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MICORemote Monitoring System Brochure

statement

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### **Precautions**

CO-TRUST CP6453The installation, operation and maintenance of the remote gateway module should only be performed by qualified personnel. Hexin is not responsible for any consequences arising from the use of this information.

Before attempting to use this equipment, please read the relevant precautions carefully, and be sure to observe the safety precautions and operating procedures for installation and commissioning. Refer to the following symbol descriptions for the possible hazards and damages caused by misuse of this equipment.



# warn

This mark means

"Danger of personal injury or death due to failure to operate as required"



### Notice

This mark means

"Minor or moderate personal injury and equipment damage may result due to the hazard caused by failure to operate as required"



## hint

This mark means

"Make necessary additions or clarifications to the description of the operation"

#### foreword

Thank you for purchasing and using Shenzhen Hexin Automation Technology Co., Ltd. (CO-TRUST) of MiCoremote monitoring system and CP6453

Remote Gateway Products!

Before using our company's products, please read this manual carefully, so as to understand the characteristics of the product more clearly, apply it more safely, and make full use of the rich functions of this product.

This manual mainly describesMiCoTypical applications of remote monitoring systems, client software functions and remote gateway module specifications, features, and installation and use methods, as well as user application examples, product order numbers, etc. for reference.

# Suitable

This manual provides information on MiCoUser guide and FAQ for remote monitoring system, designed for Hexin company system administrators, customer administrators and customer company users.

## Online support

In addition to this manual, related product information and technical services can also be obtained on the Internet.

http://www.co-trust.com

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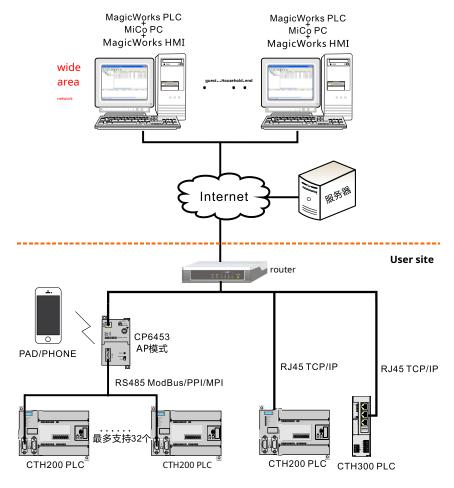
# 1 System Overview

- Hexin Technology Maikong Nebula Platform adopts128bitsThe dynamic data encryption mode is an open, stable and secure IoT platform launched by Hexin Technology. device can passPLC (CTH200,CTH300), gateway module orTP-iThe series of intelligent human-machine interfaces are conveniently connected to the McKonnebula platform. where the gateway module providesRS485or Ethernet interface and embedded multiple protocols, which can connect different devices securely, quickly and easily (CTSC-100, CTSC-200and third-party products) to realize remote monitoring and maintenance of equipment. At the same time, the Hexin Technology Maikong Nebula platform providesAndroidandiOS,PCclient and provides an open interface withERPWait for the third-party software to realize the connection, so that every device can be connected to the Internet of Things anytime, anywhere.
- MiCoThe remote monitoring system includes server software, client software (supportsWindows,AndroidandioSversions
  for three platforms),CP6453The gateway module (hereinafter referred to as the gateway module) andPLC,smart device.
   Supporting softwareMagicWorks PLCprogramming software (V2.08and later) for remotePLCremote programming and
  monitoring; MagicWorks HMIConfiguration Software (V3.8.0and later) for configurationMiCoLocal scene file.

# 1.1 Typical architecture of the system

MiCoThe remote monitoring system can be used in local area network / wide area network, according to the system connectedCP6453The setting mode of the gateway module has the following four typical network architectures:

gateway under wide areaAPMode Communication Network Topology

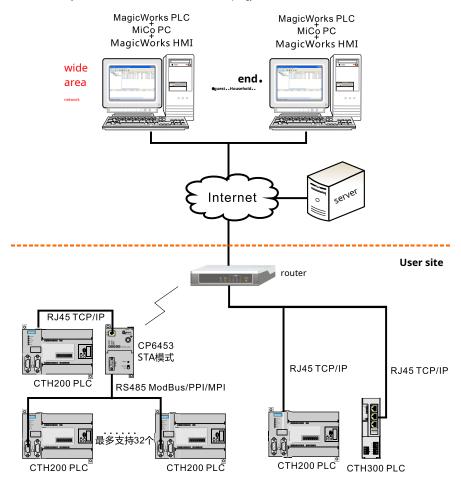


Main function description:

- 1)MiCo PCClient to Ethernet within WANPLCRemote programming/monitoring (not throughCP6453gateway);
- 2)MiCo PCClient to WAN throughCP6453Serial communication for gateway connectionPLCdata monitoring;

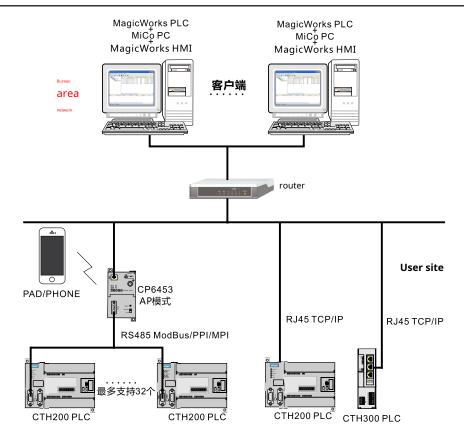
 $3) pass through CP6453 Gateway \ wirelessly \ connected \ mobile \ phone MiCoClient-to-local serial \ communication PLC data \ monitoring;$ 

- Gateway under WANSTAMode Communication Network Topology



### Main function description:

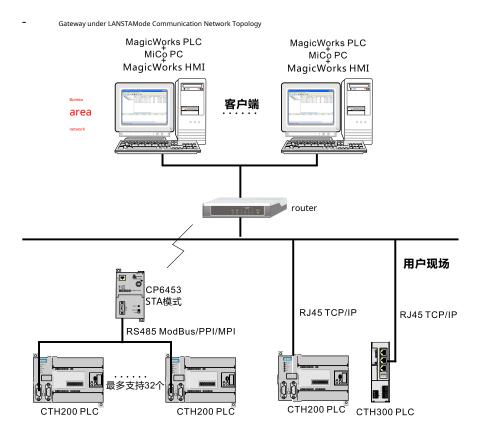
- $1) MiCo\ PCC lient-to-Ethernet\ communication\ in\ the\ WANPLC Remote\ programming/monitoring\ (not\ through CP6453 gateway);$
- 2)CP6453The gateway connects wirelessly under the WANMiCo PCClient, so as to communicate with serial port and Ethernet port through client softwarePLCdata monitoring;
- Gateway under LANAPMode Communication Network Topology



Main function description:

- $1) MiCo\ PCC lient-to-LAN\ Ethernet PLC Remote\ programming/monitoring\ (not\ through CP6453 gateway);$
- 2)MiCo PCClient to LAN throughCP6453Serial communication for gateway connectionPLCdata monitoring;

 $3) pass\ through CP6453 Gateway\ wire lessly\ connected\ mobile\ phone MiCoClient-to-local\ serial\ communication PLC data\ monitoring;$ 



#### Main function description:

1)MiCo PCClient-to-LAN EthernetPLCRemote programming/monitoring (not throughCP6453gateway);

2)CP6453The gateway is connected wirelessly under the LANMiCo PCclient, so as to communicate with the serial port through the client softwarePLC data monitoring;

#### Notice:

1)APIn mode, the gateway module uses a standard network cable to connect to the router;

- 2)STAIn mode, the gateway connects to the router wirelesslyWiFiSignal;
- 3) The gateway module usesRS485Communication line connectionPLCofRS485mouth;
- 4) The gateway module is connected using a standard crossover cablePLCofRJ45network port;
- 5) Cotronix with network portPLCCan be directly connected to the system, please refer to the chapter for detailed product information 1.3;
- 6) must ensure that the gateway module, routerLANmouth, host computerIPThe addresses are in the same network segment; related modificationIPaddress method, see appendixC.



- in the network architecture diagramMiCo PCandMagicWorks HMIcan be in the same LANPCor different PC.
- You can download this manual and the configuration package for free from the following URL (
   MiCo PC/MagicWorks PLC/MagicWorks HMI):http://www.co-trust.com.

# 1.2 CP6453Gateway module

CP6453The gateway module can be based on 485The communication protocol of the interface is converted to the Ethernet communication protocol, through the Ethernet and wirelessWiFi Network and connect after connecting to the InternetMiCocloud server,MiCoconnected to the gatewayPLCLocal/remote monitoring operations. For the detailed hardware specification of the gateway module, please refer to the appendix of this documentB.



- RS485The maximum number of sites on the port is32, support for third partiesPLCconnect
- Support serial protocol:PPI/MPI,MODBUS RTUand third-party communication agreements
- Support serial port baud rate:1.2Kbpsto115.2Kbps
- Provide a reset switch to restore the gateway factory settings
- Provides a mode control switch for local only control or remote/local control
- supplyWiFiThe antenna interface can be used as a wireless hotspot (for connecting wireless site devices such as
  mobile phones) or as a wireless site (connecting with wireless hotspot devices such as routers)
- RJ45mouth can beLANmouth/WANport (switch by modifying the working mode in the configuration parameters), the factory default isWANmouth,IPfor192.168.1.210
- Support user-configured parameters to save when power off
- haveNATPenetration ability
- Support with MiCoThe client communicates with the MiCoLocal/remote monitoring

# 1.3 PLCproduct

According to the communication protocol supported by the gateway molecular models from CotrosPLCand third partiesPLCAccessibleMiCoremote monitoring system,

The following table lists the series to which the system can be connectedPLCand related connection methods, communication protocols, and detailedPLCfor passing MiCoRemote monitoring system for remote programming/monitoring support features.

surface1-1 MiCoremote monitoring systemPLCSupport Features

PLCTypes of	MiCoconnect	communication port	Remote programming	Remote monitoring
Cotronix with network portPLC	direct connection, or viaSTAmodel	RJ45port	Yes	Yes
est sink that network port 22	CP6453Gateway module access	. 9 . 5 . 5	. 33	. 65
beltPPICotronPLC	pass throughCP6453Gateway module access	RS485port	Yes	Yes
third partyPLC	pass throughCP6453Gateway module access	FREEPORT	no	Yes

 $surface 1-2\ MiCoCotrox\ Ethernet\ supported\ by\ remote\ monitoring\ system PLCP roduct\ and\ model$ 

order number	PLCSpecifications
	CPU H224: 12KBprogram space/8KBdata space,24VDCpower supply, 14DI/10DO
CTH2 214-1AD33-0X24	Transistor source output,0.5A,1indivualPPI,1a free communication port,1Ethernet communication port,3 road
	50KHzOperation control output
	CPU H224:12KBprogram space/8KBdata space,220VACpower supply, 14DI/10DOrelay
CTH2 214-1BD33-0X24	output,2A,1indivualPPI,1a free communication port,1Ethernet communication port
	CPU H226L:12KBprogram space/8KBdata space,24VDCpower supply, 24DI/16DOTransistor
CTH2 216-2AD33-0X40	source output,0.5A,2indivualPPI/free communication port,1an Ethernet communication port,3
	road50KHzOperation control output
CTH2 216-2BD33-0X40	CPU H226L:12KBprogram space/8KBdata space,220VACpower supply, 24DI/16DOrelay
C1112 210-20033-0X40	output,2A,2indivualPPI/free communication port,1Ethernet communication port
CTH3 H35-000S1	CTH3StandardCPU,192KBprogram space,512KBdata space,32KBPower-Retain Data
C11151155-00051	Space, DualPPImouth,1indivualTCP/IPMODBUScommunication port
	CTH3StandardCPU,256KBprogram space,1MBdata space,32KBPower down maintains data space,
CTH3 H36-000S1	1indivualPPIport/free communication port,1indivualTCP/IP,1indivualEtherCAT communication
	port

For the above-mentioned Cotrox that supports remote Ethernet communicationCTH200andCTH300seriesPLC, which can be configured toMiCoThe remote monitoring system is used as a remote device. on how to configurePLCinformation, see the appendix of this documentA.3.1.4.

# 1.4 MiCoClient software

MiCosoftware isMiCoRemote monitoring system client software, used to manage users and configure equipment, and manage, program, monitor equipment through scenarios, etc.MiCoPlease refer to the appendix of this document for details on the use of software functionsA. MiCosoftware hasWindows, AndroidandiOS

There are three platform versions, and the download information of each version is shown in the following table:

MiCoVersion	download link	Notes
MiCo PC	http://www.co-trust.com	
MiCo Android	Major Android App Markets	The local scene needs to be saved to the Android device memory before adding and uploading
MiCo iOS	App Store	The local scene needs to be saved toiOSAdd upload after device memory

# 2 Install

Introduction to this chapterCP6453Gateway modules and server clientsMiCoSoftware installation process and precautions.

# 2.1 InstallCP6453Gateway module

# 2.1.1 Installation Precautions

CP6453The gateway module can be installed either on the back panel of the control cabinet or on the standardDINon rails; can be installed either horizontally or vertically.CP6453The installation of the gateway module should pay attention to the following matters:

#### WillCP6453Gateway module is isolated from heating, high voltage and electrical noise

As a general practice, when installing equipment components, always install equipment that generates high voltage and high electronic noise with equipment such as CP6453Low-voltage electronic devices such as gateway modules are separated.

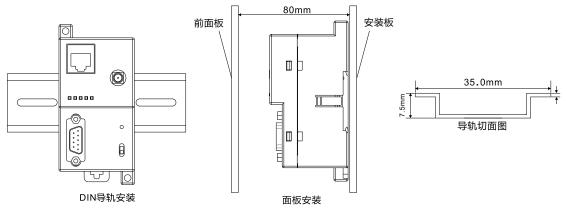
Mounting on the back panel of the control cabinetCP6453When installing a gateway module, consider installing the electronics in a cooler area of the control cabinet. Long-term operation of electronic devices in a high temperature environment will shorten their trouble-free time.

Consider the backplane wiring of the control cabinet, and try to avoid designing the AC power supply line, the DC signal line with high energy and high switching frequency, the low-voltage signal line and the communication cable in the same trunking.

#### Allow proper space for heat dissipation and wiring

CP6453The design of the gateway module adopts natural convection heat dissipation, and there must be at least30mmspace for normal heat dissipation. The distance between the front panel and the back panel should also be kept at least80mm. during installationCP6453When using the gateway module, allow enough space for wiring and connecting communication cables.

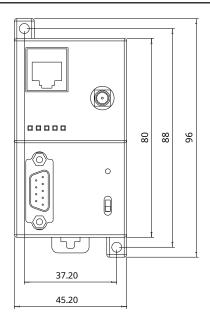
# 2.1.2 Installation diagram

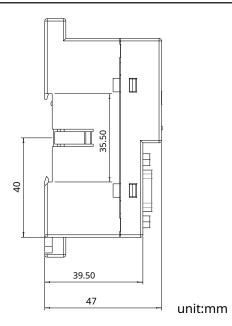


picture2-4Installation method

# 2.1.3 Installation dimension description

CP6453There are mounting holes on the back of the gateway module, which can be easily installed on the backplane. The installation dimensions are shown in the following figure:





picture2-5Shape and installation dimensions

## 2.1.4 installation method

CP6453Gateway modules can be installed in a standardDINrails, or mounted on a panel.

#### prerequisites

Before installing or removing electronic components, make sure that the power supply to the equipment is disconnected. Also, make sure that the power to the equipment associated with the device has been cut off.



Attempt to install or remove with powerCP6453The gateway module and its related equipment may cause electric shock or malfunction of the equipment.

During installation and removalCP6453Failure to cut off all power when connecting the gateway module and its related equipment may result in death or serious personal injury and equipment damage.

During installation and removalCP6453When connecting the gateway module and its related equipment, appropriate safety measures must be taken in advance and CP6453 The power supply to the gateway module is cut off.

## CP6453Gateway Module Installation and Removal

Please install or remove as followsCP6453Gateway module.

## -installation panel

1) Position and punch holes according to the installation size requirements in the above figure;

2) Fix the module on the backplane with suitable screws;

## -DINRail installation

1) to fix the rails on the backplane, keeping the distance80mm.

2) pull down the bottom of the moduleDINclip to snap the back of the module to theDINon the rail.

3) rotate the module close toDINrail, closedDINclip.

4) double check on the module DINclip with DINW hether the guide rail is tightly fixed. 5) To avoid damage to the module, do not press the front of the module directly, but press the part of the mounting hole.



#### Notice

whenCP6453The gateway module should be used in a vibration environment or vertical installation.DINRail stop. If the system is in a high vibration environment, a higher vibration protection level can be obtained by using the backplane mounting method.

#### -disassembleCP6453Gateway module

Follow the steps below to disassembleCP6453Gateway module:

1)tear downCP6453The power supply of the gateway module;

2)tear downCP6453All wiring and cables on the gateway module;

3) remove the mounting screws or open the DINclip;

4) to remove the module.

# 2.2 InstallMiCoClient software

# 2.2.1 Installation Environment

MiCo PCThe installation environment requirements are as follows:

#### operating system

- MS Windows XP
- MS Windows 7 (32 bit / 64 bit)
- MS Windows 8
- MS Windows 10

Hardware Configuration

RAM512MBabove,256MBflash,WiFior Ethernet interface.



- please useMiCo PC V2.00or later.
- user is installingMiCoAfter the software, it needs to be added to the trust list of antivirus software to ensure the normal operation of the client software.

# 2.2.2 installation steps

1) double clickMiCo PCinstall icon



The following dialog box pops up:



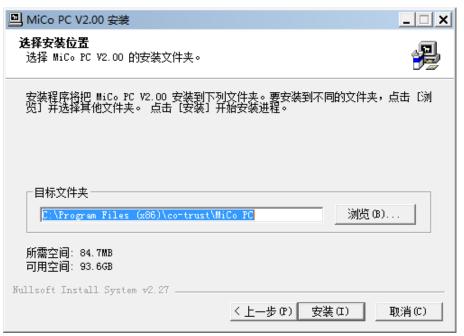
Select the installation language and clickOK.

2) to open the installation wizard opens:

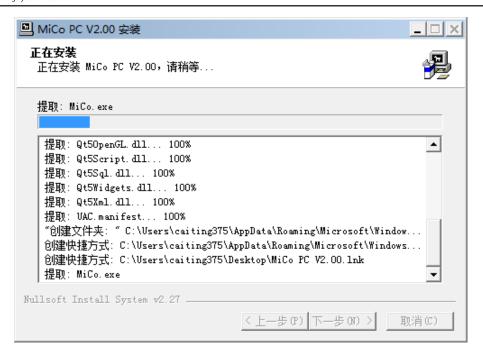


Click "Next" to continue the installation.

3) select the installation directory, click "Browse" to select the appropriate storage location, and click "Next" to continue the installation:



The installation process is as follows:



4) installation is complete, check the "RunMiCo PC", and then click "Finish" to open the software, otherwise complete the installation and exit if it is not checked.

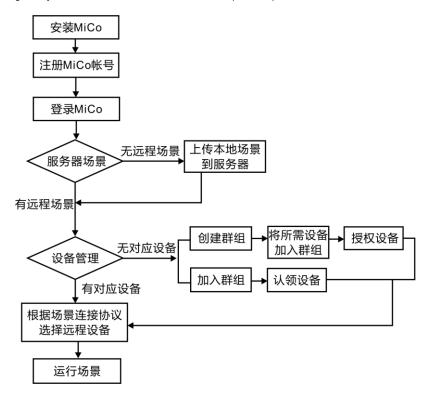


# 3 system applications

This section uses examples to introduce how to useMicoRemote monitoring system, through whichPLCandCP6453 gateway module connectedPLCEquipment for local/remote monitoring and remote programming;MicoUnder the LAN/WAN,AP pattern andSTAMode Gateway module for communication and diagnostics.

# 3.1 Remote monitoring

In online login mode, users can useMiCoTo remote devices (supporting remote Ethernet communicationPLCand throughCP6453 gateway module connectedPLC) to monitor, the operation process is as follows:

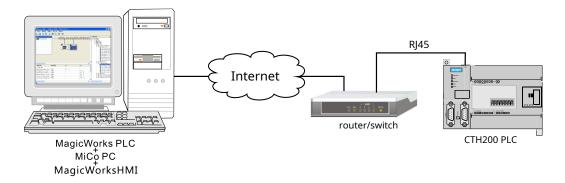


 $Below\ with CTH 200 series PLC Take\ an\ example\ to\ introduce\ the\ specific\ usage\ process\ of\ this\ function.$ 

### [Example component]

component name	describe
	equipped withMagicWorks PL(V2.08and later),MagicWorks HM( I V3.8.0
computer	and later) andMiCo PC(V2.00and later)
CTH200 CPU	useCPU H226L, to communicate with a computer over the Internet
Standard network cable	Connect the router withCPU H226LofRJ45network port
switch/router	Used to connect the host computer,CPUwait for the device to connect toInternetmiddle
power supply	use24VDCpower, giveCPUModule power supply

[Network Architecture Diagram]



#### [Main hardware connection]

- 1) switch or router using a communication cable to connect to Internet middle;
- 2) The host computer is connected with a communication network cable through a switch or router CPU H226L module RJ45 port;
- 3) Give CPU module power supply.

#### [operate]

1) installation, registration and loginMiCo(refer to chapterA.1).

## 2)existMiCocreate a device group in the A.3.1.1).

3)WillCPU H226Lmodule is configured toMiCoRemotely monitor groups created in the system server and set device passwords (refer to chapter A.3.1.4).

4) configured into the serverH226LThe owner can use the device directly, other users want to use it firstMiCoAdd the group to which the device belongs (refer to the chapterA.3.1.2), and then claim it through the device (refer to chapterA.3.2.6) or device authorization (refer to chapter

### A.3.2.7) to get the device.

- 5) on the "My Devices" page to open the acquired device and confirm that it is online.
- 6) to add a scene and upload a scene:

existMiCo PCOpen the home page of the scene, click the "+" sign on the right side of the search box to useMagicWorks HMIconfiguredHMI item added toMiCoas a local scene.

After entering the scene, click on the upper right corner

Select "Upload to Server" and the scene will be listed in the remote list section of the scene list.

**Notice**: After the local scene is uploaded to the server, it can be shared with other users through "Share Management". For details of related operations, please refer to the chapter A. 2.3.6.





### 7) to select a device:

Go back to the scene list to open the above remote scene, click on the upper right corner

Select the desired remote device.



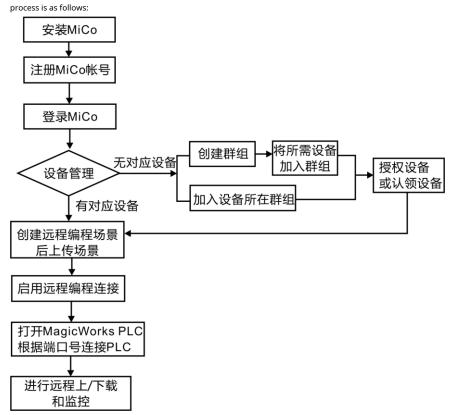


8) to run the scenario for remote monitoring:

After selecting the remote device, return to the "Scenario Management" page, click "Run" to run the current remote scene, and PLC monitor.

# 3.2 Remote programming

MiCoThe remote programming function means that through the host computer softwareMagicWorks PLCto ethernetPLCThrough the host computer software MagicWorks PLCPerform remote upload/download. In online login mode, users canPLCFor remote programming of the device, the operation



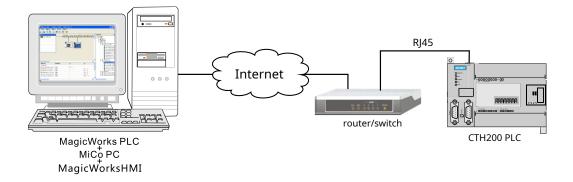
In the above process, MiCo PCRun on the remote host and keep the port open and unoccupied. For details of the process MiCoFor software operation, please refer to the appendix of this documentA.

 $Below\ with CTH200 series PLCTake\ an\ example\ to\ introduce\ the\ specific\ usage\ process\ of\ this\ function.$ 

### [Example component]

component name	describe
	equipped withMagicWorks PL(V2.08and later),MagicWorks HM( I V3.8.0
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[Network Architecture Diagram]



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#### [operate]

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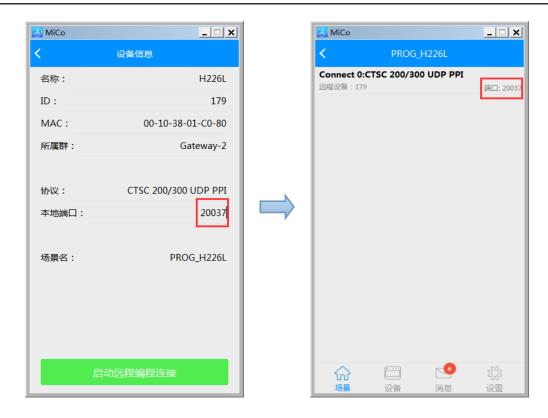
4) configured into the serverH226LThe owner can use the device directly, other users want to use it firstMiCoAdd the group to which the device belongs (refer to the chapterA.3.1.2), and then claim it through the device (refer to chapterA.3.2.6) or device authorization (refer to chapter

# A.3.2.7) to get the device.

5) on the "My Devices" page to open the acquired device and confirm that it is online.

6) Click "Create Remote Programming Connection" on the "Device Information" page to display the following screen, which lists the detailed information of the device and the connection information for remote programming.

- Click "Start Remote Programming Connection" to generate and upload an associated local scene.



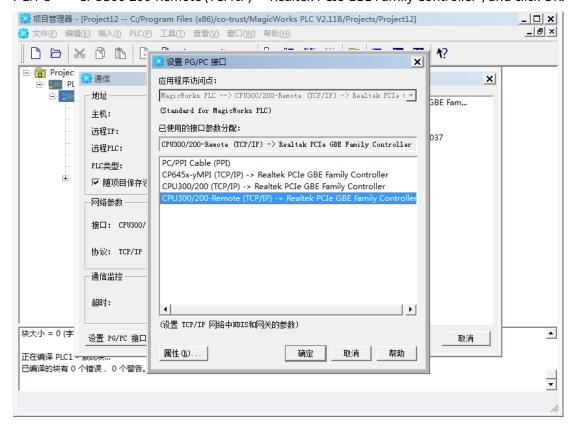
### protocol: The default is CTSC 200/300 UDP PPI

local port: The port number for connecting to the local programming configuration software (modifiable, the range is1024~65533)

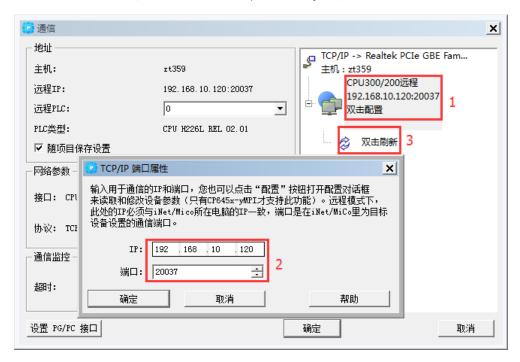
scene name: The default scene name generated based on the remote device name, prefixed with the device namePROG\_

OpenMagicWorks PLCCreate a new project in the configuration software, select "Communication" -> "Settings"

PG/PC" -> "CPU300-200-Remote (TCP/IP) -> Realtek PCIe GBE Family Controller", and click OK.



On the "Communication" interface, set the communication connection in the sequence as shown in the figure below, and click "OK" after the connection is successful.

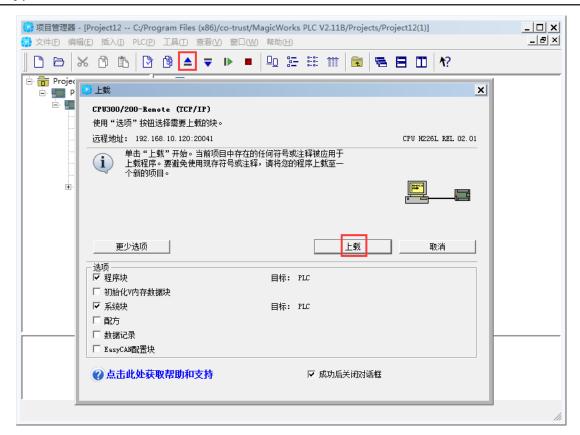


**Notice:** The port number in the above figure is the step1the local port number in ,IPforMiCoof the host computer where the client is locatedIP, which can be obtained by viewing the computer's network connection.

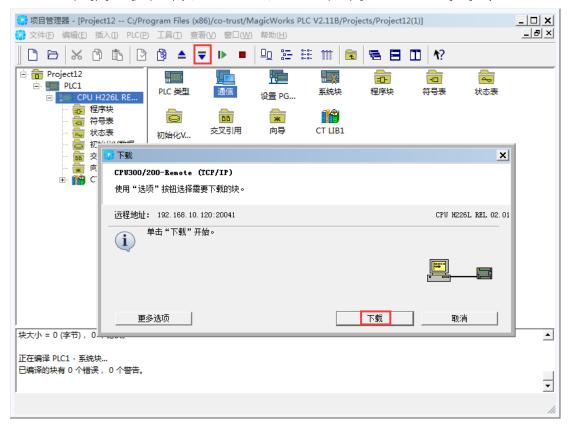


Click the upload button in the project manager, and select from the interface displayed by the system.PLCuploaded to the configuration software, thereby

Program the project.



- After completing programming, compile the project, click the download button, and download the updated program block to the remote through the gateway modulePLC.

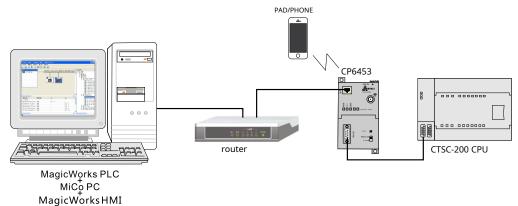


# 3.3 Gateway module under LANAPmode communication

#### [Example component]

component name	describe
	MagicWorks PLC(V2.08and later), MagicWorks HMI(V3.8.0 and later)
computer	andMiCo PC(V2.00and later)
CDC 452C at a second and a	CP6453The gateway module is set toAPmode, which will be based on 485The communication protocol of the interface is converted to the
CP6453Gateway module	Ethernet communication protocol
CTSC-200 CPU	useCPU 224E, to communicate with a computer over the Internet
RS485programming cable	Label and the second of the se
(pairRS485mouth)	double-endedRS485communication line, connectionCPU 224EandCP6453Gateway module
Standard network cable	Connect the router to the gateway module
switch/router	Used to connect the host computer,CP6453Devices such as gateway modules are connected toInternetmiddle
power supply	use24VDCpower, giveCP6453gateway module andCTSC-200 CPUpowered by

#### [Network Architecture Diagram]

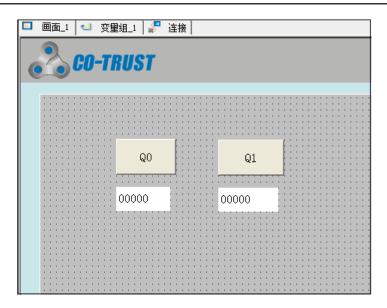


#### [Main hardware connection]

- 1) Use a communication cable to connect the host computer to the switch or router;
- 2) using a communication cable to CP6453The gateway module is connected to a switch or router;
- $3) use RS485 The\ communication\ cable\ will CP6453 Gateway\ module\ is\ connected\ to CTSC-200\ CPU modular PORT1;$
- 4)GiveCP6453gateway module andCPUmodule power supply.

### [operate]

- $1, in stallation, registration\ and\ login MiCo (refer\ to\ chapter A.1).$
- 2, connect to the gateway under the LAN,MiCoConfigure the gateway asAPmode, the gateway'sIPIt needs to be configured on the same network segment as the computer, and does not need to join a group (refer to the chapterA.3.1.3).
- 3, add scene and upload scene, add scene as follows:
- $1) Open Magic Works\ HMI The\ configuration\ software\ creates\ a\ new\ project\ with\ the\ name\ set\ to GHMI.$
- 2) as required to configure the project as follows:



To establish a communication connection, selectCO-TRUST 100/200protocol and make communication settings. As shown in the figure below, set the
interface "PORT1", select the address and baud rate19.2Kbps(selected as needed, required and connectedPLCKeep the same), the others keep the default
configuration.



Notice:1) address and baud rate required and connectedPLCbe consistent.

2)OneCP6453connect multiplePLC, should be for eachPLCestablish a connection (the interface is the same,PLCdifferent addresses). The configuration project in this case is imported toMiCoAfter the scene is generated, multiple connections are merged into one connection.

- Configure two variables and select the above communication connection, selectQBas the storage address.





In the configuration screen,Q0button and corresponding belowI/ODomain connection variable1, the property is defined

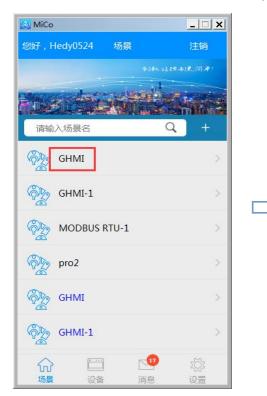
as click IncreaseValue; Q1button and corresponding belowI/ODomain connection variable2, attribute definition clickDecreaseValue.

After completing the configuration, compile and save the project.

### 3) to add a scene and select a device

existMiCo PC, open the scene home page, click the "+" sign on the right side of the search box to add the newly configuredHMIitem added toMiCoas a local scene.

After entering the scene, click on the upper right corner Select "Device Management" to enter the "Device Connection" page.





The communication connection selected during the configuration of this scene will be listed on its "Device Connection" page, as shown in the figure below, click on the specified communication connection to select the available gateway device.





After selecting the device, return to the "Scenario Management" page, click "Run", and then you can monitor the scene according to the configuration of the scene.PLC.

4, an examination CPU output bit on Q0 and Q1 Whether the status of the light-emitting diode changes with the value displayed after clicking the button, if the changes are consistent, it means that the communication is normal.

If a fault occurs during debugging, please refer to the 3.6 chapter for diagnosis.

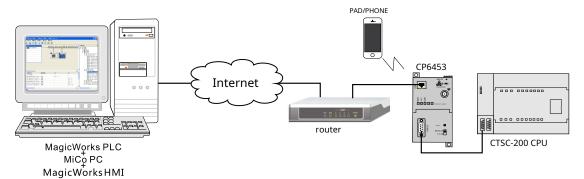
To find outMagicWorks HMIFor the application of configuration software, please refer to the document "Copanel HMISystem Manual", free download address:http://www.co-trust.com.

# 3.4 Gateway module under WANAPmode communication

## [Example component]

component name	describe
	MagicWorks PLC(V2.08and later), MagicWorks HMI(V3.8.0 and later)
computer	andMiCo PC(V2.00and later)
CDC 452C stresses and de-	CP6453The gateway module is set toAPmode, which will be based on 485The communication protocol of the interface is
CP6453Gateway module	converted to the Ethernet communication protocol, up to8indivualPLC
CTSC-200 CPU	useCPU 224E, to communicate with a computer over the Internet
RS485programming cable	
(pairRS485mouth)	use both endsRS485communication line, connectionCTSC-200 CPUandCP6453Gateway module
Standard network cable	Connect the router to the gateway module
switch/router	Used to connect the host computer,CP6453Devices such as gateway modules are connected to Internet middle
power supply	use24VDCpower, giveCP6453gateway module andCTSC-200 CPUpowered by

#### [Network Architecture Diagram]



#### [Main hardware connection]

1)Use a communication cable to connect the switch or router to the WAN;

2)Use a communication cable to CP6453The gateway module is connected to a switch or router;

3)use double endedRS485communication line willCP6453Gateway module is connected toCTSC-200 CPUmodularPORT1;

4)GiveCP6453gateway module andCPUmodule power supply.

#### [operate]

1, installation, registration and loginMiCo(refer to chapterA.1).

### 2,existMiCocreate a device group in theA.3.1.1).

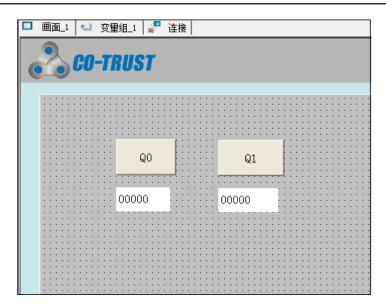
3, configure the gateway module toMiCoRemotely monitor groups created in the system server and set device passwords (refer to chapter A.3.1.3).

4, The owner of the gateway module configured in the server can directly claim the device, and other users who want to use it need toMiCoAdd the group to which the device belongs (refer to the chapter A.3.1.2), and then claim it through the device (refer to chapter A.3.2.6) or device authorization (refer to chapter A.3.2.7) to get the device.

5, open the acquired device on the "My Devices" page and confirm that it is online.

6, add scene and upload scene, add scene as follows:

1)OpenMagicWorks HMIThe configuration software creates a new project with the name set toGHMI. 2) as required to configure the project as follows:



- To establish a communication connection, selectCO-TRUST 100/200protocol and make communication settings. As shown in the figure below, set the mouth"PORT1", select the address and baud rate19.2Kbps(selected as needed, required and connectedPLCKeep the same), the others keep the default configuration.



Notice:1) address and baud rate required and connectedPLCbe consistent.

2)OneCP6453connect multiplePLC, should be for eachPLCestablish a connection (the interface is the same,PLCdifferent addresses). The configuration project in this case is imported toMiCoAfter the scene is generated, multiple connections are merged into one connection.

Configure two variables and select the above communication connection, selectQBas the storage address.





In the configuration screen,Q0button and corresponding belowI/ODomain connection variable1, the property is defined as click IncreaseValue;Q1button and corresponding belowI/ODomain connection variable2, attribute definition click DecreaseValue.

- After completing the configuration, compile and save the project.

### 3) add scene and upload scene

existMiCo PC, open the scene home page, click the "+" sign on the right side of the search box to add the newly configuredHMIitem added toMiCoas a local scene.

After entering the scene, click on the upper right corner

Select "Upload to Server" to upload the scene to the server to become a remote scene.





4) to return to the scene list to open the uploaded remote scene, click on the upper right corner

Select "Device Management" to configure the communication for this scenario

The connection will be listed on its "Device Connection" page, as shown in the figure below, click Specify Communication Connection to select the available gateway device.





After selecting the device, return to the "Scenario Management" page, click "Run", and then you can monitor the scene according to the configuration of the scene.PLC.

7, an examination CPU output bit on Q0 and Q1 Whether the status of the light-emitting diode changes with the value displayed after clicking the button, if the changes are consistent, it means that the communication is normal.

If a fault occurs during debugging, please refer to the 3.6 chapter for diagnosis.

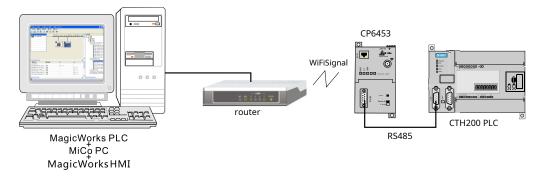
To find outMagicWorks HMIFor the application of configuration software, please refer to the document "Copanel HMISystem Manual", free download address:http://www.co-trust.com.

# 3.5 Gateway module under LANSTAmode communication

### [Example component]

component name	describe
	MagicWorks PLC(V2.08and later), MagicWorks HMI(V3.8.0and later)
computer	andMiCo PC(V2.00and later)
CP6453Gateway module	gateway module throughMiCoset asSTAmodel
CTH200 CPU	use1indivualCPU H224XInternet communication with computer
RJ45Standard network cable	useRJ45Standard network cable to connect aCPU H224XNetwork port and gateway module
RS485Communication Cable	double-endedRS485communication cable to connect anotherCPU H224XSerial and Gateway Modules
switch/router	Used to connect the host computer and CP6453 Devices such as gateway modules are connected to Internet middle
power supply	use24VDCpower, giveCP6453gateway module andCTH200 CPUpowered by

[Network Architecture Diagram]



#### [Main hardware connection]

1)Use a communication cable to connect the host computer to the switch or router;

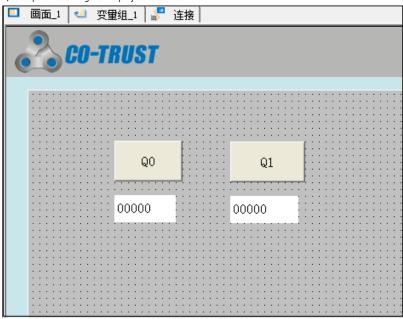
2)existMiComedium settingCP6453The gateway module connects the wireless signal of the switch or router;

3)use double endedRS485Communication cables connect the gateway module and CPU H224XofRS485 interface;

4)GiveCP6453gateway module andCPUmodule power supply.

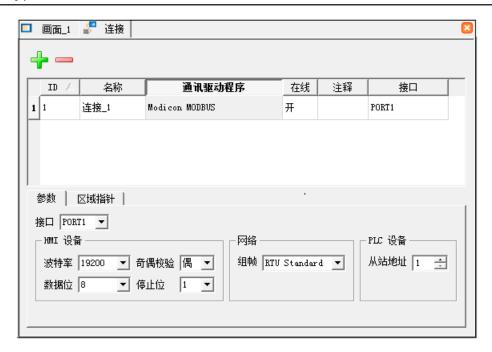
## [operate]

- 1, installation, registration and loginMiCo(refer to chapterA.1).
- 2, connect to the gateway under the LAN,MiCoConfigure the gateway asSTAmode and connect to a network hotspot, connect the gateway'sIPIt needs to be configured on the same network segment as the computer, and does not need to join a group (refer to the chapter A.3.1.3).
- 3, add scene and upload scene, add scene as follows:
- 1)OpenMagicWorks HMIThe configuration software creates a new project with the name set toGHMI-2.
- 2) as required to configure the project as follows:



To establish a communication connection, selectModicon MODBUSCommunication protocol and settings, select address and baud rate

 $19.2 Kbps (selected\ as\ needed,\ required\ and\ connected PLC Keep\ the\ same),\ the\ others\ keep\ the\ default\ configuration.$ 



Note: aCP6453connect multiplePLC, should be for eachPLCestablish a connection (the interface is the same,PLCdifferent addresses). The configuration project in this case is imported toMiCoAfter the scene is generated, multiple connections are merged into one connection.

Configure two variables and select the above communication connection, selectQBas the storage address.





In the configuration screen,Q0button and corresponding belowI/ODomain connection variable1, the property is defined as click IncreaseValue;Q1button and corresponding belowI/ODomain connection variable2, attribute definition click DecreaseValue.

After completing the configuration, compile and save the project.

#### 3) to add a scene and select a device

existMiCo PC, open the scene home page, click the "+" sign on the right side of the search box to add the newly configuredHMIitem added toMiCoas a local scene.

Open the local scene in the scene list and click on the upper right corner

Choose to upload it to the server. After the upload is successful, in the scene list

Enter the remote scene, select "Device Management" in the upper right corner, and then enter the "Device Connection" page.





The communication connection selected during scene configuration will be listed on its "Device Connection" page, as shown in the figure below, click each communication connection to select the available gateway device.





After selecting the device, return to the "Scenario Management" page, and click "Run" to monitor the device according to the configuration of the scenario.PLC.

4,an examinationCPUsuperiorQ0andQ1Whether the status of the LED changes with the display after clicking the button, if the changes are consistent, it means that the communication is normal.

If a fault occurs during debugging, please refer to the 3.6 chapter for diagnosis.

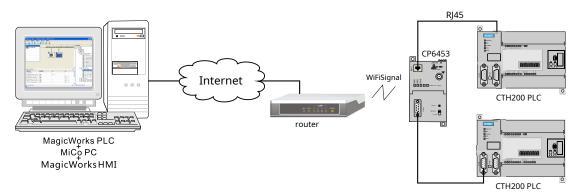
To find outMagicWorks HMIFor the application of configuration software, please refer to the document "Copanel HMISystem Manual", free download address:http://www.co-trust.com.

# 3.5 Gateway module under WANSTAmode communication

#### [Example component]

component name	describe
	MagicWorks PLC(V2.08and later), MagicWorks HMI(V3.8.0 and later)
computer	andMiCo PC(V2.00and later)
CP6453Gateway module	gateway module throughMiCoset asSTAmodel
CTH200 CPU	use2with network portCPU H224XInternet communication with computer
RJ45Standard network cable	useRJ45Standard network cable to connect aCPU H224XNetwork port and gateway module
RS485Communication Cable	double-endedRS485communication cable to connect anotherCPU H224XSerial and Gateway Modules
switch/router	Used to connect the host computer and CP6453Devices such as gateway modules are connected to Internet middle
power supply	use24VDCpower, giveCP6453gateway module andCTH200 CPUpowered by

#### [Network Architecture Diagram]



## [Main hardware connection]

- 1) Use the communication network cable to connect the switch or router to the WAN;
- 2) existMiComedium settingCP6453The gateway module connects the wireless signal of the switch or router;
- 3) useRJ45Standard network cables connect the gateway module and aCPU H224XofRJ45network port;
- 4) use double endedRS485A communication cable connects the gateway module and anotherCPU H224XofRS485interface;
- 5) GiveCP6453gateway module andCPUmodule power supply.

## [operate]

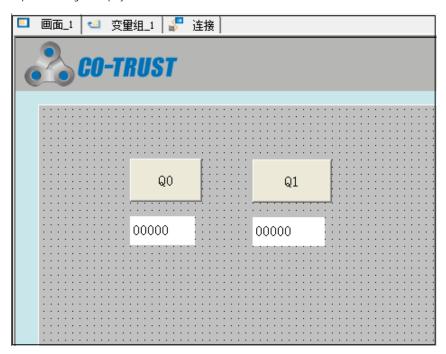
1, installation, registration and loginMiCo(refer to chapterA.1).

## 2,existMiCocreate a device group in the A.3.1.1).

- 3, Configure the gateway module toMiCoRemotely monitor groups created in the system server and set device passwords (refer to chapter A.3.1.3) .
- 4, The owner of the gateway module configured in the server can directly claim the device, and other users who want to use it need to MiCojoin in

The group the device belongs to (refer to chapter A.3.1.2), and then claim it through the device (refer to chapter A.3.2.6) or device authorization (refer to chapter A.3.2.7) to get the device.

- 5, open the acquired device on the "My Devices" page and confirm that it is online. .
- 6, to add scenes and devices, as follows:
- 1)OpenMagicWorks HMIThe configuration software creates a new project with the name set toGHMI-2. 2) as required to configure the project as follows:



To establish two communication connections, selectCO-TRUST UDP PPIEthernet communication protocol and Modicon MODBUScommunication protocol and set it up.

 $Ether net communication\ protocol IPThe\ address\ is\ connected\ to\ the\ gateway\ module PLC of IPaddress,\ port\ number\ defaults\ to 20000.$ 

 $MODBUS Communication\ protocol\ selection\ baud\ rate 19.2 Kbps (optional),\ configuration\ file MPI,\ others\ keep\ the\ default\ configuration.$ 



 $Note: a CP6453 connect \ multiple PLC, \ should \ be \ for \ each PLC establish \ a \ connection \ (the \ interface \ is \ the \ same, PLC different \ addresses).$ 

The configuration project in this case is imported to MiCoAfter the scene is generated, multiple connections are merged into one connection.

Configure two variables and select the above communication connection respectively, selectQBas the storage address.





In the configuration screen,Q0button and corresponding belowI/ODomain connection variable1, the property is defined as click IncreaseValue;Q1button and corresponding belowI/ODomain connection variable2, attribute definition click DecreaseValue.

After completing the configuration, compile and save the project.

3) to add a scene and select a device

existMiCo PC, open the scene home page, click the "+" sign on the right side of the search box to add the newly configuredHMIitem added toMiCoas a local scene.

Open the local scene in the scene list and click on the upper right corner Choose to upload it to the server.

After the upload is successful, enter the remote scene in the scene list, the upper right corner

Select "Device Management" to enter the "Device Connection" page

noodle.







The communication connection selected during the configuration of this scene will be listed on its "Device Connection" page, as shown in the figure below, click on the specified communication connection to select the available gateway device.





After selecting the device, return to the "Scenario Management" page, click "Run", and then you can monitor the scene according to the configuration of the scene.PLC.

7,an examinationCPUsuperiorQ0andQ1Whether the status of the LED changes with the display after clicking the button, if the changes are consistent, it means that the communication is normal. If a fault occurs during debugging, please refer to the 3.6chapter for diagnosis.

To find outMagicWorks HMIFor the application of configuration software, please refer to the document "Copanel HMISystem Manual", free download address:http://www.co-trust.com.

# 3.6 diagnosis

When the system fails, please first check whether the following conditions are met:

- 1) CP6453 Whether the gateway module is powered normally (power can be supplied through the controller or additional 24 V power supply);
- 2) Check the connection of the communication cable to ensure that it is correct;
- 3) if the gateway module is onRMCThe indicator light is not on, please check whether the configuration parameters of the gateway and the current mode switch settings support remote communication.

In addition to the above methods, you can also CP6453 gateway module led LED state definitions for diagnostics.

led	display color	condition	describe
PWR		Green, continuously lit	+24VExternal power is connected
		extinguished	No power to the system or faulty power connection
WIFI		Green, continuously lit	The gateway module is inAPmodel
		green, flashing	The gateway module is inSTAmode and connected to a hotspot
		extinguished	The gateway module is inSTAmode, no hotspot connected
RMC		Green, continuously lit	Indicates that the server is connected
		extinguished	Indicates that the server is disconnected or not connected to the server

appendix

# A clientMiCoapplication

# A.1 Client registration login

Definitions in this chapterMiCoRemote monitoring system account management related functions, including account registration, login, logout, automatic login, remember password and retrieve password.

After installing the client software, click the desktop icon to start the software, or start the software from the "Start" menu.

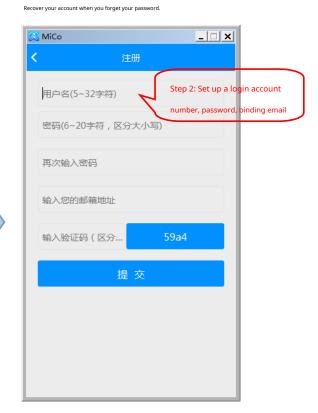
Notice: user is installingMiCoAfter the software, it needs to be added to the trust list of antivirus software to ensure the normal operation of the client software.

# A.1.1 Account registration

Step 1: Click on Account Registration on the "Login" page.

Step 2: Set up a login account, follow-upAppThe operation and management of the software may be frequently used, please fill in the frequently used mailbox to





 $Username\ required\ is 5-32 English\ letters\ (case-insensitive),\ numbers,\ symbols,\ globally\ unique.$ 

 $Password\ requirement\ is 6-20 English\ letters,\ numbers,\ symbols,\ case\ sensitive.$ 

 $\label{prop:eq:account} \mbox{After the account registration is complete, the system returns to the login page.}$ 

# A.1.2 account login

Enter the successfully registered user name and password to log in. After logging in, you will enter the home page:



Notice: allow the same PCStart multiple clients at the same time, but the same user cannot log in multiple times at the same time.

# A.1.3 logout

If the user wants to log out and log in, please "log out" on the home page and click "OK" to log out.





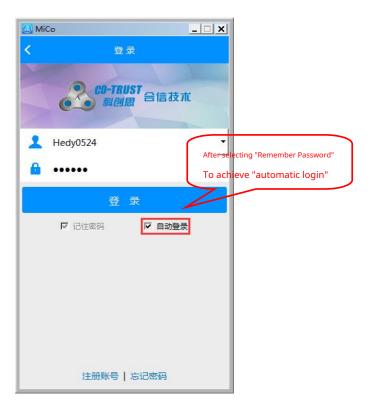
# A.1.4 remember password

After checking "Remember Password" on the login page, the password will be recorded in the drop-down box, and you can select it from the account when you log in next time. After unchecking, the password input box is cleared when the user enters the login page, and the password needs to be entered manually.



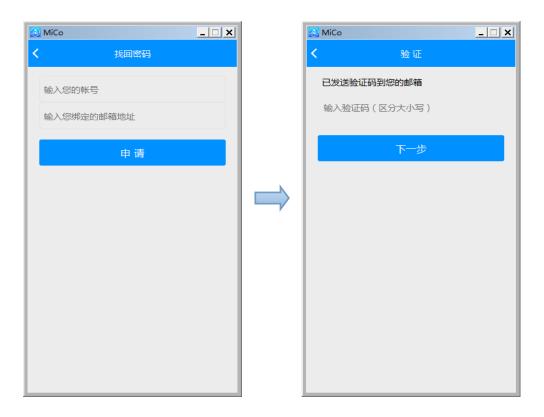
# A.1.5 Set up automatic login

On the login page, select "Remember Password" for the specified account, and then select "Automatic Login". MiCoIt runs automatically when the software starts.



# A.1.6 retrieve password

If the user forgets the account password, please click "Forgot Password" on the login page, and then the following interface will be displayed, enter the corresponding account number and the email address entered during registration, and then click "Apply". The system will send the verification code to the specified email address, please enter the verification code given by the email in the following interface, and then click "Next".



A verification code can be retried up to three times. After setting a new password, click "Submit". If the password is changed successfully, the system will return to the login page.



# Notice: When resetting the password, the request is 6-20 English Letters, numbers, symbols, case sensitive.

# A.1.7 Client update

OpenMiCoClient, if there is a new version currently available, the system will prompt the user whether to update. Users can choose to update immediately or update it next time according to their needs.



If you choose to update immediately, the system will download and install the update package from the server immediately. MiCoYou will be prompted whether to restart the software and the updated version will take effect immediately.

If you choose the next update, the system will enter the current versionMiCo, and the next time the user startsMiCoWhen prompted to update again.

# A.1.8 Mode Description

MiCoRemote monitoring system clientMiCo PCIt can be used locally or after logging in to the server. This section describes the specific functions and applications of these two cases.

**local use**: without logging inMiCoIn the case of , the user can use the local scene toPLCor via local CP6453gateway device connectedHMIandPLCMonitor and operate.

Including: adding local scenes, local scene management operations, uploading local scenes to the server, searching and configuring local scenes CP6453 gateway device, running local scenarios, pairingMiCosoftware for basic setup, access to online help, and viewing currentMiCoVersion Information.

**login server**:user loginMiCoAfter remotely monitoring the system server, you can obtain the required server remote equipment to monitor and operate the remote scene on the server and start remote programmingPLCFunction.

Including: all operating functions in local mode, remote scene management operations, equipment group and equipment/user related management in the group, running/sharing remote scenes, message management, MiCoThe software performs basic settings, views current user information, manages account security, provides feedback, obtains online help, and views current user information. MiCoversion information, etc. MiCoFunction.

# A.2 Scenario operation and management

This chapter mainly introducesMiCoScene-related functions and operation methods on the client.

# A.2.1 Introduction to the scene

Scenario is to useMagicWorks HMIConfiguration software configured and compiledHMIprogram files, available viaMicoThe software is used locally or viaMiCo software upload toMiCoRemotely call after monitoring the system server remotely; download it to the system connectedHMIAfter the device, you can also monitor the real-time status of the connected devices.

When starting the display or switching to the scene page, the homepage will display all the scenes of the current user, including local scenes and remote scenes.

Click a specific scene to view the scene details or run the scene, right-click the selected scene to execute the operation, and delete the scene. (Scene owner only).



# Notice:

- When no user is logged in in local mode, the system only displays the local scene but not the remote scene.
- The sorting of the scene list follows the principle of the local scene first and the remote scene last; the local scene is displayed in black, and the remote scene is displayed.

  Shown in blue.
- Shared scenes can only be deleted by the owner of the specific scene.

#### A.2.1.1 local scene

The local scene is to useMagicWorks HMIsoftware configuration and save inMiCowhere the client isPCUpHMIProject file, build scenarios according to configuration requirements and add toMiCoAfter the client, you can connect to the localCP6453gateway module toHMI andPLC monitor.

For details on how to add local scenes, please refer to this documentation chapter A.2.2;

About how to connect locally CP6453Gateway Modules and Ethernet PLCF or information on running local scenes, see chapter A.2.3.5.

# A.2.1.2 Remote scene

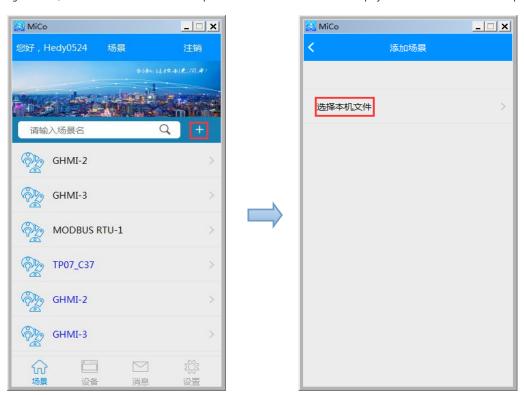
Remote scene refers to uploading the local scene to MiCoRemotely monitor the scene generated on the system server, log in MiCoAfter that, you can connect to the online remote device on the server to perform remote programming and monitoring operations.

For information on how to upload a local scene to the server to become a remote scene, see chapter A.2.3.7;

on how to connectMiCoFor information about running remote scenarios with online remote devices on the remote monitoring system server, please refer to the chapter A.2.3.5;

# A.2.2 Add a scene

For inMiCo PCTo add a local scene file in the home page, please click the "+" sign on the home page to select the local file. As shown in the figure below, select .hmidbformat the scene file path and add it toMiCo. The scene is displayed in the scene list on the home page.



# A.2.3 Manage scenarios

Click on the upper right corner of the "Scenario Management" page to load each of the scene management options in the image above, and this section details how these options work.

Specific operations:





local scene Remote scene

# A.2.3.1 Modify the note name

Select this option in "Scene Management" to modify the scene file name, and enter the remark name as needed (required0-32Chinese and English letters, numbers, symbols, the scene name under the same user must not be repeated), then click "Submit" to confirm the input, and the modified remark name will be displayed on the scene management page.





# A.2.3.2 Modify the detailed description

It is up to the scene owner to select this option in "Scenario Management" to modify the detailed description of the scene, enter the required content as needed (required0-96 Chinese and English letters, numbers, symbols) and then click "Submit" to confirm the input, and then the modified scene description will be displayed on the scene management page.



# A.2.3.3 Set the scene to run automatically

This function is only applicable to the local scene. In the scene management, directly click the "Set to run automatically at startup" slider to set the current scene as MiCoRuns automatically when the client starts.



#### A.2.3.4 Device management

The local scene and the remote scene establish communication with the local device or the remote device respectively through the specified communication protocol, so as to monitor and operate them.

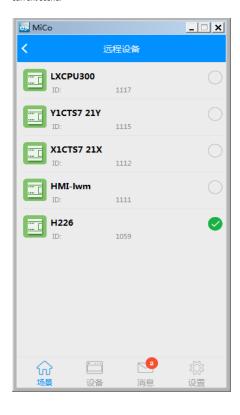
The following takes a remote scenario as an example to introduce how to select the device to be connected through the "Device Management" option. The specific operations are as follows:

1) to open the scene -> click -> Device Management -> Select the desired communication protocol in the "Connection List".





2) Select the required communication protocol to connect and enter the device list, which lists all the remote devices available to the currently logged-in user. Select the configured online devices as needed and return to the "Scenario Management" page, click "Run" to pass the Monitor the status of remote devices online in the current scene.





**Notice**: The local scene can only be connected through the local gateway moduleHMIandPLCdevice and local direct-attached EthernetPLC, for details on the use of remote gateway devices, seeCP6453Gateway Module User Manual, download address: http://www.co-trust.com.

# A.2.3.5 Shared management

Scenes that have been uploaded to the server can be shared by the scene owner with other users through the "Share Management" option. Click this option to view the list of shared users of a specific scene or add shared members. The specific operation steps are as follows:



According to the assigned sharing permissions, shared members can directly run the scene for monitoring after logging in to the system, or save the scene as a local scene and select a local device for monitoring.

In the share list, select a specific user to unshare it or hand over the scene, as shown in the following figure:



After the scene is handed over, the current user becomes the new owner of the scene; the previous owner does not have permission to use it. If you want to use it, you can save it as a local scene and upload it to the server.

# A.2.3.6 upload to server

Select this option in Scene Management to upload the current scene toMiCoRemotely monitor the system server, and then the uploaded remote scene will be displayed in the remote scene section of the scene list, with the same name as the local scene.



#### **Precautions:**

- Local scenes can be uploaded to the server to become remote scenes, which can be shared with other users;
- The remote scene is automatically uploaded to the server for backup after being edited by the owner, so as to be shared with other users;
- The sharer of the scene has no right to upload the scene or change the device connected to this scene, but can monitor even if the sharer does not have permission to the device.

## A.2.3.7 Save as local scene

For the remote scene that has been uploaded to the server, click this option to back up a copy of the current remote scene to the local scene list with the same name as the original file name.



**Notice:**This option is only valid for the shared user of the scene.

# A.2.4 Running the scene

There are two ways to run a scene:

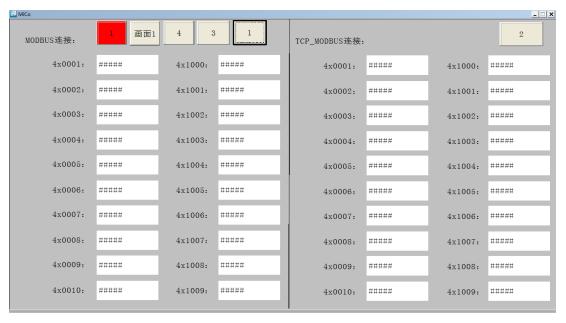
- 1, Right-click the desired scene in the scene list, and select Run.
- 2, After selecting and clicking a specific scenario, the system will display the following scenario management interface, which lists the relevant details of the scenario, including version, description, administrator, scenario status, and autorun settings.



- click...to view scene management options,

  See appendix for detailsA.2.3.
- After setting up the autorun, the scene will run in MiCorun automatically at startup, the system will
   The operation screen is displayed.

In the above figure, click "Run" in the red box to run the current scene in a new window, and monitor the scene in real time when the communication connection is established:



Notice: To exit the scene running screen, double-click any blank area of the running screen to close it.

# A.2.5 delete scene

If you want to delete a specific scene, please click "Delete" on the "Scenario Management" page and confirm whether to delete the scene file on the server (if it has been uploaded to the server) at the same time. After the deletion operation, the system will prompt a relevant message.





# A.3 Devices and groups

 $This chapter \ mainly introduces \ the \ specific \ operations \ of \ devices \ and \ groups, including \ device \ configuration \ and \ use, \ and \ group \ management.$ 

# A.3.1 Device and group actions

A group is a group of user devices created by a user after logging in, where users and devices can be added for remote use.

## In local mode, the group list is blank.

In login mode, the device group to which the currently logged-in user belongs will be listed under "My Groups", and the user role may be group owner, administrator or operator. Right-clicking the relevant group will display menu items: View Group Information, Permission Management (Group Owners and Administrators Only), Transfer the Group (Group Owners Only), Dismiss the Group (Group Owners Only), Exit the Group (for operators and administrators only). Click the "+" sign to add a device group.



# A.3.1.1 How to Create a Device Fleet

#### Add device group $\rightarrow$ Create a device group $\rightarrow$ submit $\rightarrow$ Finish

On the "Add Device Group" page, click "Create Device Group" to open the following screen, where the user can enter the name of the device group to be created (
5-31English letters, numbers, symbols, globally unique) and enter the relevant group description (0-96Chinese and English letters, numbers, symbols), click "Submit",
the system will list the relevant information of the newly created group, click "Finish" and return to the "My Groups" page to see the newly created group.



Notice: If the name of the created device group conflicts with the existing device group name, the system will prompt "This group account has been registered". The user needs to change the device group name before submitting the information.

After successfully creating a device group, you can add devices and users to the group.

# A.3.1.2 How to join a device group

Users have joined a device group after creating it, and can also choose to join an existing device group.

#### Add device group→Find device groups→join group

On the "Add Device Group" page, click "Find Device Group" to open the following screen, where the user can enter the device group to be found and click Search to select according to the search results.



If the desired device group is found, the user can click "Join Group", and the system will send the application to the group owner. After the group owner confirms and agrees, he or she can successfully join the group and obtain operator permissions.



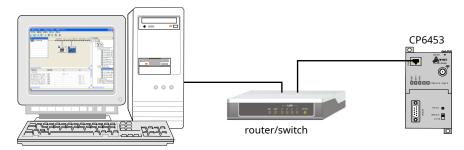


# A.3.1.3 How to add a gateway device to a device group

The remote gateway device is configured to MiCoThe specific operations in the device group are as follows:

#### [Internet connection]

When using it for the first time, use a standard crossover cable to connect the CP6453The gateway module is connected to the router, and make sure that the computer and the gateway are in the same network segment, as shown in the following figure:



#### [Configure gateway]

#### 1, Basic configuration of gateway module

OpenMiCo, click the search button on the device page to search for the local gateway device, and then the online gateway connected locally will be displayed. Click to view and configure the relevant information, as shown in the following figure:





#### Important parameter description:

parameter	describe	default setting
device name	The gateway module is configured to MiCoThe name of the device set during the remote monitoring	
device name	system, customized by the device owner	
Version	The current version of the gateway module	
WiFi	Gateway moduleWiFisignal switch	open

		1
Operating mode	STA: The gateway module is connected to the Internet by wirelessly connecting to the wireless router, and theHMI,PLCand other equipment for real-time monitoring.  AP: The gateway module acts as a hotspot to connect other mobile devices, so that theHMI,PLCand other equipment for real-time monitoring.	АР
Encryption	WiFiSignal encryption options  Open: The gateway hotspot is open, and external devices can directly connect to this hotspot;  Encryption: The gateway hotspot is encrypted, and the external device needs to verify the password to connect to this hotspot.	open
hot spotSSID	STAIn mode, the router connected to the gatewayWiFiSignal name APIn mode, the name of the local hotspot signal sent by the gateway	Local hotspot:  CT_CP6453_M  AClast three bytes
hotspot password	Hotspot network signal password	Local hotspot: 12345678
Hotspot encryption	STAconnected in modeWiFiEncryption of the signal	
DHCP	get gatewayIPway: dynamic/static	static
IP	Gateway modulelPaddress, associate it with the routerIPSet to the network segment of the host computer	192.168.1.210
subnet mask		255.255.255.0
First DNS		192.168.1.1
Second DNS		8.8.4.4
gateway		192.168.1.1

Users can modify the configuration parameters in the above interface according to their needs. The relevant configuration changes can only take effect after clicking "Modify" in the upper right corner and clicking "Confirm".

#### **Precautions**:

- existSTAIn mode, the user can set the hotspot signal received by the gateway device, including the hotspotSSIDand password and encryption method, then click "Connect" under the "Hotspot" tab to connect the gateway module to the specified hotspot.
- existAPIn mode, the user can set the hotspot signal sent by the gateway device, including the local hotspotSSIDand password and encryption method, and then click "Modify" to save the local hotspot information, in the gateway moduleWIFIOpen for other wireless devices to connect to.
- STAIn mode, the network port defaults to the intranet, and the network segment is192.168.126.XXXand cannot be modified.
- Press the gateway reset button to restore the gateway to factory defaults.

#### 2, Gateway module remote configuration

Gateway module needs to be addedMiCoAfter the remote monitoring system system server can be used remotely, the following describes how to configure the gateway module to the remote server:

- existMiCoAfter connecting the local gateway device in the remote monitoring system, click the "Remote" tab to set the device information and server information.



device name: The server device joined by the gateway device
The name to display after the group.

Device group name: the address where the gateway device is configured
The specific group name.

device old password: The initial password required to claim the device.

Modify device password: Modify the device password as required.

Password Confirmation: Confirm when changing the device password,
The requirement is the same as the modified password.

Domain:mico.co-trust.com

Second domain:mico.co-trust.com

Communication port:MiCoRemote monitoring system server port number, the default is8888

- In the above page, enter the device name and device group name, and set the claim password after the gateway joins the group.
- After completing the above settings, click "Modify" to configure the remote parameters to the server.RMCRemotely

  When the communication indicator is on, it means that the gateway has successfully joined the device group and can be claimed by the user.

#### 3, hotspot connection

existSTAIn the mode, the gateway module connects to the wireless hotspot to realize wireless operation. The specific operations are as follows:

Device Configuration -> Hotspot -> Scan -> Select the desired hotspot signal -> Enter the corresponding hotspot password -> Click "Connect" and confirm to connect to the specified hotspot. After the connection is successful, the hotspot information will be displayed inWIFIunder the label.







existAPIn this mode, external mobile devices can connect to the gateway through the gateway module hotspot. The specific operations are as follows:

Device Configuration -> WIFI -> Operating modeAP -> Hotspot signal required for mobile device connection



The user can then log in to the client on other smart devices MiCo, to monitor and operate specific scenarios and equipment.

# A.3.1.4 how toPLCAdd device to device group

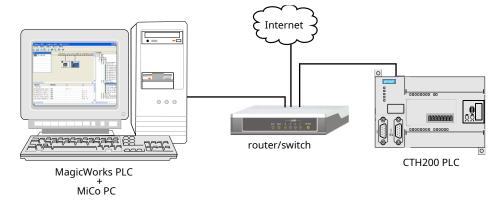
MiCoThe remote monitoring system canHMIdevice, gateway device, PLCcontroller, this section describes how to integrate PLCThe controller is configured into the system server for remote use.

EquipmentMagicWorks PLCsoftware to configure, for details on the use of this programming software, please refer to "MagicWorks PLCUser Manual", free download URL:http://www.co-trust.com.

Below with CTH200 series PLCAs an example to introduce how to use the programming software to PLC control device configured to MiCoin the remote monitoring system.

1) to establish a system connection

CTH200seriesPLCThe schematic diagram of connecting to the host computer is as follows:

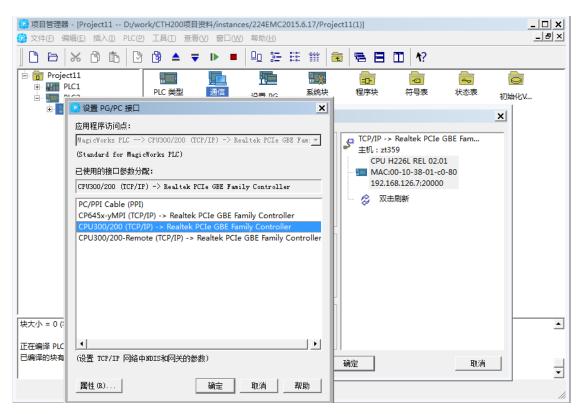


Use standard network cable to connectPCwith the router;

- Use a standard network cable toCTH200 PLCconnect to the router;
- PLCIt needs to be on the same network segment as the computer;
- for the systemPLCpowered by;

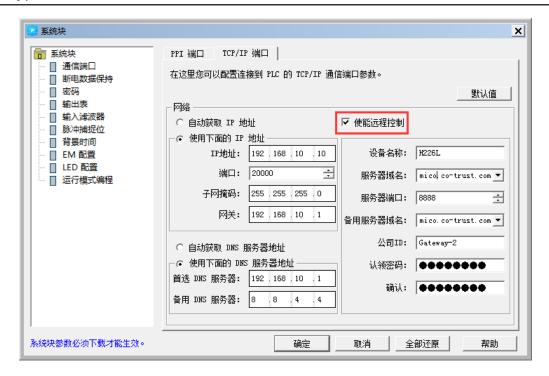
2)set upPLCandMagicWorks PLCcommunication between

- OpenMagicWorks PLC, create a new onePLCsite;
- Open the newly created site for "Communication" settings, select the interfaceCPU300/200(TCP/IP)->Realtek PICe GBE Family Controller, then set the "properties", this example sets the timeout to4s, then click OK.
- Double click icon to searchPLC, if the communication is normal, the connected list will be displayed in the list on the rightCPUtype, as shown in the following figure:



3) to set the system block

After establishing communication, open the system block for TCP/IPport settings, to configure the device to MiCoTo remotely monitor the system server, you need to enable remote control here, as shown in the red box in the following figure:



#### network settings

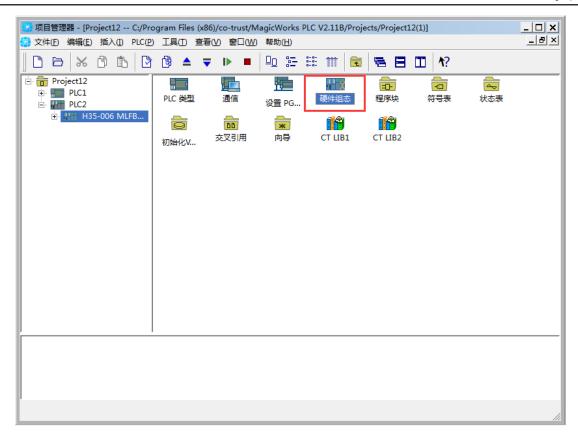
PLCThe network settings of the network can be selected in two ways: automatic acquisition and manual input. If you choose manual input, please enter herePLC device in the networkIPaddress, port number, subnet mask, gateway andDNSserver information.

 $\label{lem:make_sure_that} \mbox{Make sure that the host computer,} \mbox{PLCIt is in the same network segment as the router.}$ 

#### Remote control settings

- Device Name: Add toMiCoThe name of the device that remotely monitors the system server, which will beMiCoclient display;
- Server/Alternate Server Domain Name:MiCoRemote monitoring system server domain name, nowmico.co-trust.com;
- Server port: The port number of the device accessing the server, the default setting is 8888;
- companyID: the device to joinMiCoThe name of the remote monitoring system server equipment group;
- Claim Password/Confirm: Set the password to be entered when claiming the device. MiCoAfter the client sends the claim application, it needs to enter and confirm this password before claiming the corresponding device.

Notice: Use an Ethernet-capable CTH300 series PLC, set the remote communication of the communication port in the hardware configuration.



4) to download the system block to PLC  $\,$ 

Once configured, programs and system blocks can be downloaded toPLCin, after successful downloadPLCUpRMCThe indicator light is on to indicate that the device has been successfully configured toMiCoRemote monitoring system server, convenient for users to call remotely.



**Notice**: If the parameters are correct, the device still cannot connect to the server after downloading the system block, you can try to clear it firstTCP/IP After setting the port parameters, download the system block again. clearTCP/IPThe method of port parameters is: continuously and quickly dialPLCFront panel run switch (toggle switchRUN-STOPRepeat at least three times)



As shown on the left, after the device is configured successfully,

Open client softwareMiCosystem block
the specified group (in this case, Gateway-2)
see the device in (MPI 12), if the user needs to use
the device, please refer to the appendixA.3.1.2state
Please join the group and enter the password to claim the settings
ready.

# A.3.2 Device and group management

After the device group is created, the group owner/administrator/operator can manage the group permissions, log in to the system as the group owner, and open the specified

Right-click after the group to display the following menu:



# A.3.2.1 Edit group information

On the "Group Device Member List Page", click the drop-down option "View Group Information" to modify the information of the current group, including the group's remarks, descriptions, and status information. The remarks and descriptions can be customized.

Click the specified entry to modify as needed, and click "Submit" after completing the input.



# A.3.2.2 Handover equipment group

On the "Group device member list page", click the drop-down option "Transfer this group" to transfer the group's management rights to the administrator. If no other user is designated as the administrator, you must first specify the management in "Permission Management" perform this operation after the operator.

After the transfer target administrator confirms the acceptance of the group, it means that the group has been handed over.



#### A.3.2.3 handover equipment

 $Device group \ administrators \ can \ transfer \ specified \ devices \ in \ the \ group \ to \ other \ groups. \ The \ specific \ operations \ are \ as \ follows:$ 

Click "Device Handover" -> Enter the name of the target group to be handed over to search -> Click "Device Handover" -> Select the device to be handed over

-> Click on Handover. After the owner of the target group confirms to accept the device transfer, the selected device can be handed over to the target group.



# A.3.2.4 Disband the device group

 $On the \ "Group \ Device \ Member \ List \ Page", click \ the \ drop-down \ option \ "Dismiss \ the \ group" \ to \ disband \ the \ current \ device \ group.$ 





This operation can only be performed by the group owner, and can only be used for groups whose device list is empty.

As shown in the picture), when disbanding an empty group, the system will ask for a verification code and submit it (as shown on the right).

## A.3.2.5 Group User Role and Permission Description

Users of a device group can be divided into three roles: group owner, administrator, and operator. Their functional scope and authority are as follows:

## - Lord

The group owner is the creator of the device group. For devices in the group, this role can claim the device, hand over the device, authorize other users to use the device, and cancel the device authorization of other users; Assign administrator rights and dissolve groups.

#### administrator

The administrator identity is assigned by the group owner and can manage group devices and user members. This role can claim devices, authorize other users to use devices, cancel other users' device authorizations, invite users to join groups, and exit groups.

#### operator

Ordinary users get the operator role after joining the group, and the group owner can set them as administrators to perform operations such as claiming devices and leaving the group.

# A.3.2.6 Equipment claim

To use the configuration to MiCoThe remote device of the remote monitoring system server can be used by claiming the device:

After the user joins the device group, he can claim the online remote devices in the group. The specific operations are as follows:

Enter the specified group, right-click the desired remote device and select "Claim This Device", confirm the device information and click "Device Claim".





Enter the device claim password in the following interface and click "Submit" to confirm.

 $Claim\ the\ password\ as\ a\ local\ device\ parameter\ (CP6453)/system\ block\ (CTH200)/hardware\ configuration\ block\ (CTH300)device\ password.$ 



# A.3.2.7 Device Authorization and Deauthorization

#### Device authorization

Another way to obtain the device is to be authorized to use the device by the administrator of the group where the device is located. There are two operation methods:

(1) After the group administrator logs in to the system, right-click the desired remote device and select "Authorize this device to", select the group member to be authorized in the "Add Member" interface that appears and click "Confirm" in the upper right corner, then Devices can be authorized to added members.





(2) After the group administrator logs in to the system, right-click the specified user and select "Authorize this device to".

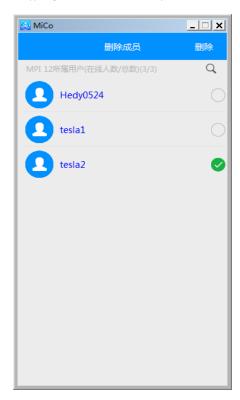
On the interface, select the group member to be authorized and click "Confirm" in the upper right corner, then the device can be authorized to the added member.

#### Cancel device authorization

The administrator in the group can revoke the device use permission of the group members. The specific operations are as follows:

After the group administrator logs in to the system, right-click the desired remote device and select "Deauthorize This Device", select the group member to be deauthorized on the "Delete Member" interface that appears, and click "Delete" in the upper right corner. Can deauthorize a specified member's device.





# **A.4**

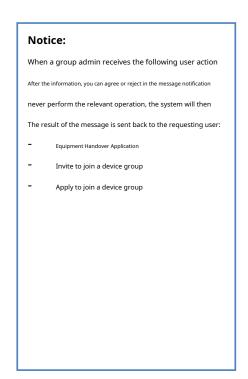
message management

The "Messages" menu bar of the client will list the message notifications prompted by the system. Click to view the message details, including group application, device transfer, invitation, add/delete operation prompt information, etc., click to delete the selected message notification.









CP6453Gateway Product Specifications

### A.5 set up

The client settings pages in local mode and login mode are as shown below, which lists a number of general settings and software-related information.





### A.5.1 basic settings

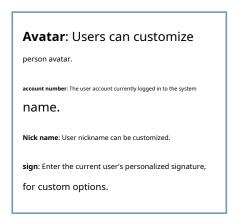
This option is used to set the client software to close the main panel and exit the way, the user can choose and modify as needed.



### A.5.2 user information

Tap "Settings" in remote mode→ "My profile" to view the profile information of the currently logged-in user and make relevant changes, as shown in the following





### A.5.3 Account and Security

Click "Settings" ightharpoonup ""Account Security" to enter the "Account Security" page, where the user can modify the login password and registered email.



change Password

After clicking "Change Password" on the above page, the system will prompt the user to verify the original password, please enter the correct original password and click "OK". After successful verification, the "Set Password" page is displayed, where the user can enter a new password and confirm it.

Notice : The reset password will take effect when you log in again.





#### Modify email

When the user clicks to modify the email address, the system will send a verification code to the registered email address. Please enter the obtained verification code and fill in a new email address.



### A.5.4 Feedback and help

user is usingMiCoIn the process of remote monitoring system client software, if you have any comments or suggestions, please click "Settings" → "Feedback" and "Submit" after entering it here, your comments or suggestions can be submitted to the system.



To view the help documentation of this client, please click "Settings"  $\rightarrow$  "Online Help".

### A.5.5 aboutMiCo



This page lists the currentMiCoSoftware version and its related updates are introduced for users to view and understand.

# B CP6453Gateway Product Specifications

This section mainly introducesCP6453The technical specifications and installation specifications of the gateway module.

# B.1 Performance parameters

surfaceB-1 CP6453The performance parameters of the gateway module

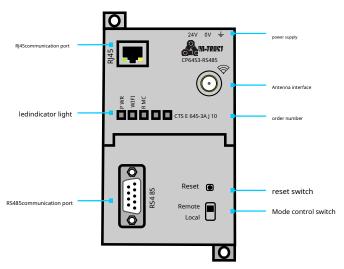
Specification	describe			
physical dimension	96.0x45.2x47.0			
conventional	CP6453-RS485			
Power consumption	2.5W			
	Input voltage	20.4VDC~28.8VDC, rated24VDC		
Power characteristics	Short power down allows time	regular in24V DCBelow is10ms		
	RS485port Provide+5Vpower supply	Current:500mA/Voltage: +5V(Provide rated power for terminating resistor)		
	reset switch	Restoring the Gateway Factory Defaults APmodelDHCPstatic, WANmouth staticIPaddress192.168.1.210, SSID (CT_CP6453_MAClast three bytes), password (12345678), WIFIopen		
switch	Mode control switch	The control gateway module is inLocallocal mode orRemoteremote mode Local:  Disable remote communication, enable local communication  Remote: Enable remote communication, enable local communication (need to passMiCoThe remote monitoring software is configured to the remote server)		
	POWER	Power Indicator  Green light stays on: +24VExternal power is connected  Off: No power to the system or faulty power connection		
ledindicator light	WIFI	WiFiSignal indicator Steady green light: The gateway module is inAPmodel Blinking green light: The gateway module is inSTAmode, and the hotspot is connected off: the gateway module is inSTAmode, no hotspot connected		
	RMCremote access	Remote connection status indicator  Steady green light: connected to the server  Off: Disconnected from the server or not connected to the server, or the DIP switch is inLocal  Location		
	Power terminal	24VDC		
	Ethernet port	1roadRJ45interface,10/100Mbpsadaptive		
interface	serial interface	1roadRS485interface,DB9		
	Antenna connector	omnidirectional antenna,5dBi@2.4GHZ (1.5mAntenna optional)		
	WIFI	standard:IEEE802.11b/g/n, the maximum speed150Mbps		
Communication function				
		PPI/MPIsupport32slaves, baud rate9.6Kbps,19.2Kbps		
RS485communication		MODBUS RTUsupport32slaves Omron Hostlink/Multilinksupport32slaves		

		Omron finslinksupport32slaves
		baud rate1.2Kbps,2.4Kbps,4.8Kbps,9.6Kbps,19.2Kbps,
		38.4Kbps,57.6Kbps,115.2Kbps
		Topstar dedicated protocol, baud rate38.4Kbps
		SIMATIC S7 300support1slave
		baud rate19.2Kbps
		Mitsubishi Protocol 4support16slaves
		Mitsubishi FXsupport1slaves
		baud rate1.2Kbps,2.4Kbps,4.8Kbps,9.6Kbps,19.2Kbps
		Panasonic Mewtocolsupport16slaves
		Delta DVPsupport16slaves Fatek FBs
		support32slaves
		baud rate9.6Kbps,19.2Kbps,38.4Kbps,57.6Kbps,115.2Kbps
		LS MASKTER-K Cnetsupport32slave baud rate9.6Kbps,19.2Kbps,38.4Kbps,
		57.6Kbps FREEPORTagreement (i.e.BRIGHTEK Micro Printeragreement, only
		connected to Vita printers, reserved)
		, ,
		baud rate4.8Kbps,9.6Kbps,19.2Kbps,38.4Kbps,57.6Kbps,
		115.2Kbps
	Number of interfaces	1indivual
		32
	Maximum number of sites	
	cable length	With isolated repeater:9.6KbpsTime1000m
		Without isolated repeater:50m
	Communication port isolation	without isolation
	letter of agreement	TCP/IPprotocol
	baud rate	10Mbps/100Mbpsadaptive
	cable length	Shielded twisted pair medium, each segment is the longest100m
RJ45	Maximum number of sites	unlimited
	isolate	with isolation
	internet connection	STAIn this mode, it is used as an internal LAN interface to connect to a switch,PC/PLC/HMIWait AP
	sex	Mode as an external network port, not supportedPPPoEDial, support staticIP/dynamicIP
	Protocol standard	IEEE802.11b/g/n
	Transmission rate	highest support150Mbps
	Transmission distance	outdoor than20m
	Maximum device connection	
	input	APThe mode allows simultaneous access at most8indivualSTAequipment
	parameter configuration	only throughMiCo PCConfigure locally (defaultAPmode, please refer to chapter
WIFI		A.3.1.3for gateway configuration)
		1, configureWIFIswitch
		2, configure the working mode
		- APIn this mode, you can choose the encryption method and configure the hotspotSSID,password STA - APIn this mode, you can choose the encryption method and configure the hotspotSSID,password STA
		- mode, in which you can connect to other hotspot networks by scanning
		3, configureIP, automatically acquired/manually set 4,
		configure remote related parameters

	ı			
		APIn this mode, it acts as an internal LAN wireless hotspot interface, and other devices can access the gateway by		
	network connectivity	connecting to this hotspot.RS485connected by mouthPLCand access the extranet		
		STAIn the mode, the gateway can access the wireless hotspot and connect to the Internet through the hotspot		
	IPmethod of obtaining	Automatic acquisition/manual setting		
	Function	connectPC, router, mobile phone		
environmental conditions				
Operating temperature	0°C~50°C			
transport/storage	- 20°C~85°C			
temperature	- 20°C~85°C			
humidity	5%-95%, no condensation			
frequency10~57Hz, the magnitude0.1mm,frequency57~150Hz, acceleration1.0g,3each dimension		lz, the magnitude0.1mm,frequency57~150Hz, acceleration1.0g,3each dimension10		
sinusoidal vibration	Second-rate10~50Hz (3axis direction,2G,30minute)			
Immunity to electrical interference pecific reference GB17626.2, GB17626.3, GB17626.4, GB17626.5, GB17626.6				
grounding method	3Class ground			
Operating environment	Dustproof and non-corrosive environment			
fall down	100mm,4Second drop, unpacked			
package dropped	1Mheight, free fall			
Certification				
certified product	CE			

# B.2 external structure

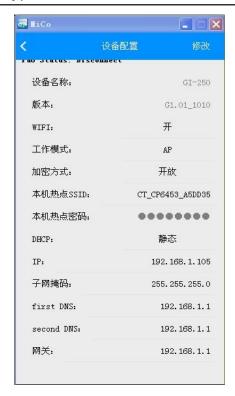
CP6453The gateway module adopts the backplane installation method, and its appearance is shown in the following figure



pictureB-1 CP6453Gateway Module Appearance

#### reset switch

Pinhole, long press5Srelease, wait forWIFIlights andRMCAfter the light flashes rapidly, the user configuration parameters are all restored to their default values, which can be accessed fromMiCoClient view:



 $As shown in FIG: A Pmodel DHCP static, was nouth static IP address (192.168.1.210), SSID (CT\_CP 6453\_MAC) and the production of the prod$ 

The last three bytes of the address), the password (12345678), WiFiopen.

When reset, WiFiand the remote indicator will flash.

#### Mode control switch



pictureB-2Mode control switch

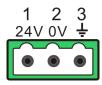
#### ledindicator light

surfaceB-2 LEDIndicator Specifications

led	display color	condition	describe
PWR		Green, continuously lit	+24VExternal power is connected
PVVK		extinguished	No power to the system or faulty power connection
		Green, continuously lit	The gateway module is inAPmodel
WIFI		green, flashing	The gateway module is inSTAmode and connected to a hotspot
		extinguished	The gateway module is inSTAmode, no hotspot connected
RMC		Green, continuously lit	Indicates that the server is connected
RIVIC		extinguished	Indicates that the server is disconnected or not connected to the server

#### Power wiring

24VExternal power input terminal pin definition:



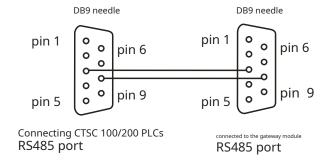
pictureB-3power terminal

# B.3 Communication Port Specifications

surfaceB-3 DSubConnector pin signal definition

RS485communication port	pin number	Signal
	1	the earth
~\bar{\bar{\bar{\bar{\bar{\bar{\bar{	2	-
	3	RS485 D1+
1 - 6	4	-
	5	0V DC
5 1 9	6	+5V DC
	7	-
	8	RS485 D1-
	9	-

Please refer to the following diagram to makeRS485Communication Cable:



pictureB-4makeRS485Communication Cable



surfaceB-5 RJ45Communication port pin definition

WAN/LAN		signal name	Signal description
	1	TX+	send signal+
1. TV	2	TX-	send a signal -
1: TX+ 2: TX-	3	RX+	receive signal+
3: RX+ 4: TERM 5: TERM 6:RX-	4	-	-
	5	-	-
7:TERM 8:TERM	6	RX-	receive signal-
	7	-	-
	8	-	-
Shield		shield ground	shield ground

# B.4 Communication cable specifications and network cable production

#### Network cable specifications

CP6453gateway moduleRJ45When the network port uses a shielded network cable as the communication cable, the available network cable types are: 22AWG-25AWG, its specifications are shown in the table2-6, the resistance value is the DC resistance value of a single wire, it is recommended to use the fully shielded five types

cable or fully shielded Category 5e cable,24AWG;

surfaceB-6Network cable specifications

AWG	outer diameter			
	Metricmm	Imperialinch	Cross-sectional areamm <sub>2</sub>	resistanceΩ/km
twenty two	0.643	0.0253	0.3247	54.3
twenty three	0.574	0.0226	0.2588	48.5
twenty four	0.511	0.0201	0.2047	89.4
25	0.44	0.0179	0.1624	79.6

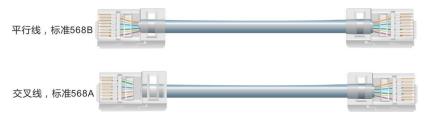
It is recommended to use the super five shielded crystal head, as shown below:



pictureB-5Super five shielded crystal head

#### Network cable production

There are two production forms for standard network cables, as shown in the following figure:



Parallel lines - same line sequence at both ends, standard568BLine sequence: white orange, orange, white green, blue, white blue, green, white brown, brown.

Crossover wire - different wire order at both ends, standard 568ALine sequence: white-green, green, white-orange, blue, white-blue, orange, white-brown, brown.

CP6453It is recommended to use a standard crossover network cable for the network cable used for the gateway module communication.

# C IPparameter settings

useMiCoWhen monitoring the system remotely, please follow the steps below to connect the gateway module, router, EthernetPLCand the host computerIPThe addresses are unified to the same network segment:

Open the "Local Area Connection" window of the host computer and click "Details" to view the network connection details:

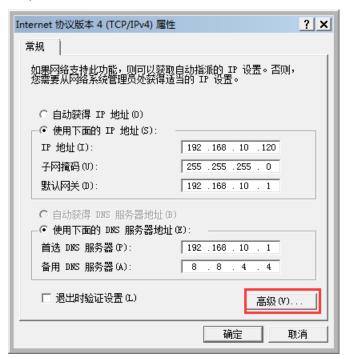




After performing the above operations, go back and click "Properties", and double-click on the opened interface.InternetProtocol version4 (TCP/IPv4):



Then, please refer to the "Network Connection Details" above to fill in the "IPAddress", "Subnet Mask", "Gateway Address", etc.



CP6453Delivery of the gateway moduleIPaddress is192.168.1.210, click "Advanced" in the above interface to set the gateway module'sIPThe network segment is added to the network connection of the host computer.



# D Ordering Information Sheet

product	specification	order number
CP6453Gateway module	beltWIFIgateway module,RS485serial port, standard	CTSE 645-3AJ10

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