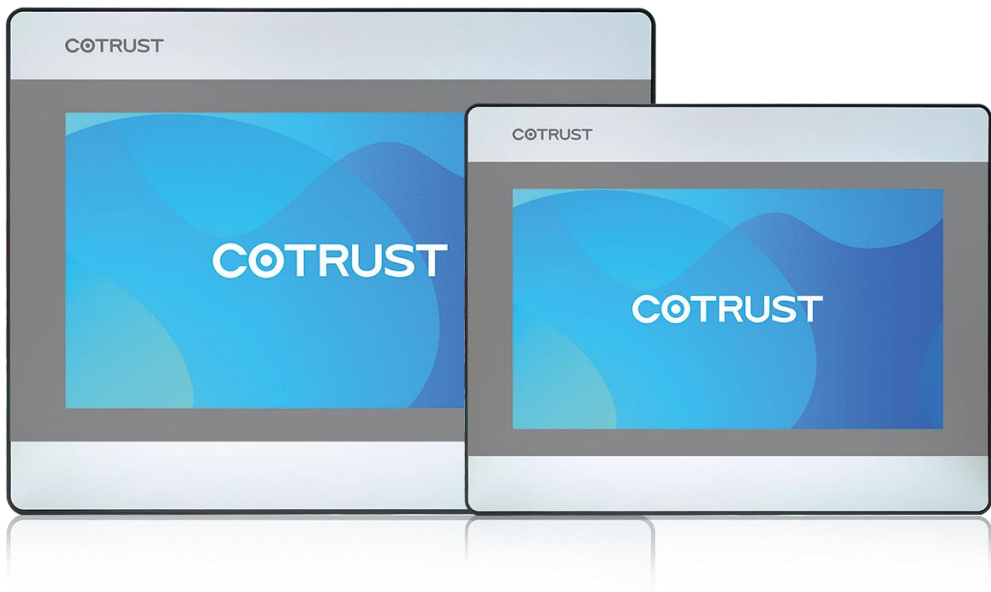




COTRUST CTG Series HMI Manual

©V1.00



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1 Product information

1.1 Product overview

COTRUST CTG series HMI is a new generation of HD and high performance touch screen. Equipped with a multi-core ARM Cortex-A7 1.0GHz CPU,the operation is smooth.Integrated Ethernet port and Serial port,supports a variety of communication protocols. Now,there are three products,CTG101E,CTG070Eand CTG070.Their Cutout Dimensions are fully compatible with the TP10i and TP07i.And The project is compatible with TPi series HMI.You can transfer the project from TP10i to CTG101E ,and from TP07i to CTG070E.

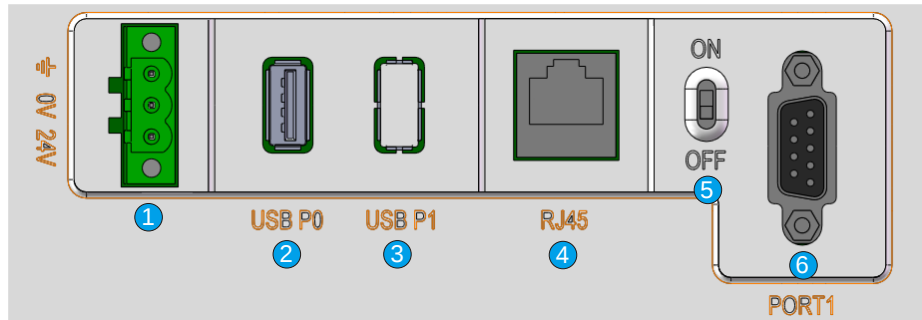
1.2 Specifications

Product Order Number	CTG101E	CTG070E	CTG070
Hardware			
Display	10.1"(16:9)TFT LCD	7.0"(16:9)TFT LCD	7.0"(16:9)TFT LCD
LCD Viewing Angles	85°/85°/85°/85°	85°/85°/85°/85°	85°/85°/85°/85°
Resolution	1024*600	1024*600	1024*600
Brightness	350cd/m ²	250cd/m ²	250cd/m ²
Colors	24-bit	24-bit	24-bit
Touch Panel	4-wire industrial resistive touchscreen	4-wire industrial resistive touchscreen	4-wire industrial resistive touchscreen
CPU	Quad-core ARM Cortex-A7 1.0GHz	Dual-core ARM Cortex-A7 1.0GHz	Dual-core ARM Cortex-A7 1.0GHz
Memory	256MB DDR3	128MB DDR3	128MB DDR3
FLASH	256MB	128MB	128MB
RTC	Built-in RTC, power-down for 45 days by charging capacitor	Built-in RTC, power-down for 2 years by coin cell batteries	Built-in RTC, power-down for 2 years by coin cell batteries
Serial Port	PORT1:RS485	PORT1:RS485	PORT1:RS485
Ethernet Port	1*10/100Mself-adaptive	1*10/100Mself-adaptive	--
USB Port	2*USB Host	1*USB Host	1*USB Host
Program Download Method	Ethernet/USB slave	Ethernet/USB slave	Ethernet/USB slave
Electrical			
Input voltage	24±20%VDC	24±20%VDC	24±20%VDC

Rated operating current	0.3A	0.25A	0.25A
CE	Comply with the standards: EN IEC 61000-6-2:2019,EN IEC 61000-6-4:2019 EN IEC 61326-1:2021,EN 61131-2:2007		
Environmental			
Operating Temperature	-10℃~55℃		
Storage Temperature	-20℃~60℃		
Environmental Humidity	10~90%RH (non-condensing)		
User environment	No oil smoke, no corrosive gas, no flammable gas, conductive dust is not serious, no direct sunlight		
Cooling Method	Natural air cooling		
Others			
Protection Level	IP65 (with flush panel cabinet installation), Rear: IP20		
Enclosure Material	Engineering plastic (Dark gray)	Engineering plastic (Dark gray)	Engineering plastic (Dark gray)
Dimensions	274.0*216.0*36.0mm	203*149*34mm	203*149*34mm
Cutout Dimensions	259.0*201.0mm	192.0*138.0mm	192.0*138.0mm
Weight	About 1.45KG	About 0.7KG	About 0.7KG

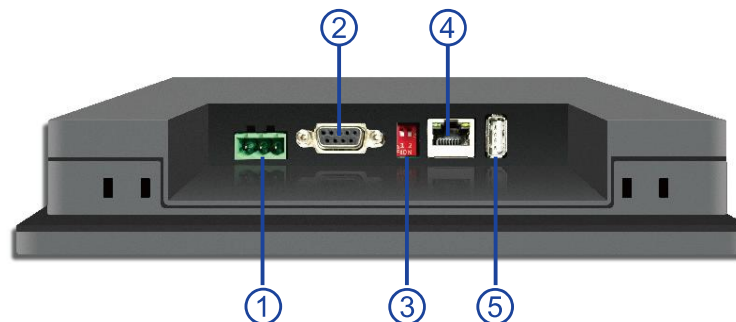
1.3 Interface definition

● CTG101E Hardware interfaces



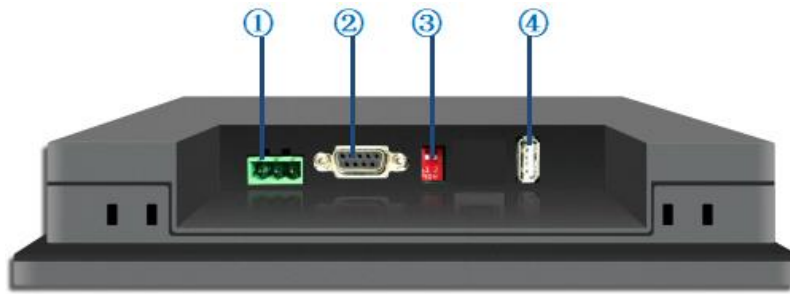
- ① Power supply port(24VDC)
- ② USB P0
- ③ USB P1
- ④ Ethernet port(RJ45)
- ⑤ Serial port Termination Resistance DIP Switch
- ⑥ Serial port (1*RS485)

● CTG070E Hardware interfaces



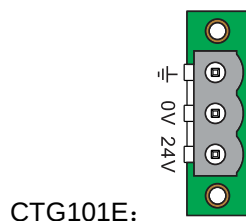
- ① Power supply port(24VDC)
- ② Serial port (1*RS485)
- ③ Serial port Termination Resistance DIP Switch
- ④ Ethernet port(RJ45)
- ⑤ USB P0

● CTG070 Hardware interfaces

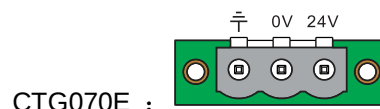


- ① Power supply port(24VDC)
- ② Serial port (1*RS485)
- ③ Serial port Termination Resistance DIP Switch
- ④ USB P0

● Power interface definition



CTG101E:

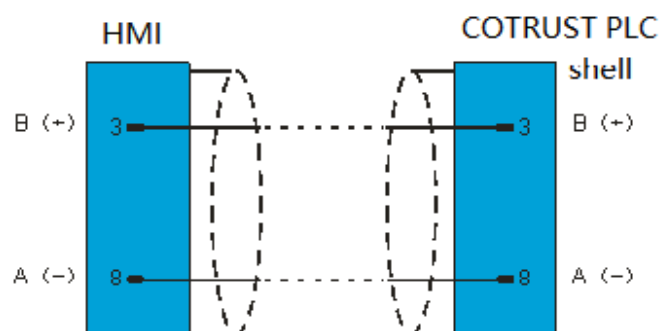


CTG070E :

● DB9 Serial Terminal (PORT1 RS485)

RS485	Bit NO.	Signal
	1	Earth
	2	0V DC
	3	RS485 D+
	4	-
	5	GND
	6	+5V DC
	7	24V DC
	8	RS485 D-
	9	-

You can make your own communication line (wiring is as follows).

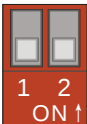


Note: Communicates with COTRUST CTH200, CTSC-100, CTSC-200 serial PLC, please connect the 5-pin (GND) of them to enhance the anti-interference ability.

● Termination resistor DIP switch

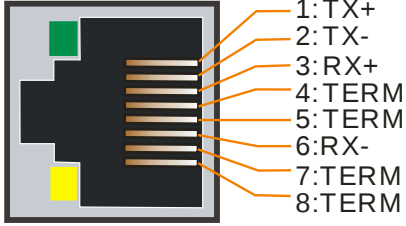
CTG101E DIP Switch of PORT1, 220Ω:

DIP Switch	Definition	Remark
	Termination resistor switches	ON: have termination resistor OFF: No termination resistance

DIPSwitch	Bit NO.	Definition	Remark
	1	Termination resistor switches of PORT1	ON: have termination resistor OFF: No termination resistance
	2	--	--

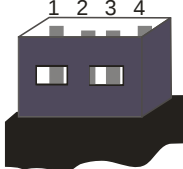
CTG070E/CTG070 DIP Switch of PORT1, 220Ω:

● Ethernet port

Ethernet port	Bit NO.	Signal
	1	TX+
	2	TX-
	3	RX+
	4	--
	5	--
	6	RX-
	7	--
	8	--
Shielding		Shielded ground

Network cable: It is best to use standard parallel cables, both ends of the parallel cable are 568A standard or 568B standard.

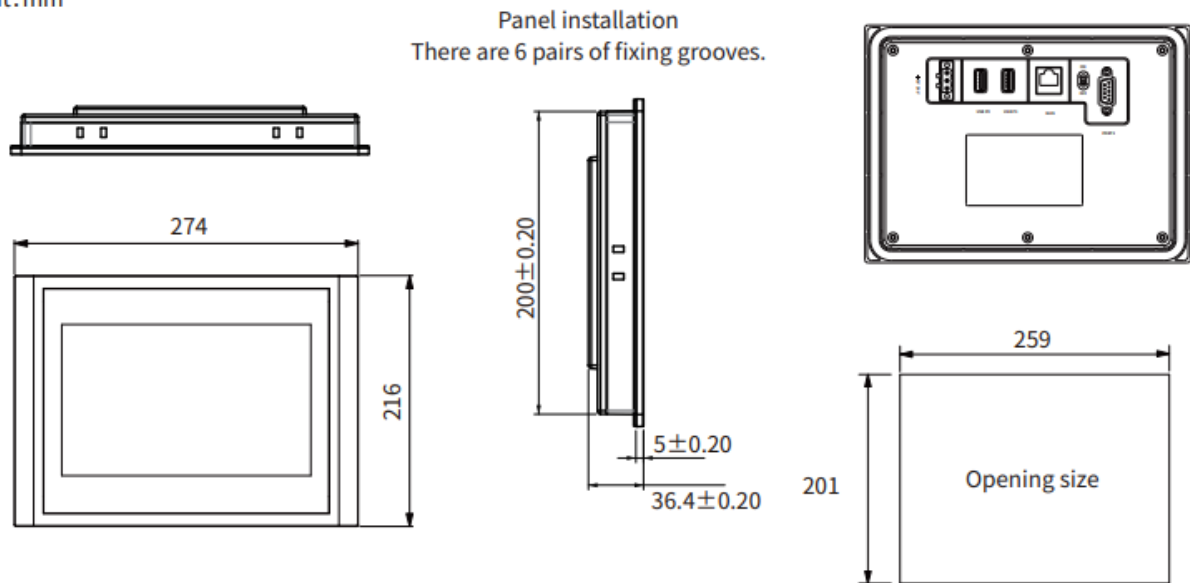
● USB PORT

USB	Bit NO.	Signal	Definition
	1	V_BUS	+5Vpower supply
	2	Data-	Data-
	3	Data+	Data+
	4	GND	GND

1.4 Installation

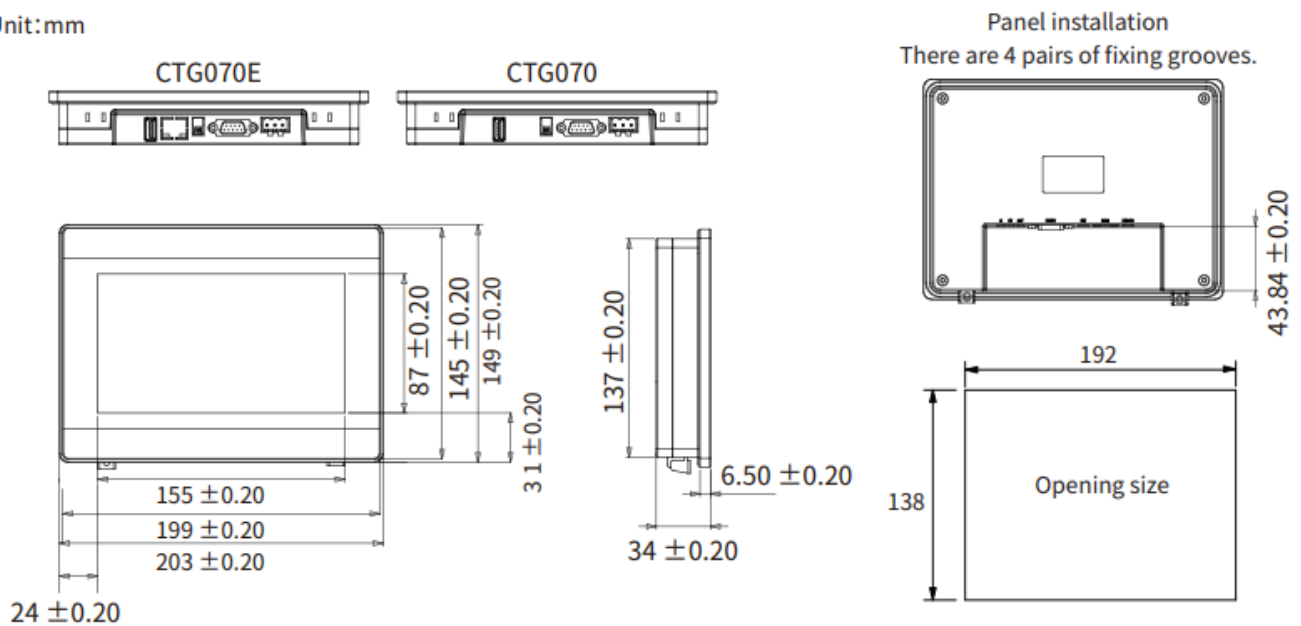
● CTG101E dimensions

Unit:mm



● CTG070E/CTG070 dimensions

Unit:mm



1.5 Communication Protocols

Serial port(PORT1)	
Communication Protocols	Currently, the serial port only supports the following protocols: CO-TRUST CTS7 100/200 (PPI/MPI) CO-TRUST CTH 300 (PPI/MPI) SIMATIC S7 200 (PPI/MPI) Modicon MODBUS RTU (Note: HMI is the master)
Baud rate	PPI/MPI: 9.6kbps, 19.2kbps, 187.5kbps Modicon MODBUS RTU: 1.2kbps, 2.4kbps, 4.8kbps, 9.6kbps, 19.2kbps, 38.4kbps, 57.6kbps, 115.2kbps, 187.5kbps
Sites	PPI MPI: 32 slaves Max. Modicon MODBUS RTU: 32 slaves Max.
Ethernet port	
Communication Protocols	CO-TRUST UDP PPI Modicon MODBUS TCP/IP SIMATIC S7 200 SMART (Ethernet) Siemens S7-1200/S7-1500(Ethernet) (Note: HMI is the master)
Baud rate	10/100Mbps Adaptive
Maximum length of communication line	100m Direct connection
Sites	CO-TRUST UDP PPI: 32 slaves Max. Modicon MODBUS TCP/IP: 32 slaves Max.

2 Software programming

Configuration software: use Hexin MagicWorks HMI software, V4.0.1 and above.

2.1 Installation Software

➤ Download Software

Download from the official website of COTRUST.

Download link: https://www.co-trust.com/Download/index.html?D_Series=81

Download software: MagicWorks HMI V4.0.1

➤ Install Software

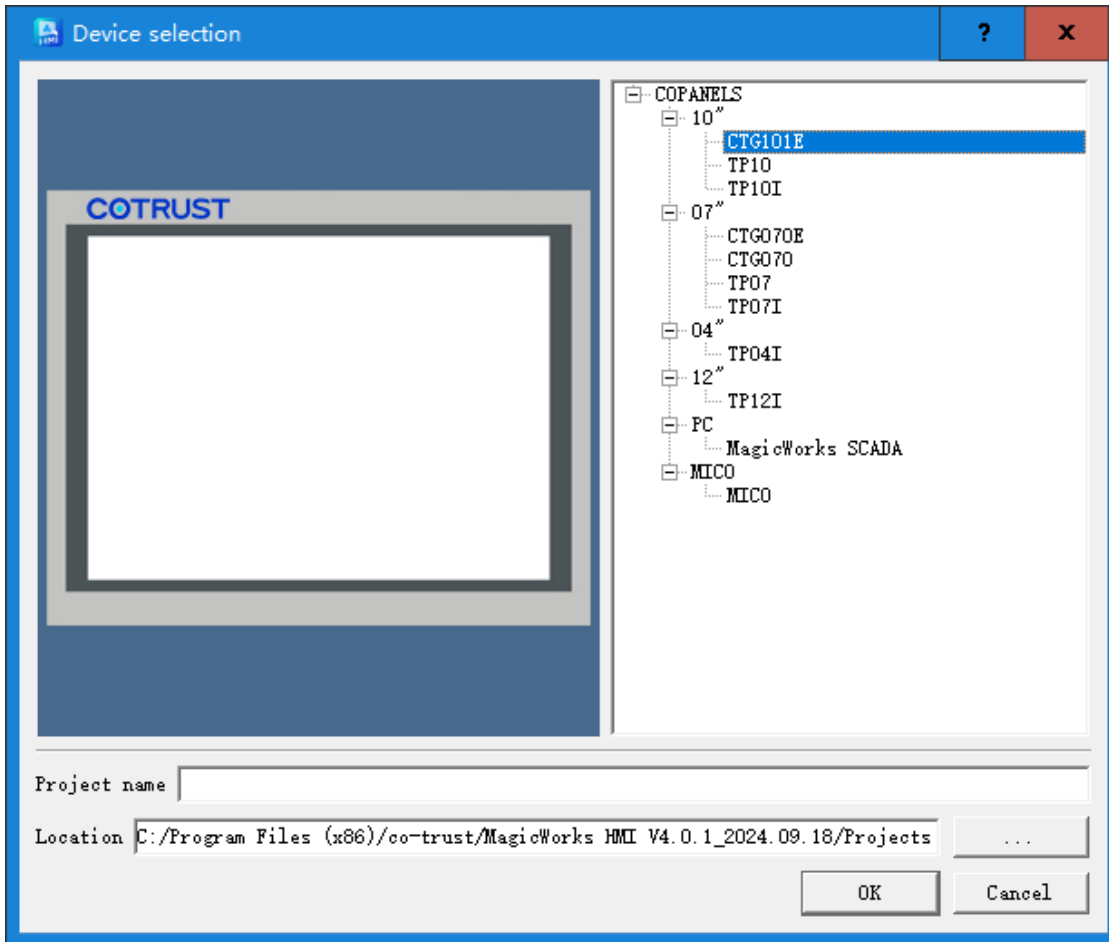
Double-click the downloaded MagicWorks HMI_xxx.exe file and follow the software prompts to complete the installation.

2.2 Design Project

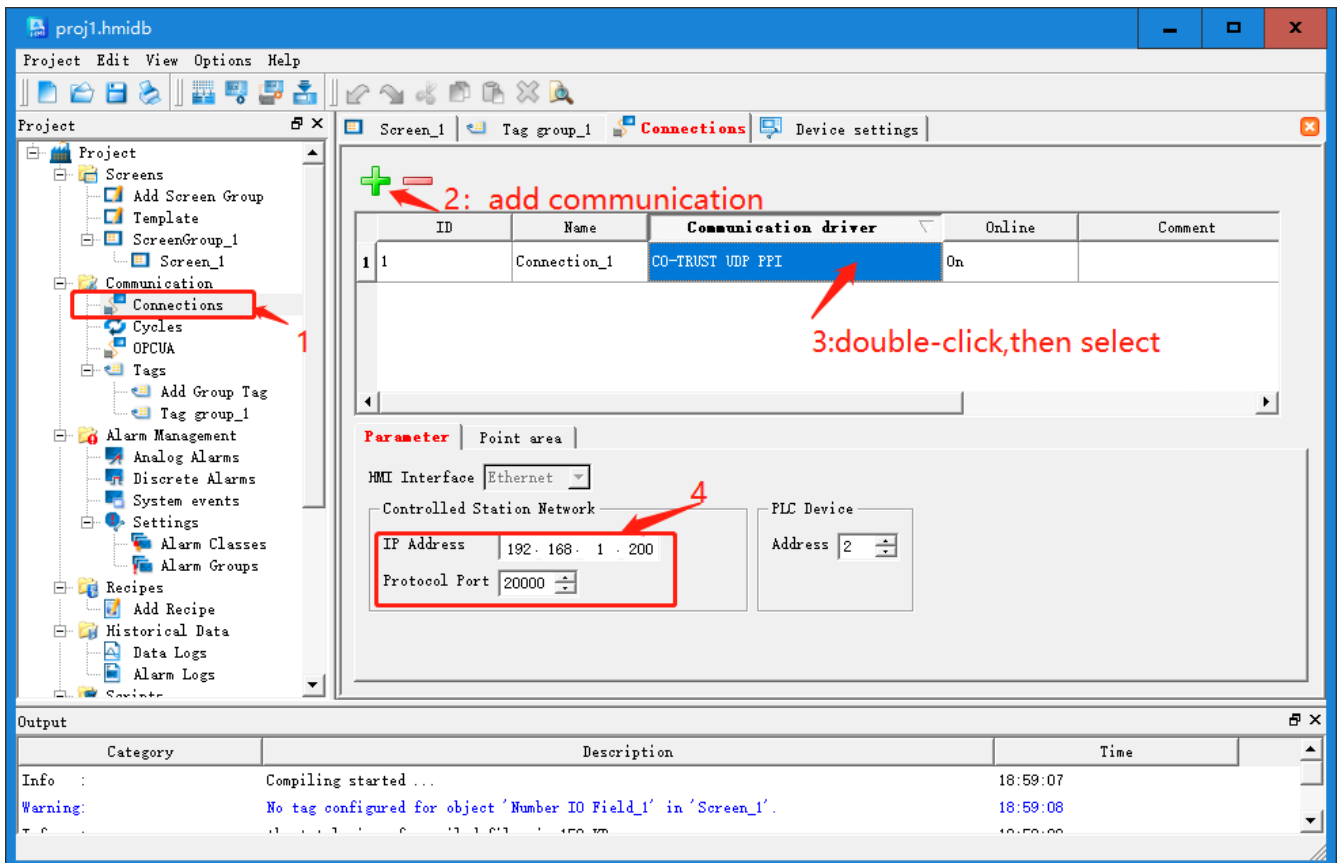
The basic steps to configure a new project are as follows:

- 1) Create a new project, select the CTG101E of the device.
- 2) Add connection and select the communication protocol.
- 3) Add variables.
- 4) Design Screens.
- 5) Save the project.
- 6) Compile the project.
- 7) Start Simulated Runtime or start Online Runtime.
- 8) Download project.

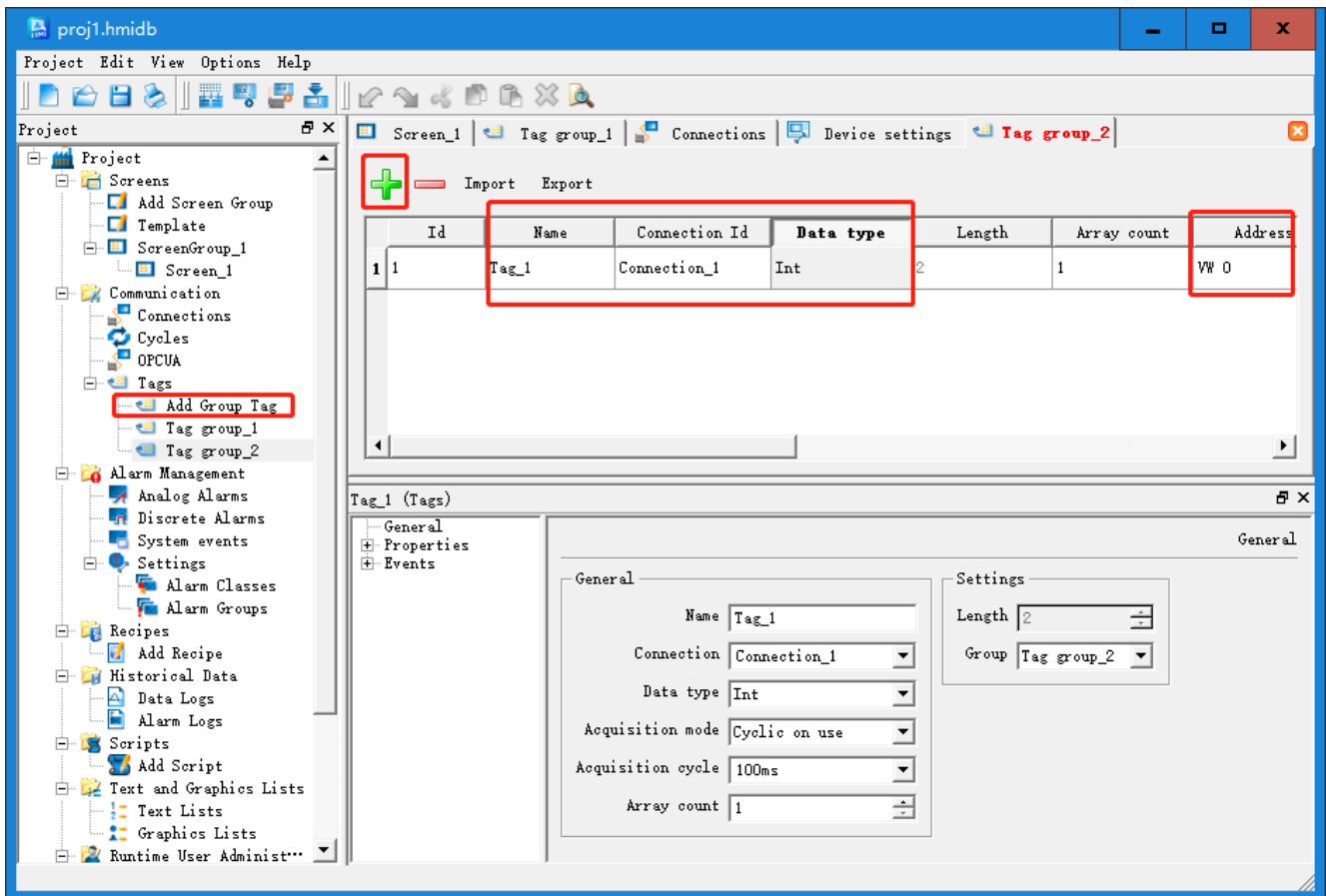
Select HMI model:



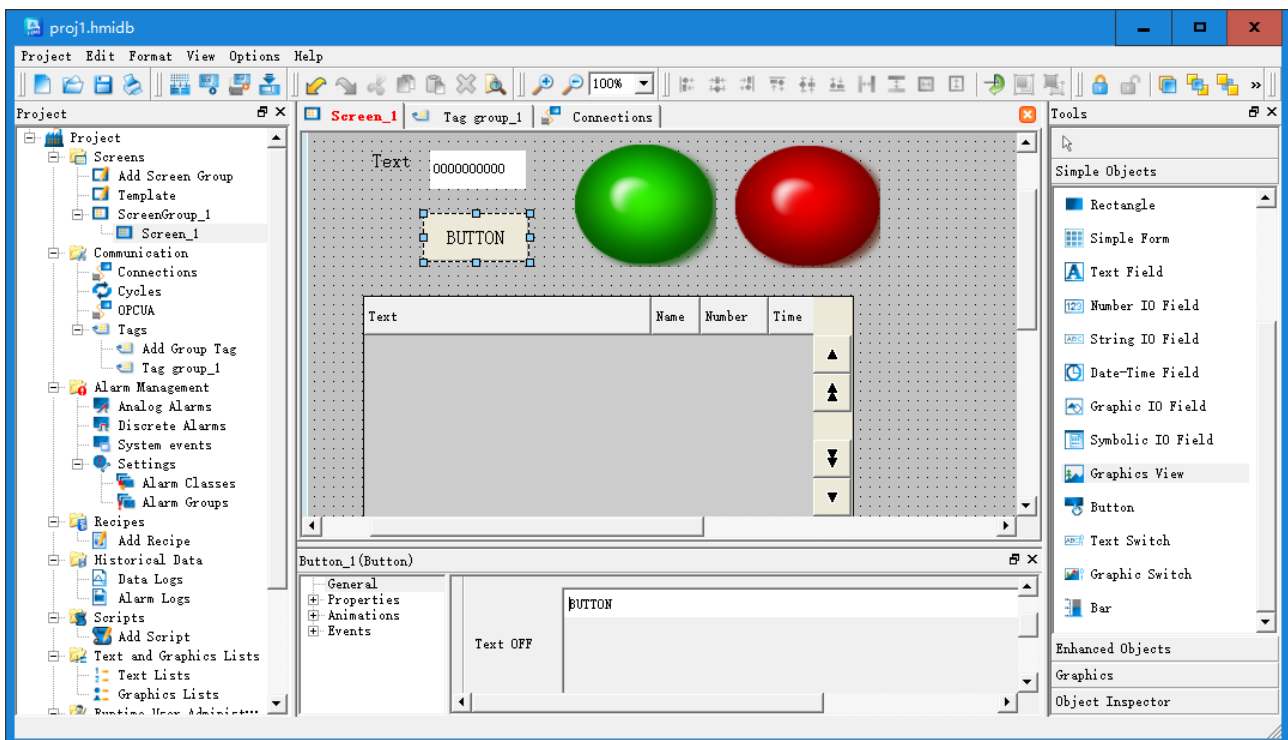
Add connection:



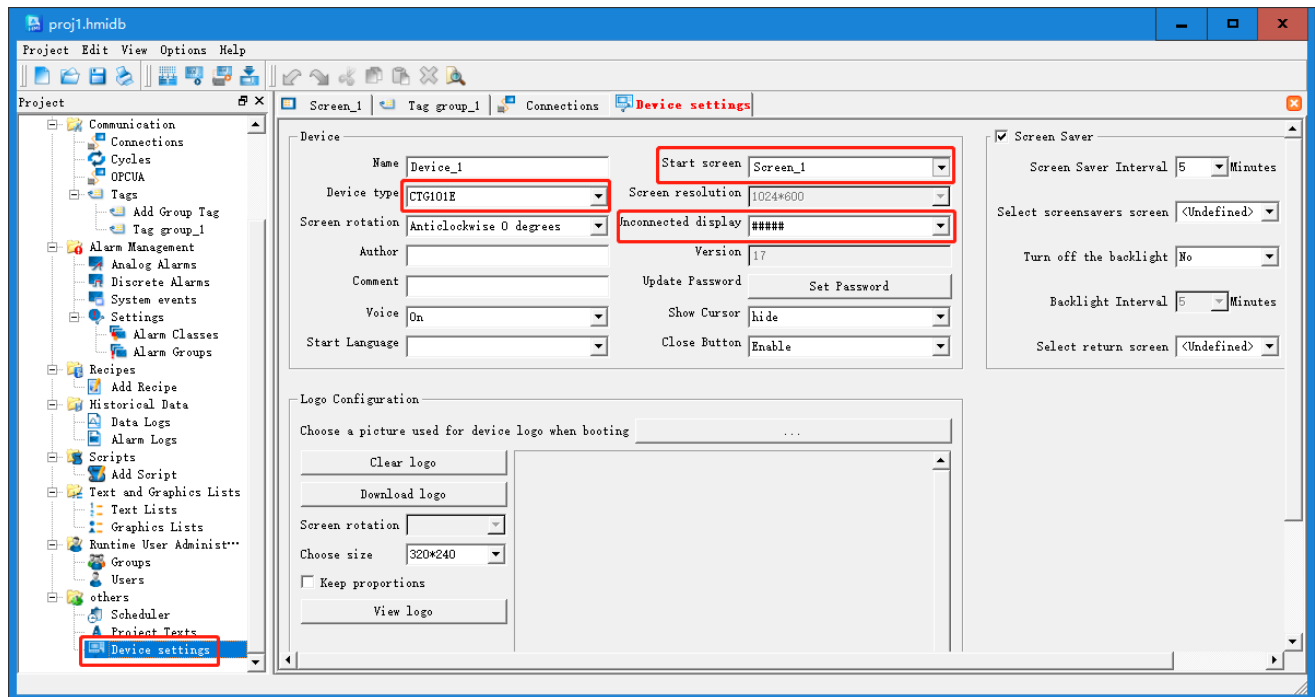
Add tags:



Design Screens:

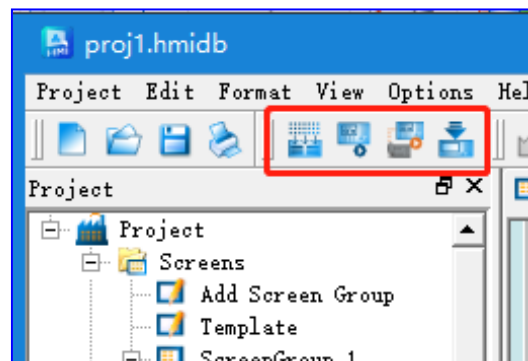


HMI settings:



About Device type: You can transfer the project from TP10i to CTG101E, or from TP07i to CTG070E, or from CTG101E to CTG070E. Then, compile and save the project before Download.

Compiler, Start Simulated Runtime, start Online Runtime and Download project:



2.3 Download Project (Local)

There are two download methods, by Ethernet or by U disk.
CTG070 can only update projects by USB disk.

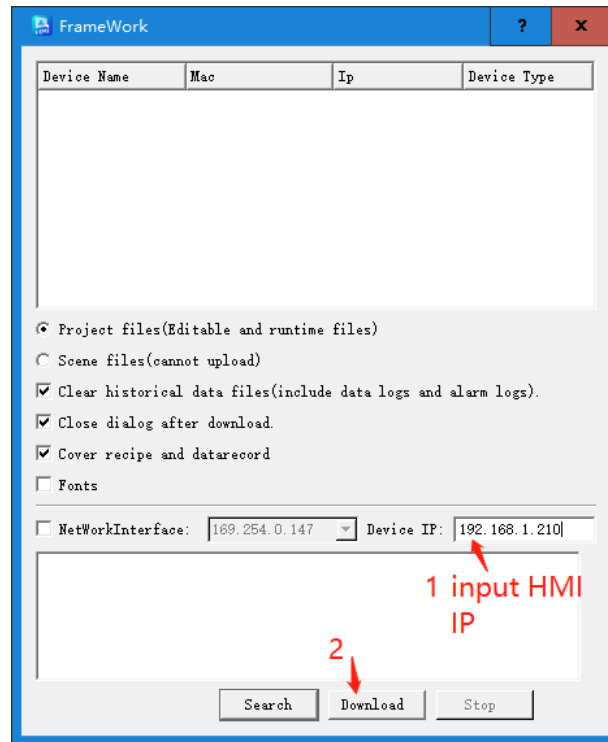
2.3.1 Download project by Ethernet

HMI default IP: 192.168.1.210.

Click the menu "Project" - "Transfer" item or Click the button  of the toolbar to download the project. There are two ways to download from the network port, 1) Specify the device IP address to download, 2) search first and then download.

➤ Specify the device IP address to download

Download steps: Input IP in "Device IP", and then click the "Download" button.

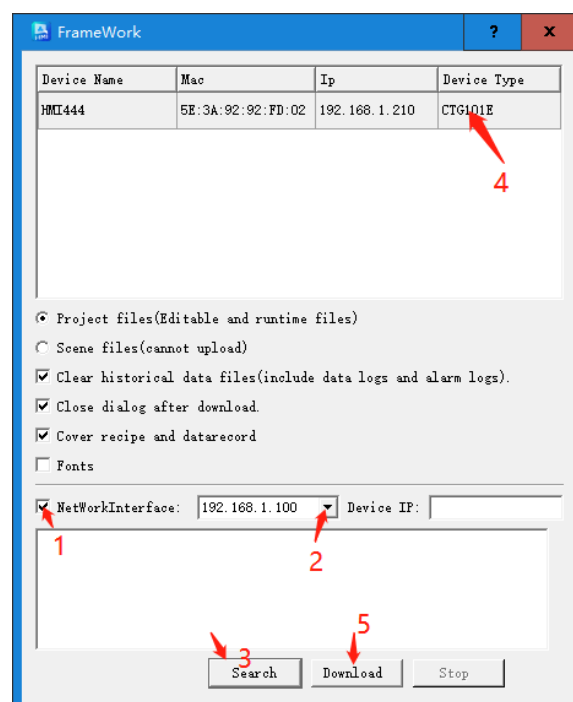


➤ Search first and then download

Before downloading, set the computer IP and screen IP in the same network segment.

Download steps:

- 1) Check "NetWorkInterface" box.
- 2) Set the PC's IP,make sure that the IP address of the computer and HMI belong to the same network segment,then Select network card of your PC.
- 3) Click the "Search" button.
- 4) Select the search HMI device.
- 5) Click the "Download" button.

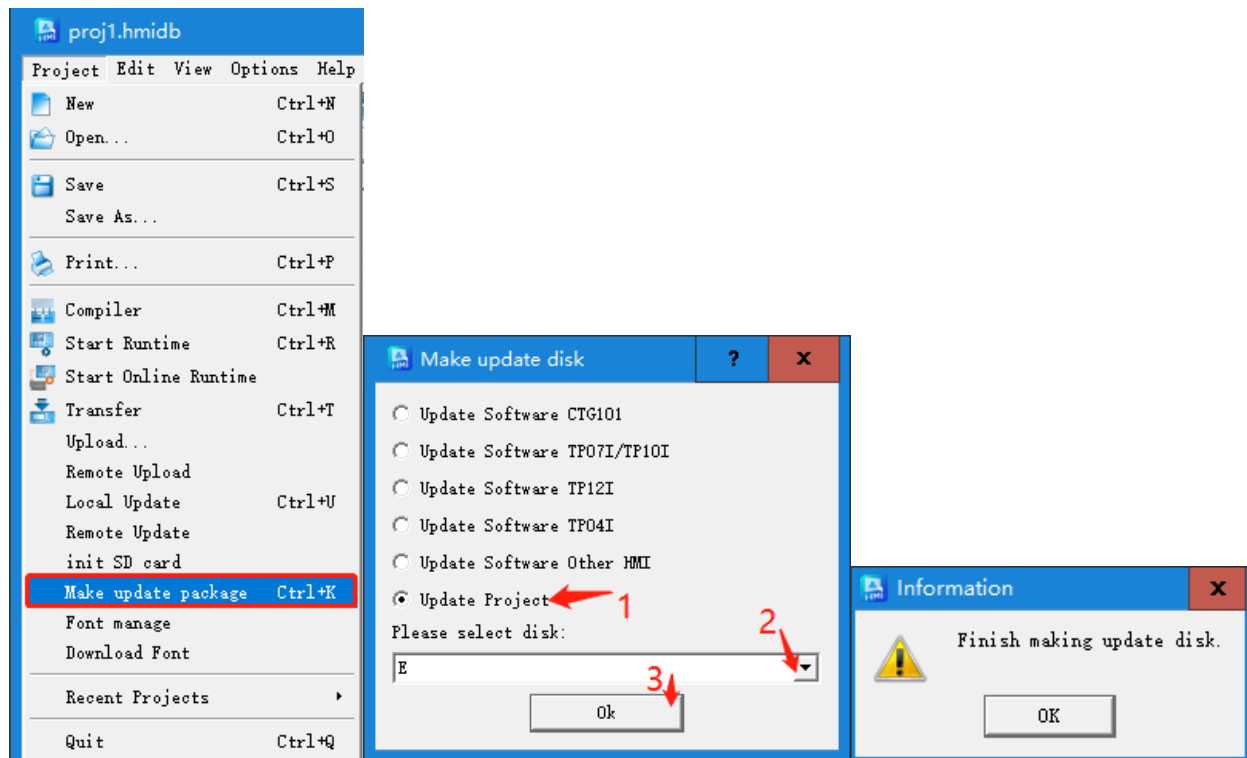


Note 1: There are two types of projects,Project File and Scene files.Project File can be uploaded and edited after downloading, Scene File"can not be uploaded (to enhance confidentiality).

2.3.2 Download by USB disk

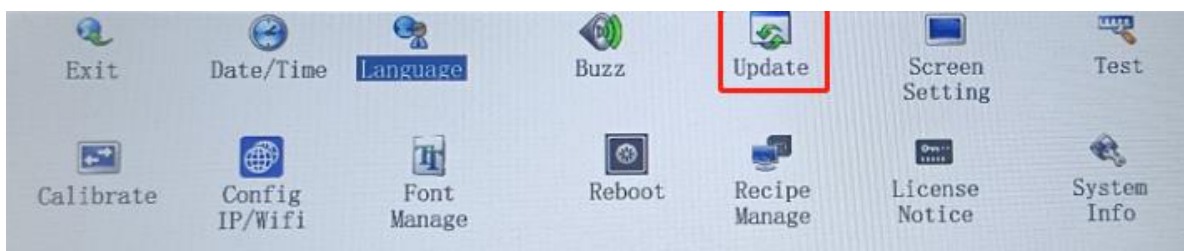
Step1:Package the project to the USB disk with PC.

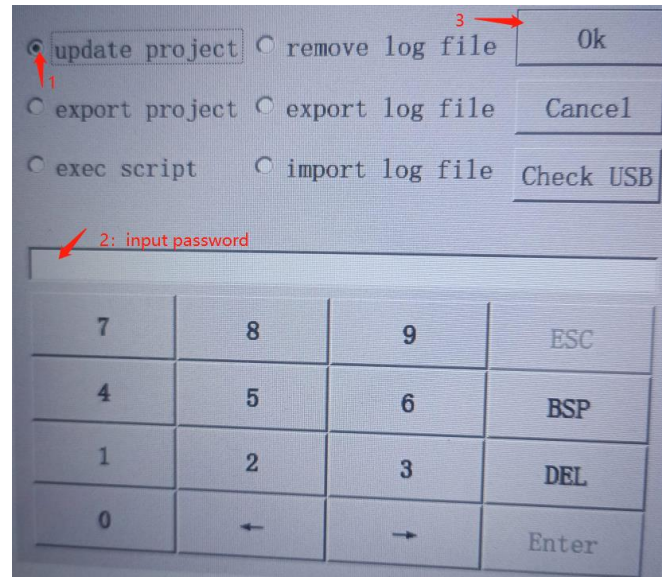
Select "Project" -"Make Update Package" in the menu bar, select "Project USB Disk Update Package" of pop up dialog, then select the USB flash drive letter and click "OK" button, the project is packaged to the USB disk. In the root directory, it's name is "tmp".



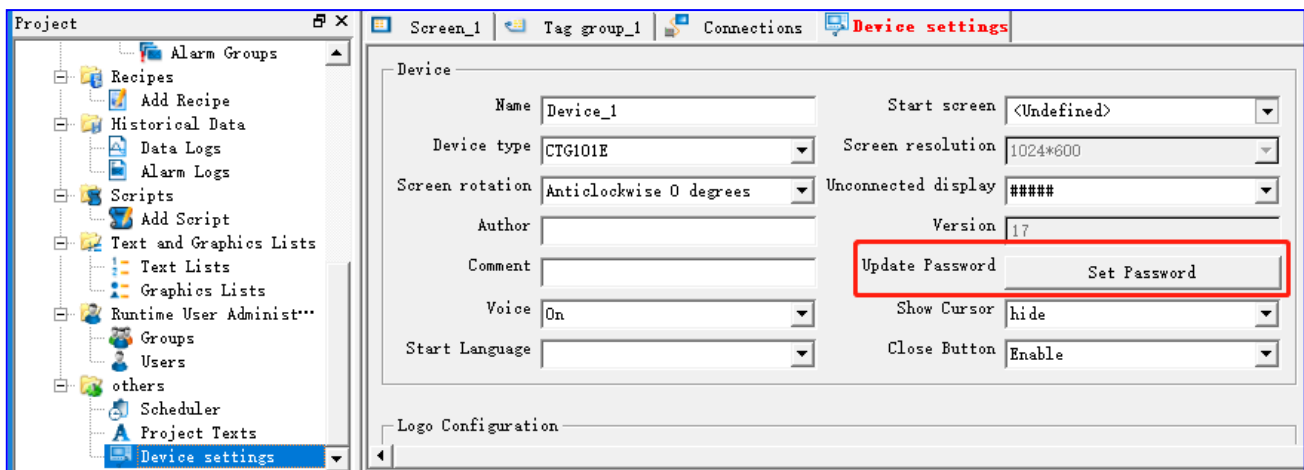
Step2:Download the project to HMI from USB disk.

Insert the USB disk into the USB port of HMI, then power it on. When the user program screen is displayed, then click the four points of the HMI screen in order → upper right → lower right → lower left to enter the parameter configuration interface, then touch "Update" item of it, and then select "update project" item of the pop up dialog, input password, then click "OK" button.



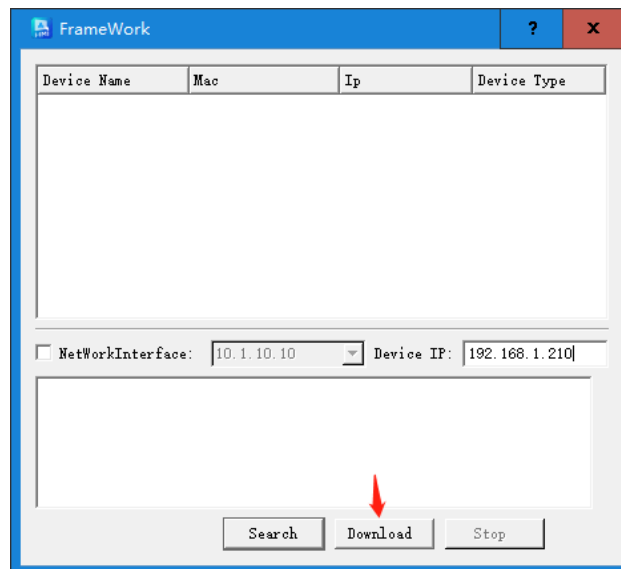
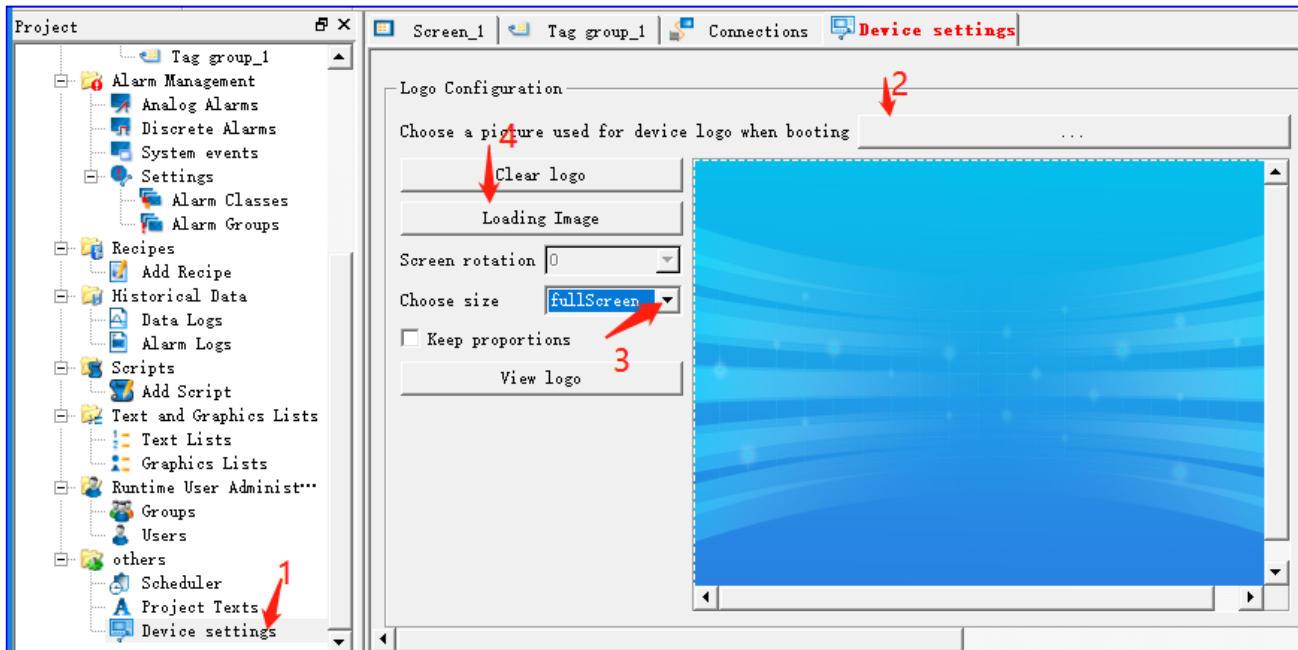


Note: The default password is "26470489". You can change it in the project, "Project" - "other" - "Device settings" - "Update Password", as follows.



2.3.3 Download the Boot screen

Double-click "Other" - "Device settings" of "Project" view, find the "Logo Configuration" area, select a logo picture, choose size, and then click the "Loading Image" button.

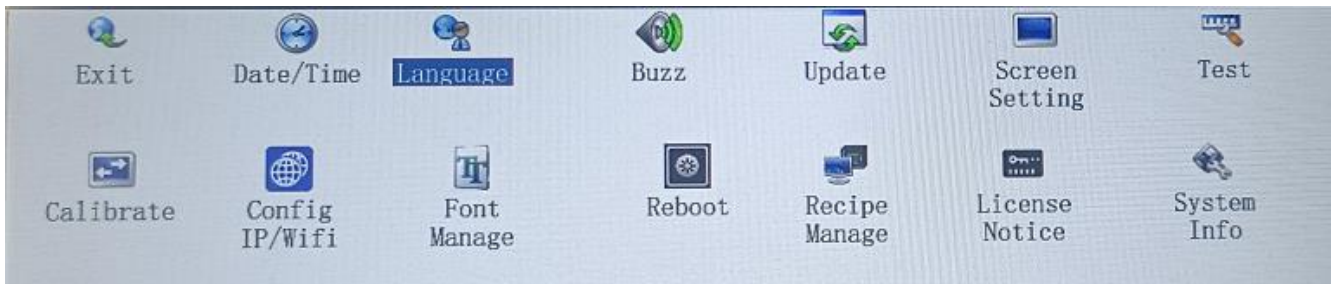


2.4 Set HMI parameters such as IP address

There is a configuration interface of HMI software, you can set HMI's system parameters with it, including display language of the configuration interface, HMI date and time, IP, buzzer, and screensaver parameters.

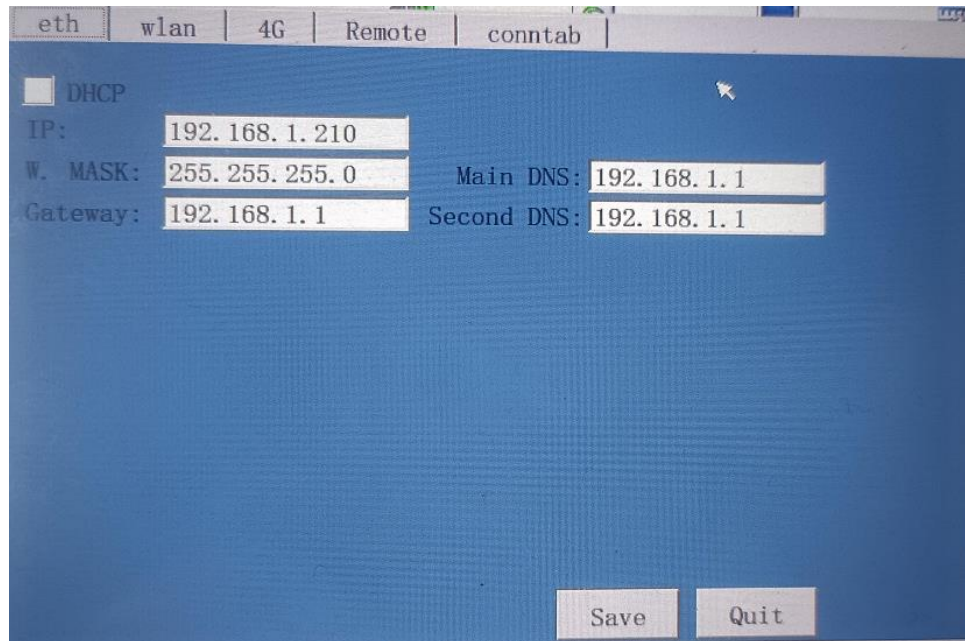
How to enter the configuration interface: power on, When the user program screen is displayed, then click the four points of the HMI screen in order → upper right → lower right → lower left to enter the parameter configuration interface.

The configuration interface is displayed as follows:



Set IP address:

Click "Config IP/Wifi" item, the pop-up window is as follows, click the "eth" page, input IP and other internet parameter, then click the "Save" button.



Click "Exit" item to return to the project screen.

Click "Reboot" item You can restart HMI.

2.5 Remote download

User Project and HMI's firmware can be downloaded remotely, and the remote transparent transmission (download to PLC through HMI) function is not supported temporarily.

For specific operations, please contact Hexin technical support, tel:400-700-4858.

3 Order Informations

HMI:

Order number	Specifications
CTG101E	10.1' Touch Panel, True Color LCD-TFT, Resolution 1024*600, 24Bit color. 1 Ethernet port, 1 RS485 port, 2 USB ports.
CTG070E	7' Touch Panel, True Color LCD-TFT, Resolution 1024*600, 24Bit color. 1 Ethernet port, 1 RS485 port, 1 USB port.
CTG070	7' Touch Panel, True Color LCD-TFT, Resolution 1024*600, 24Bit color. 1 RS485 port, 1 USB port.

Accessories:

Order number	Specifications
CTS6 291-TPC11	Communication cable with S7-200, CTSC-100/200, CTH200PLC, 2.5 m.



COTRUST TECHNOLOGIES CO., LTD.



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