

# How to communicate Coolmay HMI Ethernet port to PC

Read the network address information of each HMI.

HMI internal registers:

LW8209 LW8210 LW8211 LW8212	IP address
LW8213 LW8214 LW8215 LW8216	Subnet mask
LW8217 LW8218 LW8219 LW8220	Gateway
LW8221 LW8222 LW8223 LW8224 LW8225 LW8226	MAC address

Note:  $\bigstar$  The gateway must be set to match the router or switch gateway to which it is connected.

 $\star$  The IP address must be set in the network segment of the router or switch to which it is connected.



# I. Steps for downloading and monitoring the HMI program on the internet:

1. Download: If the HMI IP address is 192.168.1.231, the IP address downloaded in the HMI software is also set to 192.168.1.231, and then click download to download the compiled HMI program to the HMI.

OP HMIP.	192. 168. 1. 231	• 0
OP HMI LR: OP TIM Up:	Local  Remote router st           No <ul> <li>Auto download</li> </ul>	art por <mark>50000</mark>

2. Monitoring: Click on Ethernet monitoring

	I - [ C:\Users\co	oolmay\Desktop	(OPP1(OPP1.OP6)				
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Sum page:	1	2:0per	ator HMI				

Set the IP address to the corresponding HMI IP address and click Connect.



# II. Steps of remote download and monitor the HMI program with the external network

1. If two existing HMIs are required to remotely download and monitor the touch screen program through the external network

a. The IP address of HMI 1 is 192.168.1.231, the rule name is customized, the external port protocol is ALL, the port is set to 50000, the internal port is set to 6666.

The IP address of HMI 2 is 192.168.1.232, the rule name is customized, and the external port protocol is selected. ALL, the port is set to 50001, and the internal port is set to 6666. Note 1: If you have multiple HMIs, you must select a router that supports destination port mapping (internal ports).

## Note 2:

"Destination IP address": It is the HMI IP address.

"Starting port" / "End port" / "External port": The value ranges from 1024 to 65535 (recommended a larger value).

"Destination port mapping" / "Internal port": The 6666 port is used by default by the keyboard, so the input 6666 is fixed here.

▶ 虚拟服务配置 Virtual service configura	ation
Name 规则名称:HMI2	
Intranet IP address 内网主机IP地址: 192.168.1.232	
Application template 应用模板: 请选择模板	
External port 外部端口: ALL 💌 50001	•
Internal port 内部端口: <mark>6666</mark> -	
着加	
Add	Back

b. Setting up as shown below.

序列号	虚拟服务名称	内网主机IP地址	Protoco 前议	↓ 外部跳口	内部講口	操作
1	HM12	192.168.1.232	all	50001	6666	/ X
2	HMI1	192.168.1.231	all	50000	6666	/ X
每页: 10	会 首页 上一页 1	一页 尾页 1/1 💌	息数:32 負	6 日用:2 条	THEFT	播加

c. Check the external network IP address in the router, which is now 183.14.112.140. Note: If the company does not apply for a static IP address, the external network IP



captured by the modem is dynamically allocated. That is, each time the modem is restarted or redialed, an external network IP is re-randomly acquired. For this reason, customers using Dynamic IP are advised to re-login to the Router Port Configuration window each time they use Remote Ethernet Monitoring or Remote Upload to view and determine the external IP address for the time period.

MAC 地址:	EC-88-8F-29-C7-97	
IP地址:	183, 14, 192, 140	PPPoE按需连接
子网掩码:	255.255.255.0	PPPoE connect as required
网关:	183.14.192.140	
DNS 服务器:	202.96.128.166 , 20	2. 96. 134. 133
上网时间:	0 day(s) 05:16:59	断线

## Remote end.

- 1. Remotely use the HMI software to download the program.
- Download the HMI 1 program

OP HMI IP:	183. 14. 192. 140	- 0
OP HMI LR	Remote Remote router :	start por 50000
OP TIM Up	: No 🔹 🗆 Auto download	Down.
	q	ort No.

Download the HMI 2 program.

OP HMI IP:	183. 14. 192. 140	· 0
OP HMI LR:	Remote V Remote rout	er start por 50001
OP TIM Up:	No   Auto downloa	id 🔂 Down.
		Port No.

2. Click Ethernet monitoring



CoolMayHMI - [ C:\Users\coi	xolmay\Desktop\OPP1\OPP1.OP6 ]	
File(E) Edit(E) View(V) Too	ol( <u>T</u> ) Draw( <u>D</u> ) Element( <u>O</u> ) Application( <u>A</u> ) Debug( <u>L</u> ) Individuation( <u>I</u> ) Window( <u>W</u>	) Help( <u>H</u> )
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Sum page: 1	2 1:Operator HMI	

Monitor the HMI 1: Add the remote connection in the system running option, change the connection mode to remote, change the port number to 50000, change the IP address to the IP address of the corresponding external network where the HMI is located, now it is 184.14.112.140, then click connect.

OCS For NET V5.68		
File(F) Edit(E) Management(M) View(V) T Language 1 IP address@ 183.14.192.140	ool(T) Help(H) 	1
	System run options P address correspondence name management P Name 127.0.0.1 Localhost 127.0.0.1 & & & & & & & & & & & & & & & & & & &	



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Monitor the HMI 2: Add the remote connection in the system running option, change the connection mode to remote, change the port number to 50001, change the IP address to the IP address of the corresponding external network where the HMI is located, now it is 183.14.122.140, then click connect.

OCS For NET V5.68		
File(F) Edit(E) Management(M) View(V) To		11:54:39
IN 200125512 183.14.192.140	System run options P address correspondence name management P address correspondence name management P address correspondence name management Current connection:Localhost 127.0.0.1 4 k 192.168.0.88 152.168.0.88 222.222.222.222.222.222.222 183.14.192.140 183.14.192.140 Submit dat/e up submis Added X Delete Modify Run setting Connect (Remot • Remote router forward 50001 • t nu Command No •: When\$8255E 56 • Solo • Solo • Solo • Solo • Connection: Record buffer Database s(Access • Connection)	

Or change the IP address to the external network IP. Now it is 183.14.192.140, set the forwarding port to 1, and then click connect..

DCS For NET V	/5.68 Management(M)	View(V)	Tool(T)	Help(H)							
) Language 1				Ø	7	X	I				SD 18
IP address	183.14.192.1	40					•	1	Co	onnect	

## **Remarts:**

Instructions of "Router Forwarding Start Port" and "Forwarding Port" in the remote monitoring/ remote download function of the external network: E.g. Remote download window.

OP HMI IP:	183.14.192.140		- 0
OP HMI LR: OP TIM Up:	Remote  Remote No	router	start por 50000
		Sta	art Port No.
MI OK waiting	download command	9/25/2018	11:58:30 AM



Thereinto,

OP man-machine location: remote. IP address: 183.14.192.140 (external network IP address). Remote Router Forwarding Port + Forwarding Port Number = Destination Mapping Port in

the gateway configuration.

## For example,

There are 3 HMIs, and each has been configured with the corresponding router forwarding port as follows, the external network IP: 183.14.112.140.

### HMI 1:

IP: 192.168.1.231---- Starting port: 50000---- End port: 50000---- Internal port: 6666 HMI 2:

IP: 192.168.1.232---- Starting port: 50001---- End port: 50001 ---- Internal port: 6666 HMI 3:

IP: 192.168.1.233---- Starting port: 50002---- End port: 50002 ---- Internal port: 6666

In the "OP Series HMI Program Download" window:

1) Input: IP address 183.14.192.140---- Remote router forwarding start port number 50000 + forwarding port number 0--- or remote router forwarding start port number 50000---update HMI 1

2) Input: IP address 183.14.192.140---- Remote router forwarding start port number 50000 + forwarding port number 1--- or remote router forwarding start port number 50001---update HMI 2

3) Input: IP address 183.14.192.140---- Remote router forwarding start port number 50000 + forwarding port number 2 --- or remote router forwarding start port number 50002---- update HMI 3

# 2. If the router does not support the internal port mapping function, it can only support one HMI to remotely download and monitor the HMI program through the external network.

a. The IP address of the touch screen is 192.168.1.231, the rule name is customized, the external port protocol is ALL, and the port is set to 6666.

虚拟服务器 Virtual Server	
虚拟服务器定义了广域 所有对该广域网服务端 网络服务器。	网服务端口和局域网网络服务器之间的映射关系, 口的访问将会被重定位给通过IP地址指定的局域网
Server port number 服务端口号: IP address IT地址: Protocol 协议: Status 状态:	66666 (XX-XX or XX) 192.168.1.231 ALL ▼ 生效 ▼take effect
常用服务端口号:	请选择 ▼
保存 返回 帮助	

b. It is shown as below after settings.

服务端	口的访问将会被 Server port	管定位给通过IP地址指定(	的局域网网 Protocol	各服务器。 Status	
ID	服务端口	IP地址	协议	状态	编辑Edit
1	6666	192. 168. 1. 231	ALL	生效	编辑 删除

c. Check the external network IP address in the router, which is now 183.14.112.140.

Note: If the company does not apply for a static IP address, the external network IP captured by the modem is dynamically allocated. That is, each time the modem is restarted or redialed, an external network IP is re-randomly acquired. For this reason, customers using Dynamic IP are advised to re-login to the Router Port Configuration window each time they use Remote Ethernet Monitoring or Remote Upload to check and determine the external IP address for the time period.

MAC 地址:	EC-88-8F-29-C7-97	
IP地址:	183.14.192.140	PPPoE按需连接
子网撞码:	255.255.255.0	PPPoE connect as required
网关:	183. 14. 192. 140	
DNS 服务器:	202.96.128.166 , 20	02. 96. 134. 133
上网时间:	0 day(s) 05:16:59	断线

### Remote end:



1. Remote use HMI software to download programs. Download HMI program.



### 2. Click Ethernet monitoring.

🛎 CoolMayHMI - [ C:\Users\coo	Imay\Desktop\OPP1\OPP1.OP6 ]
File(F) Edit(E) View(V) Tool	I[] Draw(D) Element(Q) Application(A) Debug(L) Individuation(]) Window(W) Help(H)
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Sum page: 1	🙎 1:Operator HMI

In the system operation option, add the remote connection, the connection mode is changed to remote, the port number is changed to 6666, and the IP address is changed to the IP address of the corresponding external network where the HMI is located. It is now 183.14.122.140, and then click connect.

int(M)       View(V)       Tool(T)       Help(H)         image: Second condition of the se					
System run options       X         IP address correspondence name management       Edit area         IP       Name         127.0.0.1       Localhost         127.0.0.1       本地         IP:       183.14.192.140         IP:       183.14.192.140         Name:       183.14.192.140         IB:       IB:         IB:       ID:         IB:       ID:         IB:       ID:         IB:       ID:         IB:       ID:         IB:       ID:         ID:       ID: </th <th>ent(M) View(V) Tool(T) Help(H</th> <th></th> <th><ul> <li>Image: Second se</li></ul></th> <th>1/8-09-25</th> <th>11:59:5</th>	ent(M) View(V) Tool(T) Help(H		<ul> <li>Image: Second se</li></ul>	1/8-09-25	11:59:5
	System run options IP address correspond IP Name 127.0.0.1 Loca 127.0.0.1 本地 192.168.0.88 192.1 222.222.222.222.22 183.14.192.140 183.1 Run setting Connect i Parent	ence name management Edit area Current com IP: 183.1 Name: 183.1 Name: 183.1 Submit d + Added	mection:Localhost 14.192.140 14.192.140 14.192.140 14.192.140		
Command No : When\$8255E 56 System automa Record buffer Database s(Access •	Command No Record buffer Database s	]: When\$8255E 56	System automa		





# III. Setting steps of HMI Ethernet port with MODBUS TCP protocol

Note: Modbus TCP and Free Protocol (TCP/IP) protocols are supported only for above HMI version V5.73. When the HMI is used as a modbus host and the Free Protocol (TCP/IP), the function of downloading the program from the network port can be used. When the modbus slave is used, the function of the network port download program is not available.

## 1. HMI as host.

a. Set the communication parameters of the HMI network port

Communication port: Ethernet

Remote port: The default is 502. (Set to match the remote host, which is the local port of the device communicating with the HMI network port)

Device Type: Modbus Slave (TCP/IP) Note: It refers to the type of device that communicates with the HMI.

Communication timeout: 200ms

Device ID: 1 (default is 1)

Remote host: The IP address of the device that communicates with the touch screen. (Example: 192.168.1.88)

HMI PRM: Usb Disk Da	MT607 t Permi	7 <b>0H (800*480 ▼</b> HMI s.: Super ▼ □ L:	Match Select Table ink2 Use
Linkl Set	up		
Port: Eth	ernet	Device t Modbus Slav	e (TCP/IP) 🗾
		Timeout: 200 ms	Equipmen 1
Remote P <mark>502</mark>	<u>+</u>	Remote H 192.168.1	. 88
Attempts 8	<b>•</b>	Fast Read D:0	Data leng <b>0</b>
Link2 Set	up		
Port: COM	2 🚽	Device t Mitsubishi	FX2N 💌
Rate: 960	0 -	Timeout: 200 ms	EquipmentO
CheckBit Eve	n 💌	Dat Bits 7 b 💌	Stop bit 1 b 💌
Attempts 8		Fast Read D:0	Data lens

b. Place a function key on the screen to jump to the Ethernet/CAN configuration screen No. 253. After downloading the program, you can click this function key to jump to the HMI



built-in screen to set the local IP of the touch screen (set to the IP address of the network segment where the touch screen is located). After setting the IP of the HMI, you need to power off and restart the HMI to take effect.

nction key attribute		
Position Locked Left: 255	Basic Transpar Langu Touch effer	uag Fun Key
Property Wide: 109	Basic functi     Senior func:	-
High: 50 🔹 Backg	Set format Bordeluxury • Font:8X16 •	Jump to 253#: Ethernet /CAN
Prosp	AlignMidd 💌 EffeqLevel:Gen💌	Chann conn <b>Link 1 •</b> Elem typ: 4x • ?
	Use BMP Size	Register4x0

			Contrast		
Return		et/CANConn.			
EthernetFur	1:	ON			
L.Di.Update	:	Allow			
IpAddres:	192	. 168 . 0 .	85		
Sub.Mask:	255	. 255 . 255 .	0		
Gateway:	192	. 168 . 0 .	1		
CAN Dat					
SelfID1:	0	Che.ID1:	0		
SelfID2:	0	Che.ID2:	0		
SelfID3:	6	Che.ID3:	0		
SelfID4:	0	Che.ID4:	0		
SolfID5:	0	Che.ID5:	0		
Senios.	1		Translation and		

Ethernet function: Yes

Remote update HW6: Yes

IP address: Set to the IP of the network segment where the HMI is located. Example: 192.168.0.85

Subnet mask: The default is 255.255.255.0

Default gateway: The gateway is the one where the HMI is located. Example: 192.168.0.1



Note: The HMI local IP can also be set by direct register corresponding register. HMI internal registers: LW8209 LW8210 LW8211 LW8212.....IP address

LW8213 LW8214 LW8215 LW8216.....Subnet mask

LW8217 LW8218 LW8219 LW8220..... Gateway

LW8221 LW8222 LW8223 LW8224 LW8225 LW8226......MAC address

## 2. HMI as slave

a. Set the HMI communication parameters

HMI PRM: Usb Disk	Dat H	<b>IT607</b> <sup>9</sup> ermi	0H (800*480 ▼ HMI s.: Super ▼ □ Li	Match Select Ta nk2 Use	ble
Link1 S	Set u	<b>p</b>			
Port:	Ethern	et⊻	Device t Modbus Mast	er (TCP/IP)	_
			Timeout: 200 ms	Equipmen 1	
Remote P	512	-	Remote H <mark>63 - 32 - 63</mark>	3 - 32	
Attempts	8	<b>•</b>	Fast Read 430	Data leng <b>O</b>	•
Link2 S	Set up	0			
Port:	COM2	*	Device t Mitsubishi 1	FX2N	-
Rate:	9600	*	Timeout: 200 ms	Equipmen 0	
CheckBit	Even	Ŧ	Dat Bits 7 b 💌	Stop bit 1 b	Ŧ
Attempte	8		Fast Read D.O	Data lens	

Communication port: Ethernet

Device Type: Modbus Master (TCP/IP) Note: It refers to the type of device that communicates with the HMI.

Communication timeout: 200ms

Device ID: 1 (default is 1)

b. Place a function key on the screen to jump to the Ethernet/CAN configuration screen No. 253. After downloading the program, you can click this function key to jump to the touch screen built-in screen to set the local IP of the touch screen (set to the IP where the HMI is located). After setting the HMI IP, you need to power off and restart the HMI to take effect.



nction key attribute			- 23
Position Locked Left: 255	Basic Transpar Lang	uagi Fun Key	-
Top: 57	Basic functi     Senior func:	uage FunKey	
Wide: 109 - High: 50 - Backg	Set format Bordeluxury • Font:8X16 •	Basic function Jump t√253#: Ethernet /CAN □ Login Logout	•
Prosp	AligrMidd ▼ EffeqLevel:Gen▼ □ BMP: NULL	Chann connLink 1 v Elem typ: 4x v ? Register4x0	

U III a y					
Return LE	thern	et/CANConfi.)			
EthernetFur	n:	ON			
L.Di.Update	e: [	Allow			
IpAddres:	192	. 168 . 0 .	85		
Sub.Mask:	255	. 255 . 255 .	0		
Gateway:	192	. 168 . 0 .	1		
CAN Dat	-	Cha ID1:	0		
SelfID1:	0	Che.IDI.	0		
SelfID2:	0	Che.ID2:	0		
SelfID3:	6	Che.ID3:	0		
SelfID4:	0	Che.ID4:	0		
SelfID5.	0	Che.ID5:	0		

Ethernet function: Yes

Remote update HW6: Yes

IP address: Set to the IP of the network segment where the HMI is located. Example: 192.168.0.85

Subnet mask: The default is 255.255.255.0

Default gateway: The gateway is the one where the HMI is located. Example: 192.168.0.1

Note: The HMI IP can also be set by direct refer to the register.

HMI internal registers:

LW8209 LW	8210 LW8211	LW8212	IP address	
LW8213 LW	8214 LW8215	LW8216	Subnet mask	
LW8217 LW	8218 LW8219	LW8220	Gateway	
LW8221 LW	8222 LW8223	LW8224 LW8225	LW8226MAC addres	s

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# IV. Setting steps of HMI Ethernet prot with Free Protocol

<b>General</b> HMI PRM: Usb Disk	MT60 Dat Perm	70H (800*480 - HMI is.: Super - □ Li	Match Select Table			
Link1 Se	et up					
Port: Ethernet		Device t Free Protocol (TCP/IP)				
		Timeout: 200 ms	Equipmen 1			
Remote P <mark>5</mark>	12 🔶	Remote H 192.168.1	. 88			
Attempts 8	* *	Fast Read 420 👤	Data leng <b>0</b>			
Link2 Se	et up					
Port: C	OM2 👻	Device t <mark>Mitsubishi</mark> H	YX2N ▼			
Rate: 9	600 💌	Timeout: 200 ms	Equipmen 0			
CheckBit	ven 💌	Dat Bits 7 b 💌	Stop bit 1 b 💌			
Attempts 8		Fast Read D:0	Data leng			

1. Setting communication parameters of HMI Ethernet

a. Place a function key on the screen to jump to the Ethernet/CAN configuration screen No. 253. After downloading the program, you can click this function key to jump to the HMI built-in screen to set the local HMI IP (set to the one where the HMI is located). After setting the HMI IP, you need to power off and restart the HMI to take effect.



nction key attribute		×
Position	Basic	
Locked	Transpar Language Fun Key	
Left: 255 👤	Touch effer	*
Top: 57 📫	Basic functi     Language FunKey	*
Property Wide:	C Senior func	
	Set format Basic function	
High: 50	Bordeluxury Jump to 253#: Ethernet /	CAN -
Backg 🗾	Font:8X16	
Prosp	AligrMidd	
	Effe Level: Gen Elem typ: 4x + ?	
	□ BMP: NULL Register 4x0	
	□ Use BMP Size SetValueK:	

Usiliay							
Return	thern	et/CANC	Confi.				
Ethern.Dat							l
EthernetFu	n: [	ON					l
L.Di.Update	e: [	Allow					
IpAddres:	192	. 168 .	0.	85			ł
Sub.Mask:	255	. 255 .	255 .	0			
Gateway:	192	. 168 .	0.	1			
CAN Dat	0	Chol		0			
SelfID1:	0	Che	101.	0			
SelfID2:	0	Che	102.	0			
SelfID3:	0	Che	103.	0			
SelfID4:	0	Che.		0			
SelfID5:	0	Che.	105:	0			

Ethernet function: Yes

Remote update HW6: Yes

IP address: Set to the IP of the network segment where HMI is located. This example is: 192.168.0.85

Subnet mask: The default is 255.255.255.0

Default gateway: The gateway is the one where the HMI is located. This example is: 192.168.0.1

Note: The HMI IP can also be set by direct setting corresponding register. HMI internal registers:

LW8209 LW8210 LW8211 LW8212.....IP address LW8213 LW8214 LW8215 LW8216.....Subnet mask

LW8217 LW8218 LW8219 LW8220...... Gateway LW8221 LW8222 LW8223 LW8224 LW8225 LW8226.......MAC address

The HMI uses the macro RXD/TXD to write and receive data. The specific instructions are as follows:

 $TXD \rightarrow Send data$ , such as TXD (A1, A2) (Communication protocol must be Free Protocol)

It is to send data from the A1 address to LINK1/LINK2, and select the corresponding UART port, and send A2 bytes in total. The data format is only Word (1 Word = 2 bytes).

 $RXD \rightarrow Receive data$ , such as RXD (A1, A2) (Communication protocol must be Free Protocol)

Select the corresponding UART port from LINK1/LINK2 to receive the data to the start address specified by A1. If A2 specifies K, it is specified to read K bytes. If A2 specifies LW, all bytes of the buffer are read. The number of bytes read is placed in the address specified by A2. The format of the stored data is determined by the LW address specified by A2+1.

Set "0" to return in bytes.

Set "1" to return by word [high byte first]

Set "2" to return by word [low byte first]