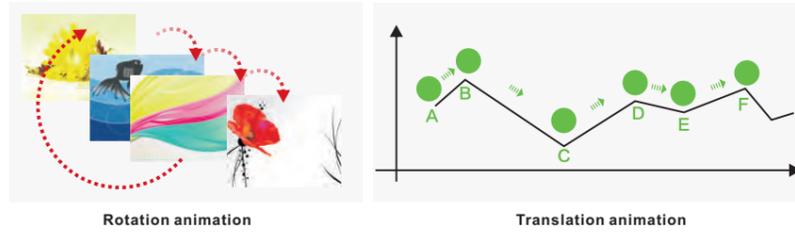● Read detailed data at certain time with general table and data table.

New animation editing mode, rich performance

● Easy animation editing mode, user-defined movement track.
● Support translation and rotation animation, close connection, smooth screen.

Rotation animation   Translation animation

Import program via USB-A port with flash disk

TG/TE series –UT/ET/NT model have USB-A port, which can import the program in the HMI with flash disk but no need PC. The download process is easy and fast. The program is encrypted, it is fit for program updating without download cable and PC. (the HMI version must be v2.d3c and up)

factory

update program

Export dat file 302KB

saved in flash disk
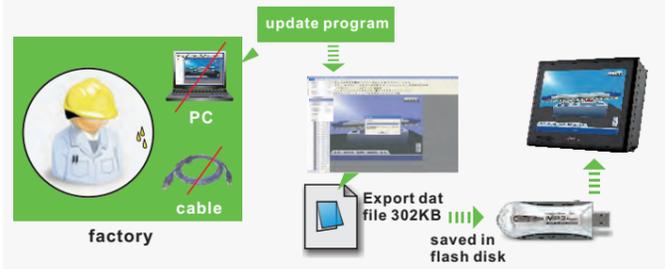
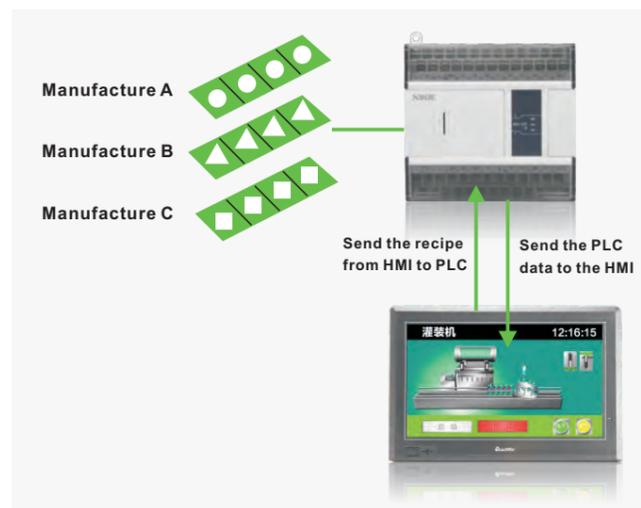## Export the csv file from Flash-disk, backup the important data

Export and import the historical data, recipe data, curve data in csv format by Flash-disk. The file can be opened in Excel. Support many kinds of hexadecimal and characters..
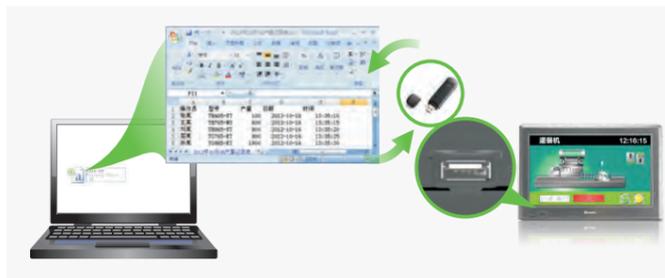
The storage and bidirectional transmission of recipe data improve the working efficiency

The HMI can store large amounts of data. Manual inputting parameters every time will influence the working efficiency for various types of production.

Storing the data in the HMI and bidirectional transfer the data in csv format through Flash-disk. It can manage different types of information and improve the efficiency.

Manufacture A

Manufacture B

Manufacture C

Send the recipe from HMI to PLC

Send the PLC data to the HMI


Perfect encryption function

Nine levels of password, user-defined authority setting

● Protect the authority through the password.
● The password level defines the operation authority.
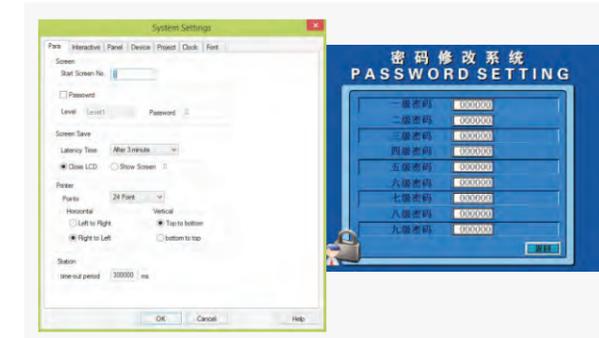
Program encryption

● The software can export the encryption file in txp format. When this file is opened, the program is invisible but can be downloaded in the HMI through Touchwin software. The programmer needs to save another backup for this application.

file.txp

encryption save
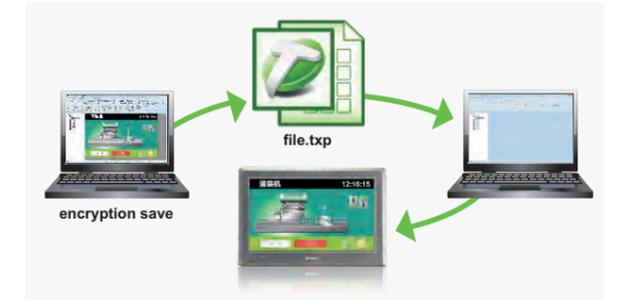
The alarm function can fast recover the system

● Alarm list, alarm window and calling window can help user to find the error and recover the system.
● The historical event can show the historical alarm information.
● The list can page up and down, clear with data moving button.

Buzzer alarm

● The alarm list and window has buzzer function. The buzzer mode including silent, ring once, continuous ringing.

Manually close the backlight

● When PSB9 is ON, the backlight is off and enter the screen saver.

Buzzer sound

● PFW2=0, the buzzer has sound, PFW2=1, the buzzer has no sound. Repower on the HMI to make the setting effective. The default value is 0.

X-NET fieldbus TG/TE/TG(P)/TE(P) supported

● The download port of slave machine can be used.
● The speed can up to 3M, the communication has no delay.
● Can communicate with XD series PLC.
● The system wiring diagram please refer to XD.
● TG/TE/TG(P)/TE(P) support X-NET fieldbus OMMS mode; -NT model support X-NET fieldbus OMMS and TBN mode..

PLC port   PLC port

Product specification

Advanced model - TG/TE series

Specification	TGC65 series TGC65-ET	TGA63 series TGA63-MT/UT/ET/NT TGA63S-MT/UT/NT	TGA62 series TGA62-MT/ET	TG865 series TG865-MT/ET/NT	TG765/TE765 series TG/TE765-MT/UT/ET/NT TG765S-MT/UT/ET	TG765(S)-XT series TG765-XT-C	TG765(S)-XT series TG765S-XT	TG465 series TG465-XT/MT/UT/ET/MT2/UT2
Dimension(inch)	15.6	10.1	10.1	8	7	7	7	4.3
Resolution	1366*768	1024*600	800*480	800*600	800*480	800*480	800*480	480*272
LCD	TFT LCD, LED backlight							
Color	16.77 million true colors							
Bright	250	200						
Touch panel	4-wire resistor touch screen							
LCD life	Above 50000 hours, ambient temperature 25℃, 24 hours running							
Memory	128MB							
PLC port	RS232/RS422/RS485 (−NT series is RS485)					RS232	RS232	RS232/RS485/RS422 (−XT support RS232/RS485)
Download port	RS232/RS485 (−NT series is RS232/RS485/RS422)					\	RS232	RS232/RS485 (only - MT2/UT2 supported)
USB port1	USB-B (USB 2.0 standard), USB download port							
USB port2	USB-A (USB 2.0 standard), Flash-disk port, UT/ET model supported							
Ethernet	ET model supported					\	\	ET model supported
Input voltage	DC24V (voltage range: DC22V~26V)							
Consumption current	730mA	270mA	270mA	250mA	200mA	200mA	200mA	180mA
Allowable power-off	1Under 10ms (actual power-off is less than 1s)							
Voltage shock endurance	AC1000V, 10mA less than 1 minute							
Insulation resistance	Above 10MΩ, DC500V							
Operating temperature	0~50℃							
Storage temperature	−20℃～60℃							
Operating humidity	10%RH~90%RH (no condensation)							
Anti-interference ability	Interference voltage: 1500 Vp-p, pulse period: 1μs, duration time: 1 minute							
Ambient	No corrosive gas							
Cooling mode	Natural cooling							
Protection level	IP65 for front cover							
Dimension (mm)	410.0*270.0*65.0	272.2*191.7*51.2	272.2*191.7*51.2	224.4*170.8*45.5	200.4*146.9*48.5	200.4*146.9*48.5	205.4*146.5*38.5	152.0*102.0*41.8
Mounting dimension (mm)	399.0*259.0	260.2*179.7	260.2*179.7	211.4*157.8	192.0*138.5	192.0*138.5	192.0*138.5	144.0*94.0

* Note: all the models have clock, TG765S-MT/UT/ET dimension is 205.4*146.5*38.5mm. TE765 series include MT/UT/ET model.

Basic model - TH series

Specification	THA65 series THA65-MT/UT	THA62 series THA62-MT/UT	TH865 series TH865-MT/UT	TH765-M series TH765-MT/UT	TH765-N series TH765-N/NU/N3/NU3	TH465 series TH465-MT/UT/MT2/UT2
Dimension(inch)	10.4	10.1	8	7	7	4.3
Resolution	800*600	800*480	800*600	800*480	800*480	480*272
LCD	TFT LCD, LED backlight					
Color	65536 true colors					
Bright	200					
Touch panel	4-wire resistor touch screen					
LCD life	Above 50000 hours, ambient temperature 25℃, 24 hours running					
Memory	128MB					8MB
PLC port	RS232/RS422/RS485					
Download port	RS232/RS485					RS232 (MT2/UT2 supported)
USB port1	USB-B (USB 2.0 standard), USB download port					
USB port2	USB-A (USB 2.0 standard), Flash-disk port, UT/UT2/NU/NU3 model supported					
Ethernet	Not supported					
Expansion	Not supported				RS485 (N3/NU3 supported)	Not supported
Input voltage	DC24V (voltage range: DC22V~26V)					
Consumption current	630mA	230mA	260mA	250mA	250mA	130mA
Allowable power-off	Under 10ms (actual power-off is less than 1s)					
Voltage shock endurance	AC1000V, 10mA less than 1 minute					
Insulation resistance	Above 10MΩ, DC500V					
Operating temperature	0℃～50℃					
Storage temperature	−20℃～60℃					
Operating humidity	10%RH~90%RH (no condensation)					
Anti-interference ability	Interference voltage: 1500 Vp-p, pulse period: 1μs, duration time: 1 minute					
Ambient	No corrosive gas					
Cooling mode	Natural cooling					
Protection level	IP65 for front cover					
Dimension (mm)	311.0*234.0*48.0	272.2*191.7*51.2	224.4*170.8*45.5	204.0*150.5*43.9	204.0*150.5*43.9	152.0*102.0*41.8
Mounting dimension (mm)	303.0*225.0	260.2*179.7	211.4*157.8	192.0*138.5	192.0*138.5	144.0*94.0

Oil proof model- TG(P)/TE(P)/TH(P)

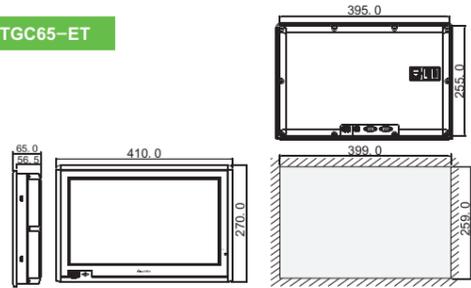| Specification	TGA62(P) series TGA62-MT(P) TGA62-ET(P)	TG865(P) series TG865-MT(P) TG865-ET(P)	TG/TE765(P) series TG/TE765-MT(P) TG/TE765-UT(P) TG/TE765-ET(P)	TG765-XT(P) series TG765-XT(P)-C	TG465(P) series TG465-MT(P) TG465-UT(P)	THA62(P) series THA62-MT(P) THA62-UT(P)	TH865(P) series TH865-MT(P) TH865-UT(P)	TH765(P) series TH765-NT(P) TH765-NU(P)	TH465(P) series TH465-MT(P) TH465-UT(P)
Dimension(inch)	10.1	8	7	7	4.3	10.1	8	7	4.3
Resolution	800*480	800*600	800*480	800*480	480*272	800*480	800*600	800*480	480*272
LCD	TFT LCD, LED backlight								
Color	16.77 million true colors					65536 true colors			
Bright	200								
Touch panel	4-wire resistor touch screen								
LCD life	Above 50000 hours, ambient temperature 25℃, 24 hours running								
Memory	128MB								8MB
PLC port	RS232/RS422/RS485			RS232	RS232/RS422/RS485				
Download port	RS232/RS485			\	RS232/RS485				\
USB port1	USB-B (USB 2.0 standard), USB download port								
USB port2	USB-A (USB 2.0 standard), Flash-disk port, UT(P)/NU(P)/ET(P) model supported								
Ethernet	ET(P) model supported			Not supported					
Input voltage	DC24V (voltage range: DC22V~26V)								
Consumption current	270mA	250mA	200mA	200mA	180mA	230mA	260mA	250mA	130mA
Allowable power-off	Under 10ms (actual power-off is less than 1s)								
Voltage shock endurance	AC1000V, 10mA less than 1 minute								
Insulation resistance	Above 10MΩ, DC500V								
Operating temperature	0~50℃								
Storage temperature	−20℃～60℃								
Operating humidity	10%RH~90%RH (no condensation)								
Anti-interference ability	Interference voltage: 1500 Vp-p, pulse period: 1μs, duration time: 1 minute								
Ambient	No corrosive gas								
Cooling mode	Natural cooling								
Protection level	IP65 for front cover								
Dimension (mm)	272.2*191.7*51.2	224.4*168.7*45.0	200.4*146.9*48.5	200.4*146.9*48.5	152.0*102.0*41.8	272.2*191.7*51.2	224.4*168.7*45.0	200.4*146.9*48.5	152.0*102.0*41.8
Mounting dimension (mm)	260.2*179.7	211.4*157.8	192.0*138.5	192.0*138.5	144.0*94.0	260.2*179.7	211.4*157.8	192.0*138.5	144.0*94.0

OP series product specification

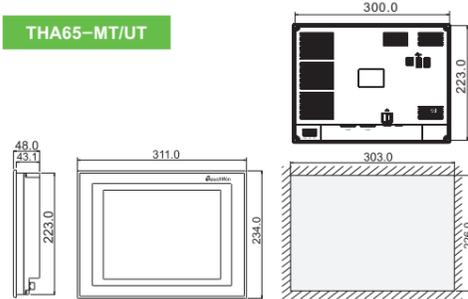| Model	OP330/-S	MP330/-S	OP325-A/-A-S	MP325-A/-A-S	OP320-A/-A-S	OP320-A-N	OP320/-S
Display							
Type	Kelly STN		Blue STN		Kelly STN		
Using life	Above 20000 hours, ambient temperature 25℃, 24 hours running						
Resolution	192*64						
Contrast	Adjust by potentiometer						
Character	Chinese, English						
Character size	Chinese: 16*16 32*32　English: 8*16 16*32						
Button	26		20				7
Memory							
Screen	64KB FlashROM						
Interface							
Download port	RS232						
Communication port	Normal models support RS232/RS422, (-S) models support RS232/RS485, OP320-A-N support RS232						
Electric feature							
Input voltage	DC24V						
Voltage range	DC22V~26V						
Consumption current	<140mA						
Allowable power-off	Under 10ms (actual power-off less than 1s)						
Voltage shock endurance	AC1000V, 10mA less than 1 minute						
Insulation resistance	Above 10MΩ, DC500V						
Environment							
Operating temperature	0℃～50℃						
Storage temperature	−20℃～60℃						
Operating humidity	10%RH~90%RH (no condensation)						
Anti-interference ability	Interference voltage: 1500 Vp-p, pulse period: 1μs, duration time: 1 minute						
Ambient	No corrosive gas						
Cooling mode	Natural cooling						
Protection level	IP65 for front cover						
Structure							
Dimension (mm)	172.0*121.0*56.5		172.0*94.0*38.8		172.0*94.0*30.0		162.0*102.0*38.0
Mounting dimension (mm)	164.0*113.0		164.2*86.8		164.2*85.0		156.5*94.0

* Note: OP320/OP320-S have no clock, other models have clock.
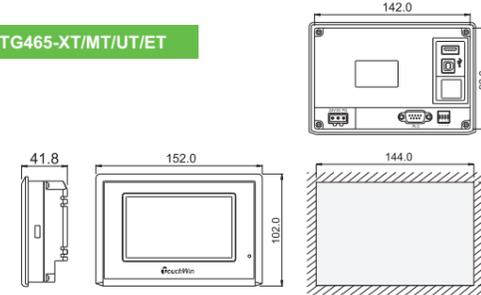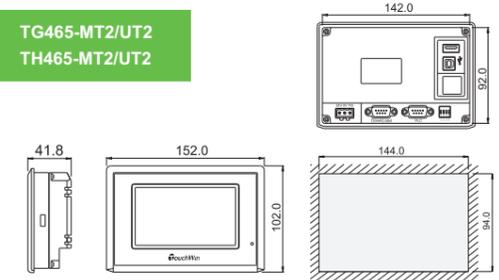
Product dimension (unit: mm)

TGC65−ET

THA65−MT/UT

TGA63-MT/UT/ET/NT

TGA62−MT/ET
THA62−MT/UT

TGA63S-MT/UT/ET

TG865-MT/ET/NT
TH865-MT/UT

TG765-MT/UT/ET/NT
TE765-MT/UT/ET
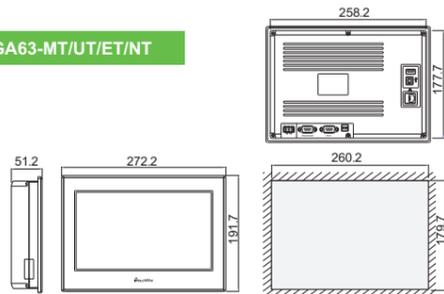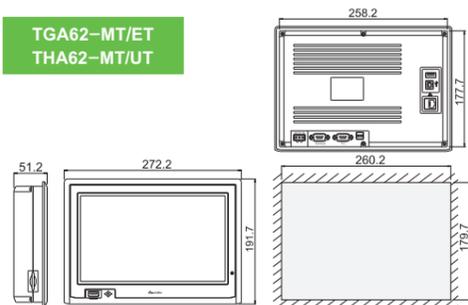
TG765−XT-C

TG765S-XT/MT/UT/ET

TH765−MT/UT
TH765−N/NU/N3/NU3
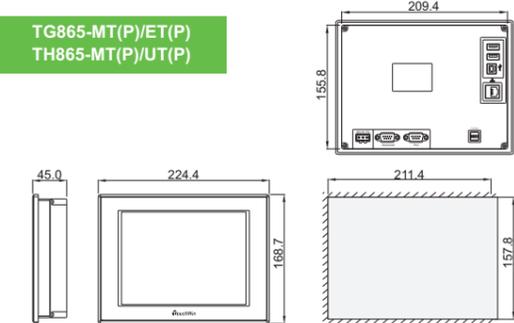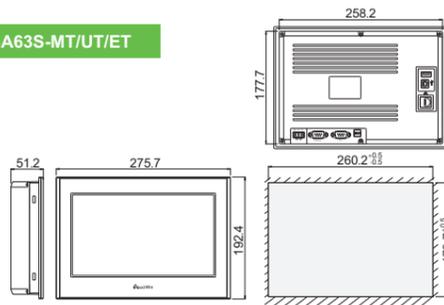
TG465-XT/MT/UT/ET

TG465-MT2/UT2
TH465-MT2/UT2

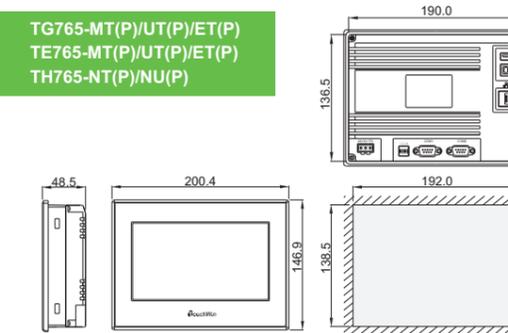TGA62 -MT(P)/ET(P)
THA62-MT(P)/UT(P)
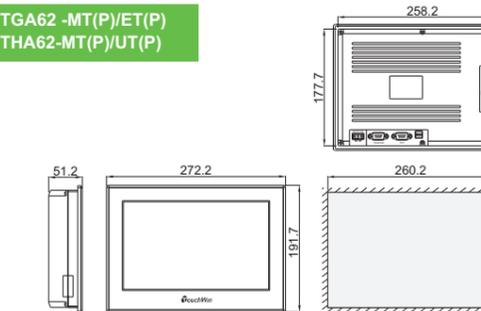
TG865-MT(P)/ET(P)
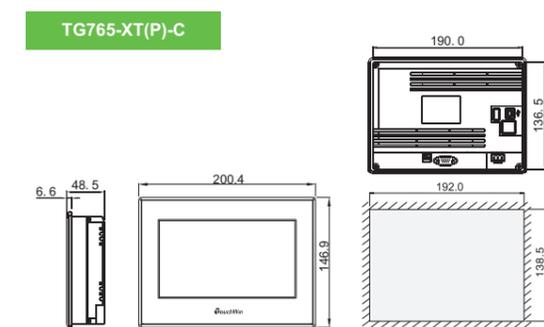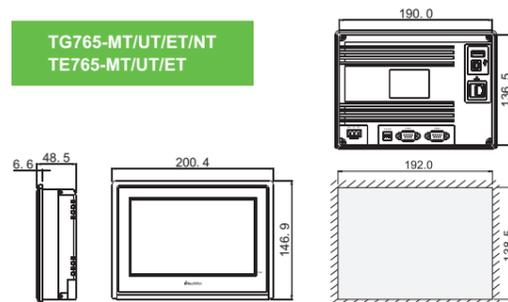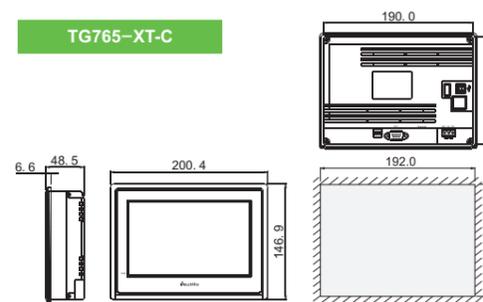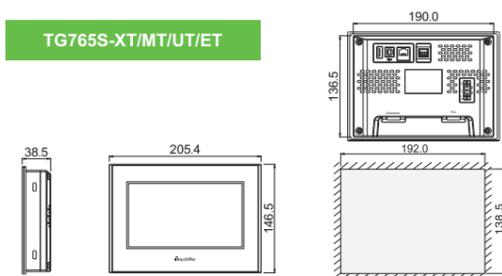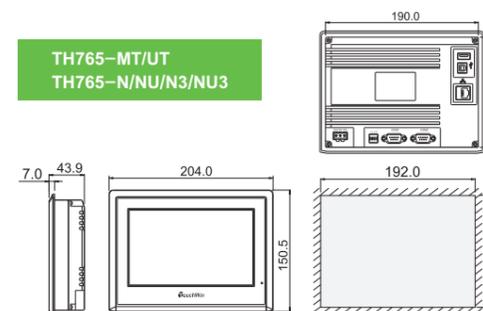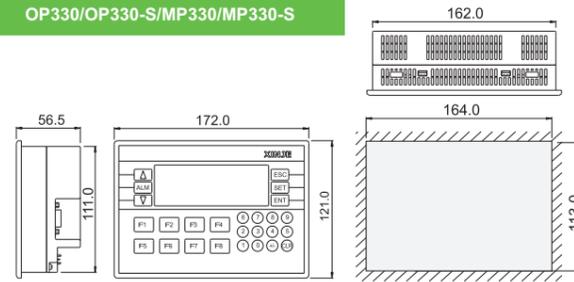TH865-MT(P)/UT(P)
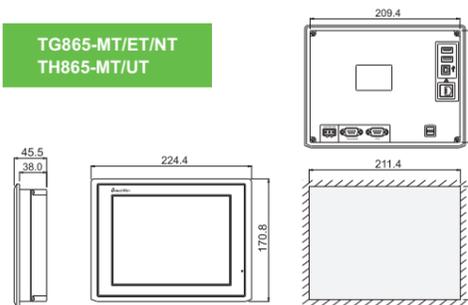
TG765-MT(P)/UT(P)/ET(P)
TE765-MT(P)/UT(P)/ET(P)
TH765-NT(P)/NU(P)

TG765-XT(P)-C

TG465-MT(P)/UT(P)
TH465-MT(P)/UT(P)

OP325-A/OP325-A-S/MP325-A/MP325-A-S

38.8
162.1
34.3
172.0
164.2
84.8
94.0
86.8

ESC ALM ▽ △ ◁ ▷ SET ENT
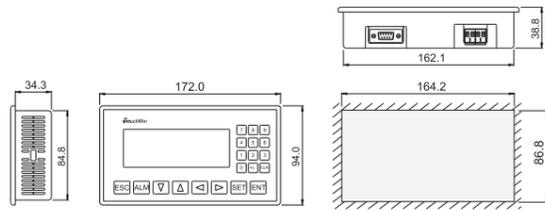
OP330/OP330-S/MP330/MP330-S

162.0
164.0
56.5
172.0
164.0
111.0
121.0
113.0

ESC
SET
ENT
F1 F2 F3 F4
F5 F6 F7 F8

OP320/OP320-S

153.0
38.0
33.7
156.5
93.0
102.0
94.0
162.0

⇧ ◁ ▷ ▽ △ SET ENT

OP320-A/OP320-A-N/OP320-A-S

162.2
30.0
25.5
172.0
164.2
84.8
94.0
85.0

ESC ALM ▽ △ ◁ ▷ SET ENT
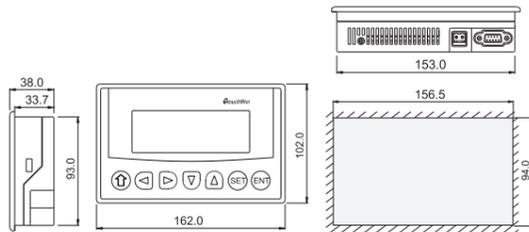
Integrated PLC&HMI controller | ZG NEW series | ZP series | XMH series | XMP series | XP series
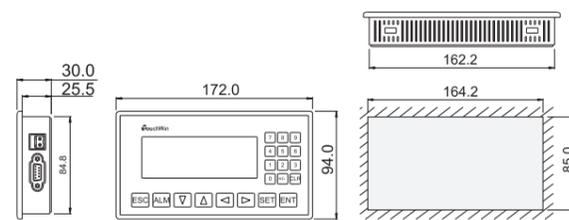
Integrated PLC
&HMI controller Rich product models

ZG series
ZP series
XMH series
XMP series
XP series

● Integrate PLC and HMI in one unit.
● High speed data transmission and program downloading based on USB port.
● User-defined cover mask fits for different needs.
● Flexible expansion function, ZP/XMH series can connect two BD boards.
● Rich screen display and picture library, support all the functions of HMI.

XMH Series

High performance and complete functions

Two-in-one functions bring new experience

- ZGM-30T4-7 = XDM-30T4 + TG765
- ZG3-30R/T/RT-7 = XD3-32R/T/RT + TG765
- ZP3-18T=XD3-18T + OP331
- XMH3-30 = XC3-30 + TH765
- Integrate logic control and HMI in one unit
- The display area is touch screen, easier to control

ZG3-30   XD3-32   TG765

Integrated structure, perfect combination of PLC and HMI

Integrated structure, save mounting space

- Multi-functional programming port: download PLC and HMI program with the same cable except ZG and XMH series.

Download HMI

Download PLC

ZG/XMH series

Compact structure, save the space of electrical cabinet

Save the mounting space obviously

In the past PLC and HMI   ZG3-30

Flexible extension function (can extend 2 BD boards)

Integrated structure, save mounting space

- ZP3-18, XMH3-30 can meet more needs of analog and temperature control; support 2 BD boards, the BD board type up to 5 (ZP3-18 supported 2 types of Z series BD, XMH3-30 supported 5 types of XP-BD2 series BD)
- Other models supported 1 BD board.

Powerful data backup function, user-friendly interface

Data import and export based on USB port

XMH3-30 has USB-A port on the front and back side which is used to backup the data, especially designed for the field data collection and storage, data export and import. The maintenance and checking of project data are more effective through csv format file.

- USB-A port is accord to USB2.0 standard, the USB cable can transfer the data at high speed and save the downloading time.

Panel design closes to user needs

Multi-functional panel buttons with panel LED (XMH series)

- 8 function buttons can be set to any functions, the buttons are sensitive and precise.
- The panel has power LED, easy to command the machine running state.

XMH Series

Power LED

Function button

Display

Vivid display and picture library, support all the HMI functions

- True color LCD, XPG series is 16.77 million colors, XMH series is 65536 colors.
- 7 inches screen, more displaying contents and vibrant colors.
- 128MB FlashROM fits for large project making.

3D picture library brings new visual experience

Enhanced alarm function enables the user to solve process problem quickly

- The flexible setting of alarm list and alarm window helps the user to find the problem and shorten the machine downtime, fast recover the system.

Fit for different project needs
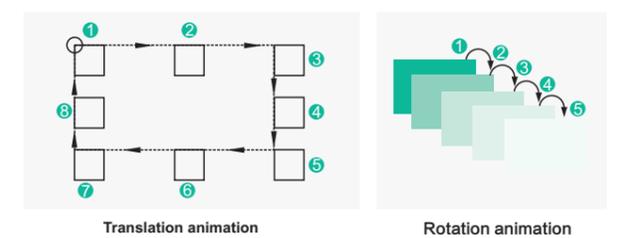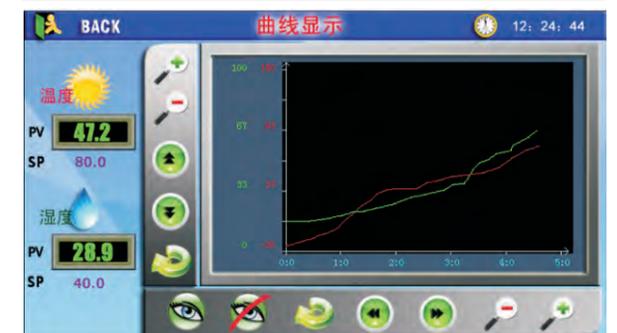
- The button mask can be changed.

XMH Series

New animation editing mode, rich performing format

Translation animation   Rotation animation

Process control and data acquisition functions, the trend graph is more visually

Communication

Two communication ports, connect all kinds of devices quickly

● **Download port:** download/upload PLC and HMI program (ZGM-30T4, ZG3-30 and XMH3-30 can download/upload HMI program via USB-B port).
● **Communication port:** PLC can communicate with other devices via RS232 or RS485.

Control

ZGM-30 uses the chip of XDM series PLC, has 4 channels of pulse output

ZG3-30 has the chip of XD3 series PLC, with richer PLC functions, other models have the chip of XC3 series PLC

● The 32-bit high speed counter frequency can up to 80KHz

● 2 to 4 channels of 200KHz high speed pulse output

3~5 channels single phase counter

2~4 channels of AB phase counter
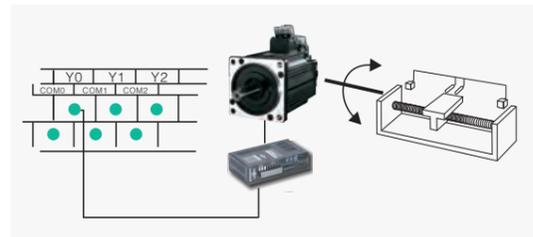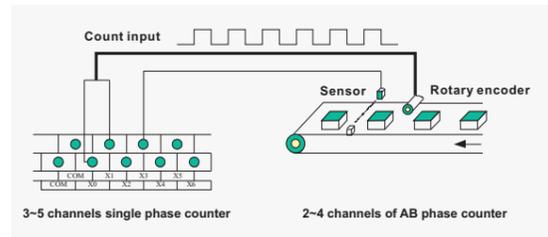
Configuration table

Specification		product	XP series			XMP series	XMH series	ZG series	ZGM series
			XP1-18R/T/RT-C	XP2-18R/T/RT-C	XP3-18R/T/RT-C	XMP2-32R/T/RT-E	XMH3-30R/T/RT-E	ZG3-30R/T/RT-7	ZGM-30T4-7
Structure	HMI		OP330(XP)			MP760-T(XMP-32)	B/MH765-M(XB/MH-30)	TG765-MT/UT/ET/XT	TG765-MT/UT/ET/XT
	PLC		XC1-18R/T/RT	XC2-18R/T/RT	XC3-18R/T/RT	XC2-32R/T/RT	XC3-32R/T/RT	XD3-32R/T/RT	XDM-32T
Electric features	Input voltage		DC24V (voltage range: DC22V~DC26V)			AC220V (voltage range: AC100V~240V)		DC24V (voltage range: DC22V~DC26V)	DC24V (voltage range: DC22V~DC26V)
Interface	Com0		RS232 (download/upload PLC program, download OP program)					RS232 (download/upload PLC program, PLC port1)	
	Com1		/			RS232 (download/upload PLC/HMI program)	RS232 (PLC port2)	/	/
	Com2		/			RS232 (PLC port2)	/	/	/
	AB terminal		/			RS485 (PLC port2)			
	USB port1		/				USB-B, download/upload HMI program		
	USB port2		/				USB-A, Flash-dish port	/	/
Screen features	Type		Blue LCD			256 colors	65536 colors	16.77 million colors	16.77 million colors
	LCD		3.7 inches				7 inches		
	Touch mode		Cannot touch			Matrix touch mode	4-wire resistor touch mode		
PLC features	Programming mode		Instruction, ladder chart, C language						
	Processing speed		0.3us			0.5us	0.3us	0.05us	0.05us
	I/O numbers		Input 10, output 8			Input 16, output 16		Input 16, output 14	
	High speed processing		/			High speed count, pulse output, external interruption			
	Password		6-bit ASCII						
	Self-diagnosis		Power-on self-checking, monitor timer, grammar checking						

Specification		product	ZP3 series
			ZP3-18T
Structure	HMI		OP331
	PLC		XD3-18T
Electric features	Input voltage		DC24V (voltage range: DC22V~DC26V)
Interface	Com0		RS232 (download/upload PLC program, download OP program)
	Com1		/
	Com2		/
	AB terminal		RS485 (PLC port2)
	USB port1		/
	USB port2		/
Screen features	Type		Blue LCD
	LCD		3.7 inches
	Touch mode		Cannot touch
PLC features	Programming mode		Instruction, ladder chart, C language
	Processing speed		0.05us
	I/O numbers		Input 10, output 8
	High speed processing		High speed count, pulse output, external interruption
	Password		6-bit ASCII
	Self-diagnosis		Power-on self-checking, monitor timer, grammar checking

Dimension (unit: mm)

ZG3-30R/T/RT-7

ZGM-30T4-7

XMH3-30R/T/RT-E

ZP3-18T

XMP2-32R/T/RT-E

XP1/XP2/XP3-18R/T/RT-C