MISUMI
EXRS-C1 : SINGLE-AXIS ROBOT CONTROLLER

Supported version TOP Design Studio V1.0 or higher

CONTENTS

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

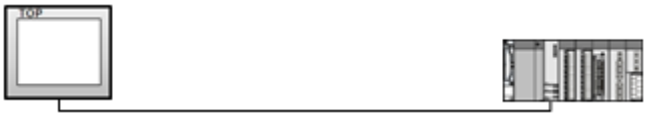
1. System configuration

The system configuration of TOP and "MISUMI EXRS C1" is as follows:

Series	Link I/F	Communication method	Communication setting	Cable
MISUMI :EXRS-C1	-	RS–232C	3. TOP communication setting	5.1. Cable table 1

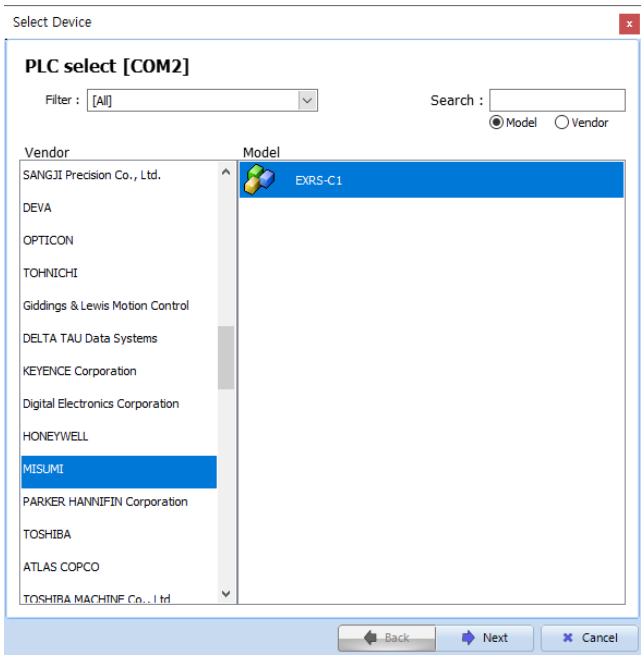
■ Connection configuration

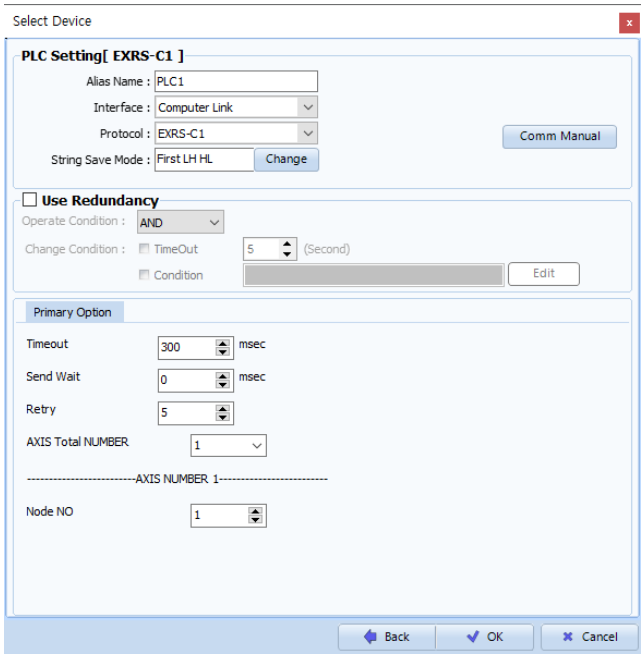
・1:1 (one TOP and one external device) connection



2. External device selection

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





Settings		Contents
TOP	Model	Check the TOP display and process to select the touch model.
External device	Vendor	Select the vendor of the external device to be connected to TOP. Select "MISUMI".
	PLC	Select an external device to connect to TOP.

Model	Interface	Protocol
Misumi Exrs C1	Computer Link	EXRS-C1

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

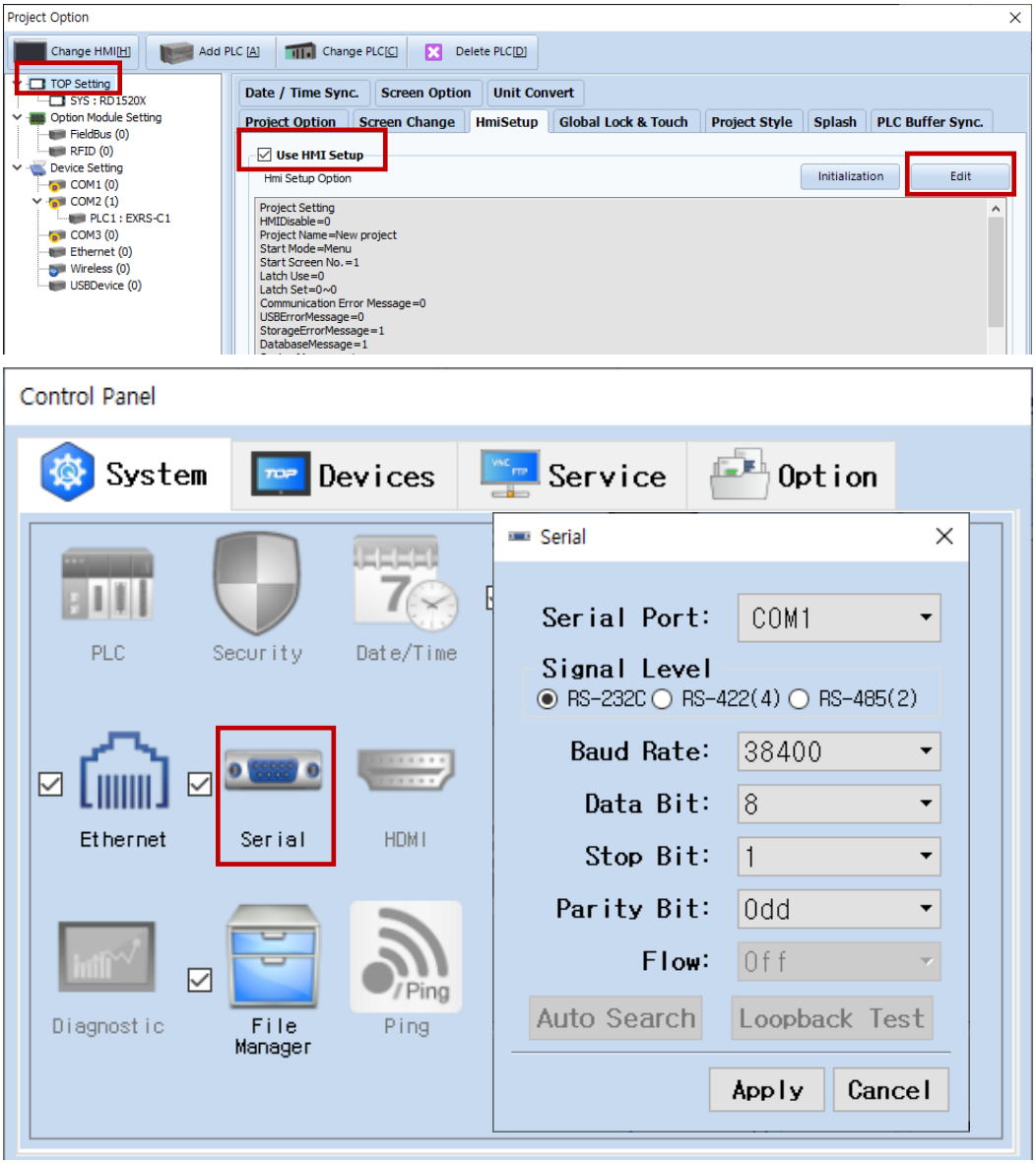
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project > Project Property > TOP Setting] → [Project Option > "Use HMI Setup" Check > Edit > Serial]

– Set the TOP communication interface in TOP Design Studio.



Items	TOP	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	Fixed
Baud Rate	38400		Fixed
Data Bit	8		Fixed
Stop Bit	1		Fixed
Parity Bit	Odd		Fixed

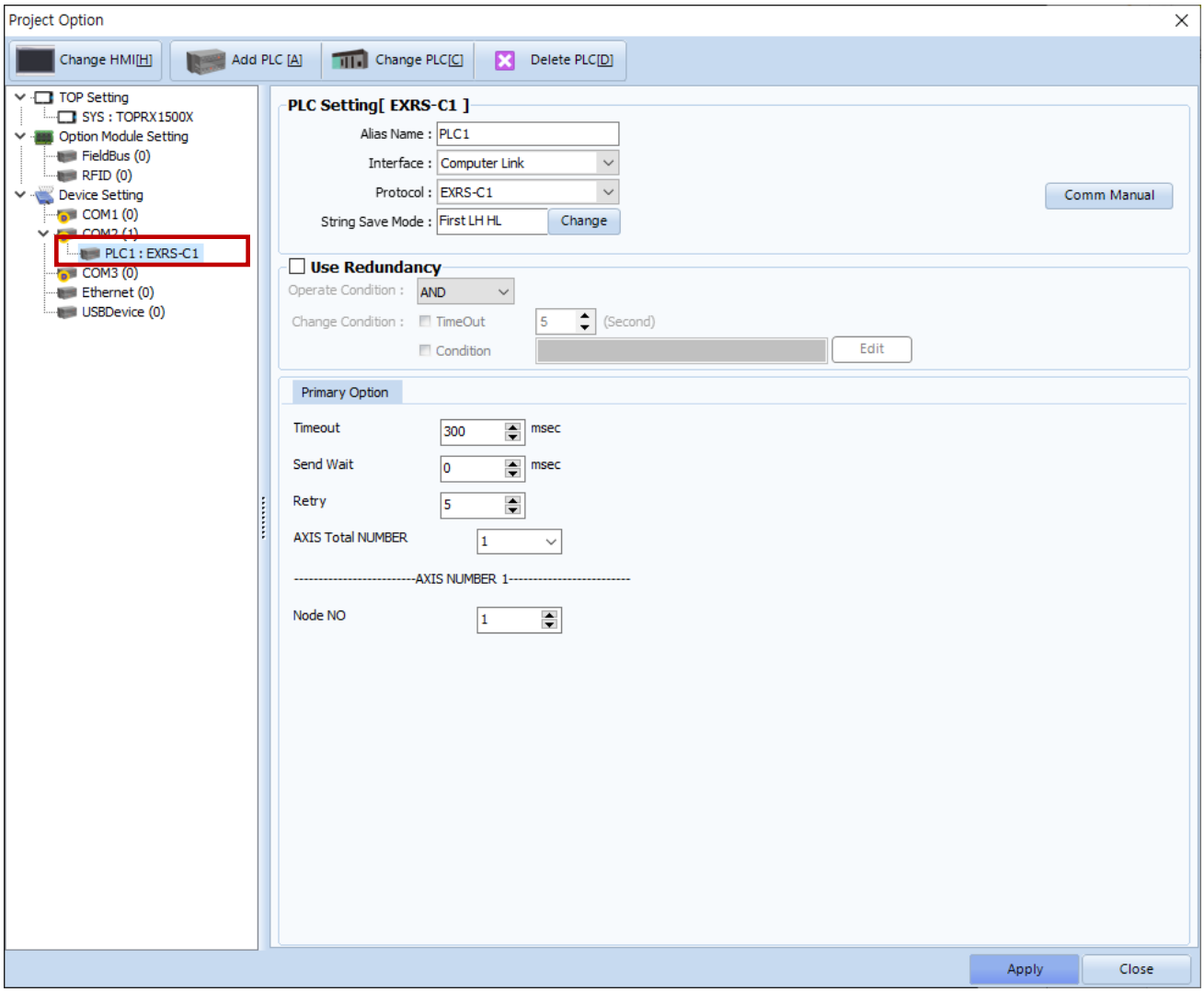
* The above settings are examples recommended by the company.

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 Property > Device Setting > COM > "Misumi Exrs C1"]

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

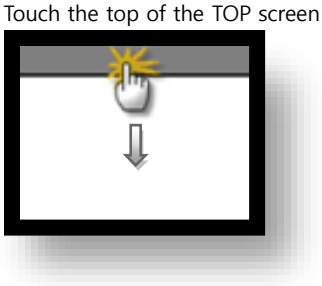


Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External device selection".
Protocol	Configure the communication protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait for a response from 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.	
ASIS Total NUMBER	Configure the total number of axes.	
NODE NO	Configure the Node ID number. Ex) P01:001; the red text in the device address corresponds to the axis number. P01:001; when configuring as shown in the above figure, the number 1 next to the Node NO and below the AXIS NUMBER 1 becomes the Node ID.	

3.2. Communication setting in TOP

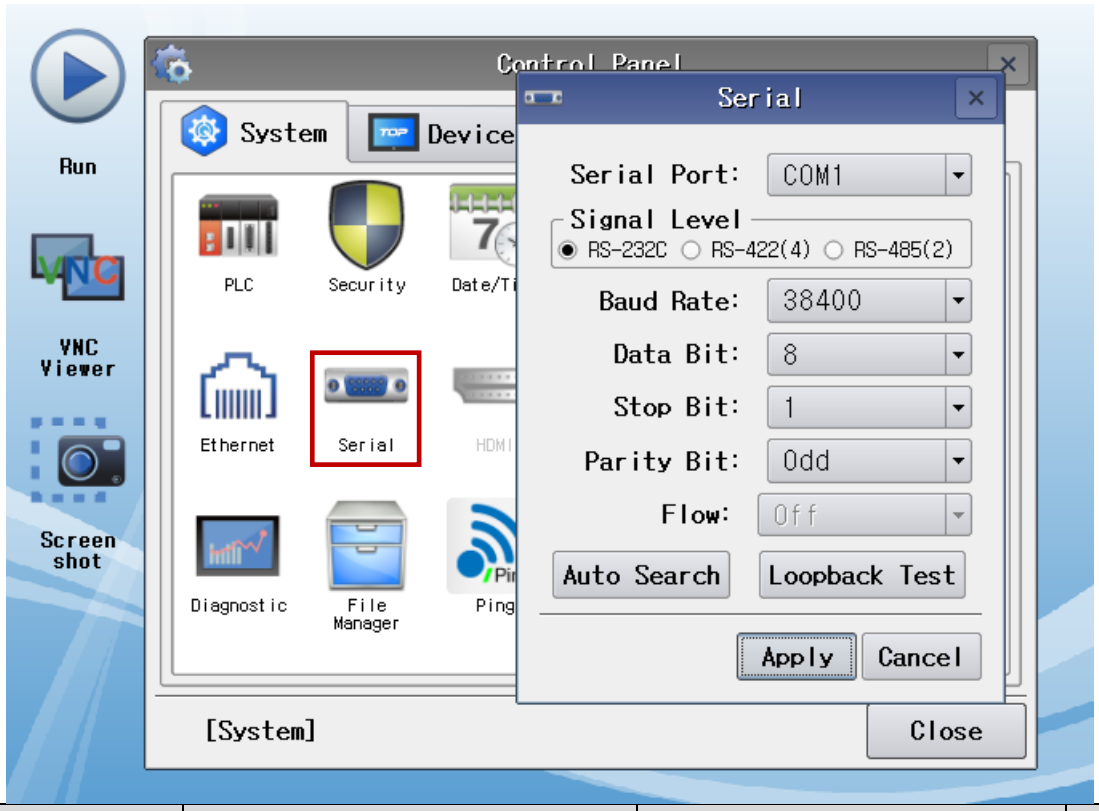
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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]



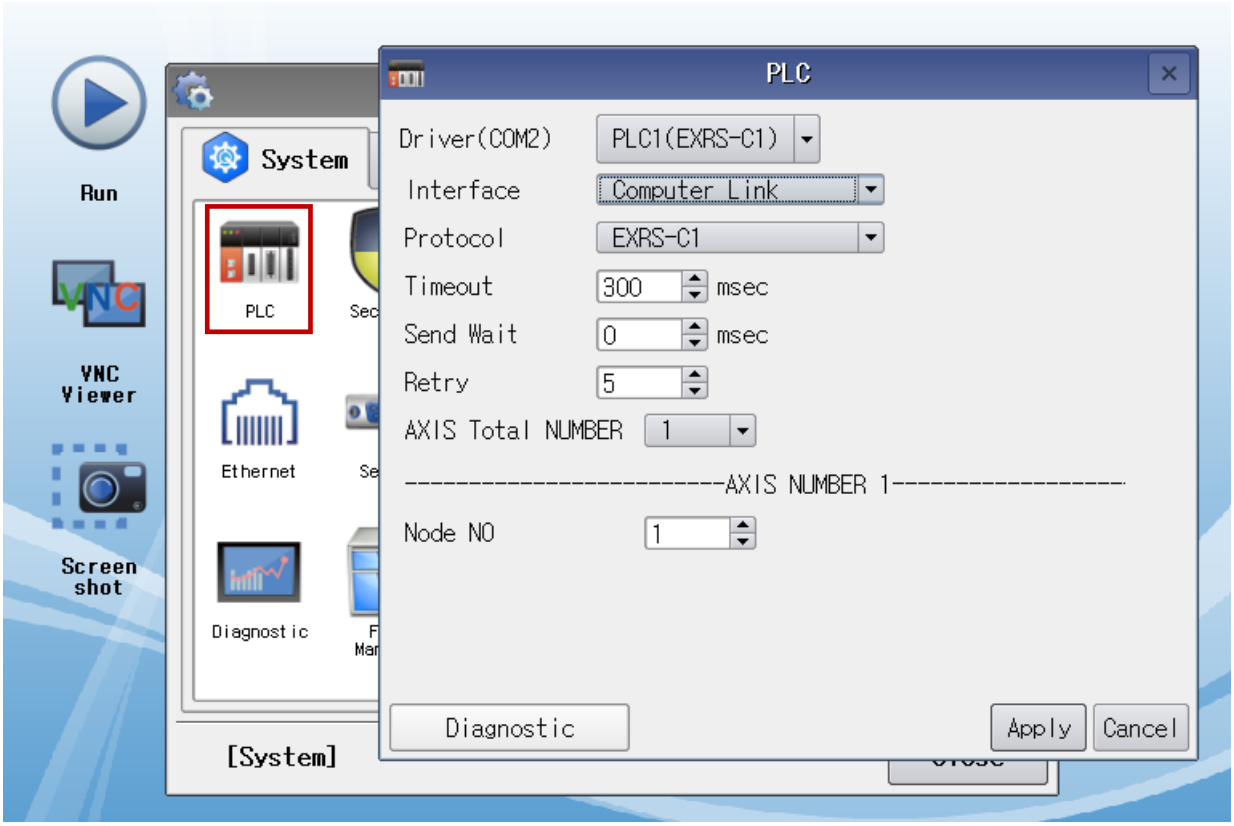
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C	RS-232C	Fixed
Baud Rate	38400		Fixed
Data Bit	8		Fixed
Stop Bit	1		Fixed
Parity Bit	Odd		Fixed

* 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	Configure the communication interface between the TOP and an external device.	Refer to "2. External device selection".
Protocol	Configure the 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.	
ASIS Total NUMBER	Configure the total number of axes.	
NODE NO	Configure the Node ID number. Ex) P01:001; the red text in the device address corresponds to the axis number. P01:001; when configuring as shown in the above figure, the number 1 next to the Node NO and below the AXIS NUMBER 1 becomes the Node ID.	

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 setting

Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.

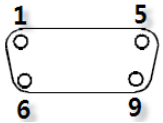
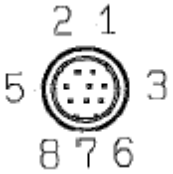
5. Cable table

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 "MISUMI EXRS-C1")

5.1. Cable table 1

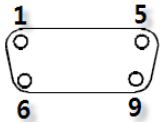
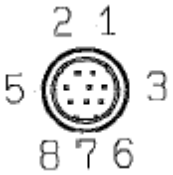
■ 1:1 connection

(A) TOP COM Port (9 pin)

TOP COM			Cable connection	External device		
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	DC12	 Based on communication cable connector front, MINI DIN8 Pin
	RD	2		5	RDX	
	SD	3		3	TXD	
	DTR	4		4	-	
	SG	5		2	GND	
	DSR	6		6	-	
	RTS	7		7	E-STOP	
	CTS	8		8	E-STOP	
		9		9		

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

(B) TOP COM Port (15 pin)

TOP COM			Cable connection	External device		
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	DC12	 Based on communication cable connector front, MINI DIN8 Pin
	RD	2		5	RDX	
	SD	3		3	TXD	
	DTR	4		4	-	
	SG	5		2	GND	
	DSR	6		6	-	
	RTS	7		7	E-STOP	
	CTS	8		8	E-STOP	
		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.

Command	Type	Bit address range	Word address range	R/W	Device description
START	16bit	-	0	W	Positioning operation
STOP	16bit	-	0	W	Operation stop
ORG	16bit	-	0	W	Return-to-origin
JOG+	16bit	-	0	W	JOG movement_+
JOG-	16bit	-	0	W	JOG movement_-
INCH+	16bit	-	0	W	Inching movement+
INCH-	16bit	-	0	W	Inching movement-
SRVO	16bit	-	0	W	Servo status change
BRK	16bit	-	0	W	Brake status change
RESET	16bit	-	0	W	Reset
SETID	16bit	-	-	W	Automatic node number setting
M	16bit	1–255.15	1–255	R/W	Operation type
P	32bit	1–255.15	1–255	R/W	Position
P_	32bit	1–255.15	1–255	R/W	Position
S	16bit	1–255.15	1–255	R/W	Speed
S_	16bit	1–255.15	1–255	R/W	Speed
AC	16bit	1–255.15	1–255	R/W	Acceleration
AC_	16bit	1–255.15	1–255	R/W	Acceleration
DC	16bit	1–255.15	1–255	R/W	Deceleration
DC_	16bit	1–255.15	1–255	R/W	Deceleration
Q	16bit	1–255.15	1–255	R/W	Push
Q_	16bit	1–255.15	1–255	R/W	Push
ZL	32bit	1–255.15	1–255	R/W	Zone (-)
ZH	32bit	1–255.15	1–255	R/W	Zone (+)
N	32bit	1–255.15	1–255	R/W	Near width
J	16bit	1–255.15	1–255	R/W	Jump
F	16bit	1–255.15	1–255	R/W	Flag
T	16bit	1–255.15	1–255	R/W	Timer
K	32bit	1–138.15	1–138	R/W	Parameter data writing
TEACH	16bit	1–255.15	1–255	R/W	Current position teaching
COPY	16bit	0	0	R/W	Point data copying
DEL	16bit	0	0	R/W	Point data deleting
D	32bit	-	0–20	R	Status data reading
IN	16bit	1,0–15	1	R	Input/output information reading
INB	16bit	0–15	-	R	Input/output information reading
OUT	16bit	1,0–15	1	R	Input/output information reading
OUTB	16bit	0–15	-	R	Input/output information reading
WIN	16bit	-	0–3	R	Word input/output information reading
WOUT	16bit	-	0–3	R	Word input/output information reading
OPT	32bit	0–31	0–2	R	Option information reading
OPTB	32bit	0–31	0–2	R	Option information reading
ALM	16bit	-	1–32	R	Alarm/warning information reading
WARN	16bit	-	1–32	R	Alarm/warning information reading

7. alarm list

Alarm No		Reset *1	Origin position *2
02	DATA ERROR	-	-
03	DATA RANGE OVER	-	-
04	MONITOR MODE	-	-
05	RUNNING	-	-
06	MANUAL MODE	-	-
41	SERVO OFF	-	-
42	ORIGIN INCOMPLETE	-	-
43	NO POINT DATA	-	-
44	SOFTLIMIT OVER	-	-
45	INTERLOCK	-	-
46	STOP KEY	-	-
47	PUSH MISTAKE	-	-
48	ORG. MISTAKE	-	-
49	SERIAL COMM. ERR.	-	-
81	AC POWER DOWN	Restart	C1 : × C21/C22 : -
82	ENCODER ERROR	Restart	X
83	ABS. ENCODER ERR (C21,C22)	Reset	X
84	IPM ERROR(C21,C22)	Reset	-
85	OVERHEAT	Reset	-
86	OVERLOAD	Reset	-
87	OVERVOLTAGE	Reset	-
88	LOW VOLTAGE	Reset	-
89	POSITION ERROR	Reset	-
8A	ABS. BATTERY ERR(C21,C22)	Reset	X
8B	ABS. COUNT ERROR(C21,C22)	Reset	X
8C	ABS. ME. ERROR(C21,C22)	Reset	X
8D	ABS.OVERFLOW ERR(C21,C22)	Reset	X
8E	OVERCURRENT	Reset	-
8F	MOTOR CURRENT ERR.	Reset	-
91	INT. COMM. ERROR	Reset	-
92	CPU ERROR	Reset	-
93	I/O FAULT	Reset *3	-
C1	EMERGENCY STOP	Eliminate cause	-
C2	MOTOR POWER DOWN	Eliminate cause	-
F1	ABS. BATT. LOW WARNIN(C21,C22)	-	-
F2	PUSH WARNING	-	-
F4	I/O ERROR	-	-

*1. Indicates the alarm reset method
*2. Indicates whether or not origin position is retained when alarm occurred. (· : Not retained)
*3. Power must be turned off and then back on when using CC-Link or DeviceNet.