MITSUBISHI Electric Corporation MELSEC-Q(UDE CPU) Series **CPU ETHERNET Driver**

Compatible OS version

Over 4.0.0.0

Over 4.0



XDesignerPlus

CONTENTS

Thank you for using M2I's "Touch Operation Panel(M2I TOP) Series". Please read out this manual and make sure to learn connection method and process of TOP - External device"

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Please choose proper system referring to this point.

2. Selecting TOP model and

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external devices

Select TOP model and external device..

Page 4 **3.** Example of system settings

It explains setup example for communication connection between the device and external terminal.

Select example according to the system you choose in "1. System structure"

Page 8 **4.** Communication settings details

It explains the way of configuring TOP communication.

If external setup is changed, make sure to have same setup of TOP with external device by referring to this chapter.

5. Support address

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Check available addresses to communicate with external devices referring to this chapter.



1. System configuration

System Configuration of TOP and "MITSUBISHI Electric Corporation MELSEC-Q(
UDE
CPU) Series CPU ETHERNET" is as follows.

Series	CPU	Link I/F	Method	System settings	Cable
MELSEC-Q	Q03UDECPU	CPU Port	Ethernet	<u>3.1 설정 예제 13.1</u>	Twisted pair cable*Caution1)
	Q04UDEHCPU		(UDP)	Setting Example 1	
	Q06UDEHCPU			<u>(Page 4)</u>	
	Q13UDEHCPU		Ethernet	3.2 Setting Example	
	Q26UDEHCPU		(TCP)	2	
				(Page 7)	

*Caution1) Twisted pair cable

- This means STP(Shielded Twisted Pair cable) or UTP (Unshielded Twisted Pair cable) category 3, 4, 5.

- You can connect to configurational device such as hub, transceiver depend on the configuration and in this case, use direct cable.

■ Possible Connecting Configuration

• 1 : 1 connection(1 TOP and 1 External Device)



• 1 : N Connection (1 TOP and several external devices) Connection





2. Selecting TOP model and external devices

Select the external devices to connect to TOP.

	× ×						
			HMI / PLC Uint				
Series	XTOP Series		Vendor MITSUBISHI Electric Corporation				
Model	XTOP15TX-SA/SE	>	PLC Model MELSEC-Q (UDE Type) Series CPU ETHERNET				
			PLC				
	Vendor		Model				
M2I Corporation			CC-LINK(Remote Device Station)				
MITSUBISHI E	lectric Corporation		MELSEC-A Series ETHERNET				
OMRON Indus	strial Automation		MELSEC-AnA Series Computer Link				
LS Industrial :	Systems		MELSEC-AnA(A2A/A3A) Series CPU Direct				
MODBUS Org	anization		MELSEC-AnA(A2U/A3U/A4U/A2US/A2USH) Series CPU Direct				
SIEMENS AG	£3	н	MELSEC-AnN (A0J2) Series CPU Direct				
Rockwell Aut	tomation (AB)		MELSEC-AnN (A2N,A3N) Series CPU Direct				
GE Fanuc Au	tomation		MELSEC-AnN Series Computer Link				
PANASONIC	Electric Works		MELSEC-AnN(AnS,A0J2H) Series CPU Direct				
YASKAWA E	Electric Corporation		MELSEC-FX Series CPU Direct				
YOKOGAWA	Electric Corporatio		MELSEC-FX Series Computer Link				
Schneider Ele	ectric Industries		MELSEC-FX Series Positioning Controller - FX2N-10/20GM				
KDT Systems	8		MELSEC-Q (UDE Type) Series CPU ETHERNET				
RS Automatic	n(SAMSUNG)		MELSEC-Q Series CPU Direct				
HITACHI IES			MELSEC-Q Series ETHERNET(QJ71E71)				
FATEK Auton	nation Corporation		MELSEC-Q Series SERIAL(QJ71C24,Format1)				
DELTA Electr	onics		MELSEC-Q Series SERIAL(QJ71C24,Format5)				
KOYO Electro	onic Industries		MELSEC-Q(00CPU/01CPU) Series CPU Direct				
VIGOR Electr	ic Corporation		MELSEC-Q(00JCPU) Series CPU Direct				
Comfile Techi	nology		MELSERVO-J2 Series				
Dongbu(DAS	AROBOT)		MELSERVO-J3 Series				
POPOSTAR		-					

Setting	details	Contents				
TOP	Series	Select the name of a TOP series that is to be connected to PLC.				
		Before downloading the settings, install the OS version specified in the table below according t				
		TOP series. (ATOP / CTOP Series does not support ethernet communication.)				
		Series	Version name			
		XTOP / HTOP	V4.0			
	Name	Select the model name of TOP p				
Communicatio	Manufacturer	Select the manufacturer of exter	nal devices to be connected to 1	OP.		
n Device		Please Choose "MITSUBISHI Elec				
	PLC	Select the model series of exterr	OP.			
		Please select "MELSEC-Q(□□UE	DE□CPU) SERIES CPU ETHERNET	и		
		Please check, in the "1. System of	configuration", if the relevant ext	ernal device is available to set a		



	system configuration.



3. Example of system settings

Regarding of communication interface settings in TOP and external devices, we suggest as below.

3.1 Example of settings 1

Set the system as below.

Details	ТОР	MELSEC-Q Series	Remark
IP Address*Caution1)Caution2)	192.168.0.50	192.168.0.51	User settings
Protocol	UDP	UDP	User settings
Port	1025 _{DEC} (401 _{HEX})	4000 _{DEC} (0FA0 _{HEX})	User settings

*Caution1) TOP and external devices' network address (front part of IP address 192.168.000) has to be identical. *Caution2) Please do not use the same IP address in the same network.

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.



- IP Address (PLC): Type the IP address that the external device was given.

-Reading port / writing port: Choose the port number that will be used for ethernet communication. Please input the port number that [GPPW] issued.





(2) External device settings

Please set up using MELSEC series Ladder Software "GX Developer" as below. Please refer the PLC user manual for more detailed information if you need.



TOP and external devices' network address (front 3 digits of IP address 192.168.000) must be identical.

9 동일 네트워크 상에서 중복된 IP 주소를 사용하지 마십시오_{-</100(>}Please do not use the same IP address in the same network.

- **1.** From "GPPW" project window, double click[Parameter] [PLC parameter] to pop up [Q parameter setting] Dialog Box.
- 2. Select [Built-in Ethernet port] from the [Q parameter setting] window to set the information as below.

- IP address	Input format DEC	n settings				
IP Subpot m	192 168 0 51	e settings				
Default ro	puter IP Set	at if it is Default / Changed)				
Communic G Binary C ASCII F Enable Disable F Do not	ation data code code code colline change (FTP, MC protocol) e direct connection to MELSOFT respond to search for CPU (Built-in Ethernet port) on netwo	D				
Details		Settings				
P address	IP	Details	Settings	Remark		
		Protocol	UDP	User setting		
	Subnet mask pattern	Op _{en sys} tem	MC Protocol	Fixed User setting		
	Default router IP	Host Station Port No.	FA0 _{HEX} (4000 _{DEC})			
Communicati	ion data code					
nable online	e change (FTP, MC protocol)	Enable				
visable direc	t connection to MELSOFT	Not using				
Do not respo	osd to search for CPU(Built-In Ethernet Port)on network	Not using				

3. Select [Open Setting] from the [Built-in Ethernet port] of [Q parameter setting] window to set the information as below.

	Proto	col	Open system		Host station port No.
	UDP	-	MC Protocol	-	OFAC
	TCP	-	MELSOFT connection	-	
	TCP	-	MELSOFT connection	*	(
Ī	TCP		MELSOFT connection	+	
	TCP	•	MELSOFT connection	+	
	TCP	-	MELSOFT connection	-)
	TCP	-	MELSOFT connection	•	
	TCP	-	MELSOFT connection	-	
	TCP	-	MELSOFT connection	-	N.
E	TCP	-	MELSOFT connection	-	
	TCP	-	MELSOFT connection	+	í.
2	TCP	-	MELSOFT connection	+	
3	TCP	-	MELSOFT connection	+	
1	TCP	-	MELSOFT connection	+	0
5	TCP	-	MELSOFT connection	-	
Const of	TCP	-	MELSOFT connection	+	



4. Please reset PLC after sending parameters that has been set from [Online] > [Write to PLC].



3.2 Example of Settings 2

Set the system as below.

Details	ТОР	MELSEC-Q Series	Remark
IP Address*Caution1)Caution2)	192.168.0.50	192.168.0.51	User settings
Protocol	ТСР	TCP	User settings
Port	1025 _{DEC} (401 _{HEX})	4000 _{DEC} (0FA0 _{HEX})	User settings

*Caution1) TOP and external devices' network address (front part of IP address 192.168.000) has to be identical.

*Caution2) Please do not use the same IP address in the same network.

(1) XDesignerPlus setup

After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.

	Set the commun	nication	interf	face	> Pro	oje¢ ∩¤	ct > S	etti	ngs	> TC	P Name	e]	
TOP15TX-SA/SD	From right window [HMI Setup & check Lice HMI Setup & Device Menager]												
- PLC Setting	- FIOIII IIgitt V	VITUOW		l Se	tup >	· CI	IECK (Jse		Sett	up > De		agerj
COM2 (0)	Timi Setup Sepon	albuiler	Sync										
Ethernet (1)	Use HMI Setup	* 	1.2			-			12				
PLC1 : MELSEC-Q (UDE	System Setup P	LC Setup	Dev	ice i	lanage	er	Interfa * Net	ice wor	k				
FieldBus (0)				492			Hee			15-			
USB Device (0)	- IP address :		192	÷	168	÷	0	\$	50	÷			
□ CF Card Setting	- Subnet mask :		255	\$	255	\$	255	\$	0	\$			
····· CFCard	- Gateway :		192	\$	168	\$	0	\$	1	\$			
	- From right v	window	[HM]	I Se	tup >	• cł	neck l	Jse	HMI	Setu	up > PL	C Setup]	
	HMI Setup Sepc	ial Buffer	Sync										
	Vuse HMI Setup												
	System Setup PLC Setup Device Manager Interface												
		(1	PLC1)	MEL	SEC-Q	(U	DE Ty	pe)	Serie	s CPU	ETHERM	IET	
	PLC IP :	192	\$ 168	3	0	\$	51	\$					
	Read Port :	5005		\$					Time	Out :		1000	¢ msec.
				124					Wait t	efore	send :	0	1 msec.
	Write Port :	5005		÷.									100 C
	Write Port : TOP Port :	5005 1025		¢					Proto	col :		TCP	
	Write Port : TOP Port :	5005 1025	nac	¢ ¢					Proto	col :		TCP	
	Write Port : TOP Port : External devi	5005 1025 ce setti	ngs	÷			1.1.1.1		Proto			TCP	
	Write Port : TOP Port : ■ External devi This sets the op	ce settin	ngs comr	÷	nicatio	on	driver	fo	Proto	col : ELSE	C-Q(□[PU) SERIES C
	Write Port : TOP Port : ■ External devi This sets the op ETHERNET".	tion of	ngs comr	€ € mu	nicatio	on	driver	fo	Proto	ELSE	C-Q(□[TCP	PU) SERIES C
	Write Port : TOP Port : ■ External devi This sets the op ETHERNET".	tice setti	ngs Comr	€ € mu	nicatio	on	driver	fo	Proto r "M nfo	col : ELSE	C-Q([]		PU) SERIES C
	Write Port : TOP Port : ■ External devi This sets the op ETHERNET". IP Address (PLI	5005 1025 ice setti otion of c) :	ngs comr 192	€ € mu	nicatio	on f	driver PLC Cor € , 0	fo	Proto r "M nfo \$.	ELSE	C-Q(□[PU) SERIES C
	Write Port : TOP Port : ■ External devi This sets the op ETHERNET". IP Address (PLI Read Port (0~r	5005 1025 ice setti otion of C) : 55535) :	ngs comr 192 5005	÷ t	nicatio	on f	driver PLC Cor \$. 0	· fo	Proto r "M nfo \$.	ELSE	C-Q(□[≑	TCP	PU) SERIES C
	Write Port : TOP Port : ■ External devi This sets the op ETHERNET". IP Address (PLI Read Port (0~4 Write Port (0~4)	5005 1025 ice setti otion of C) : 55535) : 65535) :	ngs comr 192 5005 5005	÷ ÷ mui	nicatio	on f	driver PLC Cor \$. 0 \$	fo	Proto r ″M nfo €.	ELSE	C-Q(□[€	TCP	PU) SERIES C

-Reading port / writing port: Choose the port number that will be used for ethernet communication. Please input the port number that [GPPW] issued.



(2) External device settings

Please set up using MELSEC series Ladder Software "GX Developer" as below. d 내용은 PLC 사용자 매뉴얼을 참조하십시오.

- Â
- TOP and external devices' network address (front 3 digits of IP address 192.168.000) must be identical.
- 동일 네트워크 상에서 중복된 IP 주소를 사용하지 마십시오._{<9100(>}Please do not use the same IP address in the same network.
- **1.** From "GPPW" project window, double click[Parameter] > [PLC parameter] to pop up [Q parameter setting] Dialog Box.
- 2. Select [Built-in Ethernet port] from the [Q parameter setting] window to set the information as below.

IP address IP Subnet m Default ro	Input format DEC Input format	n settings ? settings e settings if it is Default / Cha	anged)			
Communic © Binary C ASCII Enable Disable Do not	ation data code code online change (FTP, MC protocol) e direct connection to MELSOFT respond to search for CPU (Built-in Ethernet port) on netwo] rk				
Details		Settings				
P address	IP	Details	Settings	Remark		
		Protocol	ТСР	유저 설정		
	Subnet mask pattern	Op _{en sys} tem	MC Protocol	고정		
	Default router IP	Host station port No	FA0HEX (4000DEC)	유저 설정		
Communicati	ion data code					
nable online	e change (FTP, MC protocol)	Enable				
isable direct	t connection to MELSOFT	Not using				
o not respo	osd to search for CPU(Built-In Ethernet Port)on network	Not using				

3. Select [Open Setting] from the [Built-in Ethernet port] of [Q parameter setting] window to set the information as below.

	Protoc	ol	Open system		Host station port No.
	TCP	-	MC Protocol	-	OFAC
2	TCP	•	MELSOFT connection	-	
3	TCP	-	MELSOFT connection	+	ĺ.
	TCP	-	MELSOFT connection	+	
5	TCP	•	MELSOFT connection	+	
3	TCP	-	MELSOFT connection	-)
7	TCP	-	MELSOFT connection	•	
3	TCP	-	MELSOFT connection	•	
9	TCP	-	MELSOFT connection	-	
0	TCP	-	MELSOFT connection	-	
1	TCP	-	MELSOFT connection	*	ĺ.
2	TCP	•	MELSOFT connection	-	
3	TCP	•	MELSOFT connection	+	
4	TCP	+	MELSOFT connection	+	
5	TCP	-	MELSOFT connection	•	ç
6	TCP	-	MELSOFT connection	-	



4. Please reset PLC after sending parameters that has been set from [Online] > [Write to PLC].



4. Communication settings details

Communication settings are available at XDesignerPlus or TOP main menu. Communication settings must be identical with the external devices.

4.1 XDesignerPlus settings details

Select [Project > Project property] to show the below window.



Communication Interface Settings

Details	Contents
IP Address	Setup the IP address that TOP receives in the network.
Subnet mask	Input subnet mask of network
Gateway	Input subnet mask of network
PLC IP address	Input IP address that external device gets received.
Read Port / Write Port	Choose port number that will be used for ethernet communication of external device.
TOP port	Setting the TOP port number to connect with external device.
PLC address [0~65535]	Address of other device. Select between [0 - 65535].
Ethernet time out	Set up TOP's waiting time from external device at [0 - 99] x 100mSec.
Delay time of transmission [x1 mSec]	Set up TOP's waiting time between response receiving – next command request transmission from external device at $[0 - 5000] \times 1$ mSec.

		TOP	대한민국대표 터치패널 Touch Operation Panel	
Protocol	Select the protocol method either UDP or TCP.			



4.2 TOP main menu setup item

- When a buzzer is on during the power reset, touch 1 spot at the upper LCD to move to "TOP Management Main" display.

- Set up driver interface at TOP according to below Step1 \rightarrow Step2. (Press "TOP ethernet setup" in Step 1 to change setup at Step 2.)



Step 1. [PLC setup] .Setup driver interface.

PLC setup				
PLC IP : 192 . 168 . 0 . 51	Communication Interface			
Protocol : UDP	Settings			
PLC Read Port : 5005				
PLC Write Port : 5005				
TOP Port : 1025				
PLC 국번 : 0				
Timeout : 1000 [mSec]				
Delay time of transmission : 0 [mSec]				
TOP IP : 192 . 168 . 0 . 50				
TOP Ethernet setting communication diagnosis				

Step	1–Reference.

Details	Contents		
PLC IP	It is an IP address that external device was given.		
Protocol	Select the protocol method either UDP or TCP.		
PLC Read Port	It is the port address that will be used for ethernet of external device.		
PLC Write Port	It is the port address that will be used for ethernet of external device.		
TOP port	Setting the TOP port number to connect with external device.		
PLC address [0~65535]	Address of other device. Select between [0 - 65535].		
Timeout [x1 mSec]	Set up TOP's waiting time from external device at [0 - 5000] x 1mSec.		
Delay Time before	Set up TOP's waiting time between response receiving – next command request transmission		
transmitting [x1 mSec]	from external device at [0 – 5000] x 1 mSec.		
TOP IP	Setup the IP address that TOP receives in the network.		

Step 2. [PLC setup] > [TOP ETHERNET setup] - Setup relevant port's serial parameter

Port Settings	
* Ethernet Communication	Ethernet Port
+ Network setting	Communication Interface
- MAC : 00 - 15 - ID - 00 - 30 - 52 (each device has different address)	Settings
- IP Address : 192. 168 . 0 . 50	
- Subnet mask : 255 255 . 255 . 0	
- Gateway : 192 168 . 0 . 1	
Step 2-Reference.	

Step 2-Kelefence.			
Details Contents			
MAC Physical official address in the network.			
IP Address Setup the IP address that TOP receives in the network.		Setup the IP address that TOP receives in the network.	
Subnet mask An address that divides the network ID and host ID regarding of IP address.		An address that divides the network ID and host ID regarding of IP address.	
	Gateway	An address that connects a network to another network.	



4.3 Communication diagnosis

- TOP Confirming interface setting condition between external devices
- Move to Menu by clicking the top side of LCD screen as resetting the power of TOP.
- [Main Menu >Communication setting] Confirm if detail in number 20~24 is identical to the setup as "Setup exercise 1".
- PLC Setup > Click the button in "Communication diagnosis" of TOP Ethernet.
- Diagnosis dialog box will pop up on the screen, you can judge by following information that are shown on box no. 3 section.

OK!	Communication setting succeeded
Time Out Error!	Communication setting error
	- Error in the setting situation of Cable and TOP / External device
	(reference : Communication Diagnosis sheet)

Communication Diagnosis Sheet

- Please refer to the information below if you have a problem between external devices and communication connection.

Details	Contents				Con	firm		
ТОР	Version Information	l	xDesignerPlus : O.S :					
	Name of Driver						ОК	NG
	External device information	IP Address					ОК	NG
	(xDesignerPlus	Subnet mask					OK	NG
	Project setting)	Gateway					ОК	NG
	TOP Information	Protocol	UDP/IP			TCP/IP	OK	NG
	(Main Device Menu Setting)	IP Address					ОК	NG
		Subnet mask					ОК	NG
		Gateway					ОК	NG
	Other specified sett	ing info					ОК	NG
System configuration	System Connection	Method	1:1	1:	N	N:1	OK	NG
	Name of cable (Hub usage)		Direct (Use Hub	D)	Cro	oss (No Hub)	OK	NG
External device	Name of CPU						OK	NG
	Name of communic	ation device					OK	NG
	Protocol(mode)						OK	NG
	Other specified sett	ing info					OK	NG
	IP Address		(Local)		(Destinat	ion)	OK	NG
	Port number		(Local)		(Destinat	ion)	OK	NG
	Subnet mask						OK	NG
	Gateway						OK	NG
	Address range confirm (other docs)						OK	NG



5. Support address

Devices that are available with TOP is as below.

There might be difference in the range of device (address) by type / series of CPU module TOP series supports the maximum address range that external device series use Please refer each CPU module user manual carefully for devices that you desired to use to prevent not getting out of range.

Device	Bit Address	Word Address	Word Address NOTE	32 BIT
Input Relay	X0000 - X1FFF (HEX)	X0000 - X1FF0 (HEX)	X***0 *caution1)	L/H
Output Relay	Y0000 - Y1FFF (HEX)	Y0000 - Y1FF0 (HEX)	Y***0 *caution1)	*caution3)
Internal Relay	M0000 - M32767	M0000 - M32752	M0000 + 16*n *caution2)	
Special Relay	SM0000 - SM2047	SM0000 - SM2032	SM0000+16*n *caution2)	
Latch Relay	L0000 - L32767	L0000 - L32752	L0000 + 16*n *caution2)	
Annunciator	F0000 - F32767	F0000 - F32752	F0000 + 16*n *caution2)	
Edge Relay	V0000 - V32767	V0000 - V32752	V0000 + 16*n *caution2)	
Step Relay	S0000 - S8191	S0000 - S8176	S0000 + 16*n *caution2)	
Link Relay	B0000 - B7FFF (HEX)	B0000 - B7FF0 (HEX)	B***0 *caution1)	
Special Link Relay	SB000 - SB7FF (HEX)	SB000 - SB7F0 (HEX)	SB***0 *caution1)	1
Timer (contact)	TS00000 - TS23087			
Timer (coil)	TC00000 - TC23087			
Aggregate Timer (contact)	SS00000 - SS23087			
Aggregate Timer (coil)	SC00000 - SC23087			
Counter (contact)	CS00000 - CS23087			
Counter (coil)	CC00000 - CC23087			
Timer (current value)		TN00000 - TN23087		
Aggregate Timer (current value)		SN00000 - SN23087		
Counter (current value)		CN00000 - CN23087		
Data Register		D00000 - D25983		
Special Data Register		SD0000 - SD2047		
File Register		Ser Defined Range		

*Caution1) If the bit address is hexadecimal number '0~F', starting bit 0 bit shall be used as word address.

*Caution2) If the bit address is decimal number, it shall be used as word address by every value of '16'.

*Caution3) The address will be saved where the 16BIT data which is subordinate to 32BIT data monitor registered and super ordinate 16BIT data will be saved right after the address that is monitor registered.

(Ex) If 32BIT data, 16 hexadecimal data 12345678 is saved to the address number D00100, it shall be saved with 16BIT device address as below.

Details	32BIT	16BIT		
Address	D00100	D00100 D00101		
Input data	12345678	5678	1234	

(Hexadecimal Number)		



대한민국대표 터치패널 Touch Operation Panel