MITSUBISHI Electric Corporation

MELSERVO MR–J3 Series

Support version	OS	Over V4.0
	XDesignerPlus	Over 4.0.0.0

CONTENTS

Thank you for using "Touch Operation Panel (M2I TOP) Series" "of M2I Co. head office. Please read this manual, and be familiar with the ways and procedures of connecting the "TOP-external devices".

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

6. Support address Page 11

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

1. System configuration

System configuration of TOP and " MITSUBISHI Electric Corporation – MELSERVO MR–J3 Series " is as follows.

Series	CPU	Link I/F	Communication method	System settings	Cable
MELSERVO MR–J3	MR–J3–□A	CN3 Port on CPU unit	RS–422	3.1 Setting Example 1 (Page 4)	5.1 Cable table 1 (Page 9)

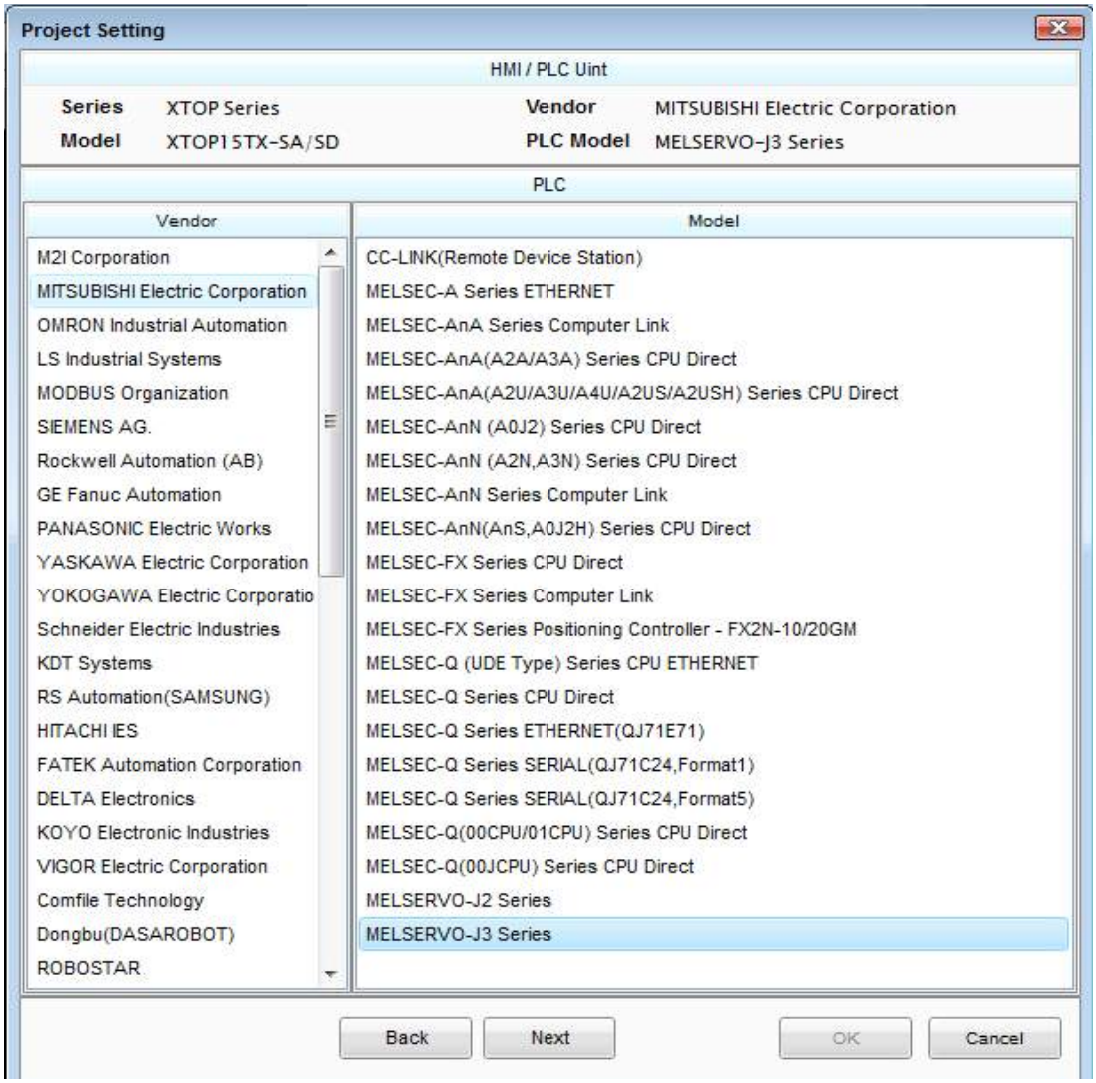
■ Connection configuration

• 1 : 1(1 TOP vs 1 external device) connection – It is available in RS232C/422/485 communication.

• 1 : N(1 TOP vs a couple of external devices) connection – It is available in RS422/485 communication.

2. Selecting TOP model and external devices

Select the external devices to connect to TOP.



Settings 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 the TOP series. Series: XTOP / HTOP — version name: V4.0
	Name	Select the model name of TOP product..
External device	Vendor	Select the vendor of external devices to be connected to TOP. Select "MITSUBISHI Electric Corporation".
	PLC	Select the model series of external devices to be connected to TOP. Select "MELSERVO MR-J3 Series". Please check if the relevant external device is available to set a system configuration in the "1. System configuration.

3. Example of system settings

Settings of communication interface in TOP and "MELSERVO MR–J2 Series" are recommended as shown below.

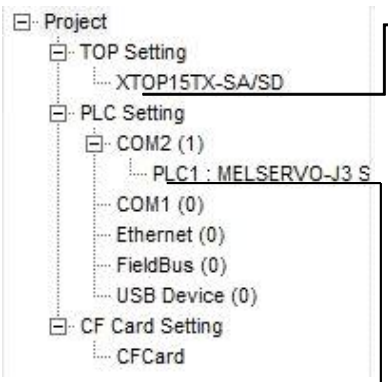
3.1 Example of settings 1

The system is set as below.

Details		TOP	External device	Remarks
Serial level (port/channel)		RS-422	RS-422	User settings
Station Number(PLC Address)		—	0	User settings
Serial baud rate	[BPS]	38400		User settings
Serial data bit	[Bit]	8		User settings
Serial stop bit	[Bit]	1		User settings
Serial parity bit	[Bit]	Even		User settings

(1) XDesignerPlus settings

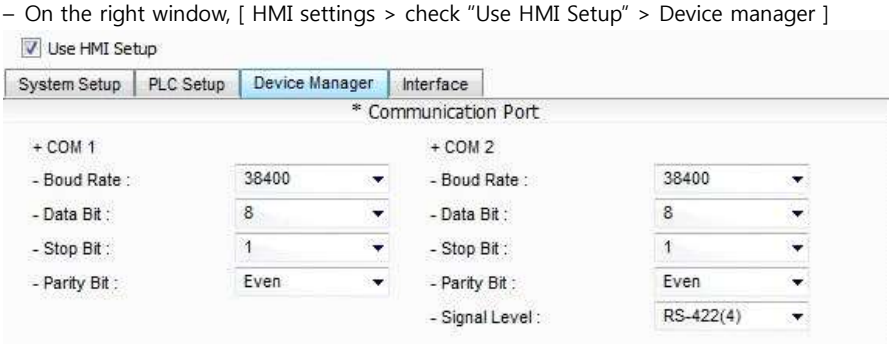
After setting the below details in [Project > Project Settings], download the detailed settings using TOP tool..



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

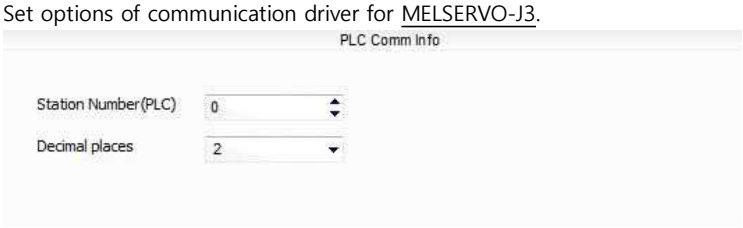
Set a communication interface of TOP tool.

– On the right window, [HMI settings > check "Use HMI Setup" > Device manager]



■ External device settings

Set options of communication driver for MELSERVO-J3.

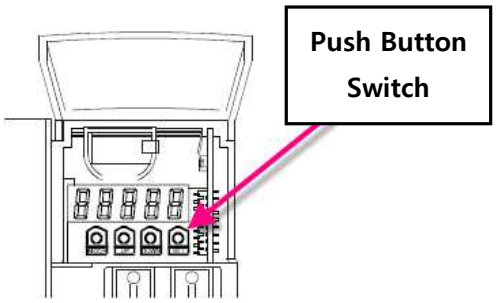


- PLC Station Number(PLC) : Station Number set for external devices

(2) External device settings

- Set the serial communication parameter of "MELSERVO MR–J2 Series" with the "Push button switch " in the main controller of the servo amp.
- After setting it, reboot the power of the External device.

Please refer to the User's Manual of external devices for more detailed settings.



■ Settings of the parameters of MELSERVO–J3–Super series communication

Items	Parameter	Descriptions
Station Number settings	Basic parameter No. 20	0 (Basic value : 0)
Selecting function of serial communication	Basic parameter No. 21 : 0020	Set 4 digits of basic parameter No. 16 as follows. ② ①

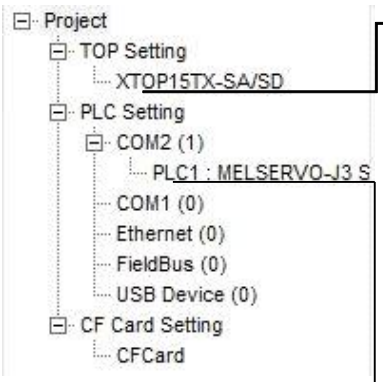
① Selecting the serial transmission speed		② Selecting response delay time	
0	9600 BPS	0	Invalid
1	19200 BPS	1	Valid
2	38400 BPS		
3	57600 BPS		
4	115200 BPS		

4. Communication settings Details

Communication settings are available at XDesignerPlus or TOP main menu. Communication settings are available at XDesignerPlus or TOP main menu.

4.1 XDesignerPlus settings Details

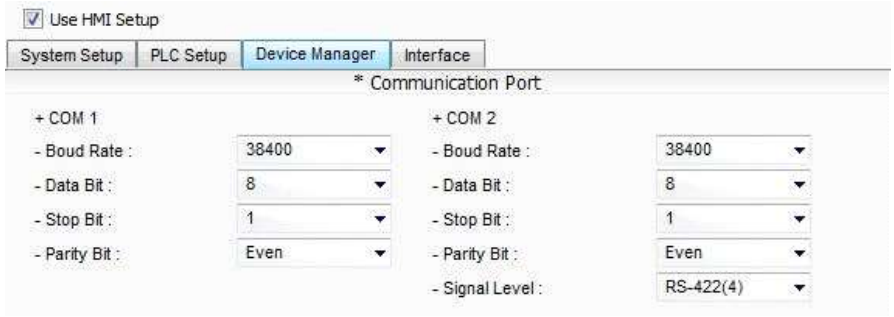
Select [Project > Project property] to show the below window.



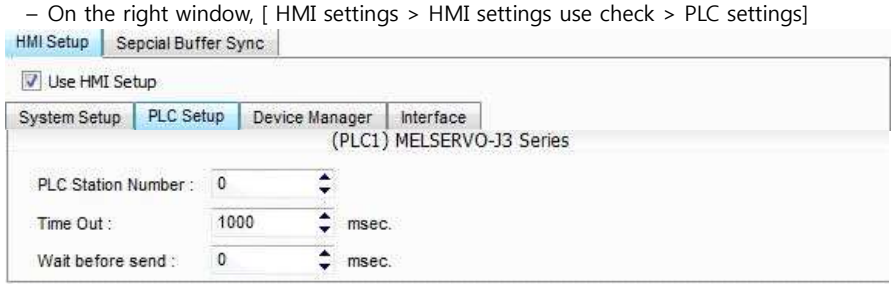
■ Select [Project > Project property] to show the below window

Set the communication interface of TOP tool.

– On the right window, [HMI settings > check "Use HMI Setup" > Device manager]

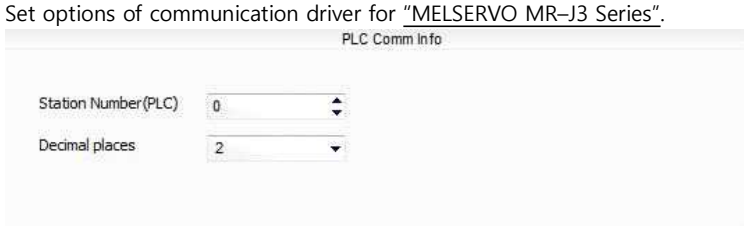


– On the right window, [HMI settings > HMI settings use check > PLC settings]



■ External device settings

Set options of communication driver for "MELSERVO MR–J3 Series".

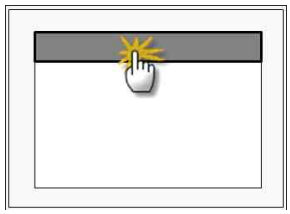


■ Communication interface settings

Details	Contents
Signal level	Select a serial communication method between TOP – External devices. (COM1 supplies RS-232C only)
Baud rate	Select a serial communication speed between TOP – External devices.
Data bit	Select a serial communication data bit between TOP – External devices.
Stop bit	Select a serial communication stop bit between TOP – External devices.
Parity bit	Select a method of checking serial communication parity bit between TOP – External devices.
Time-out [x100 mSec]	Set the TOP's wait time for response from external devices at [0 – 5000] x 1 mSec
Transmission delay time [x10 mSec] Transmission wait time [x10 mSec]	Set the TOP's wait time between receiving the response from external devices – transmitting the next command request at [0 - 5000] x 1 mSec.
PLC Station Number [0~65535]	It is Station Number of the other device. Select between [0 – 65535].

4.2 Setting details of TOP main menu

- When hearing the sound while resetting the power, touch 1 upper point on LCD to move to "TOP main management screen".
- Set the driver interface settings of TOP according to the contents; **Step1** → **Step2**.
(You can change the settings in **Step2.**if you click on "TOP COM 2/1 settings" in **Step 1.**.)



Step 1. [PLC settings] – Set the driver interface.

PLC settings	
PLC Station Number : 00 Time-out: 1000 [mSec] Delay time before transmission: 0 [mSec] TOP COM 2/1 : RS - 232C , 38400 , 8 , 1 , EVEN TOP COM 2/1 settings Communication check	communication interface settings

Step 1–Reference.

Details	Contents
PLC Station Number [0~65535]	It is Station Number of the other device. Select between [0 – 65535].
Time-out [x1 mSec]	Set the TOP's wait time for response from external devices at [0 – 5000] x 1 mSec.
Delay time before transmission [x1 mSec]	Set the TOP's wait time between receiving the response from external devices – transmitting the next command request at [0 - 5000] x 1 mSec.
TOP COM 2/1	It is the interface settings of TOP for external devices.

Step 2. [PLC settings] >[TOP COM2/COM1 settings] - Set the serial parameters of the relevant port.

port settings	
* Serial communication + COM-1 Port - Baud rate : 38400 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity bit: EVEN [BIT] - Signal level : RS – 232C	COM 1 port communication interface settings
+ COM-2 Port - Baud rate : 38400 [BPS] - Data bit : 8 [BIT] - Stop bit : 1 [BIT] - Parity bit: EVEN [BIT] - Signal level : RS 422	COM 2 port communication interface settings

Step 2-Reference.

Details	Contents
Baud rate	Select a serial communication speed between TOP – External devices
Data bit	Select a serial communication data bit between TOP – External devices.
Stop bit	Select a serial communication stop bit between TOP – External devices.
Parity bit	Select a method of checking serial communication parity bit between TOP – External devices.

Signal level	Select a serial communication method between TOP – External devices.

4.3 Communication check

■ Check the interface settings between external devices - TOP.

- Resetting the power of TOP, move to the menu screen by clicking on the top of the LCD window.
- Check that the settings of the port [COM 2 or COM 1] to use in [Communication settings] are the same with the settings of external devices.

■ Check if there is an error in port communication

- Click on the "Communication check" button in PLC settings > PLC and [COM 2 or COM 1] communication check ".
- The diagnostics dialogue box will pop up on the screen, judge status of the check according to the contents shown in the box no.3.

OK!	**Normal communication settings**
Time Out Error!	Abnormal communication settings - It is an error in the settings of a TOP/external device and cable **(reference: communication check sheet).**

■ Communication check sheet

- Please check the settings shown in the sheet below if there is an error in the communication connection with external terminals.

Details	Contents					check	
TOP	Version information		xDesignerPlus :		O.S :		
	Port(Activated)		COM 2		COM 1		
	Driver name					OK	NG
	Other detailed settings					OK	NG
	Station Number of the other device	Project settings				OK	NG
		communication check				OK	NG
	Serial parameter	transmission speed		[BPS]	[BPS]	OK	NG
		Data bit		[BIT]	[BIT]	OK	NG
		Stop bit		[BIT]	[BIT]	OK	NG
		Parity bit		[BIT]	[BIT]	OK	NG
System configuration	System connection method		1:1	1:N	N:1	1:1 (RS-232C, fixed)	OK	NG
	connection Cable name						OK	NG
External device	CPU name						OK	NG
	communication port name(module name)						OK	NG
	Protocol(mode)						OK	NG
	settings Station Number						OK	NG
	Other detailed settings						OK	NG
	Serial parameter	transmission speed		[BPS]	[BPS]	OK	NG
		Data bit		[BIT]	[BIT]	OK	NG
		Stop bit		[BIT]	[BIT]	OK	NG
		Parity bit		[BIT]	[BIT]	OK	NG
	Checking the address range (extra data)						OK	NG

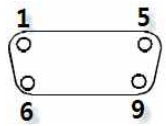
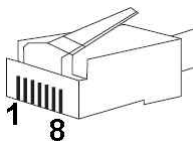
5. Cable table 1

This Chapter introduces the cable diagram for normal communication between TOP and the relevant devices.
(The cable diagram explained in this chapter can be different from the recommended details of "MITSUBISHI Electric Corporation")

5.1 Cable table 1

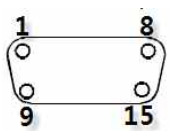
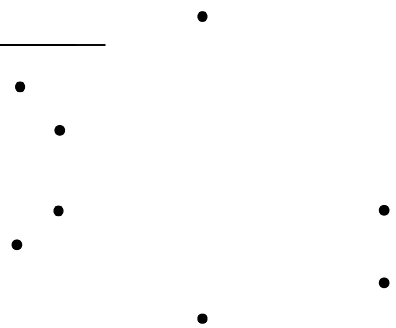
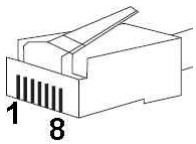
■ 1 : 1 connection

(A) XTOP COM 2 port(9 PIN)

XTOP COM2			Cable connection	PLC		
PIN arrangement *Note1)	Signal name	Pin number		Pin number	Signal name	**PIN arrangement *Note1)**
 Front View of D-SUB 9 Pin (male, convex)	RDA			1	LG	 On the basis of the communication cable connector front, 8-pin male RJ45 (male, convex)
		2		2	P5	
		3		3	RDP	
	RDB	4		4	SDN	
	SG	5		5	SDP	
	SDA	6		6	RDN	
		7		7	LG	
		8		8	TRE	
	SDB	9				

*Note1) The PIN arrangement is seen at the connection area of cable connection connector..

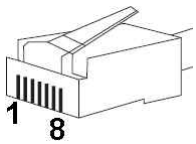
(B) XTOP COM 2 port(15 PIN)

XTOP COM2			Cable connection	PLC		
PIN arrangement *Note1)	Signal name	Pin number		Pin number	Signal name	**PIN arrangement *Note1)**
 Front View of D-SUB 15 Pin (male, convex)	–	1		1	LG	 On the basis of the communication cable connector front, 8-pin male RJ45 (male, convex)
	(Omitted)			2	P5	
				3	RDP	
	–	10		4	SDN	
	RDA	11		5	SDP	

	RDB	12		6	RDN	
	SDA	13		7	LG	
	SDB	14		8	TRE	
	SG	15				

*Note1) The PIN arrangement is seen at the connection area of cable connection connector..RDARDA

(C) ATOP COM 2 port (Termial block 5 pin)

XTOP COM2		Cable connection	PLC		
PIN arrangement *Note1)	Signal name		Pin number	Signal name	**PIN arrangement *Note1)**
			1	LG	
	RDB		2	P5	
RS-422 RDA RDB SDA SDB SG FG **On the basis of the communication cable connector front** Terminal block 5 Pin	SDA		3	RDP	 1 8 On the basis of the communication cable connector front, 8-pin male RJ45 (male, convex)
	SDB		4	SDN	
	SG		5	SDP	
			6	RDN	
			7	LG	
			8	TRE	

*Note1) The PIN arrangement is seen at the connection area of cable connection connector.

■ Connect as shown below referring to 1 : N connection – 1:1connection.

TOP
Signal name
RDB
SDA
SDB
SG

Cable connection and signal direction

MELSERVO	
Signal name	
1	LG
2	P5
3	RDA
4	SDB
5	SDA
6	RDB
7	LG
8	TRE

Cable connection and signal direction

MELSERVO	
Signal name	
1	LG
2	P5
3	RDA
4	SDB
5	SDA
6	RDB
7	LG
8	TRE

6. Support address

The device which is available at TOP is as follows.

There can be a device range difference according to the module series/type of CPU. A TOP series supports the maximum address range that an external device series uses. Refer to the user's manual of each CPU module and be careful not to be out of the address range that the relevant device supports.

Device		Word Address (The address is hexadecimal.)		Remarks	Command	
		Read able	Write able			
Status	Status data	**STS** 80 – **STS** 91	———	* Note1)	01	–
Alarm History	Alarm No.	**AMH** 10 – **AMH** 16	———		33	
	Alarm start time	**AMH** 20 – **AMH** 26	———			
Alarm Present	Current alarm	**AMP** 00	———		02	–
Alarm Status	Display alarm status	**AMS** 80 – **AMS** 90	———	* Note1)	35	–
Status Clear	Clear status data	———	**STSC** 00		–	81
Alarm Clear	Erasing current alarm	———	**AMC** 00		–	82
	Erasing alarm history	———	**AMC** 20			
Prohibit/lift of input & output signal		———	**EIXX** 00 / **EIXX** 03 **EIXX** 10 / **EIXX** 13		–	90
Test drive mode		———	**MODE** 12		00	8B
Data for test drive mode			**TEST** 00 / **TEST** A0 **TEST** 10 / **TEST** 11 **TEST** 20 / **TEST** 21 **TEST** 40 / **TEST** 41		–	A0
External input & output		**EXIN** 00 – **EXIN** FF	**EXIN** 60 – **EXIN** 62 (The addresses shown as below are not writable.) EXIN00–EXIN02 EXIN40–EXIN41 EXIN80–EXIN82 EXINC0–EXINC1	* Note2)	12	92
Parameter group		**PRMG** 01	**PRMG** 01		04	85
Writing parameter(EEPROM)		**PRAM** 00 – **PRAM** FF	**PRAM** 00 – **PRAM** FF		05	84
Writing parameter(RAM)		**PRMR** 00 – **PRMR** FF	**PRMR** 00 – **PRMR** FF			
Writing point table location data (EEPROM)		**PTB1** 01 – **PTB1** FF	**PTB1** 01 – **PTB1** FF		40	C0
Writing point table location data (RAM) 쓰기		**PT1R** 01 – **PT1R** FF	**PT1R** 01 – **PT1R** FF			
Writing point table speed data (EEPROM)		**PT2B** 01 – **PTB2** FF	**PTB2** 01 – **PTB2** FF		50	C6
Writing point table speed data (RAM)		**PT2R** 01 – **PT2R** FF	**PT2R** 01 – **PT2R** FF			
Writing point table acceleration corrective number (EEPROM)		**PTB3** 01 – **PTB3** FF	**PTB3** 01 – **PTB3** FF		54	C7
Writing point table acceleration corrective number (RAM)		**PT3R** 01 – **PT3R** FF	**PT3R** 01 – **PT3R** FF			
Writing point table reduction corrective number (EEPROM)		**PTB4** 01 – **PTB4** FF	**PTB4** 01 – **PTB4** FF		58	C8
Writing point table reduction corrective number (RAM)		**PT4R** 01 – **PT4R** FF	**PT4R** 01 – **PT4R** FF			
Writing point table dwell time (EEPROM)		**PTB5** 01 – **PTB5** FF	**PTB5** 01 – **PTB5** FF		60	CA
Writing point table dwell time (RAM)		**PT5R** 01 – **PT5R** FF	**PT5R** 01 – **PT5R** FF			
Writing point table auxiliary function (EEPROM)		**PTB6** 01 – **PTB6** FF	**PTB6** 01 – **PTB6** FF		64	CB
Writing point table auxiliary function (RAM)		**PT6R** 01 – **PT6R** FF	**PT6R** 01 – **PT6R** FF			
Writing point table M code (EEPROM)		**PTB7** 01 – **PTB7** FF	**PTB7** 01 – **PTB7** FF		45	C2
Writing point table M code (RAM)		**PT7R** 01 – **PT7R** FF	**PT7R** 01 – **PT7R** FF			
Absolut location of servo motor group pulse unit		**ETC** 90	———		02	–
Absolut location of command unit		**ETC** 91	———			

* Note1)00 – 11 Does not support the address range

* Note2)32 BIT device