MITSUBISHI Electric Corporation
MELSEC-AnA(A2U/A3U/A4U) Series
CPU Direct Driver

Compatible version	OS	V4.0.0.0	or higher
	XDesignerPlus	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"

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 external devices Page 3

Select TOP model and external device..

3. Example of system settings Page 4

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 details Page 5

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 Page 8

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

6. Support address Page 9

Check available addresses to communicate with external devices

referring to this chapter.

1. System configuration

The configuration of system is TOP and "MITSUBISHI Electric Corporation – MELSEC-ANA(A2U/A3U/A4U) SERIES CPU DIRECT" as below.

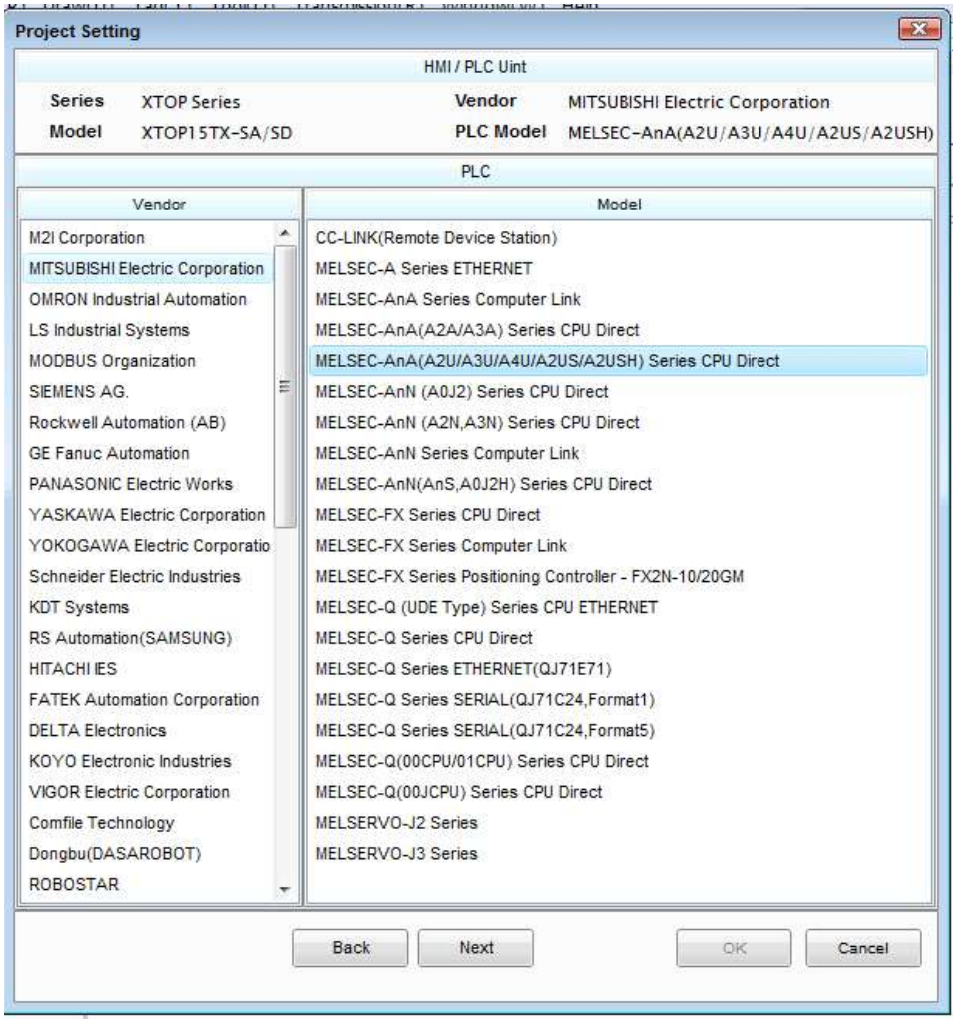
Series	CPU	Link I/F	Method	System settings	Cable
MELSEC-A	A2U A2U-S1 A2US-S1 A2USH-S1 A3U A4U	CPU Direct	RS-232C		

■ Connection configuration

・1:1 connection (TOP 1 vs. external device)

2. Selecting TOP model and external devices

Select the external devices to connect to TOP..



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 to TOP series. Series: XTOP / HTOP — Version name: V4.0
	Name	Select the model name of TOP product.
External device	Manufacturer	Select the manufacturer of external devices to be connected to TOP. Please Choose "MITSUBISHI Electric Corporation".
	PLC	Select the model series of external devices to be connected to TOP. Please choose "MELSEC-ANA(A2A/A3A) SERIES CPU DIRECT" 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 TOP and MELSEC-ANA(A2U/A3U/A4U) SERIES CPU DIRECT communication interface setting, we suggest as below.

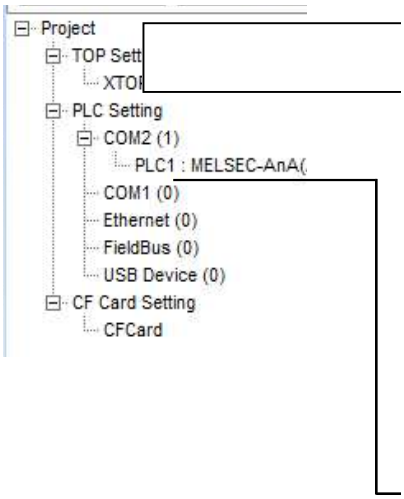
3.1 Example of settings 1

The system is set as below.

Details		TOP	MELSEC-ANA(A2U/A3U/A4U) SERIES CPU DIRECT	Remark
Serial level (port/channel)		RS-232C (COM2)	RS-232C	Fixed
Serial baud rate	[BPS]	9600		Fixed
Serial data bit	[Bit]	8		Fixed
Serial stop bit	[Bit]	1		Fixed
Serial parity bit	[Bit]	ODD		Fixed

(1) XDesignerPlus setup

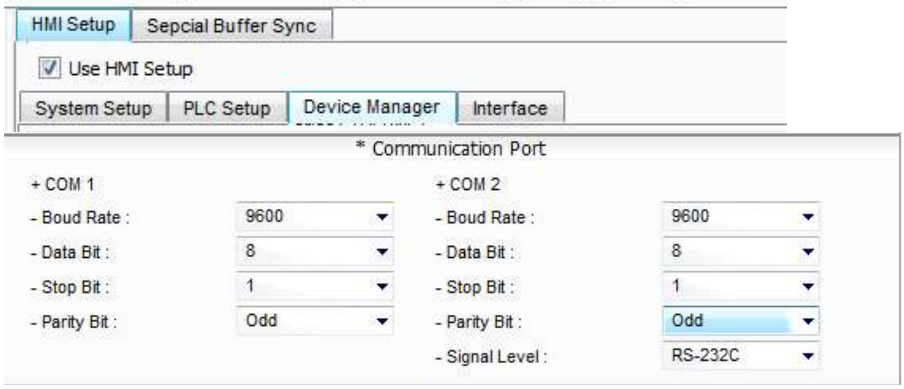
After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool.



■ [Project > Project Property > Project > Settings > TOP Name]

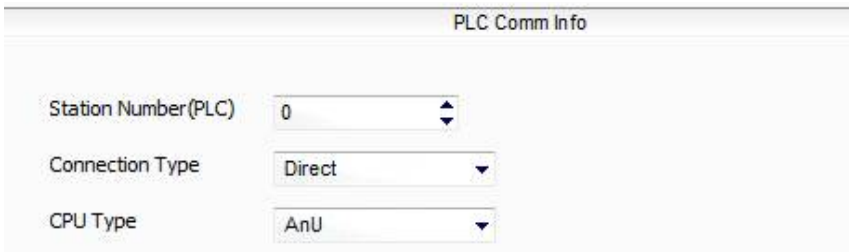
Set the communication interface of TOP tool.

In the right window [HMI setup > Check "Use HMI setup"> Device manager]



■ External device settings

This sets the option of communication driver in "MELSEC-AnA(A2U/A3U/A4U) SERIES CPU Direct".



-PLC Address : External Device Setting Address

- Connection Method : Direct Connection with PLC Loader Port / put down whether if 2 port will be used.

- CPU Type : Sets the type of CPU.

(2) External device settings

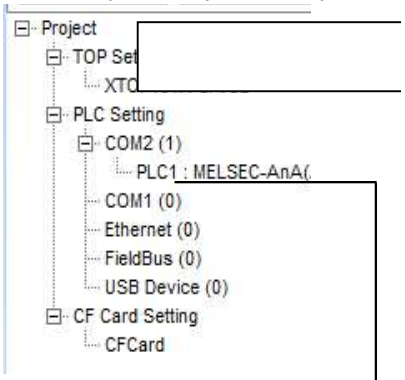
Regarding of the loader port communication interface for MELSEC-ANA(A2U/A3U/A4U) SERIES CPU DIRECT is set as this example's setting value.

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

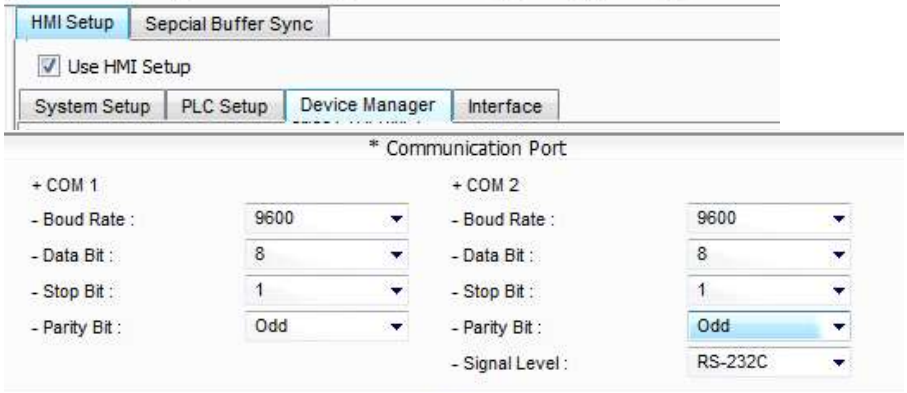
Select [Project > Project Property] to show the below window.



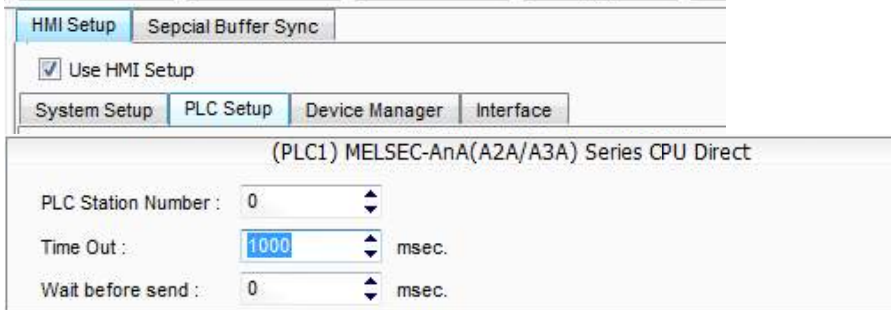
■ [Project > Project Property > Project > Settings > TOP Name]

Set the communication interface of TOP tool.

In the right window [HMI setup >Check "Use HMI Setup" > Device manager]

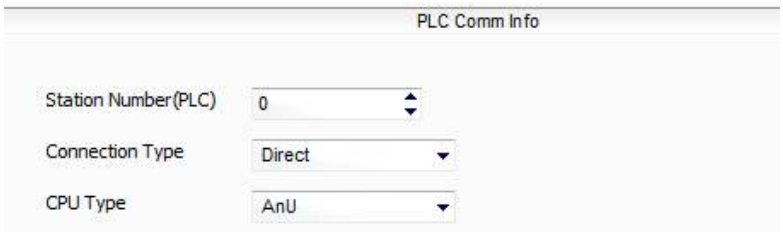


– At the right window, [HMI setup > Check "Use HMI Setup"> PLC setup]



■ External device settings

This sets the option of communication driver in "MELSEC-AnA(A2U/A3U/A4U) SERIES CPU Direct".



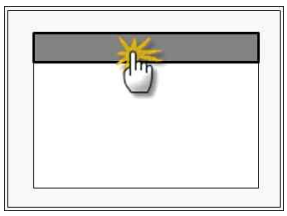
■ Communication Interface Settings

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 response waiting time from external device at [0 – 5000] x 1 mSec.
Transmitting Delay Time [	Set up TOP's waiting time between response receiving – next command request transmission from

x10 mSec] Receiving Wait Time [x10 mSec]	external device at [0 – 5000] x 1 mSec.
PLC address [0~65535]	Address of other device. Select between [0 - 65535].

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**.)



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

PLC setup	
PLC Address : 00 Timeout : 1000 [mSec] Delay time of transmission : 0 [mSec] TOP COM 2/1 : RS - 232C , 9600 , 8 , 1 , ODD TOP COM 2/1 setup communication test	Communication s Interface Setting

Step 1–Reference.

Details	Contents
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.
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] 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 - Baud rate : 9600 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity Beat : ODD [BIT] - Signal level : RS – 232C	COM 1 Port Communication Interface Settings
+ COM-2 Port - Baud rate : 9600 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity Beat : ODD [BIT] - Signal level : RS – 232C	COM-2 Port Communication Interface Settings

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

■ Port Communication Issue Diagnosis

- 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 are 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.

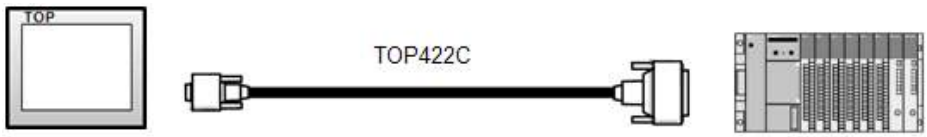
Designer Version		O.S Version	

Details	Contents				Confirm	
System configuration	Name of CPU				OK	NG
	Name of confront port that is communicating				OK	NG
	System Connection Method	1:1	1:N	N:1	OK	NG
Connection Cable	Name of Cable				OK	NG
PLC setup	Setup address				OK	NG
	Serial baud rate	[BPS]			OK	NG
	Serial data bit	[BIT]			OK	NG
	Serial Stop bit	[BIT]			OK	NG
	Serial parity bit	[BIT]			OK	NG
	Assigned Address Limit				OK	NG
TOP setup	Setup port	COM 1	COM 2		OK	NG
	Name of Driver				OK	NG
	Confront Address	Project Property Setup			OK	NG
		When Diagnosing Communication			OK	NG
	Serial baud rate	[BPS]			OK	NG
	Serial data bit	[BIT]			OK	NG
	Serial Stop bit	[BIT]			OK	NG
	Serial parity bit	[BIT]			OK	NG

5. Cable diag

This Chapter is to intro cation between TOP and relative devices. (Cable diagram that is being introduced in this f "Mitsubishi Electric Corporation".)

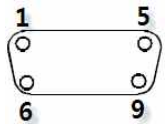
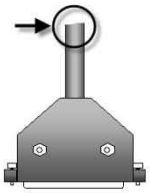
5.1 Cable diagram



Please use "TOP422C"(sold by M2I Corp.) for the cable between TOP and MELSEC-AnA(A2U/A3U/A4U) Series CPU Direct.

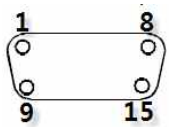
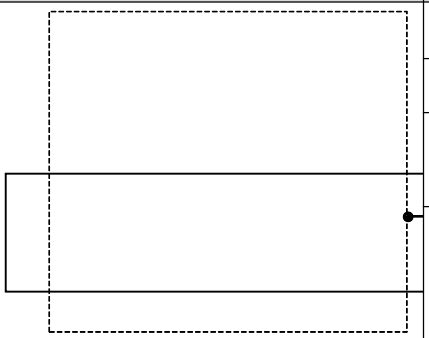
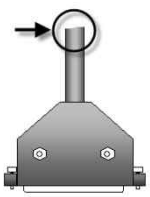
■ If the cable needs to be changed from 9 pin D-SUB to 15 pin, please refer to information below.

(1) In case of TOP COM 2 side is 9 pin

XTOP COM2		Cable connection	Cable cross section	
pin arrangement * caution 1)	Pin Arrangement		Cable color	
 Based on the front side of Communication cable connecter D-SUB 9 Pin male	1		Red	 TOP422C Exclusive Cable 25pin Cable cutting plane
	2		Yellow	
	3		Green	
	4		Blue	
	5		White	
	6		Black	
	7			
	8			
	9			

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

(2) If TOP COM 2 is 15 pin (10~15 pin is skipped due to non use)

XTOP COM2		Cable connection	Cable cross section	
pin arrangement * caution 1)	Pin Arrangement		Cable color	
 Based on the front side of Communication cable connecter D-SUB 15 Pin male	1		Red	 TOP422C Exclusive Cable 25pin Cable cutting plane
	2		Yellow	
	3		Green	
	4		Blue	
	5		White	
	6		Black	
	7			
	8			
	9			

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

6. 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 each CPU module user manual carefully for devices that you desired to use to prevent not getting out of range.

Type	Remark	Bit designated address	Word designated address
Input	Bit	X0000 – X1FFF	X0000 – X1FF0
Output	Bit	Y0000 – Y1FFF	Y0000 – Y1FF0
Link relay	Bit	B0000 – B1FFF	
Link register	Word		W0000 – W1FFF
STEP Relay	Bit	S0000 - S2047	
Special relay	Bit	F0000 – F2047	F0000 – F2032
Latch Relay	Bit	L0000 – L8191	
Internal Relay	Bit	M0000 – M8191	M0000 – M8176
Special relay	Bit	M9000 - M9255	M9000 – M9240
Data Register	Word		D0000 – D8191
Special Register	Word		D9000 - D9255
Timer-Coil	Bit	TC000 - TC2047	
Timer-Current	Word		TN000 – TN2047
Timer-Point	Bit	TS0000 – TS2047	
Counter-Coil	Bit	CC000 – CC1023	
Counter-Current	Word		CN000 – CN1023
Counter-Point	Bit	CS000 – CS1023	