PANASONIC Electric Works

FP Series

Ethernet (MewtocolCom) Driver

Supported version

TOP Design Studio V1.0 or higher



CONTENTS

We would like to thank our customers for using M2I's "Touch Operation Panel (M2I TOP) Series". Read this manual and familiarize yourself with the connection method and procedures of the "TOP and external device".

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Describes how to set the TOP communication.

4. External device setting

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Describes how to set up communication for external devices.

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Refer to this section to check the addresses which can communicate with an external device.



1. System configuration

The system co	The system configuration of TOP and "PANASONIC Electric Works – FP Series Ethernet " is as follows.							
Series	CPU	Link I/F	Communication method	Communication setting	Cable			
FP	FP7	CPS31E	Ethernet (TCP/UDP)	<u>3. TOP</u> communication <u>setting</u> 4. External device <u>setting</u>	Twisted pair cable* ^{Note 1)}			

*Note 1) Twisted pair cable

- Refer to STP (Shielded Twisted Pair Cable) or UTP (Unshielded Twisted Pair Cable) Category 3, 4, 5.

- Depending on the network configuration, you can connect to components such as the hub and transceiver, and in this case, use a direct cable.

Connectable configuration

 \cdot 1:1 connection (one TOP and one external device) connection



• 1:N connection (one TOP and multiple external devices) connection





2. External device selection

■ Select a TOP model and a port, and then select an external device.

PLC select [Ethernet] Filter : [AI] Search : @ Model (Vendor Vendor Model M2I Corporation MTSUBISHI Electric Corporation OMRON Industrial Automation LS Industrial Systems MODBUS Organization SIEMENS AG. Rodovell Automation GE Fanuc Automation PANASONIC Electric Works YASKAWA Electric Corporation YOKOGAWA Electric Corporation Schneider Electric Industries KDT Systems RS Automation
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YASKAWA Electric Corporation YOKOGAWA Electric Corporation Schneider Electric Industries KDT Systems RS Automation V Back Next X Cancel
YOKOGAWA Electric Corporation Schneider Electric Industries KDT Systems RS Automation
Schneider Electric Industries KDT Systems RS Automation V BS Automation V Cancel
KDT Systems RS Automation V A Cancel
RS Automation
Sack Next Cancel
Select Device
PLC Setting[FP Series]
Alias Name : PLC1 Bind IP : Auto 🗸
Interface : Ethernet
Protocol : MewtocolCom Comm Manual
String Save Mode : First LH HL Change
Use Redundancy
Operate Condition : AND V
Change Condition : TimeOut 5 (Second)
Condition
Primary Option
IP 192 168 1 5 1
Ethernet Protocol TCP 🗸
Port 32769
Timeout 1000 💓 msec
Send Wait 0 msec
Station Num 1
Command Header
76 V
HMI TCP Port
HMITCP Port 1024

Settings			Contents	
TOP	Model	Check the TOP display and process to select the touch model.		
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "PANASONIC Electric Works".		P.
	PLC	Select an external device to co		
Model Interface		Protocol		
FP Series Ethernet				MewtocolCom
		Please check the system cont connect is a model whose sys	figuration in Chapter 1 to see if tem can be configured.	the external device you want to



3. TOP communication setting

The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

- [Project > Project properties > TOP settings] → [Project option > Check "Use HMI settings" > Edit > Serial]
 - Set the TOP communication interface in TOP Design Studio.



Items	ТОР	External device	Remarks
IP Address*Note 1) Note 2)	192.168.1.2	192.168.1.5	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*Note 1) The network addresses of the TOP and the external device (the first three digits of the IP, <u>192</u>. <u>168</u>. <u>0</u>. 0) should match.

*Note 2) Do not use duplicate IP addresses over the same network.

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.



(2) Communication option setting

■ [Project > Project properties > PLC settings > Ethernet > "PLC1: FP Series"]

- Set the options of the FP Series Computer Link communication driver in TOP Design Studio.

Project Option			×
Change HMI[<u>H</u>] Add Pl	C [A] TIT Change PLC[C] Celete PLC[D]		
 TOP Setting SYS: RD1520X Option Module Setting FieldBus (0) Device Setting COM1 (0) COM3 (0) Ethernet (1) PLC1: FP Series Wreless (0) USBDevice (0) 	PLC Setting[FP Series] Alas Name: PLC1 Interface: Ethernet Protocol: MewtocolCom String Save Mode: Frist LH HL Change Ondition: TimeOut Condition: Treout 100 msec Station Num 1 ET-LAN Mult 1 It		mm Manual
] [Apply	Close

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External
Protocol	Select the communication protocol between the TOP and an external device.	device selection".
TimeOut	Set the time for the TOP to wait for a response from an external device.	
SendWait	Set the waiting time between TOP's receiving a response from an external device	
	and sending the next command request.	
Port	Enter the port of the external device.	
Station Num	Enter the station number of the external device.	
Command Header	Set the characters of the header during communication.	
HMI TCP Port	Enter the TOP port during communication.	
ET-LAN	Set whether the ET-LAN unit is compatible.	
HMI Station Num	Enter the station number of HMI to be used for ET-LAN unit compatibility.	



3.2. Communication setting in TOP

* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

■ Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

■ [Main screen > Control panel > Ethernet]

	6	🚡 Ethernet 🗙 🗙	
	🔯 System	Port Detion	
Kun		Link Speed : Auto	
MNC	PLC Se	MAC Address : 00:15:1D:05:38:C5 IP Address : 192.168.77.80	
VNC Viewer		Subnet Mask : 255.255.0.0 Gateway : 192.168.0.1	
	Ethernet S	DNS (1) : Wi-Fi DNS (2) :	
Screen shot	H	Ethernet Primary IP : 192.168.77.80 V	
	Diagnostic M	Cable Status : ETH1 Connected Bridge Mode : Use Bridge	
	[System]	Check duplicate Apply Cancel Close	

Items	ТОР	External device	Remarks
IP Address*Note 1) Note 2)	192.168.1.2	192.168.1.5	
Subnet Mask	255.255.255.0	255.255.255.0	
Gateway	192.168.0.1	192.168.0.1	

*Note 1)The network address of TOP and the external device (the first three digits of the IP <u>192.168.0</u>.0) must be the same.

*Note 2) Do not use duplicate IP addresses over the same network.

* The above settings are examples recommended by the company.

Items	Description
IP Address	Set an IP address to be used by the TOP to use over the network.
Subnet Mask	Enter the subnet mask of the network.
Gateway	Enter the gateway of the network.



(2) Communication option setting

■ [Main screen > Control panel > PLC]

	Ô		PLC	×
	🔯 System	Driver(ETH)	PLC1(FP Series) 💌	
Run		Bind IP	Auto	<u> </u>
		IP	192 🗘 168 🗣 63 🌩 180 🜩	
MNC	PLC	Ethernet	TCP 💌	
VNC		Port	60001 🜩	
Viewer	⇔	Timeout	1000 🜩 msec	
	Ethernet	Send Wait	0 🔷 msec	
		Station N	2	
Screen	work	Command F	% 🔻	
shot		HMI TCP F	60002 🖨	
	Diagnostic	ET-LAN	use 🔻	
		HMI Stati		_
	[System]	Diagnostic	Ping Test	Apply Cancel

Items	Settings	Remarks
Interface	Select "Ethernet".	Refer to "2. External
Protocol	Select the serial communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device	
	and sending the next command request.	
Port	Enter the port of the external device.	
Station Num	Enter the station number of the external device.	
CommandHeader	Set the characters of the header during communication.	
HMI TCP Port	Enter the TOP port during communication.	
ET-LAN	Set whether the ET-LAN unit is compatible.	
HMI Station Num	Enter the station number of HMI to be used for ET-LAN unit compatibility.	



3.3 Communication diagnostics

■ Check the interface setting status between the TOP and an external device.

- Touch the top of the TOP screen and drag it down. Touch "EXIT" in the pop-up window to go to the main screen.

- Check whether the port (ETH1/ETH2) settings you want to use are the same as those of the external device in [Control panel > Ethernet].

Diagnosis of whether the port communication is normal or not

- Touch "Communication diagnostics" in [Control Panel > PLC].

- The Diagnostics dialog box pops up on the screen and determines the diagnostic status.

ОК	Communication setting normal
Time Out Error	Communication setting abnormal
	- Check the cable, TOP, and external device setting status. (Reference: Communication diagnostics sheet)

Communication diagnostics sheet

- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

Items	Contents		Check		Remarks
System	How to connect the sys	stem	OK	NG	1 System configuration
configuration	Connection cable name	2	OK	NG	1. System computation
ТОР	Version information		OK	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	Relative prefix	Project setting	OK	NG	2. External device selection
		Communication diagnostics	ОК	NG	3. Communication setting
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
External device	CPU name		OK	NG	
	Communication port name (module name)		OK	NG	
	Protocol (mode)		OK	NG	
	Setup Prefix		OK	NG	4. External device cetting
	Other detailed settings		OK	NG	4. External device setting
	Ethernet port setting	IP Address	OK	NG	
		Subnet Mask	OK	NG	
		Gateway	OK	NG	
	Check address range		ОК	NG	<u>5. Supported addresses</u> (For details, please refer to the PLC vendor's manual.)



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4.1 External device setting - FP7

Use "FP SERIES" Ladder Software "FPWIN GR7" to set as follows. For more detailed setting method than that described in this example, refer to the PLC user manual

1. Click Project >> FP7 configuraion to pop-up the selection function window.

Selection Of Function
Memory configuration CPU configuration I/O map Built-in SCU Built-in ET-LAN FTP client setting HTTP dient setting Mail setting EtherNet/IP Setting
OK Cancel

2. Select Built-in-LAN to pop-up Built-in-LAN Setting window.

Basic communications information		
FTP server	Setting item	Setting description
System connection information setting 1	Basic communications information	
System connection information setting 2	Specify IPv4 or IPv6.	IPv4 only
System connection information setting 3 System connection information setting 4	IPv4 address automatic acquisition	No
User connection information setting 1	Automaticcalu acquire IPv6 address	No
User connection information setting 2	Home IP address (IPv4)	102 169 1 5
User connection information setting 3	Subpot mack (IPu4)	
User connection information setting 4	Default getaurou (IDuf)	
User connection information setting 5	Cubest susficients (IDvC)	192,100,1,1
User connection information setting 6	Subnet prenx length (IPV6)	04
User connection information setting 7	Local IP address (IPvb)	1680::1234:5678:1234:5678
User connection information setting 9	Default gateway (IPv6)	fe80::1
User connection information setting 10	TCP ULP timeout value	5
User connection information setting 11	TCP zero window timer value	5
User connection information setting 12	TCP resend timer value	5
Jser connection information setting 13	IP assembly timer value	3
User connection information setting 14	TCP terminator detection timer value	20
Iser connection information setting 15	DNS server IP address	Set automatically.
ber connection monitorio cong to	Specify DNS server IP	IPv4
	Priority DNS server	
	Alternate DNS server	
	Add-op	0,0,0,0
		Netwoo
	Muton Web Communities the	Not use,
	web Server function	Not use,
	EtherNet/IP Function	Not use,
	No, of User Connections	16
	Routing setting	
	Routing setting	Not use,
	Route 1 Destination network 1	0,0,0,0
	Destination subnet mask 1	0.0.0.0
	D 1 D 11 4	
	Home IP address (IPv4)	aviaition actting, act least writ ID address
	Prohibited input (0,0,0,0) (127,0,0,0-127,255,2	55, 255) (224, 0, 0, 0–255, 255, 255, 255)
Save Setting Read Setting(O)	OK Cancel	Read PLC Initialize

3. Set IP in Basic communications information.



4. System connection information setting 1~4

Built-in ET-LAN Setting		×
Basic communications information SNTP	+ -	
ETP server	Setting item	Setting description
System connection information setting 1	System connection information setting	10
System connection information setting 2 System connection information setting 3	Connection to use specification	Use,
System connection information setting 4	Communication type	TCP/IP
User connection information setting 1	Open type (server/client)	Server connection (any destination)
User connection information setting 2	Open type (automatic/manual)	Open automatically.
User connection information setting 3	Operating mode setting	MEWTOCOL-COM
User connection information setting 5	MEWTOCOL communications type	Not connect with FP2 ET-LAN
User connection information setting 6	Home port number	32769
User connection information setting 7	Destination setting method	Lise IPv4
User connection information setting 8	Destination unit IP address	0.0.0.0
User connection information setting 9	Destination port number	0
User connection information setting 11	Unused connection disconnect time	6000
User connection information setting 12		
User connection information setting 13		
User connection information setting 14		
User connection information setting 15		
User connection information setting 16		

Though there are MEWTOCOL-COM, MEWTOCOL7-COM, MODBUS-TCP, MEWTOCOL-DAT,MC protocols, TOP only supports MEWTOCOL-COM.

It sets the PLC port.

5. In addition to System connection information setting 1~4, It can be set with User connection information setting.

Basic communications information	+	
TP server	Setting item	Setting description
ystem connection information setting 1	User connection information setting	g 2
system connection information setting 2	Connection to use specification	Use,
vstem connection information setting 4	Communication type	UDP/IP
ser connection information setting 1	Open type (server/client)	
ser connection information setting 2	Open type (automatic/manual)	Open automatically,
ser connection information setting 3	Operating mode setting	MEWTOCOL-COM
User connection information setting 5 User connection information setting 6 User connection information setting 6 User connection information setting 7 User connection information setting 8	MEWTOCOL communications type	Not connect with FP2 ET-LAN
	Home port number	4001
	Destination setting method	Use IPv4,
	Destination unit IP address	192 . 168 . 1 . 200
Iser connection information setting 9	Destination port number	1024
lser connection information setting 11	Unused connection disconnect time	0
ser connection information setting 12		
ser connection information setting 13		
Iser connection information setting 14		
Iser connection information setting 15		

In case of UDP, also enter IP and PORT of TOP.

*Caution) If the MEWTOCOL communications type is set to connect with the FP2 ET-LAN, set the ET-LAN item in the HMI communication option setting to 'use'.



4.1 External device setting - FP2 ET-LAN

Use the "Configurator ET", the ET-LAN unit communication setting software of "FP SERIES" to set as follows. For more detailed setting method than that described in this example, refer to the PLC user manual

1. Click ET-LAN Unit >> Initialization Settings >> Source Settings >> Change to pop-up the Source Settings window and set IP and the station number of PLC.

🚼 Untitle - Configurator ET		-		×
<u>File</u> <u>U</u> nit Settings <u>M</u> ail Settings <u>V</u> iew O	n <u>l</u> ine <u>O</u> ption <u>H</u> elp			
🗅 🗃 🖬 🎒 💁 🔁 🖼 🗳				
ET-LAN Unit	Source Settings IP address I 192, 168, 1, 1 Change MEWTOCOL station number I Initialize Router function availability Invalid Initialize Source Settings X Change IP address: IV2, 168, 1, 1 OK Initialize Available for router function PLC IP Cancel Initialize Detail MEWTOCOL station number: I PLC prefix Ineceive-buffer area starting address : puor Initialize Receive-buffer area size : puor Initialize Send-buffer area size : puor H Send-buffer area size : puor H	All Initialize <u>H</u> elp		
Ready		1	MUM	///

2. Click Connection Settings >> Connection1 >> Change to pop-up the .Connection Settings window.

📆 Untitle - Configurator ET	_		×
<u>File U</u> nit Settings <u>M</u> ail Settings <u>V</u> iew Online <u>O</u> ption <u>H</u> elp			
Image: State Connection Settings System Connection Settings Connection Settings Connection Settings Connection Settings Connection No. Image: State Connection Settings Connection Settings Connection No. Image: State Connection No. Imag	Iran Change		
Unused connection cut time : U minute[s]			
Ready		NUM	

*Caution) The setting "The connection 1 to 8 are set by ladder program" must be off.



3. In the Connection Settings window, enter whether to apply the Connection setting, communication method, PLC port number and HMI setting values.

Connection Settings ×					
Connection No. 1 🔽 Available this setting OK					
Open and Communication method Cancel					
Communication : TCP/IP					
Open : Unpassive 💌					
Function : MEWTOCOL					
Source port number : 4097 PLC port number					
Destination settings					
IP address : 192,168, 1 , 1 HMI IP					
Port number : 4098 Port number					
MEWTOCOL station number : 1					
Ethernet addres: 00 - 00 - 00 - 00 - 00 - 00					
Unused connection cut time : 0 minute[s]					
Re-open times : 255 times					



5. Supported addresses

The devices available in TOP are as follows:

The device range (address) may differ depending on the CPU module series/type. The TOP series supports the maximum address range used by the external device series. Please refer to each CPU module user manual and be take caution to not deviate from the address range supported by the device you want to use.

Operand	Name	Bit address	Word address	Remarks
Х	Input relay	X00 ~ X511F	WX0 ~ WX511	*Note 1)
Y	Output relay	Y00 ~ Y511F	WY0 ~ WY511	*Note 1)
R	Internal relay	R00 ~ R886F	WR0 ~ WR886	*Note 1)
	Special relay	R9000 ~ R910F	WR900 ~ WR910	
L	Link relay	L00 ~ L639F	WL0 ~ WL639	*Note 1)
Т	Timer(contact)	T0 ~ T3071		
С	counter(contact)	C0 ~ C3071		
SV	Timer/Counter(Setting value)		SV0 ~ SV3071	
EV	Timer/Counter(Elapsed value)		EV0 ~ EV3071	
DT	Data register	DT0.0 ~ DT10239.F	DT0 ~ DT10239	
	Special data register	DT90000.0 ~ DT90511.F	DT90000 ~ DT90511	
LD	Link register	LD0.0 ~ LD8447.F	LD0 ~ LD8447	
FL	File register	FL0.0 ~ FL32764.F	FL0 ~ FL32764	

*Note 1) For X, Y, R, and L, bit/word processing is possible. In bit processing, 1 unit is hexadecimal and 10 units is decimal. (E.g.) X12C

Word processing is preceded by a W (e.g.) WX12 = X120-X12F 16-bit data)

*Caution) The special register (DT) is only available on FP2/2SH/10SH.