

PANASONIC Electric Works

FP Series

Computer Link (MEWTOCOL-COM) Driver

Supported version TOP Design Studio V1.0 or higher



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We want to thank our customers who use the Touch Operation Panel.

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1. System configuration

The system configuration of TOP and "PANASONIC Electric Works – FP Series Computer Link" is as follows:

Series	CPU	Link I/F	Communication method	System setting	Cable
FP	FP2 FP2SH	CPU built-in TOOL Port	RS-232C	3. TOP communication setting 4. External device setting	5. Cable table
		CPU built-in RS-232C Port	RS-232C		
		AFPS	RS-232C		
			RS-422 (4-wire)		
			RS-485 (2-wire)		
	FP-X	CPU built-in TOOL Port	RS-232C		
		AFPX	RS-232C		
			RS-485 (2-wire)		
	FPΣ	CPU built-in TOOL Port	RS-232C		
		AFPG	RS-232C		
			RS-485 (2-wire)		
	FP0	CPU built-in TOOL Port	RS-232C		
		CPU built-in RS-232C Port	RS-232C		
	FP-e	CPU built-in TOOL Port	RS-232C		
		AFPE	RS-232C		
			RS-485 (2-wire)		
	FP-M	CPU built-in TOOL Port	RS-232C		
		CPU built-in RS-232C Port	RS-232C		
	FP10SH	CPU built-in TOOL Port	RS-232C		
		CPU built-in RS-232C Port	RS-232C		
AFP3462		RS-232C			
FP10S	CPU built-in TOOL Port	RS-232C			
	AFP3462	RS-232C			
FP3	CPU built-in TOOL Port	RS-232C			
	AFP3462	RS-232C			
FP1	CPU built-in TOOL Port	RS-232C			
	CPU built-in RS-232C Port	RS-232C			
FP7	CPU built-in RS-232C Port	RS-232C			
	AFP7NSC	RS-232C			
		RS-422 (4-wire)			
			RS-485 (2-wire)		

■ Connectable configuration

- 1:1 connection

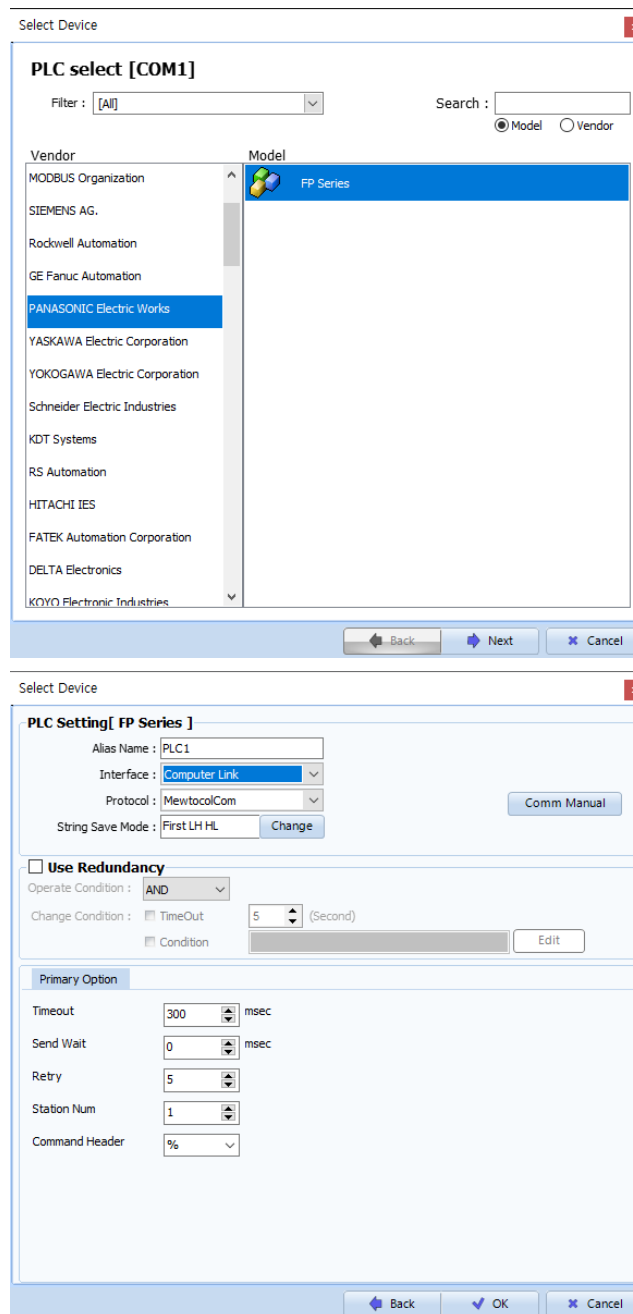


- 1:N connection



2. External device selection

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



Settings		Contents					
TOP	Model	Check the display and process of TOP to select the touch model.					
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "PANASONIC Electric Works".					
	PLC	Select an external device to connect to TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>FP Series</td> <td>Computer Link</td> <td>MewtocolCom</td> </tr> </tbody> </table> <p>Please check the system configuration in Chapter 1 to see if the external device you want to connect is a model whose system can be configured.</p>	Model	Interface	Protocol	FP Series	Computer Link
Model	Interface	Protocol					
FP Series	Computer Link	MewtocolCom					

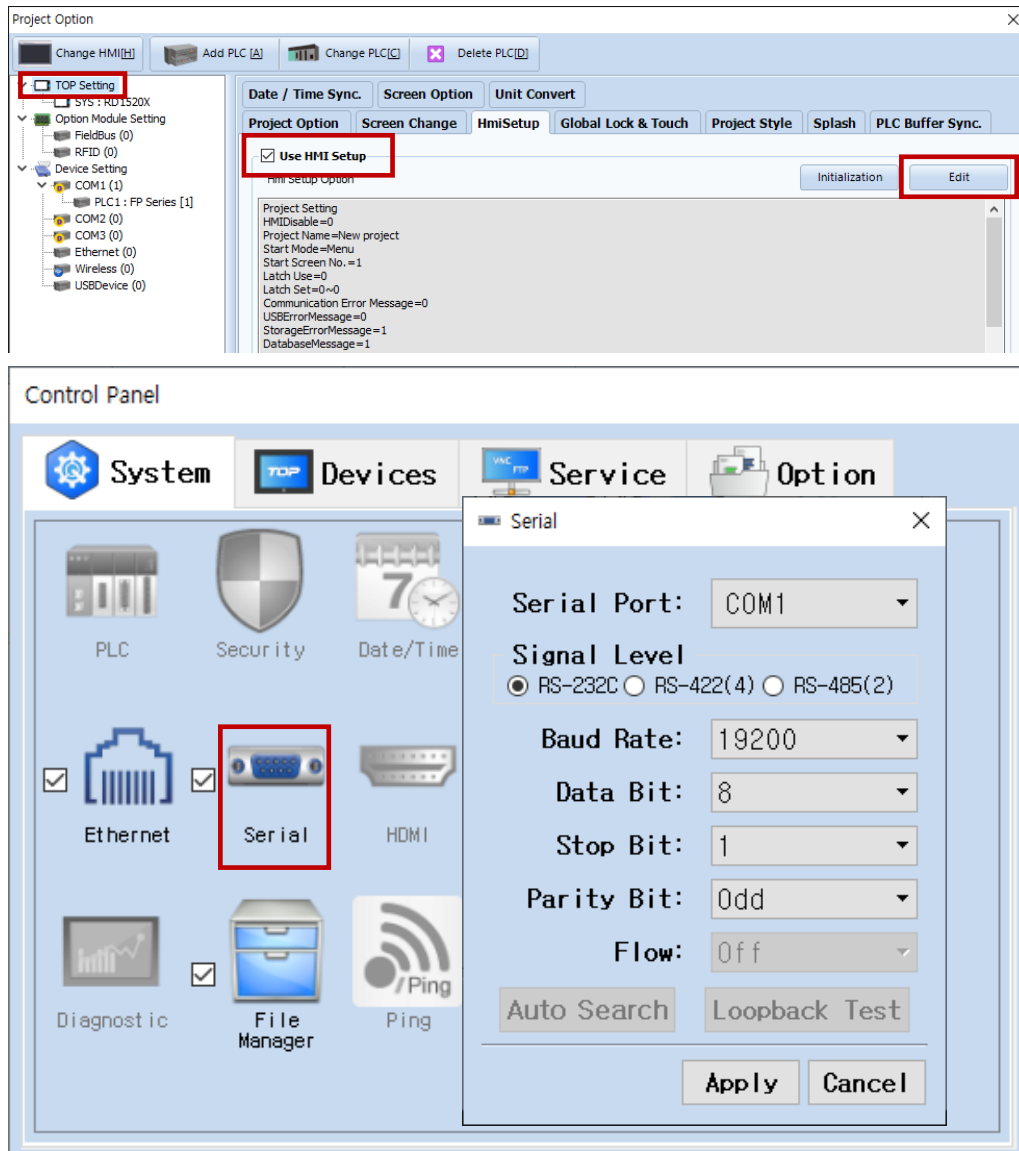
3. TOP communication setting

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] → [Property] → [TOP Setting] → [HMI Setup] → [Use HMI Setup Check] → [Edit] → [Serial]
 - Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
Signal Level	RS-232C / RS-422 / RS-485	RS-232C / RS-422 / RS-485	
Baud Rate	19200		
Data Bit	8		
Stop Bit	1		
Parity Bit	Odd		

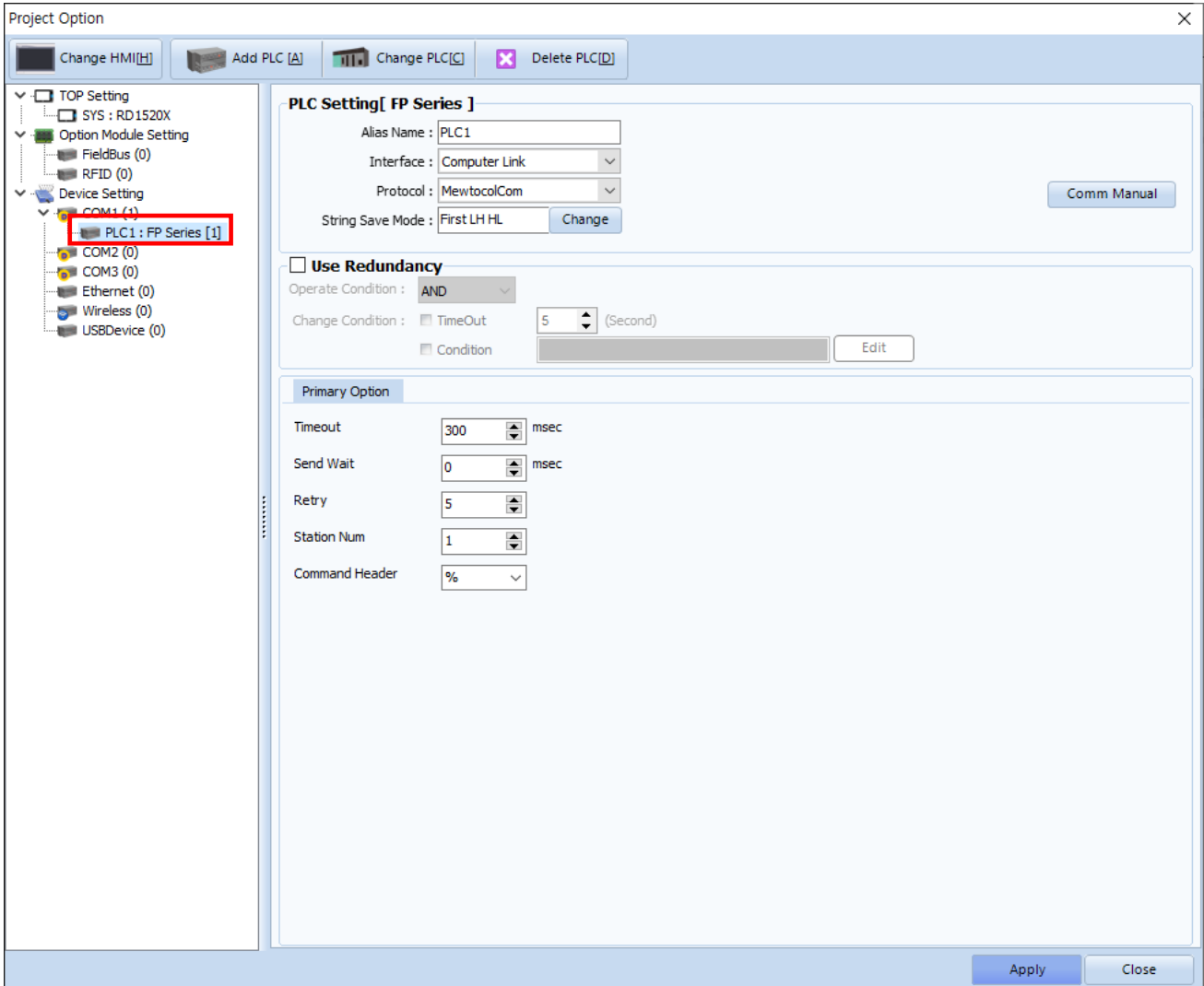
* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device. (COM3 supports only RS-485.)
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

(2) Communication option setting

■ [Project] → [Project Property] → [PLC Setting> COM1 > PLC1 : FP Series]

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



Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External device selection" .
Protocol	Select the serial communication protocol between the TOP and an external device.	
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.	
Station Num	Enter the prefix of an external device.	
Command Header	Configure the header for the MEWTOCOL-COM protocol.	Initial Value: %

3.2. Communication setting in TOP

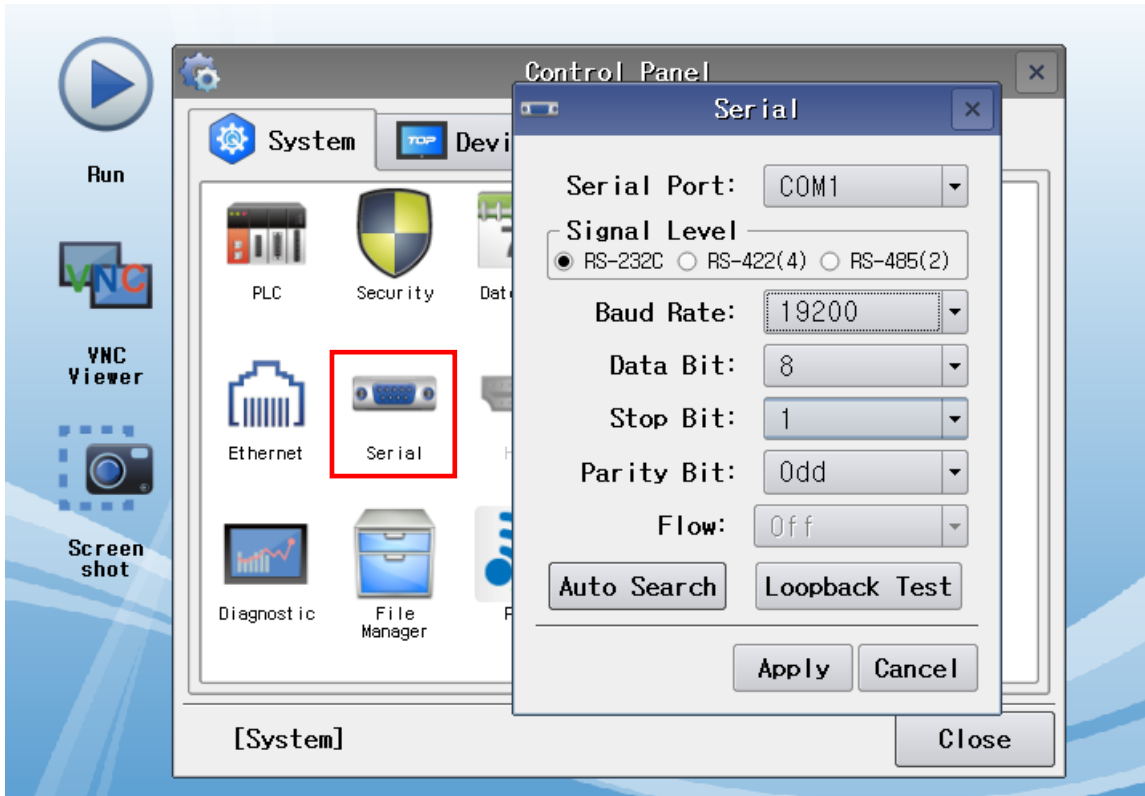
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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

- [Control Panel] → [Serial]



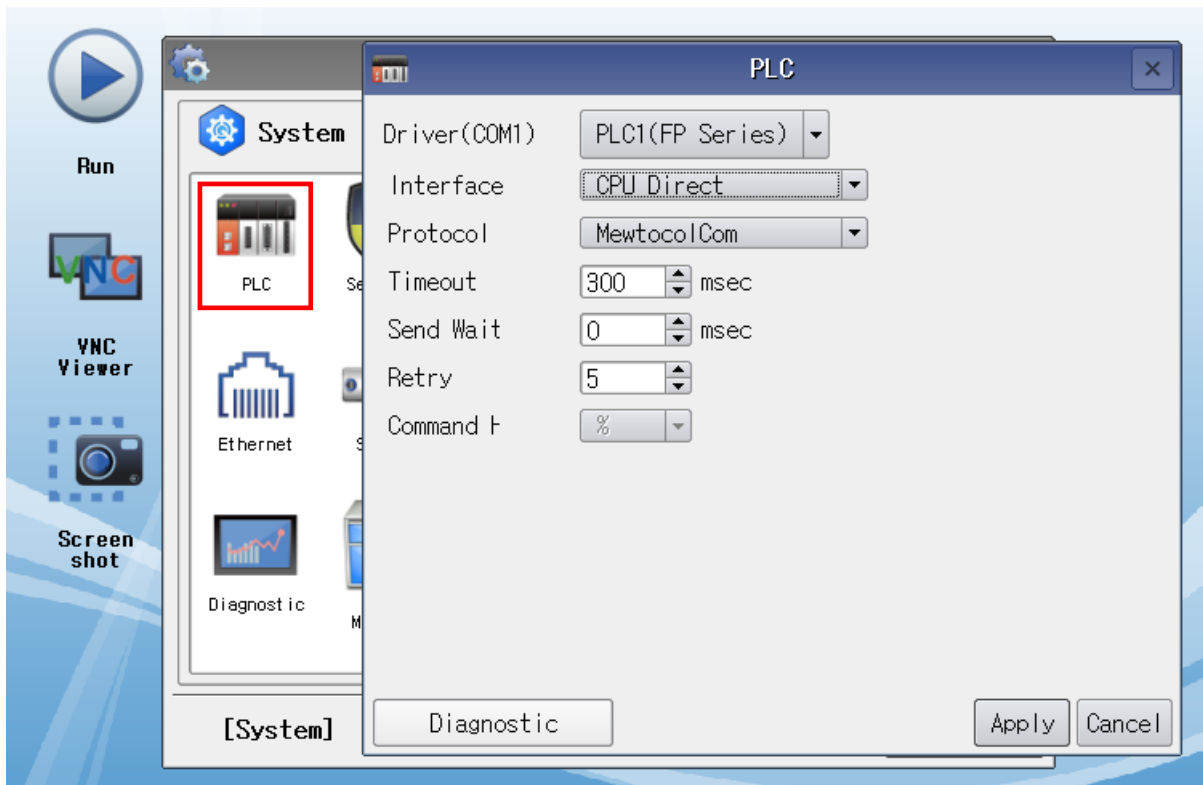
Items	TOP	External device	Remarks
Signal Level	RS-232C / RS-422 / RS-485	RS-232C / RS-422 / RS-485	
Baud Rate		19200	
Data Bit		8	
Stop Bit		1	
Parity Bit		Odd	

* The above settings are setting examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device. (COM3 supports only RS-485.)
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select the serial communication stop bit between the TOP and an external device.
Parity Bit	Select the serial communication parity bit check method between the TOP and an external device.

(2) Communication option setting

■ [Control Panel] → [PLC]



Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External device selection".
Protocol	Select the serial communication protocol between the TOP and an external device.	
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.	
Station Num	Enter the prefix of an external device.	
Command Header	Configure the header for the MEWTOCOL-COM protocol.	Initial Value: %

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 that the settings of the connected ports in [Control Panel] → [Serial] are the same as the settings of the external device.

- Diagnosis of whether the port communication is normal or not
 - Touch "Communication diagnostics" in [Control Panel] → [PLC].
 - Check whether communication is connected or not.

Communication diagnostics succeeded
 Communication setting normal

Error message
 Communication setting abnormal
 - Check the cable, TOP, and external device settings. (Refer to 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 configuration	How to connect the system	OK	NG	1. System configuration	
	Cable	OK	NG		
TOP	Version	OK	NG	2. External device selection 3. Communication setting	
	Communication port	OK	NG		
	Communication driver and protocol	OK	NG		
	Other detailed settings	OK	NG		
	Relative prefix	Project setting	OK		NG
		Communication diagnostics	OK		NG
	Serial Parameter	Transmission Speed	OK		NG
		Data Bit	OK		NG
Stop Bit		OK	NG		
Parity Bit		OK	NG		
External device	CPU	OK	NG	6. Supported addresses (For details, please refer to the PLC vendor's manual.)	
	Communication port	OK	NG		
	Protocol	OK	NG		
	Setup Prefix	OK	NG		
	Other detailed settings	OK	NG		
	Serial Parameter	Transmission Speed	OK		NG
		Data Bit	OK		NG
		Stop Bit	OK		NG
Parity Bit		OK	NG		
Check address range		OK	NG		

4. External device setting

Configure the COM port of the external device as shown below by referring to the vendor's user manual.

Items	Settings	Remarks
Communication Mode	MEWTOCOL-COM Master/slave (Computer Link)	Fixed
Prefix	1	
Communication speed	19200	
Data Length	8	
Parity	Odd	
Stop Bit	1	
RS/CS Control	Restriction	※Note 1)
Transmit time delay	0	
Modem connection	Restriction	

※Note 1) When allowed, short-circuit the RS and CS pins of the external device.

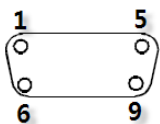
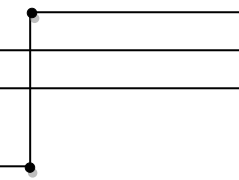

※ Control FPWIN 7 FP7 model COM 0 Setup Screen

No	Item name	Data	Dimen...	Range	Additional information
768	Communication mode	MEWTOCOL-COM master/slave [Computer link]		MEWTOCOL-COM master	The PLC can be a MEWTOCOL-COM master or slave unit. If 1...
769	Station number	1		1 to 99	Station numbers are the numbers to identify the different PL...
770	Baud rate	19200	baud	230400	Specifies the baud rate of the port.
771	Data length	8 bits		8 bits	Selects the data length.
772	Parity	Odd		None	Selects the parity check.
773	Stop bits	1 bit		1 bit	Selects the number of stop bits.
774	RS/CS control	Disable		Disable	
775	Sending delay time	0	ms	0.0 to 100.00	
776	Start code	No-STX		No-STX	Selects the start code.
777	End code/reception done condition	CR		CR	Selects the end code.
778	Reception done judgment time	0	ms	0.0 to 100.00	
779	Modem connection	Disable		Disable	Specifies if a modem is connected.

5. Cable table

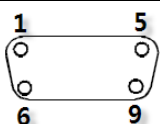
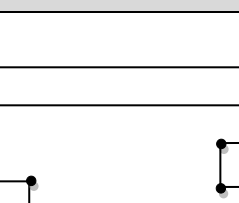
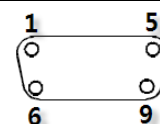
This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.
(The cable diagram described in this section may differ from the recommendations of "PANASONIC Electric Works")

■ RS-232C [CPU built-in Tool Port]

TOP			Cable connection	External device		
Pin arrangement* Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement* Note 1)
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		1	SG	 <p>Based on communication cable connector front, Tool Port 5 pin (Male, convex)</p>
	SD	3		2	SD	
	SG	5		3	RD	
					5	

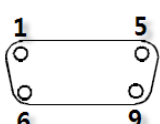
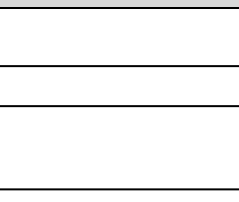
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-232C [CPU built-in RS232C Port]

TOP			Cable connection	External device		
Pin arrangement* Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement* Note 1)
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		2	SD	 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>
	SD	3		3	RD	
	SG	5		4	RS	
					5	
				7	SG	

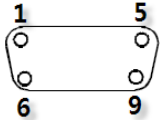
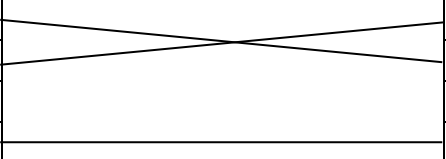
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-232C [CPU built-in RS232C Terminal]

TOP			Cable connection	External device	
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		SD	
	SD	3		RD	
	SG	5		SG	

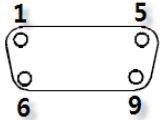
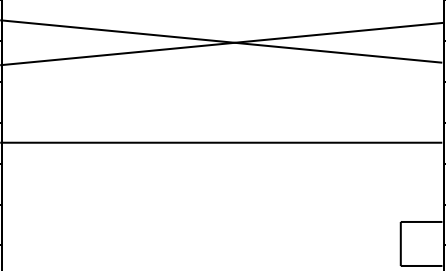
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-232C [Terminal]

TOP			Cable connection	External device	
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		SD	
	SD	3		RD	
	SG	5		SG	

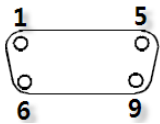
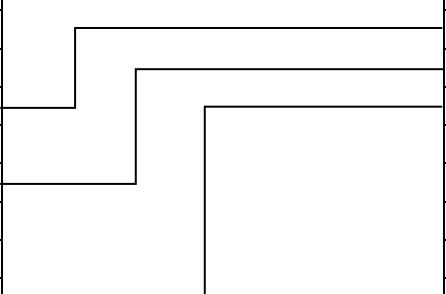
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-232C [Terminal] - in the setting RS/CS Controlled

TOP			Cable connection	External device	
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RD	2		SD	
	SD	3		RD	
	SG	5		SG	

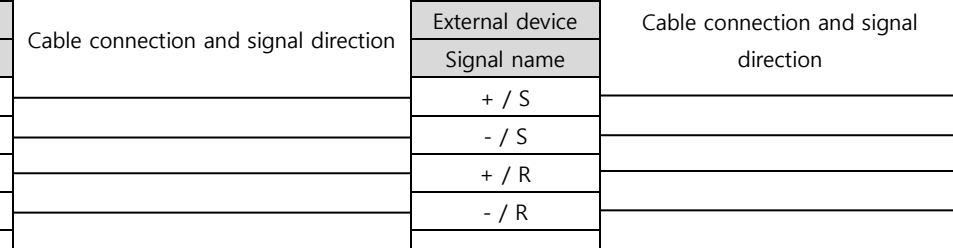
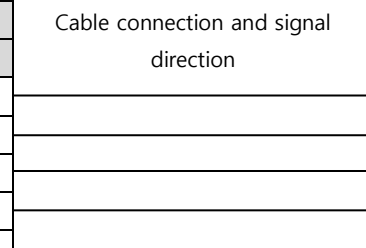
***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-422 [Terminal]

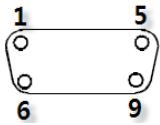
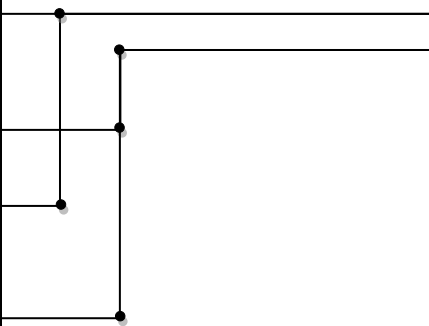
TOP			Cable connection	External device		
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA	1		+ / S		
						- / S
	RDB	4		+ / R		
	SG	5		- / R		
	SDA	6				
	SDB	9				

***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ RS-422 [Terminal] 1:N connection – Refer to 1:1 connection to connect in the following way..

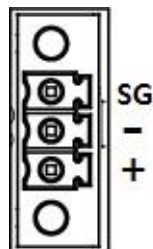
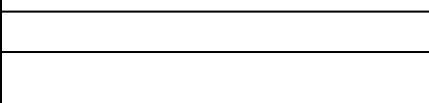
TOP	Cable connection and signal direction	External device	Cable connection and signal direction	External device
Signal name		Signal name		Signal name
RDA		+ / S		+ / S
RDB		- / S		- / S
SDA		+ / R		+ / R
SDB		- / R		- / R
SG				

■ RS-485 [Terminal]

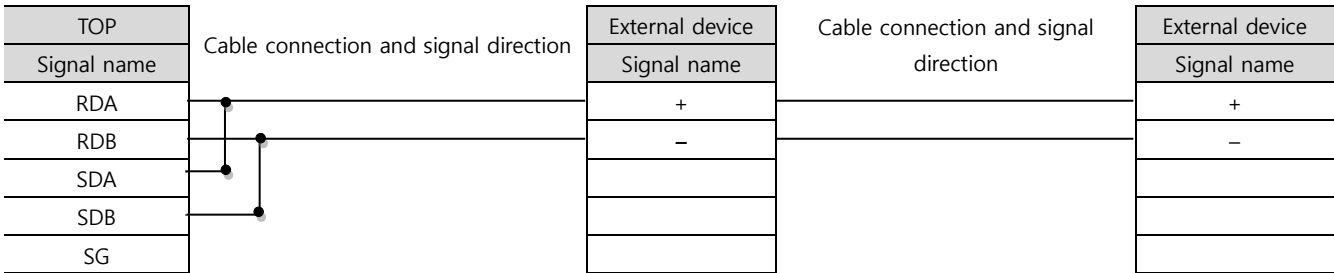
TOP			Cable connection	External device		
Pin arrangement* Note 1)	Signal name	Pin number		Signal name	Pin arrangement* Note 1)	
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA	1		+		
						-
	RDB	4				
	SG	5				
	SDA	6				
	SDB	9				

***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

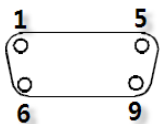
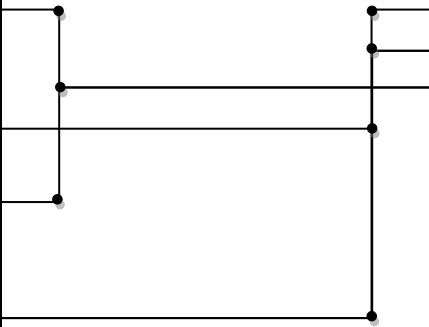
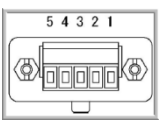
■ RS-485 [Terminal]

TOP		Cable connection	External device	
Pin arrangement	Signal name		Signal name	
	+		+	
	-		-	
	SG		SG	

■ RS-485 [Terminal] 1:N connection – Refer to 1:1 connection to connect in the following way.

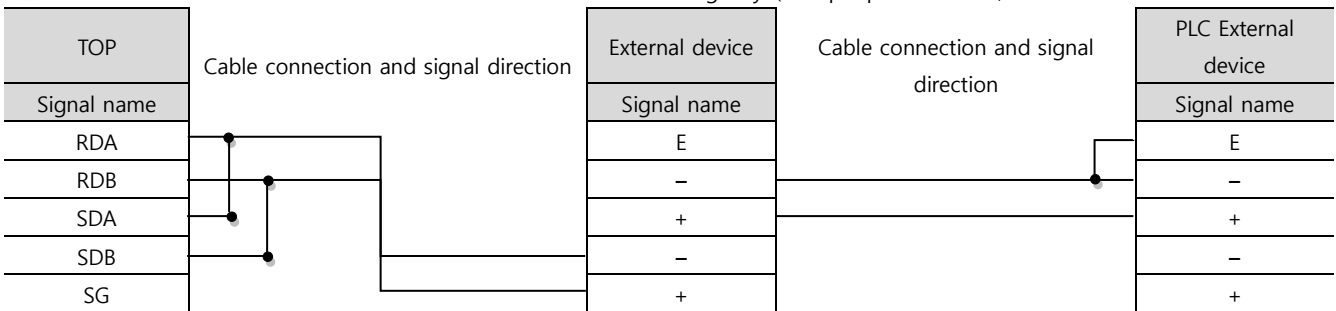


■ RS-485 [AFP2465 + AFP2805] (1 : 1 connection)

TOP			Cable connection	PLC		
Pin arrangement* Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement* Note 1)
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA	1		1	E	 <p>Based on communication cable connector front, Terminal Block 5 Pin</p>
	RDB	4		2	-	
	SG	5		3	+	
	SDA	6		4	-	
				5	+	
	SDB	9				

***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

■ 1:N connection – Refer to 1:1 connection to connect in the following way. (For split prefix devices, connect "E" Terminal with "-".



6. 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
X	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)
T	Timer(contact)	T0 ~ T3071	——	
C	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	*Note 2)
	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	

*Note1) 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)

*Note 2) Special registers (DT) are only available for FP2/2SH/10SH.