# MITSUBISHI Electric Corporation MELSEC-FX Series

Compatible OS version XDesignerPlus 4.0.0.0 or higher 4.0.0.0 or higher

# 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"

**Computer Link Driver** 

### **1.** System configuration

#### Page 2

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 4

### external devices

Select TOP model and external device..

# **3.** Example of system settings Page 5

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 14

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. Cable diagram

details

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Explains cable specifications required for access.

Select proper cable specifications according to the system you chose in "1. System configuration".

# 6. Support address

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



# 1. System configuration

The communication system configuration of TOP and "MELSEC-FX Series Computer Link of MITSUBISHI Electric Corporation" is as follows.

CPU	・주1) Link I/F	Method	System settings	Cable
	FX3G-232-BD FX3U-232ADP+ FX3G-CNV-ADP	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise <u>1</u> <u>(5 page )</u>	5.1 cable table 1 ( 17 page )
FX3G-14M□ FX3G-24M□	FX3G-485-BD	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )
	FX3U-485ADP+FX3G-CNV-ADP	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	<u>5.3 cable table 3</u> ( 19 page )
	In case if Channel 1 (ch1) is used			
	FX3G-232-BD (Connect to the connector 1 of additional unit) FX3U-232ADP + FX3G-CNV-ADP	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page)</u>	<u>5.1 cable table 1</u> ( 17 page )
	FX3G-485-BD (Connect to the connector 1 of additional unit)	RS422 ( 4 wire )	<u>3.2 설정 예제 23.2</u> Configuration Exercise 2 <u>(8 page)</u>	5.2 cable table 2 (18 page)
FX3G-40M	FX3U-485ADP + FX3G-CNV-ADP	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	<u>5.3 cable table 3</u> ( <u>19 page)</u>
FX3G-60M	In case if Channel 2 (ch2) is used			
	FX3G-232-BD (Connect to the connector 1 of additional unit) FX3U-232ADP + FX3U-■ADP + FX3G-CNV-ADP	RS232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page)</u>	5.1 cable table 1 ( 17 page )
	FX3G-485-BD (Connect to the connector 1 of	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )
	additional unit) FX3U-485ADP + FX3U-∎ADP + FX3G-CNV-ADP	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	5.3 cable table 3 ( 19 page )
	In case if Channel 1 (ch1) is used			
	FX3U-232ADP	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page )</u>	5.1 cable table 1 ( 17 page )
	FX3U-485ADP	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page)	5.2 cable table 2 ( 18 page )
FX3UC-□MT/D		RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	5.3 cable table 3 (19 page)
FX3UC-DMT/DSS	In case if Channel 2 (ch2) is used			
	FX3U-232ADP + FX3U-■ADP	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page)</u>	5.1 cable table 1 ( 17 page )
	FX3U-485ADP + FX3U-■ADP	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )
		RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	5.3 cable table 3 ( 19 page )
	In case if Channel 1 (ch1) is used			
FX3UC-32MT-LT FX3U	FX3U-232-BD FX3U-232ADP + FX3U-CNV-BD	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 (5 page)	5.1 cable table 1 ( 17 page )
	FX3U-485-BD FX3U-485ADP + FX3U-CNV-BD	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )

		TOP 대한민리 Touch (	국대표 터치패널 Operation Panel
	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 ( 11 page )	5.3 cable table 3 ( 19 page )
In case if Channel 2 (ch2) is used			
FX3U-232ADP + FX3U-□BD, FX3U-232ADP + FX3U-■ADP + FX3U-CNV-BD	RS-232C	<u>3.1 설정 예제 13.1</u> <u>Configuration Exercise 1</u> <u>(5 page )</u>	5.1 cable table 1 (17 page)
FX3U-485ADP + FX3U-□BD	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )
 FX3U-485ADP + FX3U-■ADP + FX3U-CNV-BD	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 (11 page)	5.3 cable table 3 ( 19 page )

Solution on the next page.

		TUP Interview Touch Operation Panel			
CPU	*Caution1) Link I/F	Method	System settings	Cable	
	FX2N-232-BD FX2NC-232ADP + FX2N-CNV-BD	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 (5 page)	5.1 cable table1 (17 page)	
FX2N	FX2N-485-BD FX0N-485ADP + FX2N-CNV-BD FX2NC-485ADP + FX2N-CNV-BD	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )	
		RS-485 ( 2 wire )	3.3 Configuration Exercise 3 (11 page)	5.3 cable table 3 ( 19 page )	
FX1N FX1S	FX1N-232-BD FX2NC-232ADP + FX1N-CNV-BD	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page)</u>	5.1 cable table 1 (17 page)	
	FX1N-485-BD FX0N-485ADP + FX1N-CNV-BD FX2NC-485ADP + FX1N-CNV-BD	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )	
		RS-485 ( 2 wire )	3.3 Configuration Exercise 3 (11 page)	5.3 cable table 3 ( 19 page )	
FX2NC FX1NC FX0N	FX2NC-232ADP	RS-232C	<u>3.1 설정 예제 13.1</u> Configuration Exercise 1 <u>(5 page)</u>	5.1 cable table 1 (17 page)	
	FX0N-485ADP	RS422 ( 4 wire )	3.2 Configuration Exercise 2 ( 8 page )	5.2 cable table 2 ( 18 page )	
	FX2NC-485ADP	RS-485 ( 2 wire )	3.3 Configuration Exercise 3 (11 page)	<u>5.3 cable table 3</u> ( <u>19 page)</u>	

\*Caution1) One of ( 232, 422, 485, USB ) will be included on  $\hfill\square$  of Link I/F row.

\*Caution1) One of ( 232,485 ) will be included on  $\blacksquare$  of Link I/F row.

#### Connection configuration

• 1 : 1(1 TOP and 1 External Device) Connection - it is for RS232C/422/485 communication.



• 1 : N(1 TOP and Several External Devices) Connection - It is for RS422/485 Communication.





# 2. Selecting TOP model and external devices

Select the external devices to connect to TOP.

			HMI / PLC Uint		
Series XT	FOP Series		Vendor MITSUBISHI Electric Corporation		
Model XT	rop15TX-SA/	SD	PLC Model MELSEC-FX Series Computer Link		
			PLC		
Ver	ndor		Model		
121 Corporation		*	CC-LINK(Remote Device Station)		
AITSUBISHI Electr	ic Corporation		MELSEC-A Series ETHERNET		
OMRON Industrial	Automation		MELSEC-AnA Series Computer Link		
.S Industrial Syst	ems		MELSEC-AnA(A2A/A3A) Series CPU Direct		
IODBUS Organiz	ation		MELSEC-AnA(A2U/A3U/A4U/A2US/A2USH) Series CPU Direct		
SIEMENS AG.		Ш	MELSEC-AnN (A0J2) Series CPU Direct		
Rockwell Automa	tion (AB)		MELSEC-AnN (A2N,A3N) Series CPU Direct		
GE Fanuc Automation			MELSEC-AnN Series Computer Link		
ANASONIC Elec	NASONIC Electric Works		MELSEC-AnN(AnS,A0J2H) Series CPU Direct		
ASKAWA Electr	ric Corporation		MELSEC-FX Series CPU Direct		
OKOGAWA Elec	ctric Corporatio		MELSEC-FX Series Computer Link		
Schneider Electric	c Industries		MELSEC-FX Series Positioning Controller - FX2N-10/20GM		
CDT Systems			MELSEC-Q (UDE Type) Series CPU ETHERNET		
RS Automation(S)	AMSUNG)		MELSEC-Q Series CPU Direct		
HITACHI IES			MELSEC-Q Series ETHERNET(QJ71E71)		
ATEK Automatio	n Corporation		MELSEC-Q Series SERIAL(QJ71C24,Format1)		
ELTA Electronic	s		MELSEC-Q Series SERIAL(QJ71C24,Format5)		
OYO Electronic	Industries		MELSEC-Q(00CPU/01CPU) Series CPU Direct		
/IGOR Electric Corporation MELSEC-Q(00JCPU) Series CPU Direct					
Comfile Technolog	ду	MELSERVO-J2 Series			
Dongbu(DASARC	BOT)		MELSERVO-J3 Series		
ROBOSTAR		÷			

Setting details		Contents				
ТОР	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.				
		Series	Version name			
		XTOP / HTOP	V4.0	-		
	Name	Select the model name of TOP product.				
Communicatio n Device	Manufacturer	Select the manufacturer of external devices to be connected to TOP. Please select <u>"MITSUBISHI".</u>				
	PLC	Select the model series of external devices to be connected to TOP. Please select <u>"MELSEC-FX Series Computer Link"</u> . Please check, in the "1. System configuration", if the relevant external 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

The system is set as below.					
Details		ТОР	MELSEC-FX Series	Remark	
Serial level (port/char	inel)	RS-232 (COM2)	Regular/RS-232	User settings	
Address(PLC Address)		—	0	User settings	
Serial baud rate	[BPS]	19200	19200	User settings	
Serial data bit	[Bit]	8	8	User settings	
Serial stop bit	[Bit]	1	1	User settings	
Serial parity bit	[Bit]	NONE	NONE	User settings	
Protocol		_	Dedicated protocol (Format 1)	User settings	

#### (1) XDesignerPlus setup

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

⊡ PLC Setting	- From right window [HMI Setting > check "Use HMI Setup" > Device Manager ]								
白 COM2 (1)	HMI Setup	Sepcial Buffer St	/nc						
	Use HMI	Setup							
Ethernet (0)	System Setu	p PLC Setup	Device	Manager	Interface				
USB Device (0)			* Corr	munication	Port				
CF Card Setting	+ COM 1			+ COM 2		2			
CFCard	- Boud Rate :	19200		- Boud R	ate :	19200	-		
	- Data Bit :	8	( <b>*</b> )	- Data Bit	tt	8	¥3		
	- Stop Bit :	1	•	- Stop Bit	t:	1			
	- Parity Bit :	None	•	- Parity B	lit :	None	*		
				- Signal L	evel:	RS-232C	-		
	External dev	vice settings							
	This sets the or	otion of "MELSE	C-FX Seri	es Compu	iter Link" com	munication d	river.		
	-			PLC	Comm Info				
	Station Nur	mber(PLC) 0		-					



#### (2) External device settings

There are two different methods of communication settings for MELSEC-FX series Ladder Software "GX Developer"; one is Parameter setting and the other one is the data setting of "special data register" of PLC. Please refer to the PLC user manual for more detailed information if you need.

- Method 1 : Parameter setting in "GX Developer"
- **1.** From project window, double click [Parameter] > [PLC parameter] to pop up [FX parameter setting] Dialog Box.

**2.** Please set up as below after selecting [PC system settings (2)] Tab from [FX Parameter] dialog box and select "Operate Communication Setting" to be used.

FX parameter	
Memory capacity   Device   PLC name   I/O assignment   P CH1 If the box is not checked, t Operate Communication Setting	PLC system(1) PLC system(2) Positioning the parameters will be cleared, sfered to the communication board, parameters _C must be cleard upon program transfer,)
Protocol Dedicated protocol	Control line
Data length 8bit	H/W type Regular/RS-232C
Parity None	Control mode
Stop bit	Sum check
Transmission speed 19200 (bps)	Transmission control procedure Form1(without CR,LF)
F Header	Station number setting 00 H (00H0FH)
Terminator	Time out judge time 1 X10ms (1255)
Default	Check End Cancel

Details	Selected Information	Remark
СН	"CH1" or "CH2"	Select a channel that is desired to perform
		communication setting.
		(Only available to set on FX3UC, FX3U, FX3G.)
Operate Communication Setting	Check to utilize	(Fixed)
Protocol	Dedicated protocol	(Fixed)
Data length	8bit	Possible to change
Parity	none	Possible to change
Stop Bit	1bit	Possible to change
Transmission Speed	19200	Possible to change
H/W type	Regular/RS-232C	Possible to change
Sum check	Check to utilize	(Fixed)
Transmission control procedure	Form1(without CR,LF)	(Fixed)
Station number setting	00	Possible to change
Time out judge time	1	Possible to change



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



■ Method 2 : Input data in "Special Data Register" of PLC

It is to input data in the special data register of MELSEC-FX Series. Please reset the power of PLC after input. Input data as below in the setting object to set up the setting value.

Special	Register	Data					
Channel 1	Channel 2 (FX3UC, FX3U, FX3G)	Setting data (Hexadecimal Number)	Remark				
D8120	D8420	6891	Serial Parameter Setting Data				
D8121	D8421	0	PLC address				
D8129	D8429	1	Time out judge time				



#### 3.2 Example of Settings 2

#### The system is set as below.

Details		ТОР	MELSEC-FX Series	Remark
Serial level (port/channel)		RS-422 (4 wire, COM2)	RS-422/485	User settings
Address(PLC Address)		_	0	User settings
Serial baud rate	[BPS]	19200	19200	User settings
Serial data bit	[Bit]	8	8	User settings
Serial stop bit	[Bit]	1	1	User settings
Serial parity bit	[Bit]	NONE	NONE	User settings
Protocol		_	Dedicated protocol (Format 1)	User settings

#### (1) XDesignerPlus setup

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





#### (2) External device settings

There are two different methods of communication settings for Melsec-FX series Ladder Software "**GX Developer**"; one is Parameter setting and the other one is the data setting of "**special data register**" of PLC. Please refer the PLC user manual for more detailed information if you need.

- Method 1 : Parameter setting in "GX Developer"
- **1.** From project window, double click [Parameter] > [PLC parameter] to pop up [FX parameter setting] Dialog Box.

**2.** Please set up as below after selecting [PC system settings (2)] Tab from [FX Parameter] dialog box and select "Operate Communication Setting" to be used.

FX parameter	
Memory capacity  PLC name  I/O assignment  PLC syste CH1  Uperate Communication Setting	em(1) PLC system(2) Positioning the parameters will be cleared, sfered to the communication board, parameters _C must be cleard upon program transfer,)
Protocol Dedicated protocol	Control line
Data length 8bit	H/W type RS-485
Parity None 💌	Control mode
Stop bit	Sum check
Transmission speed 19200 Transmission speed	Transmission control procedure Form1(without CR,LF)
F Header	Station number setting 00 H (00H0FH)
Terminator	Time out judge time 1 ×10ms (1255)
Default	Check End Cancel

Details	Selected Information	Remark	
СН	"CH1" or "CH2"	Select channel that is desired to perform	
		communication setting.	
		(Only available to set on FX3UC, FX3U, FX3G.)	
Operate Communication Setting	Check to utilize	(fixed)	
Protocol	Dedicated protocol	(fixed)	
Data length	8bit	Possible to change	
Parity	none	Possible to change	
Stop Bit	1bit	Possible to change	
Transmission Speed	19200	Possible to change	
H/W type	RS-485	Possible to change	
Sum check	Check to utilize	(fixed)	
Transmission control procedure	Form1(without CR,LF)	(fixed)	
Station number setting	00	Possible to change	
Time out judge time	1	Possible to change	



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



Method 2 : Input data in "Special Data Register" of PLC

Special Register		Data	
Channel 1	Channel 2 (FX3UC, FX3U, FX3G)	Setting data (Hexadecimal Number)	Remark
D8120	D8420	6091	Serial Parameter Setting Data
D8121	D8421	0	PLC address
D8129	D8429	1	Time out judge time

It is to input data in the special data register of MELSEC-FX Series. Please reset the power of PLC after input. Input data as below in the setting object to set up the setting value.



#### 3.3 Examples of Setting 3

#### The system is set as below.

Details		ТОР	MELSEC-FX Series	Remark
Serial level (port/chan	nel)	RS-485 (2 wire, COM2)	RS-422/485	User settings
Address(PLC Address)		_	0	User settings
Serial baud rate	[BPS]	19200	19200	User settings
Serial data bit	[Bit]	8	8	User settings
Serial stop bit	[Bit]	1	1	User settings
Serial parity bit	[Bit]	NONE	NONE	User settings
Protocol		_	Dedicated protocol ( Format 1 )	User settings

#### (1) XDesignerPlus setup

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





#### (2) External device settings

There are two different methods of communication settings for MELSEC-FX series Ladder Software "**GX Developer**"; one is Parameter setting and the other one is the data setting of "**special data register**" of PLC. Please refer the PLC user manual for more detailed information if you need.

- Method 1 : Parameter setting in "GX Developer"
- **1.** From project window, double click [Parameter] > [PLC parameter] to pop up [FX parameter setting] Dialog Box.

**2.** Please set up as below after selecting [PC system settings (2)] Tab from [FX Parameter] dialog box and select "Operate Communication Setting" to be used.

FX parameter	
Memory capacity  PLC name  I/O assignment  PLC syste	em(1) PLC system(2) Positioning
CH1 If the box is not checked, t Operate When the program is trans communication setting	the parameters will be cleared, sfered to the communication board, parameters .C must be cleard upon program transfer,)
Protocol Dedicated protocol	Control line
- Data length	H/W type RS-485
Parity None	Control mode
Stop bit	Sum check
Transmission speed (bps)	Transmission control procedure Form1(without CR,LF)
F Header	Station number setting 00 H (00H0FH)
Terminator	Time out judge time 1 X10ms (1255)
Default	Check End Cancel

Details	Selected Information	Remark	
СН	"CH1" or "CH2"	Select channel that is desired to perform	
		communication setting.	
		(Only available to set on FX3UC, FX3U, FX3G.)	
Operate Communication Setting	Check to utilize	(fixed)	
Protocol	Dedicated protocol	(fixed)	
Data length	8bit	Possible to change	
Parity	none	Possible to change	
Stop Bit	1bit	Possible to change	
Transmission Speed	19200	Possible to change	
H/W type	RS-485	Possible to change	
Sum check	Check to utilize	(fixed)	
Transmission control procedure	Form1(without CR,LF)	(fixed)	
Station number setting	00	Possible to change	
Time out judge time	1	Possible to change	



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



■ Method 2 : Input data in "Special Data Register" of PLC

It is to input data in the special data register of MELSEC-FX Series. Please reset the power of PLC after input. Input data as below in the setting object to set up the setting value.

Special Register		Data		
Channel 1	Channel 2 (FX3UC, FX3U, FX3G)	Setting data (Hexadecimal Number)	Remark	
D8120	D8420	6091	Serial Parameter Setting Data	
D8121	D8421	0	PLC address	
D8129	D8429	1	Time out judge time	



# 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.

PLC Setting     OM2 (1)     PLC1 : MELSEC-FX Seri	HMI Setup Sepcial	Buffer Sync			
	Use HMI Setup				
- Ethernet (0)	System Setup PLC	C Setup Device Ma	nager Interface		
- FieldBus (0)		* Co	mmunication Port		
USB Device (0)	+ COM 1		+ COM 2		
- CF Card Setting	- Boud Rate :	19200 👻	- Boud Rate :	19200	•
ci calu	- Data Bit :	8 👻	- Data Bit :	8	₩3
	- Stop Bit :	1	- Stop Bit :	1	*
	- Parity Bit :	None 👻	- Parity Bit :	None	-
			- Signal Level :	RS-232C	<b>*</b> 2
	HMI Setup Sepcia	al Buffer Sync			
	HMI Setup Sepcia	C Setup Device N	lanager Interface		
	HMI Setup Sepcia	al Buffer Sync	lanager Interface		
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number :	LC Setup Device N (PLC1) MELSEC	lanager Interface C-FX Series Computer Link		
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number : Time Out :	LC Setup Device N (PLC1) MELSEC 0 1000 \$ msec.	lanager Interface C-FX Series Computer Link		
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number : Time Out : Wait before send :	LC Setup Device N (PLC1) MELSEC 0 \$ 1000 \$ msec. 0 \$ msec.	lanager Interface		
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number : Time Out : Wait before send : External device se	C Setup Device N (PLC1) MELSEC 0 ¢ 1000 ¢ msec. 0 ¢ msec.	lanager Interface C-FX Series Computer Link		
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number : Time Out : Wait before send : External device se This sets the option of	Al Buffer Sync C Setup Device N (PLC1) MELSEC 0 0 1000 msec. 0 \$msec. 0 \$msec. ettings of "MELSEC-FX Seri	lanager Interface C-FX Series Computer Link es Computer Link" cor	nmunication drive	r.
	HMI Setup Sepcia Use HMI Setup System Setup PL PLC Station Number : Time Out : Wait before send : External device se This sets the option of	Al Buffer Sync C Setup Device N (PLC1) MELSEC 0 0 1000 msec. 0 msec. 2 msec. 2 msec. 2 msec. 2 msec.	lanager Interface C-FX Series Computer Link es Computer Link" cor	nmunication drive	r.

#### ■ Communication Interface Settings

Details	Contents
Signal level	External device - select serial communication method between TOPs. (COM1 supplies RS-232C
	only)
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.
Stop bit	External device – select serial communication stop bit between TOPs.
Parity bit	External device – select serial communication parity bit check method between TOPs.
Time out [ x100 mSec ]	Set up TOP's waiting time from external device at [0 - 5000] x 1mSec.
Transmitting Delay Time [ x10	Set up TOP's waiting time between response receiving – next command request transmission from
mSec]	external device at [ 0 – 5000 ] x 1 mSec.
Receiving Wait Time [ x10	
mSec]	

#### 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 → Step2.
 (Press "TOP COM 2/1 setup" in Step1 to change setup at Step2.)



대한민국대표 터치패널 Touch Operation Panel

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

PLC setup		
PLC Address : 00	Communication	
Timeout : 1000 [mSec]	Interface Settings	
Delay time of transmission : 0 [mSec]		
TOP COM 2/1 : RS - 232C , 19200 , 8 , 1 , NONE		
TOP COM 2/1 setup communication test		

S	Step 1-keterence.		
	Details	Contents	
	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 of transmission [	Set up TOP's waiting time between response receiving - next command request transmission	
	x1 mSec ]	from external device at [ 0 – 5000 ] x 1 mSec.	
	TOP COM 2/1	TOP's Interface setup to external device.	

#### Step 2. [ PLC setup ] > [ TOP COM2/COM1 setup ] - Setup relevant port's serial parameter.

Port Settings	
* Serial communication	COM 1 Port
+ COM-1 Port	Communication
- Baud Rate : 19200 [BPS]	Interface Settings
- Data bit : 8 [BIT]	
- Stop bit : 1 [BIT]	
- Parity bit : NONE [BIT]	
- Signal level : RS – 232C	
+ COM-2 Port	COM-2 Port
- Baud Rate : 19200 [BPS]	Communication
- Data bit : 8 [BIT]	Interface Settings
- Stop bit : 1 [BIT]	
- Parity bit : NONE [BIT]	
- Signal level : RS – 232C	
Stop 2 Poference	

Step 2-Reference.	
Details	Contents
Baud rate	External device – select serial communication speed between TOPs.
Data bit	External device – select serial communication data bit between TOPs.



\_\_\_\_

Stop bit	External device – select serial communication stop bit between TOPs.
Parity bit	External device – select serial communication parity bit check method between TOPs.
Signal level	External device – select serial communication method between TOPs.



#### 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.

- Confirms if Port [COM 2 or COM 1] setting that is willing to use in [Communication Settings] matches with the setting of external devices.

Diagnosis whether a port communication is normal or not

- PLC Setting > TOP [ COM 2 or COM 1 ] click "Communication Diagnosis" button.

- 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.

Designer Versior	۱		O.S Versio	on					
Details	Con	tents					Con	firm	
System configuration	Nam	ne of CPU					ОК	NG	
	Nam com	ne of confront port that is municating					ОК	NG	
	Syst	em Connection Method	1:1	1:	N	N:1	ОК	NG	
Connection Cable	Nam	ne of Cable					ОК	NG	
PLC setup	Setu	ıp address					ОК	NG	
	Seria	al baud rate			[	BPS]	ОК	NG	
	Seria	al data bit			[	BIT]	ОК	NG	
	Seria	al Stop bit			[	BIT]	ОК	NG	
	Seria	al parity bit			[	BIT]	ОК	NG	
	Assi	gned Address Limit					ОК	NG	
TOP setup	Setu	ip port	COM 1			COM 2	ОК	NG	
	Nam	ne of Driver					ОК	NG	
	Con	front Address	Project Property	y Setup			ОК	NG	
			When Communication	Diagnosir	ng		ОК	NG	
	Seria	al baud rate			[	BPS]	ОК	NG	
	Seria	al data bit			[	BIT]	ОК	NG	
	Seria	al Stop bit			[	BIT]	ОК	NG	
	Seria	al parity bit			[	BIT]	OK	NG	



# 5. Cable diagram

This Chapter is to introduce the Cable diagram for regular communication between TOP and relative devices. (The cable diagram that is introduced in this chapter might be different than suggested for MITSUBISHI Electric Corporation)

#### 5.1 Cable diagram 1

■ 1:1 Connection



\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.1

(B) XTOP COM 2 Port (15 pin)

XTOP COM2				PLC		
pin arrangement * caution 1)	Signal	Pin Number	Cable Connection	Pin Number	Signal	pin arrangement * caution 1)
	CD			1	CD	
	RD	2		2	RD	1 5 O O O O 6 9 Front View of D-SUB 9 Pin (male, convex)
1 8	SD	3		3	SD	
	DTR	4		4	DTR	
9 15	SG	5		5	SG	
Front View of D-SUB 15 Pin (male, convex)	DSR	6		6	DSR	
	RTS	7		7	RTS	
	CTS	8		8	CTS	· · /
		9		9		

\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

	(B) ATOP/ATOP COM I POT ( 8 PH)									
XTOP/ATOP COM 1 Port							PI	_C		
pin arrangement * caution 1)	Signal	Pin Number	Cable Connection			Pin Number	Signal	pin arrangement * caution 1)		
6 0 0 0 0 0 0 1 Front View of D-SUB 6 Pin		1				1	CD	1 5		
	RD	2	•		•	2	RD	$\left( \circ \circ \right)$		
	SG	3	•			3	SD	6 9		
		4	•			4	DTR	Front View of		
		5			•	5	SG	D-SUB 9 Pin		
	SD	6				6	DSR	(male, convex)		

#### (B) XTOP/ATOP COM 1 Port ( 6 Pin)



(male, convex)		7	RTS	
		8	CTS	
		9		

\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.





#### ■ 1 : 1 Connection

(A) XTOP COM 2 Port (9 pin)

XTOP COM2				PLC			
pin arrangement * caution 1)	Signal	Pin Number	Cable Connection	Signal	Pin Arrangement		
	RDA	1		SDA			
		2	•	SDB			
			•				
		3		RDA			
<u>1</u> 5			•				
6 9 Front View of D-SUB 9 Pin (male, convex)	RDB	4	•	RDB			
	SG	5		SG			
	SDA	6					
		7					
		8					
	SDB	9					

\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

(B) XTOP/ATOP COM 2 Port (15 Pin)

XTOP	XTOP COM2			PLC		
pin arrangement * caution 1)	Signal	Pin Number	Cable Connection	Signal	Pin Arrangement	
	-	1		SDA		
	(생	략)		SDB		
1 8 0 0 9 15 Front View of D-SUB 15 Pin (male, convex)				RDA		
	-	10		RDB		
		11		SG		
	RDA					
	RDB	12				



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nel	

SDA	13
SDB	14
SG	15

\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

■ 1 : N Connection - Please connect referring to 1:1 connection as below.

ТОР	Cable Connection and Signal	PLC	Cable Connection and Signal	PLC
Name of Signal	Direction	Name of Signal	Direction	Name of Signal
RDA		SDA		SDA
RDB		SDB		SDB
SDA		RDA		RDA
SDB		RDB		RDB
SG		SG		SG



#### 5.2 Cable Table 3

#### ■ 1:1 Connection

(A) XTOP COM 2 Port (9 pin)



\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.



\*Caution1) Pin arrangement is shown from connecting face in cable connection connecter.

■ 1:N / N:1 Connection - Please connect referring to 1:1 connection as below.







# 6. Support address

Devices that are usable with TOP are 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.

Туре	Remark	Bit designated address	Word designated address	32 bit	Property
Input	Bit	X0000 - X0337	X0000 - X0320		*Cautoin2)
					Caution3)
Output	Bit	Y0000 - Y0337	Y0000 - Y0320		* Caution 3)
STEP Relay	Bit	S0000 - S0999			
Internal Relay	Bit	M0000 - M3071	M0000 - M0192		
Special Relay	Bit	M8000 – M8255			* Caution 4)
Data Register	Word	D0000.00 - D7999.15	D0000 – D7999	L/H *caution1)	
Special Register	Word		D8000 – D8255	,,	* Caution 4)
Timer-Current	Word		TN000 – TN255		
Timer-Point	Bit	TS000 – TS255			
Countar Daint	D:+	CS000 - CS199			
Counter-Point	DIL	CS200 – CS255			
Counter-Current	Word		CN000 – CN199		
Counter-Current	Word		CN200 – CN255		* Caution 5)

\*Caution1) 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.

(예) 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 (Hexadecimal Number)	12345678	5678	1234

\*Caution2) Following data includes a section that cannot be written. Please use with caution.

\*Caution3) If used as Word address, 20 (octal number) unit will be used. (ex.: X0, X20, X40, ..., X160)

\*Caution4) Due to the usage of system followed by address as a special section, it might not be able to execute writing data. Please refer to the manual of external devices.

\*Caution5) 32 BIT device