AJINEXTEK CO,.LTD

SDC-N404 Series

Computer link

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".

1. System configuration

The system configuration of TOP and "AJINEXTEK CO,.LTD – SDC-N404 Series" is as follows.

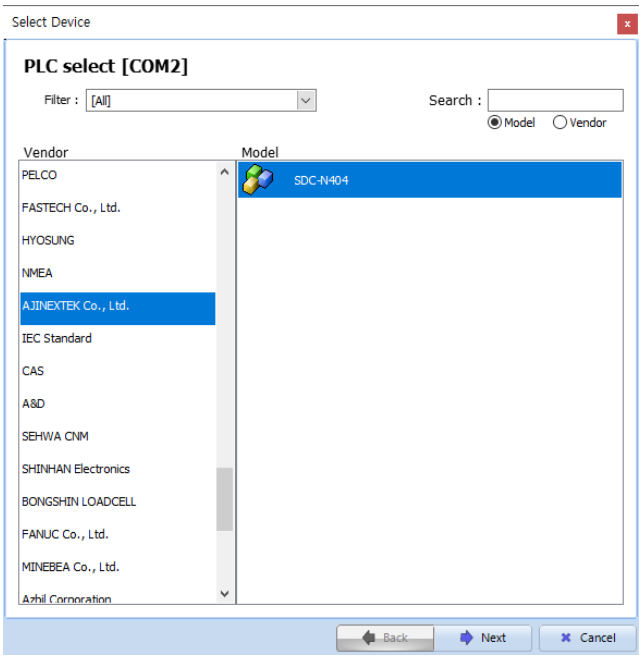
Series	CPU	Link I/F	Communication method	System setting	Cable
SDC-N404	All CPU	Loader Port(DSUB 9 pin)	RS–232C	3. TOP communication setting	5. Cable table

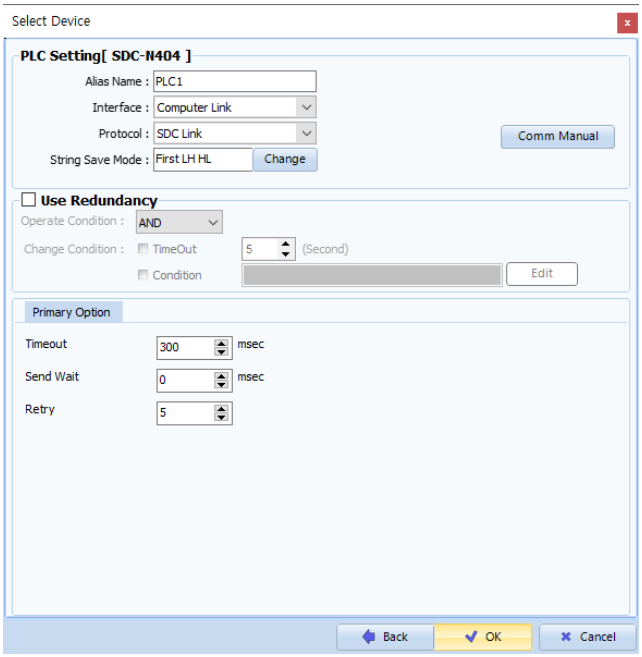
■ Connection configuration

・1:1 (one TOP and one external device) connection – configuration which is possible in RS232C communication.

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 "AJINEXTEK CO,.LTD."
	PLC	Select an external device to connect to TOP. Select "SDC-N404." 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.

3. TOP communication setting

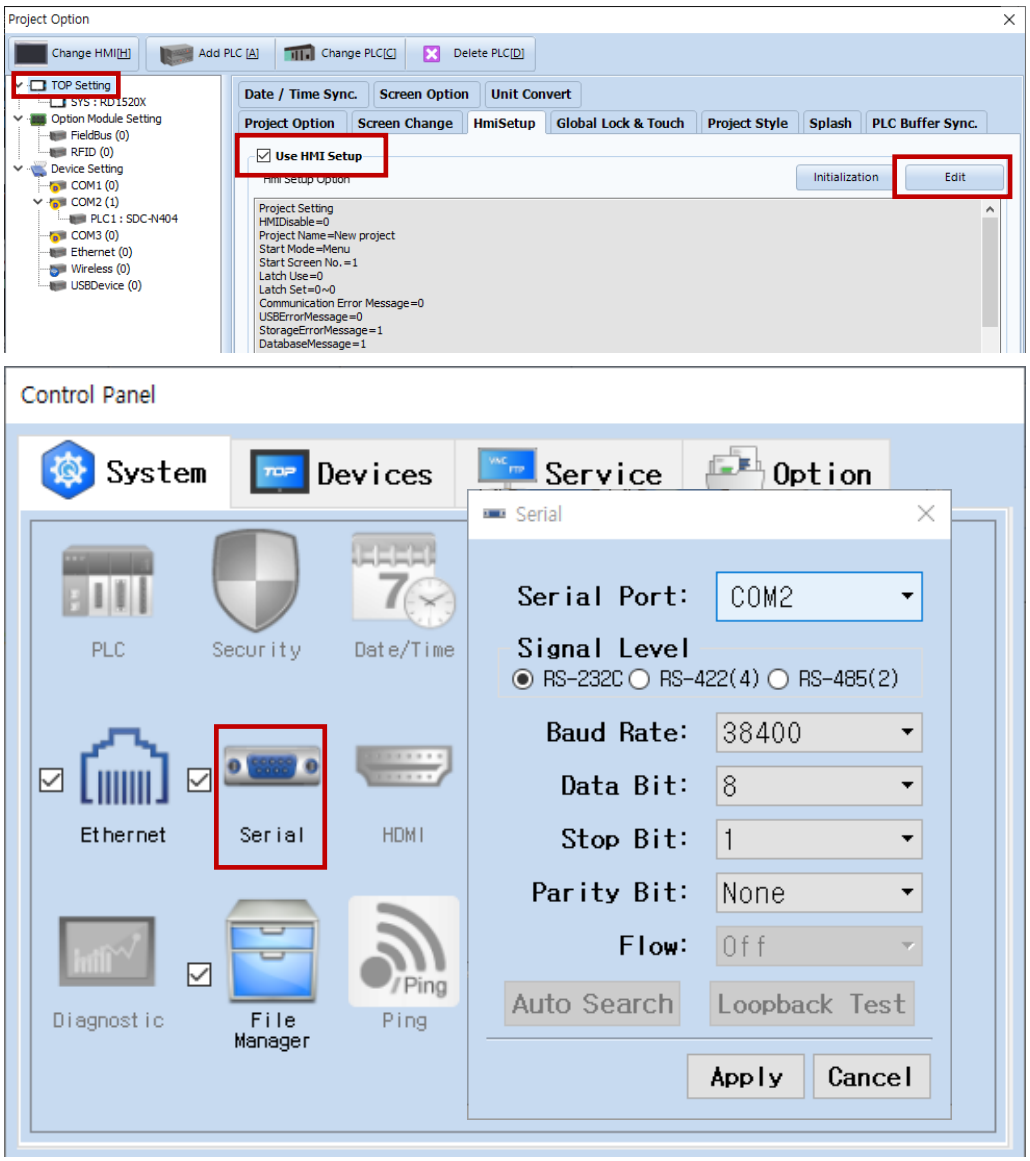
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

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	TOP			External device	Remarks
Signal Level (port)	RS-232C	RS-422	RS-485	RS-232C RS-422/485	
Baud Rate	38400				
Data Bit	8				
Stop Bit	1				
Parity Bit	None.				

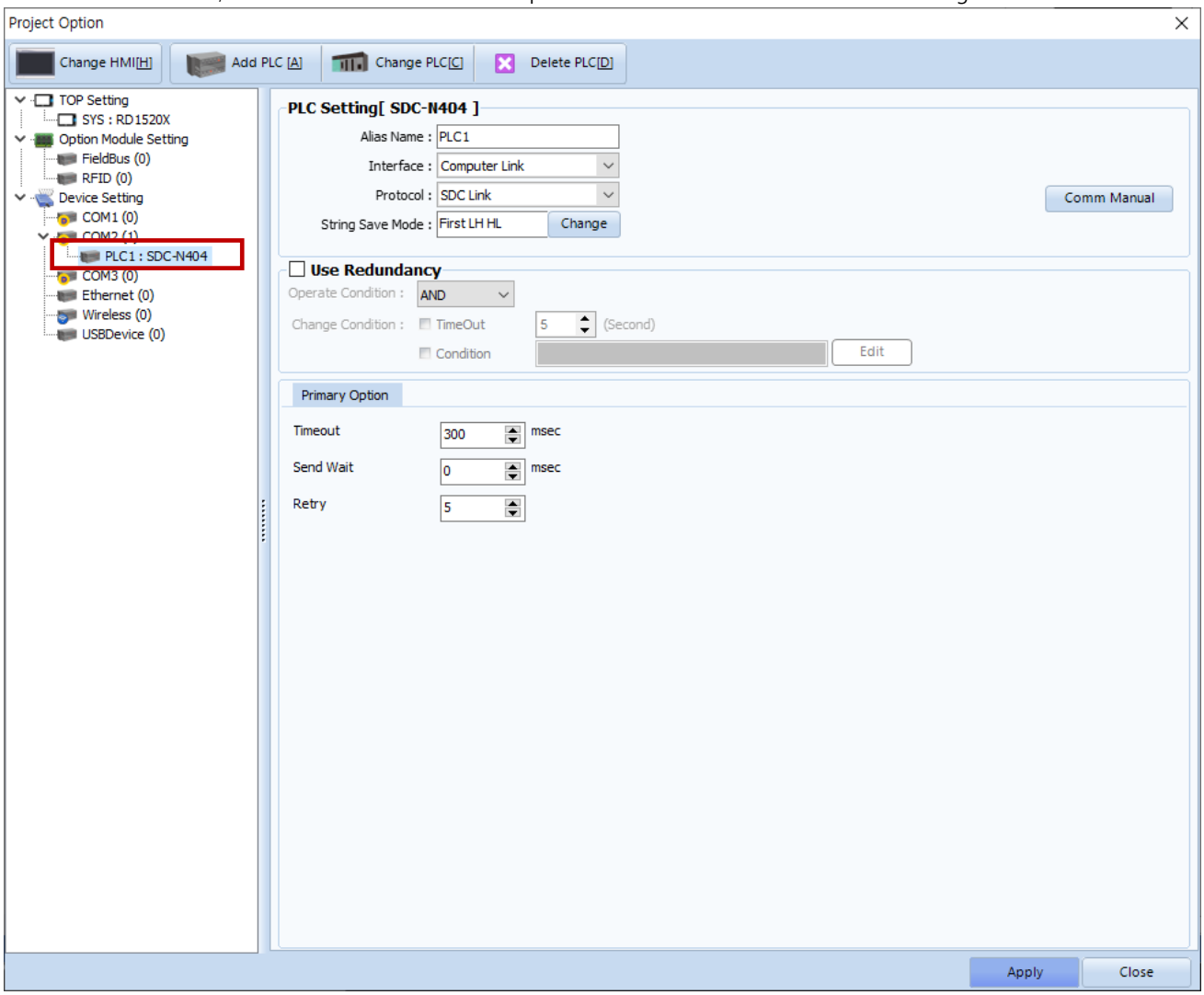
* The above settings are examples recommended by the company.

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
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 properties > PLC settings > COM > "PLC1 : AJINEXTEK PLC Series"]

– AJINEXTEK CO,.LTD – SDC-N404 Series. Set the options of the communication driver in TOP Design Studio.

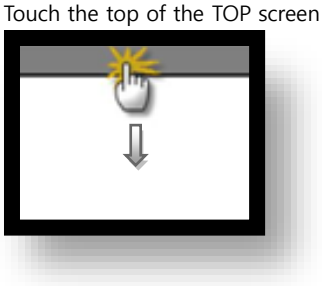


Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External device selection".
Protocol	Select "Computer link".	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Select the number of communication retries.	

3.2. Communication setting in TOP

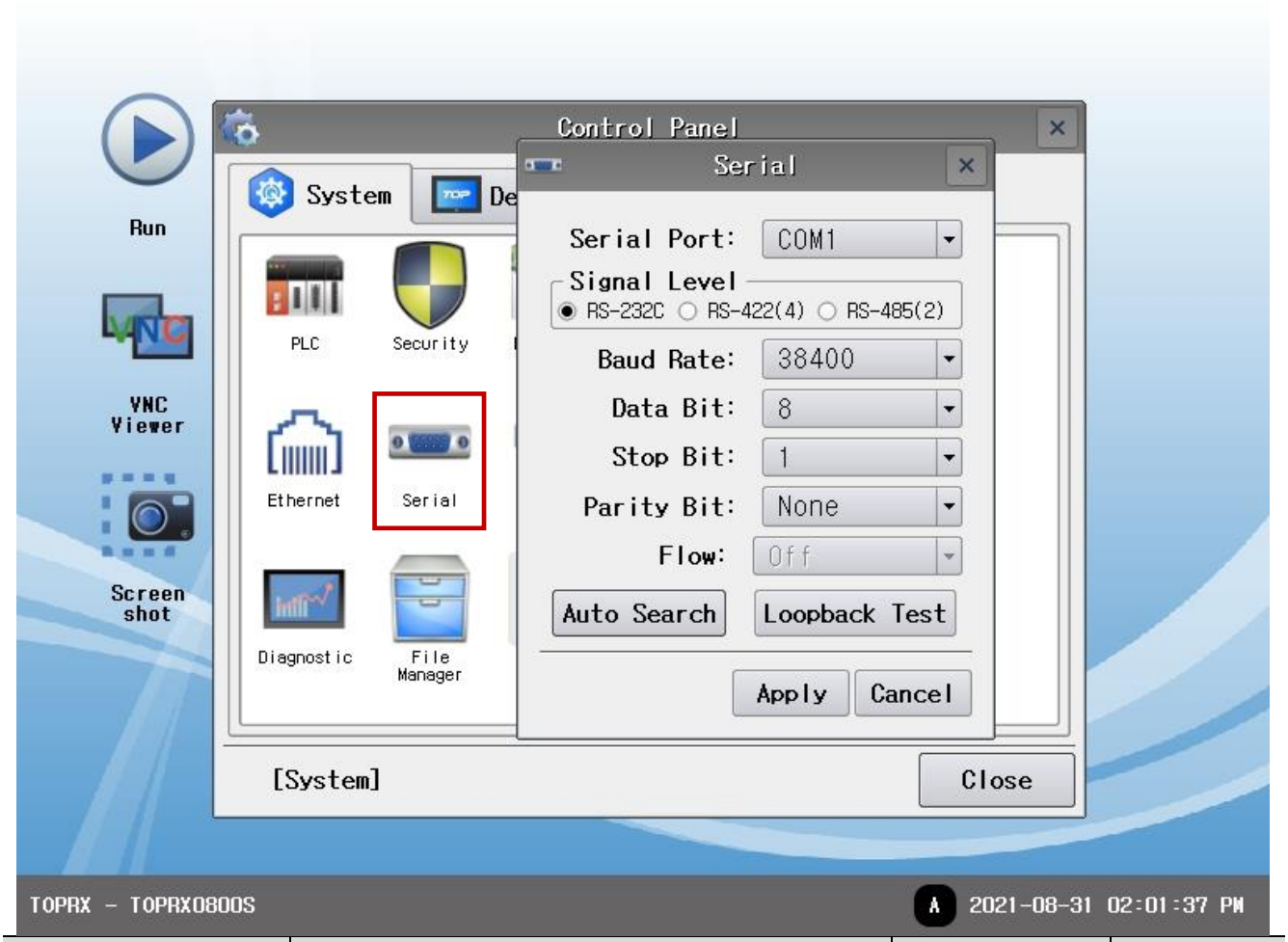
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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 > Serial]



Items	TOP			External device	Remarks
Signal Level (port)	RS-232C	RS-422	RS-485	RS-232C RS-422/485	
Baud Rate	38400				
Data Bit	8				
Stop Bit	1				
Parity Bit	None.				

* 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.
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

■ [Main screen > Control panel > PLC]

Items	Settings	Remarks
Interface	Select “Computer Link”.	Refer to “2. External device selection”.
Protocol	Select “Computer link”.	
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.	
Retry	Select the number of communication retries.	

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 if the COM port settings you want to use in [Control Panel > Serial] are the same as those of the external device.

■ 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.

OK	**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 configuration	How to connect the system		OK	NG	1. System configuration
	Connection cable name		OK	NG	
TOP	Version information		OK	NG	2. External device selection 3. Communication setting
	Port in use		OK	NG	
	Driver name		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 name		OK	NG	4. External device setting
	Communication port name (module name)		OK	NG	
	Protocol (mode)		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	6. Supported addresses (For details, please refer to the PLC vendor's manual.)

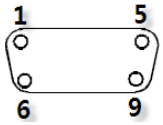
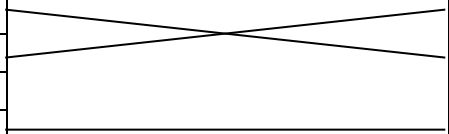
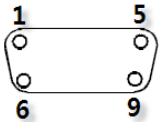
4. External device settings

- Refer to the manual of the external device and configure the communication options.

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 chapter may differ from the recommendations of "**AJINEXTEK CO,.LTD.**")

■ **RS-232C** (1:1 connection)

COM			Cable connection	PLC		
Pin arrangement*Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement*Note 1)
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	CD	1		1	CD	 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)
	RD	2		2	RD	
	SD	3		3	SD	
	DTR	4		4	DTR	
	SG	5		5	SG	
	DSR	6		6	DSR	
	RTS	7		7	RTS	
	CTS	8		8	CTS	
		9		9		

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

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.

■ Status/Settings

Area		Bit address	Word Address	Remarks
Axis status		AXI0.0 ~ AXI3.7	———	*F1 *1 *3
Full status		ROB0.0 ~ ROB3.7	———	*F1 *1 *3
System status		SYS0.0 ~ SYS3.7	———	*F1 *1 *4
Mechanical signal		MES0.0 ~ MES3.7	———	*F1 *1 *5
Mechanical Active Level		MEL0.0 ~ MEL3.7	———	*F1 *1 *6
Motion error status		———	ERR	*1
Task	Status	———	TS0 ~ TS1	*F3 *1 *7
	Run	TR0 ~ TR1	———	*F3 *2
	Pause	TP0 ~ TP1	———	*F3 *2

[Address format]

*F1	Axis	*F3	Task

*1 Read only *2 Write only

*3 Each axis has the following information.

Bit pos	Comment
0	Servo-on status
1	Zero return status
2	Busy status
3	– Limit status
4	+ Limit status
5	Alarm status
6	Emergency stop status
7	In-position status

*4 Each axis has the following information.

Bit pos	Comment
0	Emergency stop status
1	Alarm status
2	+ Limit status
3	– Limit status
4	In-position status
5	In-motion status
6	Servo-on status
7	Alarm clear status

*5 Each axis has the following information.

Bit pos	Comment
0	+ Limit signal status
1	– Limit signal status
2	Alarm signal status
3	In-position signal status
4	Emergency stop signal status
5	Home signal status
6	Z-phase signal status
7	(Unused)

*6 Each axis has the following information.

Bit pos	Comment
0	+ Limit signal active level
1	– Limit signal active level
2	Alarm signal active level
3	In-position signal active level
4	Emergency stop signal active level
5	Home signal active level
6	Z-phase signal active level
7	(Unused)

*7 Word data has the following information.

Data	Comment
0	Stop
1	Run
2	Pause

■ Variable

Area	Bit address	Word Address	Remarks
Input	I0.0 ~ I0.27	———	*1 27_{BIT}
Output	O0.0 ~ O0.27	———	27_{BIT}
M variable	———	M0/0 ~ M7/3	*F2 32_{BIT}
Point file	———	P0/0 ~ P3/9999	*F4

[Address format]

*F2	Address	*F4	Axis	/ Address

*1 Read only

■ Parameter

Area	Bit address	Word Address	Remarks
Encoder input	———	PE0 ~ PE3	*F1
Pulse output	———	PP0 ~ PP3	*F1
ABS/REL mode	———	PA0 ~ PA3	*F1
Profile mode	———	PF0 ~ PF3	*F1
Unit/Pulse	———	PU0 ~ PU3	*F1

[Address format]

*F1	Axis

■ Axis control

Area			Bit address	Word Address	Remarks
Axis command position			———	ASP0 ~ ASP3	*F1 *1 32_{BIT}
Axis actual position			———	ACP0 ~ ACP3	*F1 *1 32_{BIT}
Axis drive speed			———	AVE0 ~ AVE3	*F1 *1 32_{BIT}
Single axis	Position drive	Run	AM0 ~ AM3	———	*F1 *2 *3
		Drive position	———	_AM_P	32_{BIT}
		Drive speed	———	_AM_V	32_{BIT}
		Drive acceleration	———	_AM_A	32_{BIT}
		Drive deceleration	———	_AM_D	32_{BIT}
	Speed drive	Run	AV0 ~ AV3	———	*F1 *2 *4
		Drive speed	———	_AV_V	32_{BIT}
		Drive acceleration	———	_AV_A	32_{BIT}
		Drive deceleration	———	_AV_D	32_{BIT}
	Drive stop		AS0 ~ AS3	———	*F1 *2
	Emergency stop		AE0 ~ AE3	———	*F1 *2
Multiple axis	Position drive	Run	XJ	———	*2 *5
		Drive position	———	_XJ0 ~ _XJ3	*F1 32_{BIT}
	Interpolation drive	Run	XL	———	*2 *6
		Drive position	———	_XL0 ~ _XL3	*F1 32_{BIT}
	Speed setting		XV	———	*2 *7
		Drive speed	———	_XV0 ~ _XV3	*F1 32_{BIT}
	Acceleration setting		XA	———	*2 *8
		Drive acceleration	———	_XA0 ~ _XA3	*F1 32_{BIT}
	Deceleration setting		XD	———	*2 *9
		Drive deceleration	———	_XD0 ~ _XD3	*F1 32_{BIT}
	Axis setting		XX	———	*2 *10
		Drive axis	———	_XX0 ~ _XX3	*F1 32_{BIT}
Servo ON/OFF			SERVO0 ~ SERVO3	———	*F1 *2
Alarm ON/OFF			ALM0 ~ ALM3	———	*F1 *2
Home search			H0 ~ H3	———	*F1 *2
Zero position setting			ZP0 ~ ZP3	———	*F1 *2
Position compensation setting			PC0 ~ PC3	———	*F1 *2
Multi-axis zero return			XZ	———	*2

[Address format]

*F1	Axis

*1 Read only *2 Write only

*3 _AM_P, _AM_V, _AM_A, AM_D reference run *4 _AV_V, _AV_A, AV_D reference run

*5 _XJ0 ~ _XJ3 reference run *6 _XL0 ~ _XL3 reference run *7 XV0 ~ XV3 reference run *8 XA0 ~ XA3 reference run

*9 XD0 ~ XD3 reference run *10 XX0 ~ XX3 reference run