

# MITSUBISHI Electric Corporation

## MELSERVO MR-J2 Series

### MELSERVO J2 Series Driver

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Supported version

TOP Design Studio

V1.0 or higher



## CONTENTS

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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** [Page 2](#)

Describes the devices required for connection, the setting of each device, cables, and configurable systems.

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### **2. External device selection** [Page 3](#)

Select a TOP model and an external device.

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### **3. TOP communication setting** [Page 4](#)

Describes how to set the TOP communication.

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### **4. External device setting** [Page 10](#)

Describes how to set up communication for external devices.

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### **5. Cable table** [Page 11](#)

Describes the cable specifications required for connection.

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### **6. Supported addresses** [Page 12](#)

Refer to this section to check the addresses which can communicate with an external device.

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# 1. System configuration

The system configuration of TOP and "MITSUBISHI Electric Corporation - MELSERVO MR-J2 Series" is as follows.

Series	CPU	Link I/F	Communication method	Communication setting	Cable
MELSERVO MR-J2-Super	MR-J2S-□A MR-J2S-□CP MR-J2S-□CL	CN3 Port on CPU unit	RS-232C	<a href="#">3. TOP communication setting</a> <a href="#">4. External device setting</a>	<a href="#">5. Cable table</a>
			RS-422		
MELSERVO MR-J2M	MR-J2M-P8 MR-J2M-□DU	CN3 Port on CPU unit	RS-232C		
			RS-422		
		"I/F module" or "Drive module"	RS-232C		
			RS-422		

## ■ Connection configuration

- 1:1 (one TOP and one external device) connection – configuration which is possible in RS232C/422/485 communication.

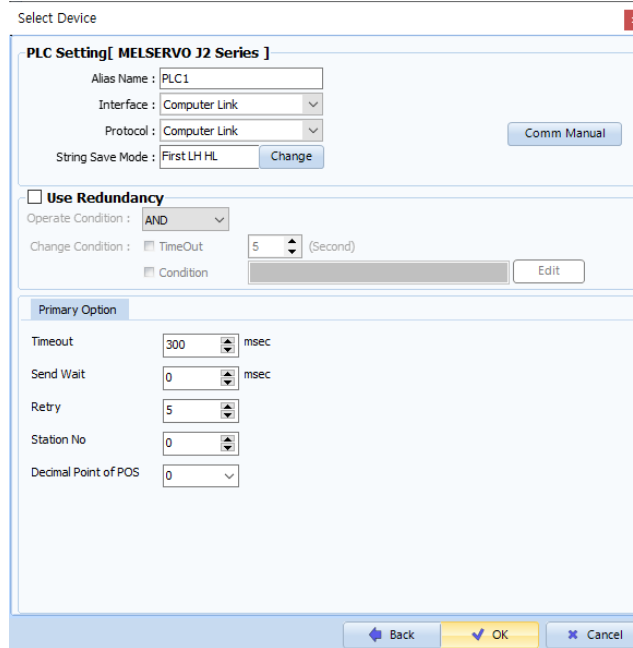
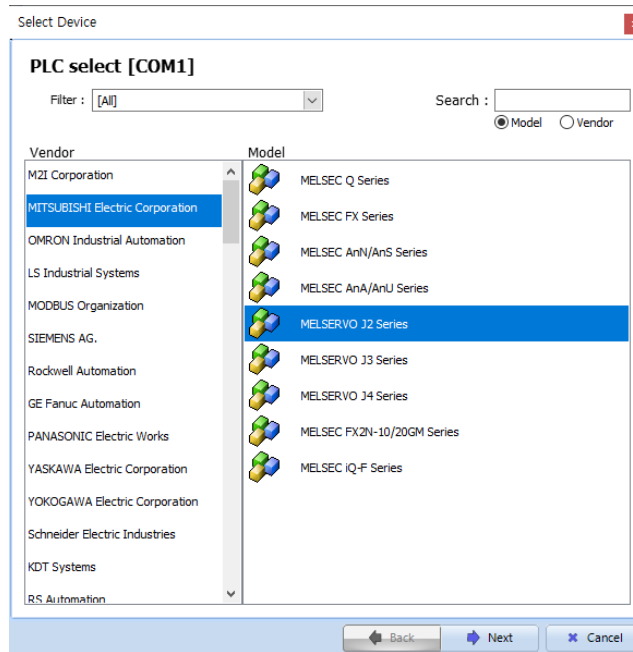


- 1:N (one TOP and multiple external devices) connection – configuration which is possible in RS422/485 communication.



## 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. Please select "MITSUBISHI Electric Corporation".					
	PLC	Select an external device to connect to TOP. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>Interface</th> <th>Protocol</th> </tr> </thead> <tbody> <tr> <td>MELSERVO J2 Series</td> <td>Computer Link</td> <td>Computer Link</td> </tr> </tbody> </table> <p>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.</p>	Model	Interface	Protocol	MELSERVO J2 Series	Computer Link
Model	Interface	Protocol					
MELSERVO J2 Series	Computer Link	Computer Link					

### 3. TOP communication setting

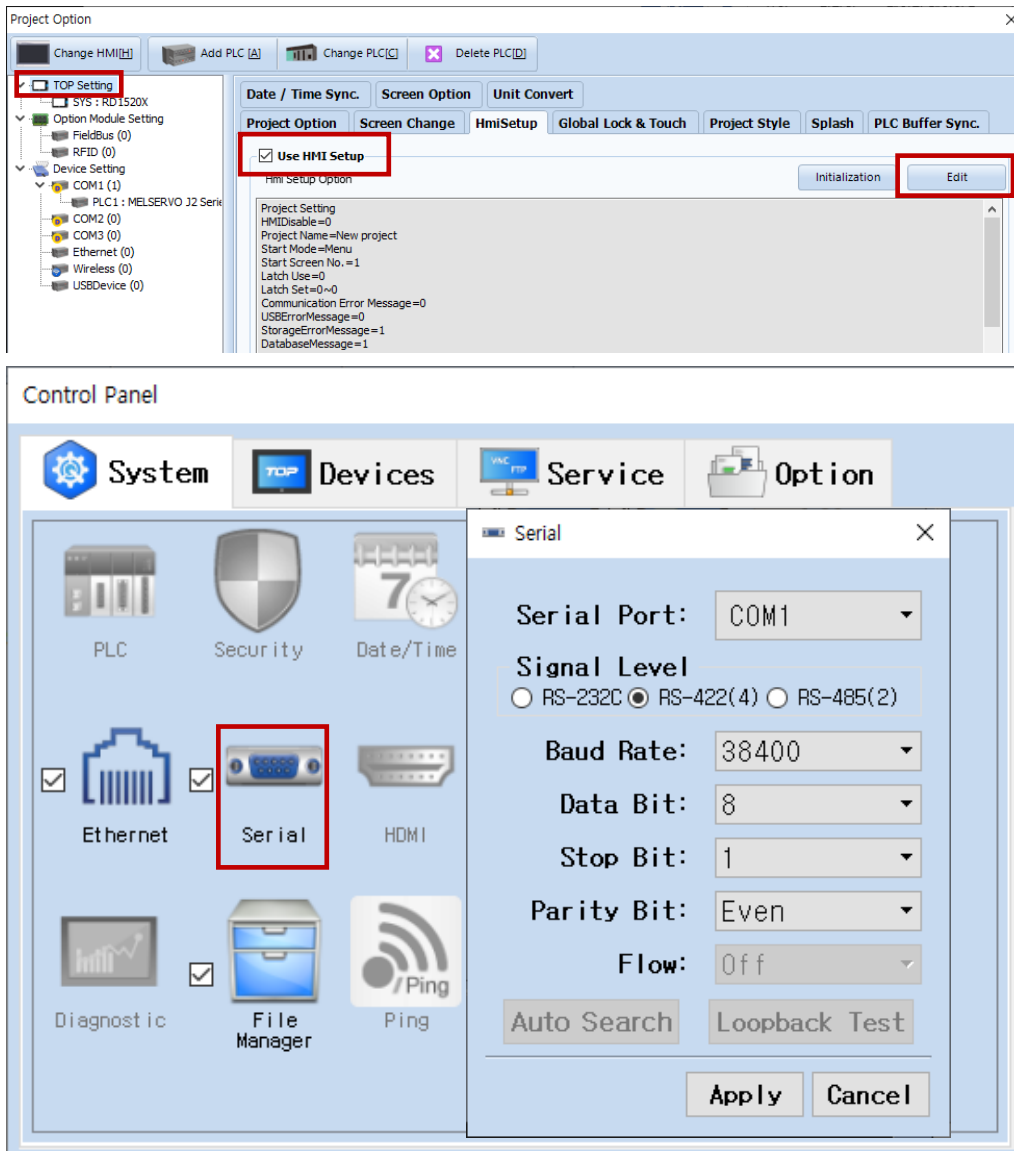
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

#### 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.



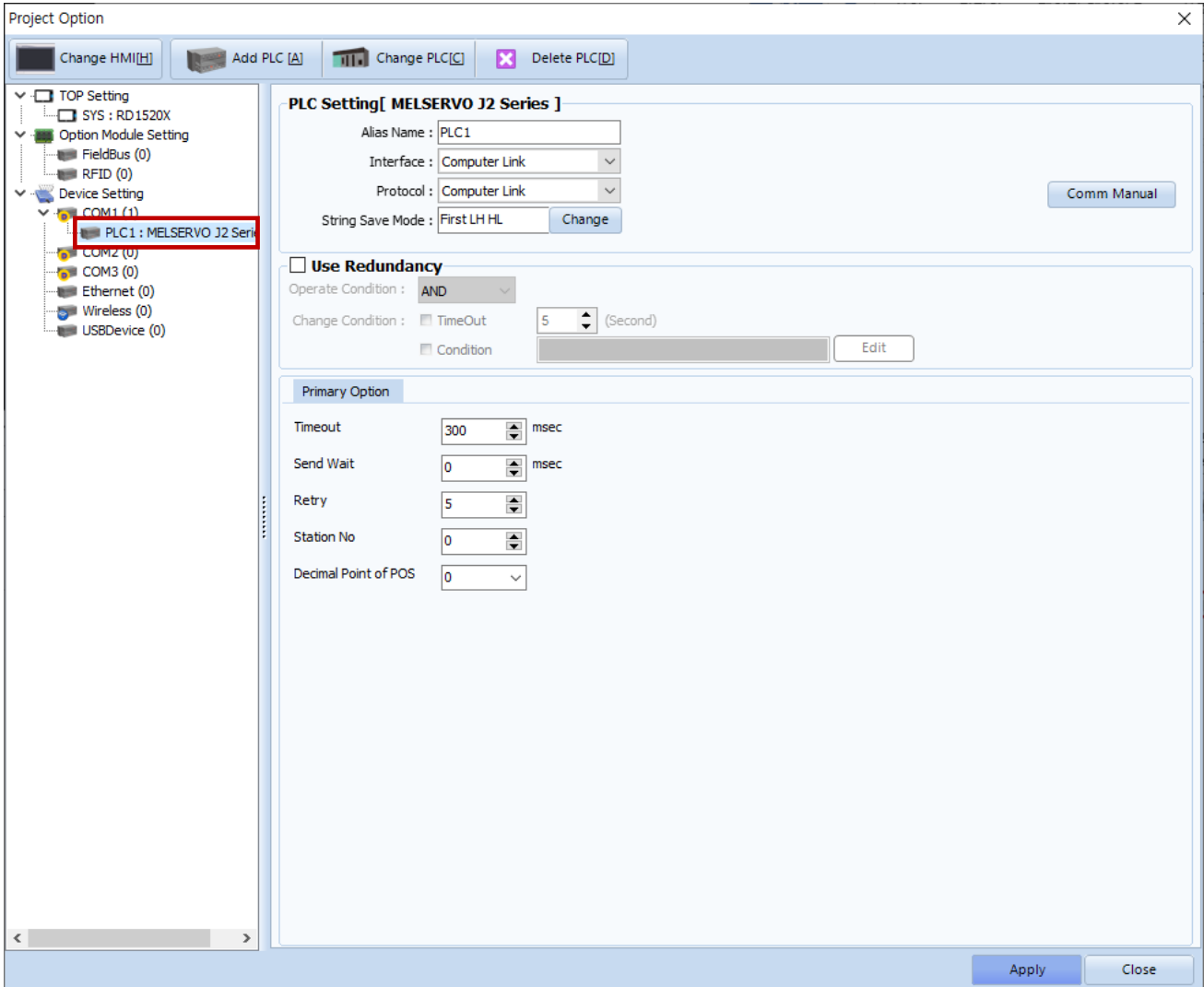
Items	TOP		External device	Remarks
Signal Level (port)	RS-232C	RS-422	RS-232C RS-422	
Baud Rate	38400			
Data Bit	8			
Stop Bit	1			
Parity Bit	Even			

\* 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 : MELSERVO J2 Series" ]
- Set the options of communication driver of MELSERVO J2 Series in TOP Design Studio.



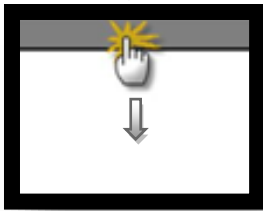
Items	Settings	Remarks
Interface	Select "Computer Link".	<a href="#">Refer to "2. External device selection".</a>
Protocol	Select "Computer Link".	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Set the number of request retries when the data request result is no response/negative response.	
Station Num	Set the prefix of an external device.	
Decimal Point of POS	Configures the transfer length arrangement of the external device. Must be configured identically to the settings of the external device in order for normal writing procedure to occur on the POS address.	*Note)

\*Note) The POS address is not supported by the driver of the J1 series.

### 3.2. Communication setting in TOP

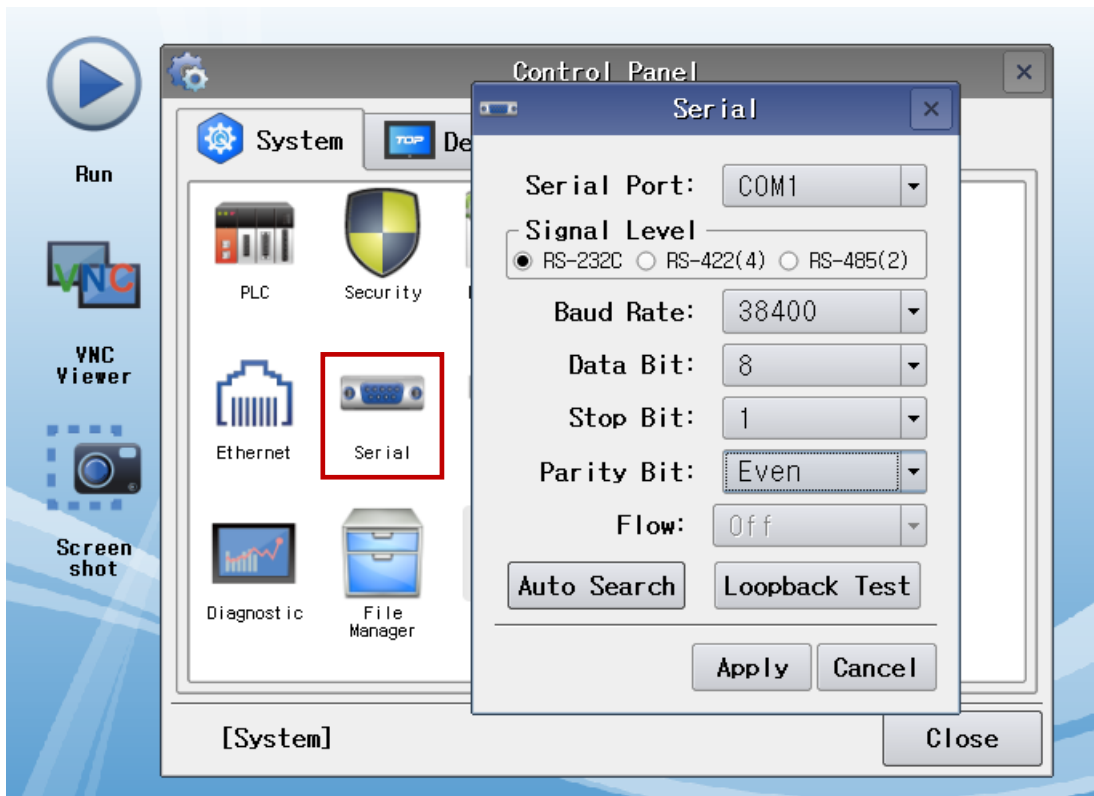
\* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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 ]



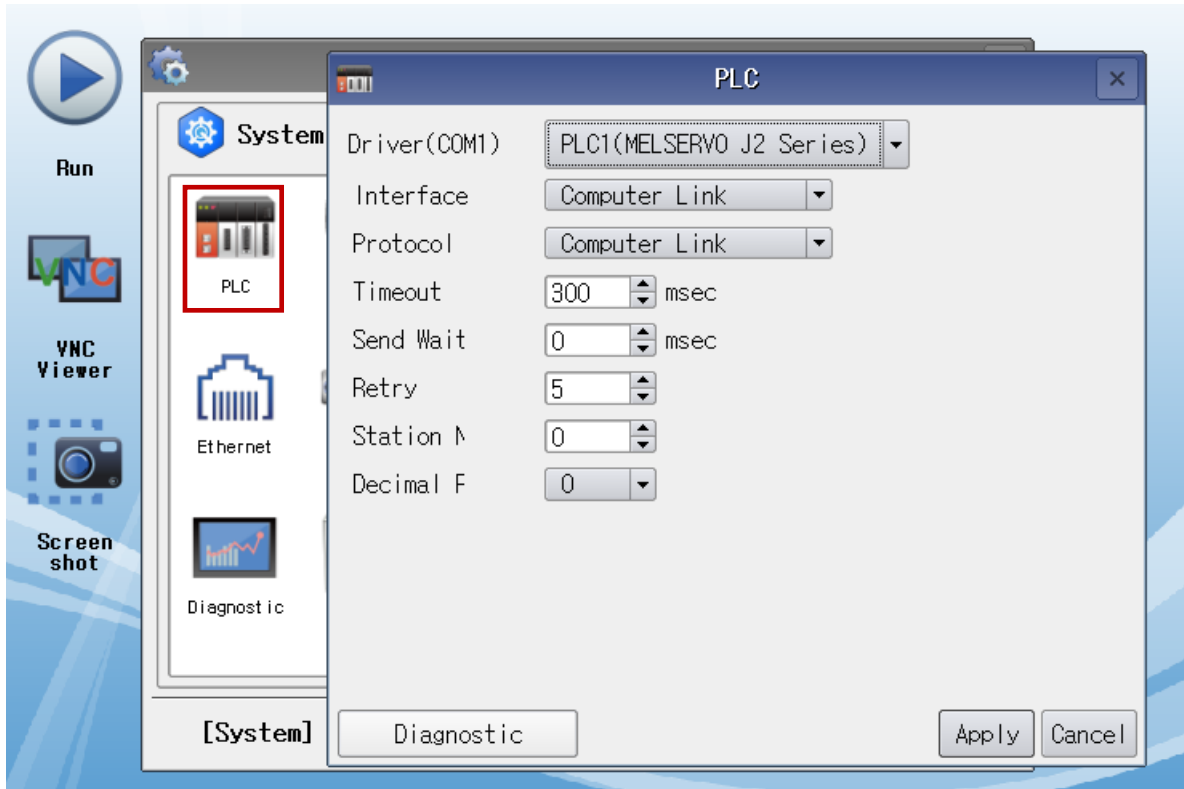
Items	TOP		External device	Remarks
Signal Level (port)	RS-232C	RS-422	RS-232C / RS-422	
Baud Rate	38400			
Data Bit	8			
Stop Bit	1			
Parity Bit	Even			

\* 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".	<a href="#">Refer to "2. External device selection".</a>
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	Set the number of request retries when the data request result is no response/negative response.	
Station Num	Set the prefix of an external device.	
Decimal Point of POS	Configures the transfer length arrangement of the external device. Must be configured identically to the settings of the external device in order for normal writing procedure to occur on the POS address.	*Note 1)

\*Note 1) The POS address is not supported by the driver of the J1 series.

### 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 whether the port (COM1/COM2) settings you want to use are the same as those of the external device in [Control Panel > Serial].

- 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.

<b>OK</b>	<b>Communication setting normal</b>
<b>Time Out Error</b>	<b>Communication setting abnormal</b> - Check the cable, TOP, and external device setting status. <b>(Reference: Communication diagnostics sheet)</b>

■ 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	<a href="#">1. System configuration</a>	
	Connection cable name	OK	NG		
TOP	Version information	OK	NG	<a href="#">2. External device selection</a> <a href="#">3. Communication setting</a>	
	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	<a href="#">4. External device setting</a>	
	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	<a href="#">6. Supported addresses</a> (For details, please refer to the PLC vendor's manual.)	

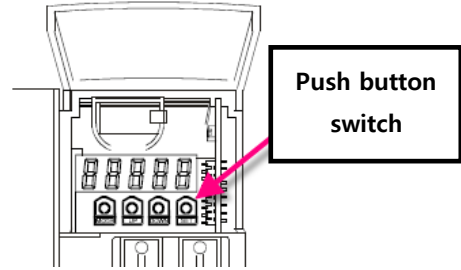


## 4. External device setting

• The serial communication parameters of "MELSERVO MR-J2 Series" are set with the "push button switch" on the control panel of the servo amplifier.

• Reboot the external device after configuration.

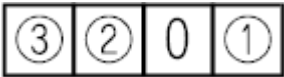
For a more detailed setting method than described in this example, refer to the user manual of the external device.



### ■ Communication parameter setting of MELSERVO-J2-Super Series

Items	Parameter	Descriptions																																		
Transmission length scale setting	Default parameter No. 1 : 0020	Configure the 4-digit value of the default parameter for No. 1 as shown below: <table border="1" style="margin: 10px 0;"> <tr> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="border: 1px solid black; width: 30px; text-align: center;">①</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> </tr> </table> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="3">① Transmission length scale</th> </tr> </thead> <tbody> <tr> <td style="width: 30px;">0</td> <td style="width: 60px;">1 time</td> <td style="width: 100px;">Number of decimal places 3</td> </tr> <tr> <td>1</td> <td>10 times</td> <td>Number of decimal places 2</td> </tr> <tr style="background-color: #e0e0e0;"> <td>2</td> <td>100 times</td> <td>Number of decimal places 1</td> </tr> <tr> <td>3</td> <td>1000 times</td> <td>Number of decimal places 0</td> </tr> </tbody> </table>	0	0	①	0	① Transmission length scale			0	1 time	Number of decimal places 3	1	10 times	Number of decimal places 2	2	100 times	Number of decimal places 1	3	1000 times	Number of decimal places 0															
0	0	①	0																																	
① Transmission length scale																																				
0	1 time	Number of decimal places 3																																		
1	10 times	Number of decimal places 2																																		
2	100 times	Number of decimal places 1																																		
3	1000 times	Number of decimal places 0																																		
Prefix number setting	Default parameter No. 15	0 (Default value: 0)																																		
Select the serial communication speed.	Default parameter No. 16 : 2100	Configure the 4-digit value of the default parameter for No. 16 as shown below: <table border="1" style="margin: 10px 0;"> <tr> <td style="border: 1px solid black; width: 30px; text-align: center;">③</td> <td style="border: 1px solid black; width: 30px; text-align: center;">②</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="border: 1px solid black; width: 30px; text-align: center;">①</td> </tr> </table> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">① Select Serial Transmission Speed</th> <th colspan="2">② Select serial I/F</th> <th colspan="2">③ Select response delay time</th> </tr> </thead> <tbody> <tr> <td style="width: 30px;">0</td> <td style="width: 60px;">900 BPS</td> <td style="width: 30px;">0</td> <td style="width: 60px;">RS-232C</td> <td style="width: 30px;">0</td> <td style="width: 60px;">Null</td> </tr> <tr> <td>1</td> <td>19200 BPS</td> <td>1</td> <td>RS-422</td> <td>1</td> <td>Valid</td> </tr> <tr style="background-color: #e0e0e0;"> <td>2</td> <td>38400 BPS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>57600 BPS</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	③	②	0	①	① Select Serial Transmission Speed		② Select serial I/F		③ Select response delay time		0	900 BPS	0	RS-232C	0	Null	1	19200 BPS	1	RS-422	1	Valid	2	38400 BPS					3	57600 BPS				
③	②	0	①																																	
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1	19200 BPS	1	RS-422	1	Valid																															
2	38400 BPS																																			
3	57600 BPS																																			
Select function 8	For MR-J2S-A: Extension parameter 2 No. 53 For MR-J2S-CP: Extension parameter 2 No. 57	Configure the 4-digit value of the default parameter for No. 53/57 as shown below: <table border="1" style="margin: 10px 0;"> <tr> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="border: 1px solid black; width: 30px; text-align: center;">①</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> <td style="border: 1px solid black; width: 30px; text-align: center;">0</td> </tr> </table> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="2">① Select the station number of the protocol</th> </tr> </thead> <tbody> <tr style="background-color: #e0e0e0;"> <td style="width: 30px;">0</td> <td style="width: 100px;">There is a station number.</td> </tr> <tr> <td>1</td> <td>No station number</td> </tr> </tbody> </table>	0	①	0	0	① Select the station number of the protocol		0	There is a station number.	1	No station number																								
0	①	0	0																																	
① Select the station number of the protocol																																				
0	There is a station number.																																			
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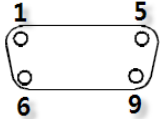
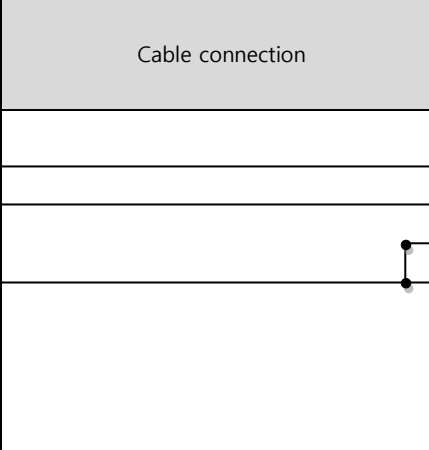
■ Communication parameter setting of MELSERVO-J2-M Series

Items	Parameter	Descriptions																														
Select the serial communication speed.	Default IFU parameter No. 0 : 2000	Configure the 4-digit value of the default parameter for No. 16 as shown below:  <table border="1" data-bbox="668 338 1449 568"> <thead> <tr> <th colspan="2">① Select Serial Transmission Speed</th> <th colspan="2">② Select serial I/F</th> <th colspan="2">③ Select response delay time</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>9600 BPS</td> <td>0</td> <td>RS-232C</td> <td>0</td> <td>Null</td> </tr> <tr> <td>1</td> <td>19200 BPS</td> <td>1</td> <td>RS-422</td> <td>1</td> <td>Valid</td> </tr> <tr> <td>2</td> <td>38400 BPS</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>57600 BPS</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	① Select Serial Transmission Speed		② Select serial I/F		③ Select response delay time		0	9600 BPS	0	RS-232C	0	Null	1	19200 BPS	1	RS-422	1	Valid	2	38400 BPS					3	57600 BPS				
① Select Serial Transmission Speed		② Select serial I/F		③ Select response delay time																												
0	9600 BPS	0	RS-232C	0	Null																											
1	19200 BPS	1	RS-422	1	Valid																											
2	38400 BPS																															
3	57600 BPS																															
Interface module station number	Default IFU parameter No. 10	0 – 31 (Default value: 0)																														
1st slot station number	Default IFU parameter No. 11	0 – 31 (Default value: 1)																														
2nd slot station number	Default IFU parameter No. 12	0 – 31 (Default value: 2)																														
3rd slot station number	Default IFU parameter No. 13	0 – 31 (Default value: 3)																														
4th slot station number	Default IFU parameter No. 14	0 – 31 (Default value: 4)																														
5th slot station number	Default IFU parameter No. 15	0 – 31 (Default value: 5)																														
6th slot station number	Default IFU parameter No. 16	0 – 31 (Default value: 6)																														
7th slot station number	Default IFU parameter No. 17	0 – 31 (Default value: 7)																														
8th slot station number	Default IFU parameter No. 18	0 – 31 (Default value: 8)																														

## 5. Cable table

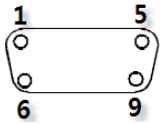
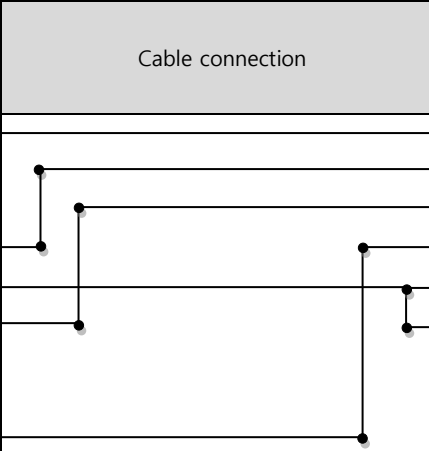
This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.  
 (The cable diagram described in this section may differ from the recommendations of "MITSUBISHI Electric Corporation")

### ■ RS-232C (1:1 connection)

COM			Cable connection	MELSERVO MR-J2 Series		
Pin arrangement* <b>Note 1)</b>	Signal name	Pin number		Pin number	Signal name	Pin arrangement* <b>Note 1)</b>
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	CD	1				Servo amplifier CN3 (20 PIN)
	RD	2		12	SD	
	SD	3		2	RD	
	DTR	4		1	LG	
	SG	5		11	LG	
	DSR	6				
	RTS	7				
	CTS	8				
		9				

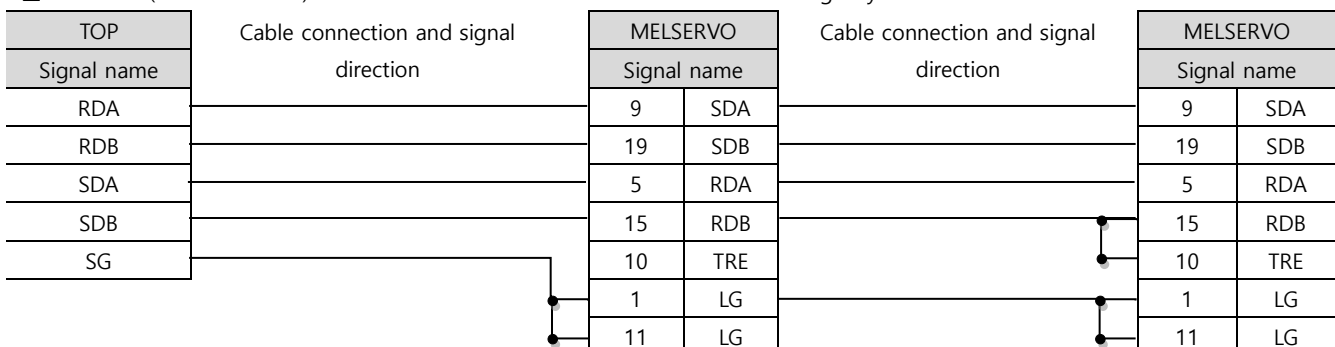
\***Note 1)** The pin arrangement is as seen from the connecting side of the cable connection connector.

### ■ RS-422 (1:1 connection)

COM			Cable connection	MELSERVO MR-J2 Series		
Pin arrangement* <b>Note 1)</b>	Signal name	Pin number		Pin number	Signal name	Pin arrangement* <b>Note 1)</b>
 <p>Based on communication cable connector front, D-SUB 9 Pin male (male, convex)</p>	RDA	1		9	SDA	Servo amplifier CN3 (20 PIN)
		2		19	SDB	
		3		5	RDA	
	RDB	4		15	RDB	
	SG	5		1	LG	
	SDA	6		11	LG	
		7				
		8				
	SDB	9				

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

### ■ RS-422 (1:N connection) – Refer to 1:1 connection to connect in the following way.



## 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.

Device		Word Address (The address is hexadecimal.)		Remarks	Command	
		Read able	Write able			
Status	Status display data	<b>STS 80 – STS 91</b>	—	*Note 1)	01	–
Alarm History	Alarm No.	<b>AMH 10 – AMH 16</b>	—		33	
	<b>Alarm time</b>	<b>AMH 20 – AMH 26</b>	—			
Alarm Present	Current alarm	<b>AMP 00</b>	—		02	–
Alarm Status	Alarm status display	<b>AMS 80 – AMS 90</b>	—	*Note 1)	35	–
Status Clear	Clear the status display data	—	<b>STSC 00</b>		–	81
Alarm Clear	Clear the current alarm	—	<b>AMC 00</b>		–	82
	Clear the alarm history	—	<b>AMC 20</b>			
Inhibit/release input/output signal		—	<b>EIXX 00 / EIXX 03</b> <b>EIXX 10 / EIXX 13</b>		–	90
Operation mode		—	<b>MODE 00</b>		–	8B
Data for test operation mode				<b>TEST 00 / TEST A0</b>	–	92
				<b>TEST 10 / TEST 11</b>		
				<b>TEST 20 / TEST 21</b>		
				<b>TEST 40 / TEST 41</b>		–
External input/output	Input device status	<b>EXIN 00</b>	—	*Note 2)	12	92
	Input pin status	<b>EXIN 40</b>	—			
	Input device ON/OFF	<b>EXIN 60</b>	<b>EXIN 60</b>			
	Output device status	<b>EXIN 80</b>	—			
	Output pin status	<b>EXIN C0</b>	—			
Parameter group		<b>PRMG 01</b>	<b>PRMG 01</b>		04	85
Write parameters (EEPROM)		<b>PRAM 00 – PRAM FF</b>	<b>PRAM 00 – PRAM 5A</b>		05	84
Write parameters (RAM)		<b>PRMR 00 – PRMR FF</b>	<b>PRMR 00 – PRMR 5A</b>			
Write point table position data (EEPROM)		<b>PTB1 01 – PTB1 FF</b>	<b>PTB1 01 – PTB1 FF</b>		40	C0
Write point table position data (RAM)		<b>PT1R 01 – PT1R FF</b>	<b>PT1R 01 – PT1R FF</b>			
Write point table speed data (EEPROM)		<b>PTB2 01 – PTB2 FF</b>	<b>PTB2 01 – PTB2 FF</b>		50	C6
Write point table speed data (RAM)		<b>PT2R 01 – PT2R FF</b>	<b>PT2R 01 – PT2R FF</b>			
Write point table acceleration time constant (EEPROM)		<b>PTB3 01 – PTB3 FF</b>	<b>PTB3 01 – PTB3 FF</b>		54	C7
Write point table acceleration time constant (RAM)		<b>PT3R 01 – PT3R FF</b>	<b>PT3R 01 – PT3R FF</b>			
Write point table deceleration time constant (EEPROM)		<b>PTB4 01 – PTB4 FF</b>	<b>PTB4 01 – PTB4 FF</b>		58	C8
Write point table deceleration time constant (RAM)		<b>PT4R 01 – PT4R FF</b>	<b>PT4R 01 – PT4R FF</b>			
Write point table dwell time (EEPROM)		<b>PTB5 01 – PTB5 FF</b>	<b>PTB5 01 – PTB5 FF</b>		60	CA
Write point table dwell time (RAM)		<b>PT5R 01 – PT5R FF</b>	<b>PT5R 01 – PT5R FF</b>			
Write point table auxiliary function (EEPROM)		<b>PTB6 01 – PTB6 FF</b>	<b>PTB6 01 – PTB6 FF</b>		64	CB
Write point table auxiliary function (RAM)		<b>PT6R 01 – PT6R FF</b>	<b>PT6R 01 – PT6R FF</b>			
Absolute position of servo motor end pulse unit		<b>ETC 90</b>	—		02	–
Command unit absolute position		<b>ETC 91</b>	—			

\*Note 1) 00 – 11 Address area not supported

\*Note 2) 32 bit device