21. Ethernet Communication and Multi-HMI Connection

This chapter explains how to connect multiple devices via Ethernet.

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21.1. Overview

There are two ways of Ethernet communication:

• Use RJ45 straight through cable and hub.



 Use RJ45 crossover cable and without hub, but this is limited to point-to-point connection (HMI to HMI or PC to HMI).



Through Ethernet network, the system provides the following methods for data transmission:

- HMI to HMI communication.
- PC to HMI communication.
- Operating the PLC connected to another HMI.

21.2. HMI to HMI Communication

To exchange data between one HMI and another HMI, add a new remote HMI device in [System Parameter Settings]. If there are 2 HMIs (HMI A and HMI B), in order to use a Set Bit object on HMI A to control [LB-0] on HMI B, the setting of the project of HMI A is explained in the following part.



1. Set the IP address of the two HMIs, for example, HMI A: 192.168.1.1, HMI B: 192.168.1.2.



2. In [System Parameters] » [Device list], add a remote HMI B (IP: 192.168.1.2).

Device Properties
Name : HMI B
● HMI ○ PLC
Location : Remote
IP Address Settings
Ethernet
IP address: 192 . 168 . 1 . 2
Port no. : 8000
OK Cancel

 Create a Set Bit Object, select "HMI B" in [PLC name] to control the address of the remote HMI.

New Set Bit Object General Security Shape Label	×
Comment : Write address PLC name : HIMI B Address : LB 0 Write after button is released]
Attribute Set style : Set ON	

Note

• One HMI can handle requests from a maximum of 64 HMIs simultaneously.

21.3. PC to HMI Communication

With On-line Simulation, PC can collect data from HMI through Ethernet network and save the data files to PC. To connect PC with two HMIs (HMI A and HMI B), the setting of the project on PC is explained in the following part.



- **1.** Set the IP address of the two HMIs, for example, HMI A: 192.168.1.1, HMI B: 192.168.1.2.
- In [System Parameter Settings] » [Device list], add a remote HMI A (IP: 192.168.1.1) & HMI B (IP: 192.168.1.2).



ystem P	arameter Sett	tings						_
Cellu	lar Data Networ	k Prin	ter/Backup Server	Time Sync./DST e-Mail F			Recipes	
Device	Model	General	eral System Setting Security Non-ASCII Fonts Extended		nded Memory			
Device	list :						Wha	<u>at's my IP?</u>
N	0.	Name	Location		Device	type	Inte	erface
Lo	cal HMI	Local HMI	Local		MT809	2XE (10		
R	Remote HMI 1 HMI A Remote (IP:192.16		168.1.1, Por	t eMT/XE	/iE/iP/m.	Eth	ernet	
► R	emote HMI 2	HMI B	Remote (IP:192.:	168.1.2, Por	t eMT/XE	/iE/iP/m.	Eth	ernet

 Create a Set Bit Object, select "HMI A" in [PLC name] to control the address of the remote HMI A. Same for the HMI B.

New Set Bit Object
General Security Shape Label
Comment :
Write address
PLC name : HMI A Setting
Address : LB 🗸 0
Write after button is released
Attribute
Set style : Set ON

Note

- A PC can control at most 64 HMIs simultaneously.
- As shown above, HMI can also control PC. PC can be seen as another HMI, that is, adding a remote HMI in the project of HMI A / HMI B, and the IP of the remote HMI is set to the IP of PC.

21.4. Operating the PLC Connected with Other HMI

Through Ethernet network, PC or HMI can operate the PLC that is connected to another HMI. If PLC is connected to COM 1of HMI B, when using PC or HMI A to read PLC data, the setting of the project of PC or HMI A is explained in the following part.



21.4.1. Settings of eMT / iE / XE / mTV / iP Series

1. Set the IP address of HMI B, for example, 192.168.1.2.



 In [System Parameter Settings] » [Device list], add a remote PLC, and set [Name] to "PLC on HMI B". Set correct parameters. Since this PLC is connected to remote HMI B, set the IP address to HMI B (IP: 192.168.1.2).

Name: PLC on HMI B
O HMI O PLC
Location : Remote Settings IP : 192.168.1.2 (Port = 8000)
* Select Local for a PLC connected to this HMI, or Remote for a PLC connected through another HMI.
PLC type : Mitsubishi FX0S/FX0N/FX1S/FX1N/FX2
PLC ID : 10, V.1.60, MITSUBISHI_FX0N.e30
I/F: RS-485 4W Open PLC Connection Guide
COM : COM1 Settings
Interval of block pack (words) : 5
Max. read-command size (words) : 32 -
Max. write-command size (words) : 32

3. Create a Set Bit Object, select "PLC on HMI B" in [PLC name] to control the PLC connected with the remote HMI B.

New Set Bit Object	×
General Security Shape Label	
Comment :	
Write address	
PLC name : PLC on HMI B	
Address : X 🔹 0	
Write after button is released	
Attribute Set style : Set ON	

21.4.2. Settings of cMT / cMT X Series models

- 1. Set the IP address of HMI B, for example, 192.168.1.2.
- In [System Parameters] » [Device list], click [New HMI]. Set the IP address to HMI B (IP: 192.168.1.2).



Name :	НМІ В
	MMI
Location :	Remote
IP Address S	ettings
IP Address S Ethernet If	ettings P address : 192 . 168 . 1 . 2
IP Address S Ethernet If	ettings P address : 192 . 168 . 1 . 2 Port no. : 8000

3. In the project of HMI B, go to [System Parameter Settings] » [Device list], click [New PLC], set [Name] to "PLC on HMI B". Set correct parameters.

	ended Memory Cellular Data Network		ata Network	Time Sync./DST	e-Mail	Recipes	
Device	Model	General	System Setting	Security N	Ion-ASCII Fonts	Font Mapping	
evice list			0 70 - 50k		J	Vhat's my IP?	
No.		Name	Location	Device type	Interface	I/F Protocol	
Loca	I HMI	Local HMI	Local	cMT3090 (102	-		
Rem	ote HMI 1	HMI B	Remote (I	CMT-SVR	Ethernet	TCP/IP	
(m	Name Location	PLC on HMI B	PLC Settings	IP : 192.168.1.2 (Port = 8000)
ING	Ininia	-in CODESVSI PI	.C to commun	PLC type	: Mitsubi	shi FXOS/FXON/FX1S/	FX1N/FX2
Add a [M roject des	cription :				PLC ID : 10, V. 1.0	0, MITSUBISHI_FXON	.c30
Add a [M	cription :			I/F	PLC ID : 10, V. 1.0	50, MITSUBISHI_FXON	.c30



 When finished, a remote PLC can be found under Remote HMI 1. Local HMI 1 stands for HMI A, Remote HMI 1 stands for HMI B, and Remote PLC 1 is connected with HMI B.

Extended Mem		Memory	Cellular Data Network Time Sync./DST e-Mail Recipes				Recipes		
De	vice Model		e Model General		Security	curity Non-ASCII Fonts Font Mapping			
Device list : What's my IP?									
	No.		Name	Location	Device type		Interface	I/F Protoco	
	Local	НМІ	Local HMI	Local	cMT3090 (1	02	-	-	
-	Remo	te HMI 1	HMI B	Remote (IP:	. CMT-SVR		Ethernet	TCP/IP	
	▶ Re	mote P	PLC on HMI B	Remote (IP:	. Mitsubishi F	X0	COM 1 (9600,E	E RS485 4W	

5. Create a Set Bit Object, select "PLC on HMI B" in [PLC name] to control the PLC connected with the remote HMI B.

New Set Bit Object
General Security Shape Label
Comment :
Write address
PLC name : PLC on HMI B Setting
Address : X 🗸 🗸
Attribute Set style : Set ON
Macro
Execute macro

Note

When the remote HMI in a cMT/cMT X Series project is an eMT/iE/XE/mTV model, please select [Support iE/XE/eMT/mTV HMI communication protocol and EasyWatch] check box in the [Model] tab in [System Parameters]. Similarly, when the remote HMI in an eMT/iE/XE/mTV project is a cMT / cMT X Series model, please select [Support cMT communication protocol] to establish communication between cMT/cMT X and eMT/iE/XE/mTV models.

