FASTECH

Ezi-SERVO Plus-R

Ezi-MOTION Plus-R

Supported version TOP Design Studio V1.4.3 or higher

CONTENTS

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

1. System configuration

The system configuration of TOP and "FASTECH – Ezi-SERVO Plus-R Series" is as follows.

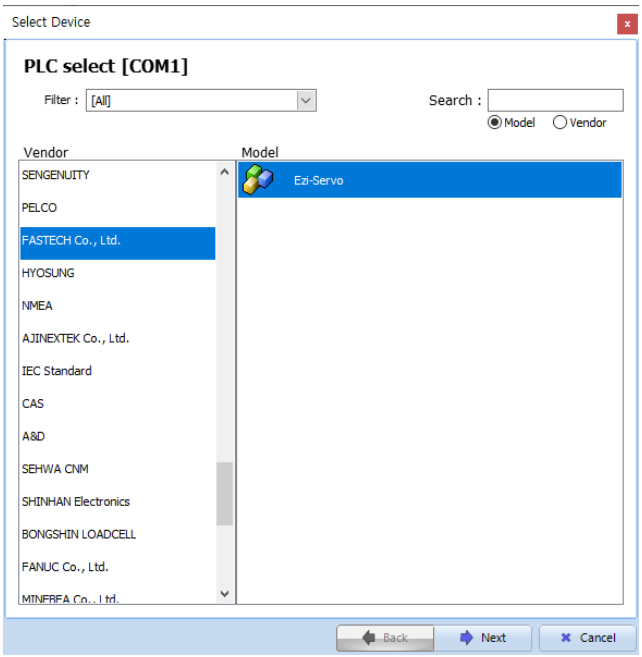
Series	CPU	Link I/F	Communication method	Communication setting	Cable
EzM-20 EzM-28 EzM-42 EzM-56 EzM-60 EzM-86	EzS-NDR-20 EzS-NDR-28 EzS-NDR-42 EzS-NDR-56 EzS-NDR-60 EzS-NDR-86	RJ-45 Connector on Servo	RS-485 (2 wire)	3. TOP communication setting 4. TOP external device setting	5.1. Cable table 1

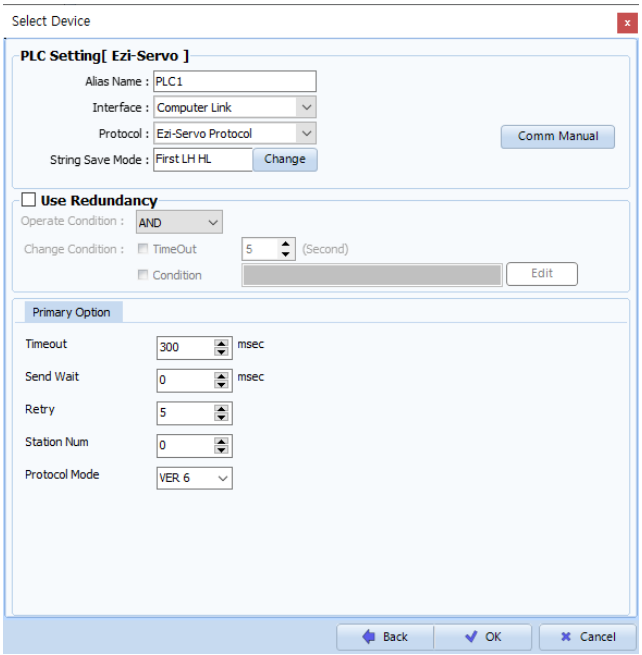
■ Connection configuration

• 1 : 1 (one TOP and one external device) connection – Configuration available in RS 485 communication.

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 "FASTECH Co., Ltd."
	PLC	Select an external device to connect to TOP.

Model	Interface	Protocol
FASTECH : Ezi-Servo	Computer Link	Ezi-Servo Protocol

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

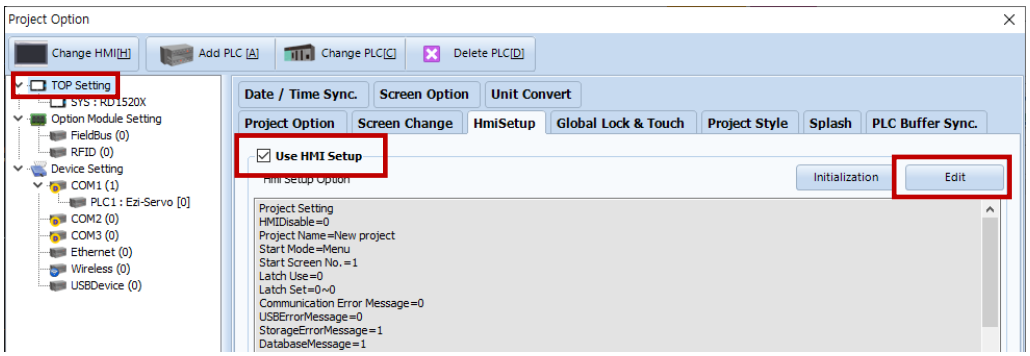
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

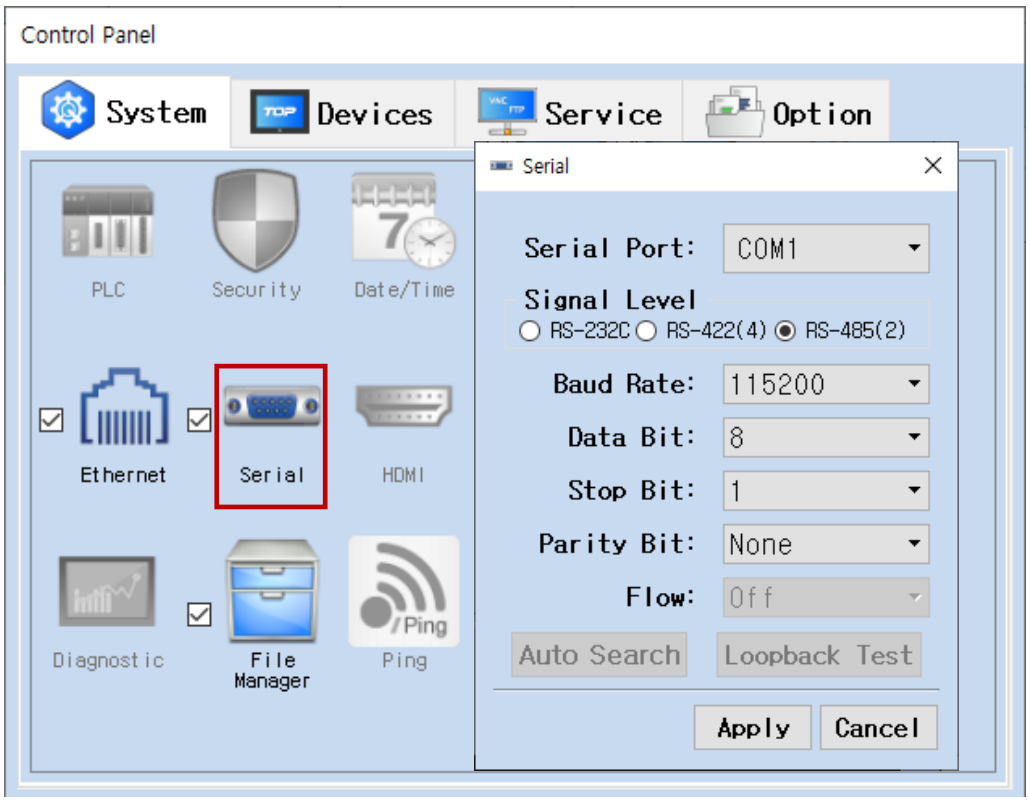
3.1 Communication setting in TOP Design Studio

(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-485	RS-485	
Baud Rate	115200		
Data Bit	8		
Stop Bit	1		
Parity Bit	None		

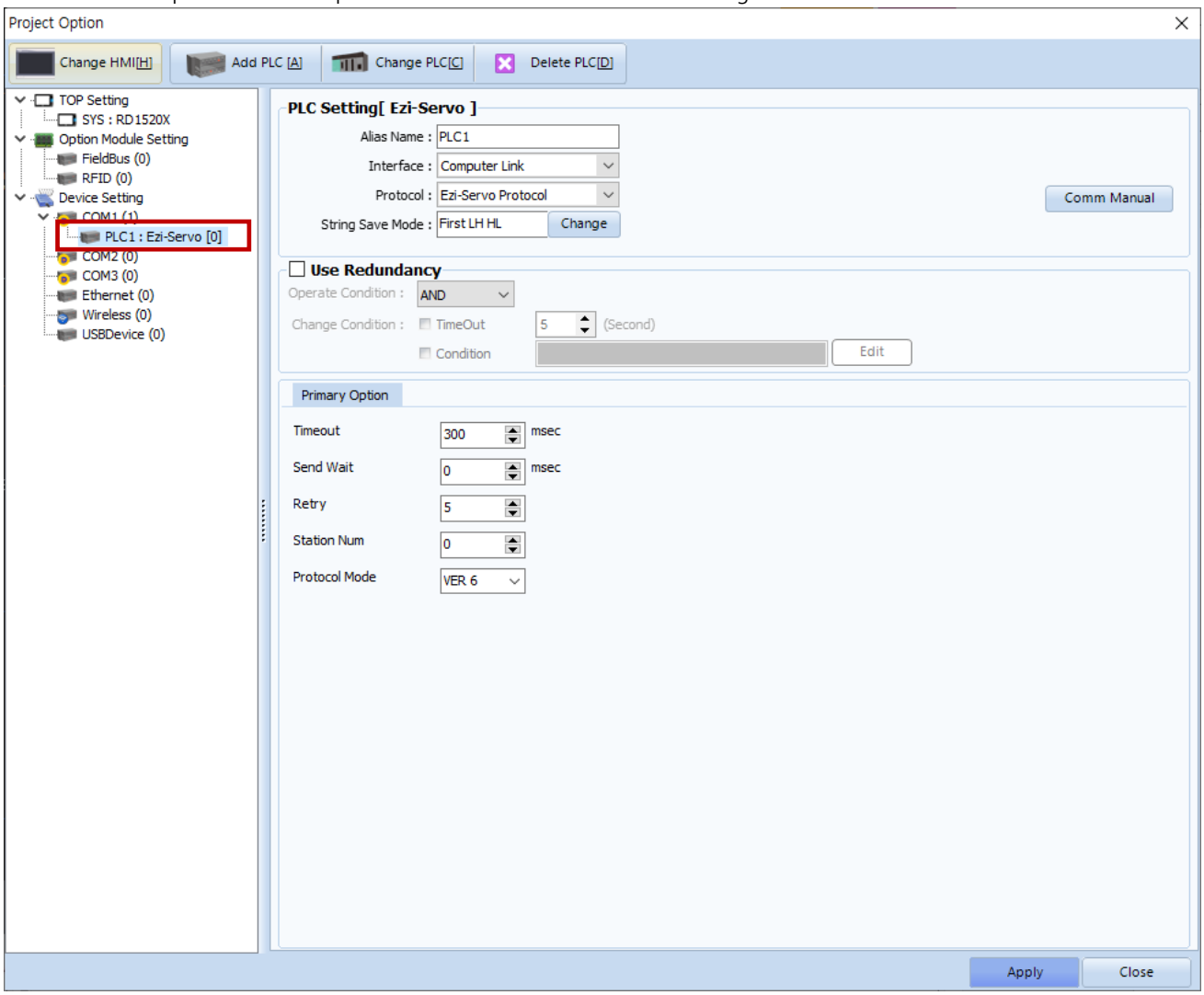
* The above settings are examples recommended by the company.

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 > "FASTECH : Ezi-Servo"]

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

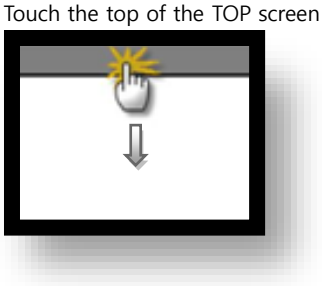


Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External device selection".
Protocol	Configure the communication protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait for a response from 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.	

3.2. Communication setting in TOP

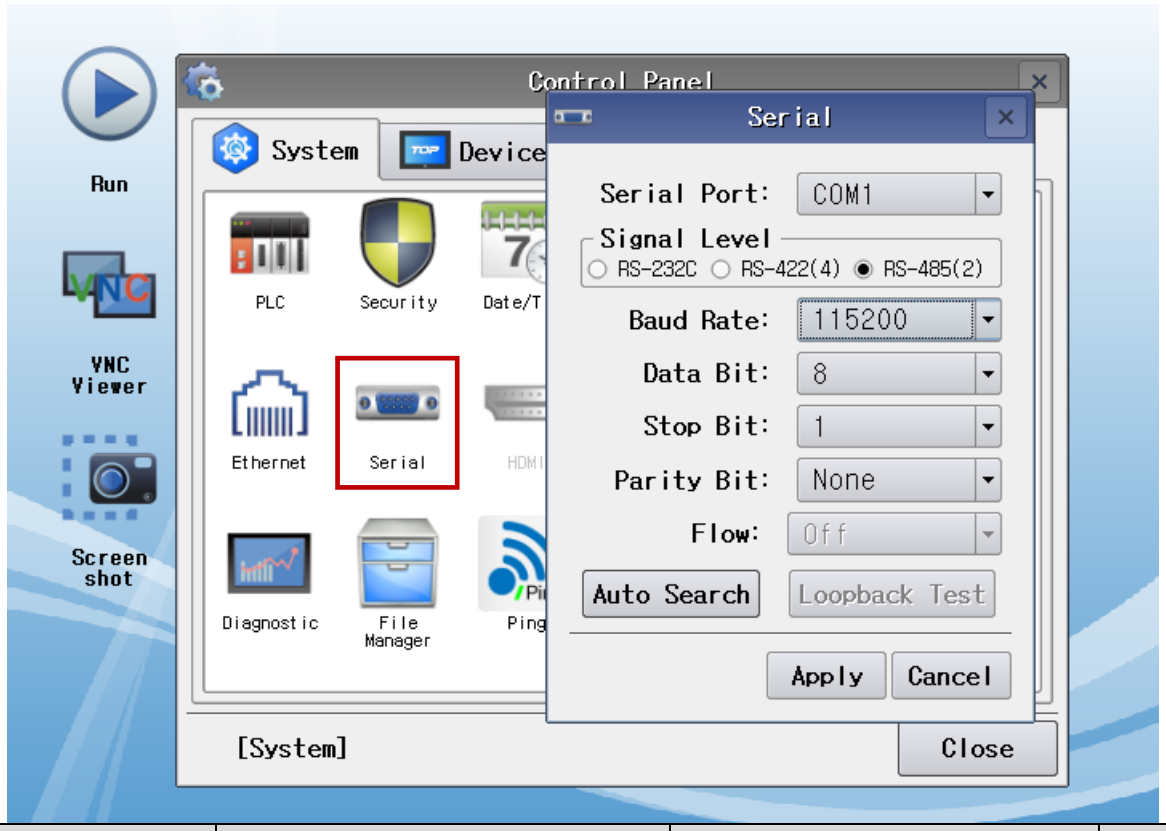
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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-485	RS-485	
Baud Rate	115200		
Data Bit	8		
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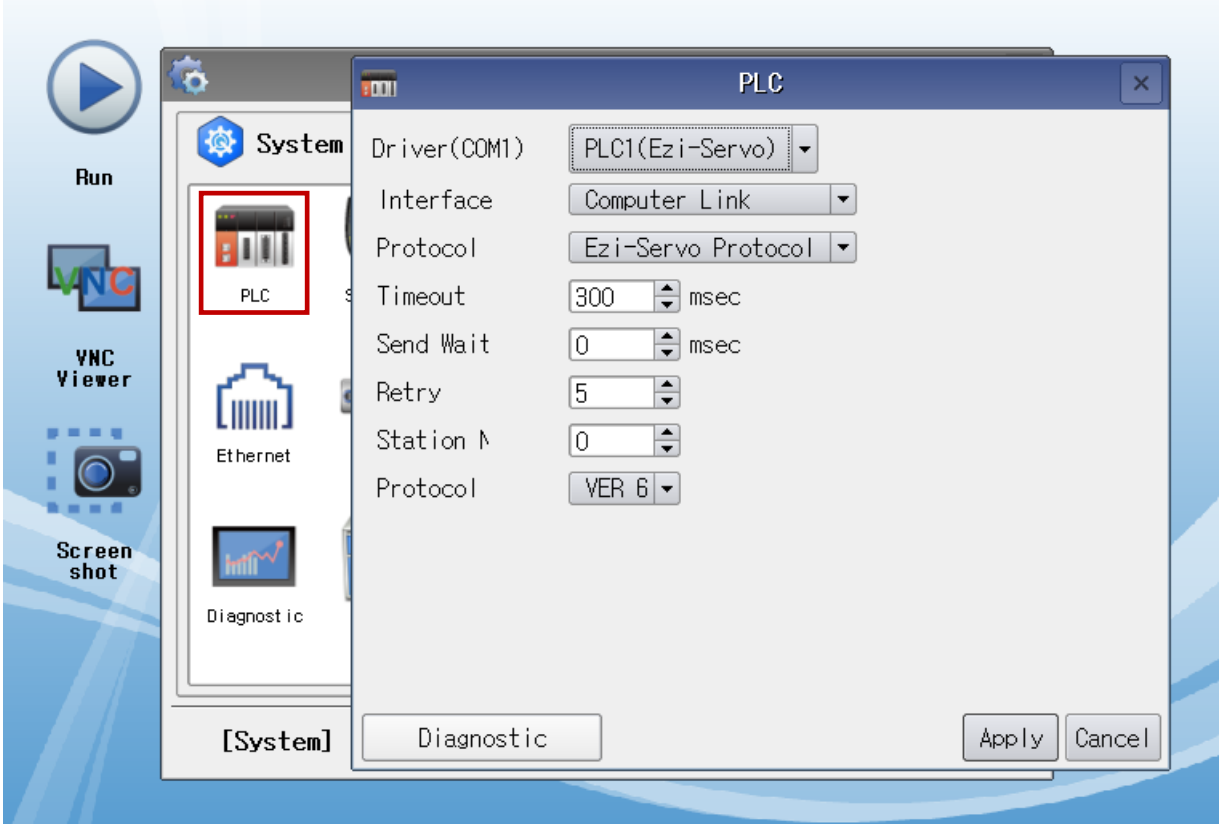
Items	Description
Signal Level	Select the serial communication method between the TOP and an external device.
Baud Rate	Select the serial communication speed between the TOP and an external device.
Data Bit	Select the serial communication data bit between the TOP and an external device.
Stop Bit	Select 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.	
Station Num	Set the prefix.	
Protocol Mode	Select the version of the communication device.	

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.

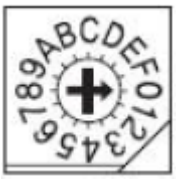
Items	Contents		Check		Remarks
System configuration	How to connect the system		OK	NG	1. System configuration
	Connection cable name		OK	NG	
TOP	Version information		OK	NG	2. External device selection 3. Communication setting
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
	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

Spped-related setting of FASTECH Ezi-Servo Plus-R is possible through FASTECH's terminating switch.
For more detailed setting methodthan described in this example, refer to Ezi-Servo user manual.

1. Drive ID selection switch (SW1)

1) When using multiple modules connected to one Daisy Chain Network, it is used to designate a unique ID for each module.
2) It is a switch to set the ID of the module, which can designate total 16 numbers from 0 to F (15).



2. Communication speed and terminating resistance selection switch (SW2)

SW2 sets the RS-485 communication speed with the central controller, and if the corresponding drive module is connected to the most end of one network segment, it decides whether to use the terminating resistance.

SW2.1 decides whether to use the terminating resistance, and SW2.2 ~ SW2.4 is used to set the communication speed as follows.

For high-speed communication, you can use the PCI Bus type RS-485 communcation board.

SW2.1	SW2.2	SW2.3	SW2.4	Speed Baud[Bps]
X	OFF	OFF	OFF	9600
X	ON	OFF	OFF	19200
X	OFF	ON	OFF	38400
X	ON	ON	OFF	57600
X	OFF	OFF	ON	115200 *1)
X	ON	OFF	ON	230400
X	OFF	ON	ON	460800
X	ON	ON	ON	921600

SW2.1 OFF: Terminal resistance is OFF
SW2.1 ON: Terminal resistance is ON

*Note 1) Default setting value.

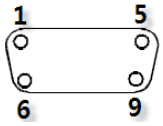
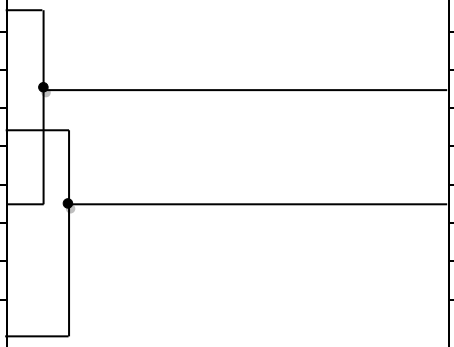
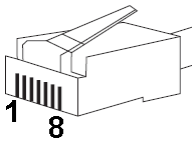
5. Cable table

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 "FASTECH – Ezi Servo Plus R".)

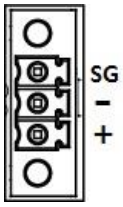
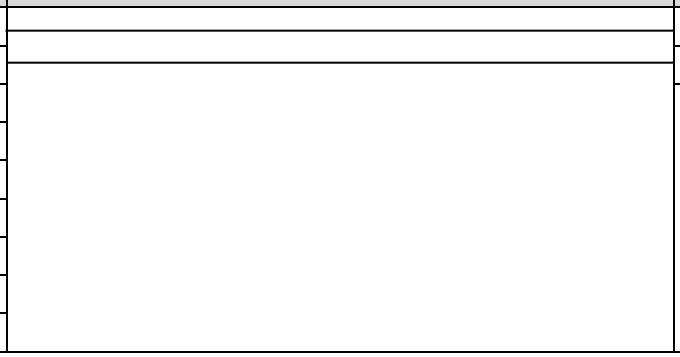
5.1. Cable table 1

■ 1 : 1 connection RS-485

(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)	RDA	1		1	GND	 Based on communication cable connector front, 8-pin male RJ45 (Male, convex)
		2		2	GND	
		3		3	Data+	
	RDB	4		4	GND	
		5		5	GND	
	SDA	6		6	Data-	
		7		7	GND	
		8		8	GND	
	SDB	9		Case	Fame GND	

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

TOP COM		Cable connection	External device	
Pin arrangement	Signal name		Signal name	
	+		+	Data+
	-		-	Data-

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.

Bit/Word Device				
Device	Bit Address	Word Address	Detail	R/W
POSACT	-	POSACT	Current position value	R/W
CURRSPD	-	CURRSPD	Current speed	R
ALMCOD		ALMCOD	Alarm status	R
SAT_AXIS	SAT_AXIS0.0 – 1.15	SAT_AXIS0 – 1	Status information	R
POSCMD		POSCMD	Position follow-up value	R/W
PARA_	-	PARA_00 – 40	Parameter	R/W
POSERR	-	POSERR	Position error	R
SAT_PT	-	SAT_PT	PT status information	R
INPUT	INPUT0.0 – 0.8	INPUT0	INPUT status information	R
OUTPUT	OUTPUT0.0 – 0.8	OUTPUT0	OUTPUT status	R/W
PTINFO_	PTINFO_00.00 - 40.31	PTINFO_00 - 40	PT information	R/W
ABSPOS	-	ABSPOS	Absolute position movement value	W
INCPOS	-	INCPOS	Relative position movement value	W
POSSPD	-	POSSPD	Position movement speed value	W
VELOCITY	-	VELOCITY	Movement speed information	W
PT_NO	-	PT_NO	PT number	W
LM_AMNT	-	LM_AMNT	Quantity of linear interpolation target	W
LM_SLARR	-	LM_SLARR00 - 15	Array of ID number	W
LM_FEDR	-	LM_FEDR	Speed reference value (Feed Rate)	W
LM_ACCD	-	LM_ACCD	Acceleration/deceleration reference value	W
LM_POS	-	LM_POS00 - 15	Array of movement position	W
A_ABSPOS	-	A_ABSPOS	Absolute position movement value	W
A_INCPOS	-	A_INCPOS	Relative position movement value	W
A_POSSPD	-	A_POSSPD	Position movement speed value	W
P_STSPD	-	P_STSPD	Push position movement start speed value	W
P_MVSPD	-	P_MVSPD	Push position movement speed value	W
P_MPOS	-	P_MPOS	Push position movement absolute position value	W
P_ACC	-	P_ACC	Push position movement acceleration time	W
P_DEC	-	P_DEC	Push position movement deceleration time	W
P_TQRATE	-	P_TQRATE	Push movement torque ratio	W
P_PMSPD	-	P_PMSPD	Push movement operation speed	W
P_ENDPOS		P_ENDPOS	Push motion absolute position value	W
P_STATUS	-	P_STATUS	Push operation status information	R
T_RATIO	-	T_RATIO	Load factor check value	R

Bit Only Device				
Device	Bit Address	Word Address	Detail	R/W
M_ESTOP	M_ESTOP	-	Motion emergency stop	W
M_INCPOS	M_INCPOS	-	Relative value setting	W
M_JOG	M_JOG0 – 1	-	JOG operation start	W
M_LIMIT	M_LIMIT0 – 1	-	LIMIT operation start	W
M_ORIGIN	M_ORIGIN	-	Return to origin	W
MPAUSE	MPAUSE	-	Operation pause	R/W
M_PTRUN	M_PTRUN	-	PT operation	W
M_SGLEPT	M_SGLEPT	-	Position table operation for one designated PT number	W
M_STOP	M_STOP	-	Motion stop	W
ALMRST	ALMRST	-	Alarm reset	W
SVN	SVN	-	Servo On/Off	R/W
R_IOMAP	R_IOMAP	-	IO setpoint request	W
R_ROMPT	R_ROMPT	-	PT information request	W
W_ROMPMT	W_ROMPMT	-	Save parameters	W
W_ROMPT	W_ROMPT	-	Save parameters	W
M_ABSOVE	M_ABSOVE	-	Absolute position value setting	W
M_ABSPOS	M_ABSPOS	-	Operation start setting	W
M_INCOVE	M_INCOVE	-	Relative value setting	W
M_VELOVE	M_VELOVE	-	Speed change	W
A_STOP	A_STOP	-	All stop	W
A_ESTOP	A_ESTOP	-	All emergency stop	W
A_ORGMOV	A_ORGMOV	-	All return to origin	W
A_ABSMOV	A_ABSMOV	-	All move by absolute value	W
A_INCMOV	A_INCMOV	-	All move by relative value	W
M_LINEAR	M_LINEAR0	-	ABS linear interpolation command	W
M_LINEAR	M_LINEAR1	-	INC linear interpolation command	W
P_PUSH	P_PUSH0	-	Push Stop Mod Run	W
P_PUSH	P_PUSH1	-	Push None-Stop Mod Run	W