MITSUBISHI Electric Corporation MELSEC-A Series **ETHERNET** Driver

Compatibl OS 4.0 or higher e version **XDesignerPlus** 4.0.0.0 or higher

CONTENTS

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

1.System

Page 2 Panel(M2I TOP) emn

Series; ±.configuration

It explains device for connection, setup of, cable and structural system. Please choose proper system referring to this point.

2. Selecting TOP model and Page 3 external devices

Select TOP model and external device..

3. Example of Page 4

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"

4.Communication settings Page 6

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's MELS



C-A Series ETHERNET" is as below.

Series	CPU	Link I/F	Method	System settings	Cable
	A0J2H A2A A2A-S1 A3A A2U A2U	AJ71E71			
	A3U A4U A1N A2N	AJ71E71-S3			
MELSEC-A	A2US A2US-S1 A1S A1S-C24	A1SJ71E71-B2	Ethernet (UDP)	3.1 Configuration Exercise 1	Twisted Pair
	A1SJ A2S A2S-S1	A1SJ71E71-B5			
	A2US A2US-S1 A2USH-S1 A1SJ A2SIH	A1SJ71E71-B2-S3			
	A1SH A2SH A1S A2S	A1SJ71E71-B5-S3			

*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 other composition devices such as hub, transceiver depends on the configuration and in this case, use direct cable.

% Possible Connecting Configuration

11:1 Connection (TOP 1 vs. external device)

11 : N Con∎ Possible Connecting Configuration

• 1:1 Connection (TOP 1 vs. external device)



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









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/SD	PLC Model MELSEC-A Series ETHERNET				
		PLC				
	Vendor	Model				
M2I Corporat	ion 📩	CC-LINK(Remote Device Station)				
MITSUBISHI B	Electric Corporation	MELSEC-A Series ETHERNET				
OMRON Indu	strial Automation	MELSEC-AnA Series Computer Link				
LS Industrial	Systems	MELSEC-AnA(A2A/A3A) Series CPU Direct				
MODBUS Org	ganization	MELSEC-AnA(A2U/A3U/A4U/A2US/A2USH) Series CPU Direct				
SIEMENS AG	. E	MELSEC-AnN (A0J2) Series CPU Direct				
Rockwell Au	tomation (AB)	MELSEC-AnN (A2N,A3N) Series CPU Direct				
GE Fanuc Automation MELSEC-AnN Series Computer Link						
PANASONIC Electric Works MELSEC-AnN(AnS,A0J2H) Series CPU Direct						
YASKAWA I	Electric Corporation	MELSEC-FX Series CPU Direct				
YOKOGAWA	A Electric Corporatio	MELSEC-FX Series Computer Link				
Schneider El	ectric Industries	MELSEC-FX Series Positioning Controller - FX2N-10/20GM				
KDT System:	5	MELSEC-Q (UDE Type) Series CPU ETHERNET				
RS Automatio	on(SAMSUNG)	MELSEC-Q Series CPU Direct				
HITACHI IES		MELSEC-Q Series ETHERNET(QJ71E71)				
FATEK Autor	mation Corporation	MELSEC-Q Series SERIAL(QJ71C24,Format1)				
DELTA Electr	ronics	MELSEC-Q Series SERIAL(QJ71C24,Format5)				
KOYO Electr	onic Industries	MELSEC-Q(00CPU/01CPU) Series CPU Direct				
VIGOR Electr	ric Corporation	MELSEC-Q(00JCPU) Series CPU Direct				
Comfile Tech	inology	MELSERVO-J2 Series				
Dongbu(DAS	SAROBOT)	MELSERVO-J3 Series				
ROBOSTAR	-					
		Back Next 확인 취소				

Setting details		Contents					
		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			
		to TOP series.					
TOP	Series	Series	Version name				
101		XTOP / HTOP	V4.0				
	Name	Select the model name of TOP product.					
		Select the manufacturer of extern	al devices to be connected to TC)P.			
	Manufacturer	Please Choose "MITSUBISHI Electric Corporation".					
External device		Select the model series of external devices to be connected to TOP.					
	PLC	Please choose MELSEC-A Series ETHERNET.					
		Please check, in the "1. System configuration", if the relevant external device is available to set a					



		system	configuration.
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3. Example of system settings

For configuration of Ethernet communication between TOP and MELSEC-A Series, we suggest as below.

3.1 Example of settings 1

The system is set as below.

Details	ТОР	MELSEC-A Series	Remark
ID AddrosstCoution1)(Coution2)	102168050	102 168 0 51	User
IP Address Caution()Caution(2)	192.100.0.50	192.100.0.51	setting
Destacal		חר	User
Protocol	Protocol UDP		setting
Port	1024	5001	User
TOIL	1024	5001	setting

*Caution1) The network address (the 3 front digits of IP, 192.168.000) TOP and external device must 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.

⊡ · Project ⊟ · TOP Se 	Set the communication interface of TOP tool. In the right window [HMI setup > check "Lise HMI setup" > device manager]
- PLC Setting	HMI Setup Sencial Buffer Sync
COM2 (0)	
Ethernet (1)	
	es E System Setup PLC Setup Device Manager Interface
	* Network
USB Device (0)	- IP address : 192 🗘 168 🗘 0 🗘 🗐 🗘
En CFCard	- Subnet mask : 255 💠 255 💠 255 🗘 0 🜩
create	- Gateway : 192 🗘 168 🗘 0 🌩 1 🗘
	At the right window [HMI cotup > Check "Lice HMI cotup" > PLC cotup]
	- At the right wholew, [river setup > check ose river setup > rice setup]
	HMI Setup Sepcial Buffer Sync
	Use HMI Setup
	System Setup PLC Setup Device Manager Interface
	(PLC1) MELSEC-A Series ETHERNET
	PLC IP : 192 \$ 168 \$ 0 \$ 51 \$ PLC Station Number : 0 \$
	Read Port : 5001 Time Out : 1000 msec.
	Write Port : 5001 🗘 Wait before send : 0 🗘 msec.
	TOP Port : 1024 🗘 Protocol : UDP 🔻
	External device settings
	■ Exerning device settings
	IP Address (PLC): 192 2.168 2.0 2.51
	Read Port (0~65535): 5001
	Write Port (0~65535) : 5001
	Station Number(PLC) 0
	- IP Address (PLC): Type the IP address that the external device was given.

communication.



- PLC address (PLC) : External device setting address



(2) External device settings

Please set the DIP Switch in the Ladder Software and device for communication setting of MELSEC-A Series Ethernet communication module. Please see PLC User Manual for more detail setup method.



Please do not use the same IP address in the same network.

1. After typing down like the sequence program example below, download to PLC.

(This example is the ethernet resetting program when ethernet card is installed at slot 0. If the location of ethernet card slot gets changed, the address of X and Y that are written in the example must be changed as well. For example, let's say if we have a card on the slot 0 that takes 32 point, and we have ethernet card on slot 1, X1F that are written on the line 0 on the example will be +32 point, therefore it will be X3F. H0(Buffer Memory Start Address) of 'To order' or 'From order' will be exchanged to word so it will be (32 point = 2 words) H2.)



	Buffer Memory Setting Ir	formation		User setting device
Address	Setting Information	Setting (Range)	Address	Setting Information
0~1	Ethernet card IP address	C0A80033H (192.168.0.51)	M102	COM.ERR lights out order
16	Use purpose setting	100H(fixed)	D100	Ethernet card IP address
24	Ethernet card port number	5001	D110	Use purpose setting
25~26	Confront device (TOP) IP address	FFFFFFFH(fixed)	D111	Ethernet card port number
27	Confront device (TOP) Port number	FFFFH(fixed)	D112~D113	Confront device (TOP) IP address
80	Reset problem code	-	D114	Confront device (TOP) Port number
			D200	Reset problem code





2. Set up Dip Switch in front of module once the sequence program transmission is complete.

(1) Driving mode setting switch

Driving mode setting switch	Contents	Setting value
0 1 8 9 4 1 8 9 4 1 8 9 4 1 8 9 4 1	Online	0 (fixed)

(2) Communication condition setting switch

٠	Please set	up as	below i	in case	of AJ71E71	/ AJ71E71-S3
•	TICUSC SCI	up u.		in cuse	01/0/10/10/1	, , 0, 10, 10, 10, 10, 10, 10, 10, 10, 1

Communication condition setting switch	DIP Switch	Contents	Setting value
OFF ON	SW1	Line process if error occurs in TCP timeout	OFF
sw1	SW2	Data code setting (Binary code)	OFF
SW2	SW3		OFF
SW3	SW4		OFF
sw5	SW5	Not using	OFF
SW6	SW6		OFF
SW7	C) 4/7	CPU communication timing setting	
swa 🗖	5007	(Writing permission when RUN)	ON
	SW8	Resetting Timing setting	OFF

◆ Please set as the table below if it's A1SJ71E71-B2 / A1SJ71E71-B5 / A1SJ71E71-B2-S3 / A1SJ71E71-B2 -S3.

Communication condition setting switch	DIP Switch	Contents	Setting value
	SW1	Line process if error occurs in TCP timeout	OFF
	SWD	Data code setting	OFF
SW1	3002	(Binary code)	OFF
SW3	C/M/2	CPU communication timing setting	
SW4 🗖	3005	(Writing permission when RUN)	ON
	SW4	Resetting Timing setting	OFF

3. Power reset after setting Dip Switch.



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 attributes] to show the below window.

Project	■ [Project > Pro	oject Proper	ies > l	Project	t > S	Setting	gs >	TOP Na	me]	
E- TOP Set	Set the communic	ation interfa	ce of T	OP to	ol.					
E-PLC Setting	— In the right window [HMI setup > HMI setup use check > device manager]									
	HMI Setup Sepcial Buffer Sync									
COM1 (0)	🔽 Use HMI Set.	🕼 Use HMI Setup								
Ethernet (1)	System Setup	PLC Setup	Devic	e Mana	ger	Inte	rface	2		
- FieldBus (0)						* Net	two	k		
USB Device (0)	D address :	10	2 ▲	168	*	0		50	•	
E- CF Card Setting	Subset mask	24	5 4	255	-	255	-	0 .		
	- Subilet mask .	10	v ▼ 2 ▲	168	*	0	-	1		
	- Galeway .	13		100	•	v		1. K	2	
	- At the right window, [HMI setup > Check the HMI setup use box > PLC setup]									
	HMI Setup Sep	HMI Setup Sepcial Buffer Sync								
	Use HMI Set	Use HMI Setup								
	System Setup	System Setup PLC Setup Device Manager Interface								
	10.	(PLC1) MELSEC-A Series ETHERNET							15 m	
	PLC IP :	192 🗘 168	\$ 0	\$	51	¢ PL	C Stat	ion Numbe	r: 0	\$
	Read Port :	5001	\$			Tim	ne Out	t:	1000	msec
	Write Port :	5001	\$		Wait before send :		0	nsec		
	TOP Port :	1024	\$			Pro	otocol	:	UDP	-
	External device	settings								
	It sets the option f	for "MELSEC	-A Seri	ies ETH	HERN	NET" c	omn	nunicatio	on drive	r.
				PLO	C Con	nm In fo				
	IP Address (PLC) :	192	\$ 168	\$	0	\$	51	\$		
	Read Port (0~6553	Read Port (0~65535) : 5001								
	Write Port (0~655	35) : 5001]					
	Station Number(PL	.C) 0		\$						

■ 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	Port number will be automatically setup if ethernet communication with external device is in	
TOP port	progress.	
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	Set up TOP's waiting time between response receiving - next command request transmission	



msec]	from external device at [0 – 5000] x 1 mSec.
Protocol	Choose the protocol type that is authorized to use following external devices and setup port
Protocol	number.



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 Step1 \rightarrow Step2 below. (Press "TOP Ethernet setup" in Step 1 to change setup at Step 2.)



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

PLC setup	
PLC IP: 192.168.00.51	Communication
Protocol : UDP	Interface Setting
PLC Read Port : 5001	
PLC Write Port : 5001	
TOP Port : 1025	
PLC Address : 0	
Timeout : 1000 [mSec]	
Delay time of transmission : 0 [mSec]	
TOP IP : 192 . 168 . 0 . 50	
OP Ethernet setting communication diagnosis	

Step 1–Reference.

tep 1-Reference.			
Details	Contents		
PLC IP	It is an IP address that external device was given.		
Protocol	Choose the protocol type that is authorized to use following external devices and setup port		
	number.		
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	Port number will be automatically setup if Ethernet communication with external device is in		
	progress.		
PLC address [0~65535]	Address of other device. Select between [0 - 65535].		
Timeout [x1 mSec]	Set up TOP's response waiting time from external device at [0 – 5000] x 1 mSec.		
Transmitting Delay Time [x1	Set up TOP's waiting time between response receiving – next command request transmission		
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 the serial parameter of correspond port.

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

step 2-Reference.				
Details Contents				
MAC	Physical official address in the network.			
IP Address 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.			





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 information of "■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 is shown on box no. 3 section.

OK!	Communication setting normal				
Time Out Error!	Abnormal Communication setting				
	- 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	Confirm	
ТОР	Version Information	1	xDesignerPlus :	O.S :				
	Name of Driver						OK	NG
	External device IP Address information						ОК	NG
	(xDesignerPlus	Subnet mask					ОК	NG
	Project setting)	Gateway				OK	NG	
	TOP Information (Main Device Menu Setting)	Protocol	UDP/IP	TCP/IP		TCP/IP	OK	NG
		IP Address				ОК	NG	
		Subnet mask					ОК	NG
		Gateway				OK	NG	
	Other specified setting info			OK	NG			
System configuration	System Connection	Method	1:1	1:	:N	N:1	ОК	NG
	Name of cable (Hub usage)		Direct (Use Hub)	Cross (No Hub)		OK	NG
External	Name of CPU						ОК	NG
device	Name of communication device						OK	NG
	Protocol(mode)						OK	NG
	Other specified setting info						ОК	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 usable 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 to each CPU module user manual carefully for devices that you desired to use to prevent not getting out of range.

Name	Device	Bit Address	Word Address
Х	Input Relay	X0000 ~ X07FF	X0000 ~ X07F0
Y	Output Relay	Y0000 ~ Y07FF	Y0000 ~ Y07F0
М	Internal Relay	M0000 ~ M8191	M0000 ~ M8176
М	Special Relay	M9000 ~ M9255	M9000 ~ M9240
L	Latch Relay	L0000 ~ L8191	L0000 ~ L8176
F	Annunciator	F0000 ~ F2047	F0000 ~ F2032
В	Link Relay	B0000 ~ B0FFF	B0000 ~ B0FF0
TS	Timer (contact)	TS0000 ~ TS2047	-
TC	Timer (coil)	TC0000 ~ TC2047	-
CS	Counter (contact)	CS0000 ~ CS2047	-
СС	Counter (coil)	CC0000 ~ CC2047	-
TN	Timer (current value)		TN0000 ~ TN2047
CN	Counter (current value)		CN0000 ~ CN1023
D	Data Register	D0000.0 ~ D6143.15	D0000 ~ D6143
D	Special Register	D9000.0 ~ D9255.15	D9000 ~ D9255
W	Link Register	W0000.0 ~ W0FFF.15	W0000 ~ W0FFF
R	File register	R0000.0 ~ R8191.15	R0000 ~ R8191