

KORO

ROBOT Motion Controller

Serial Driver

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 [Page 2](#)

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

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

Select a TOP model and an external device.

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

Describes how to set the TOP communication.

4. External device setting [Page 9](#)

Describes how to set up communication for external devices.

5. Cable table [Page 10](#)

Describes the cable specifications required for connection.

6. Supported addresses [Page 11](#)

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

1. System configuration

The system configuration of TOP and "KORO – ROBOT" is as follows:

Series	Communication method	Communication setting	Cable
KORO - ROBOT	RS-232C	3. TOP communication setting	4.1. Cable table

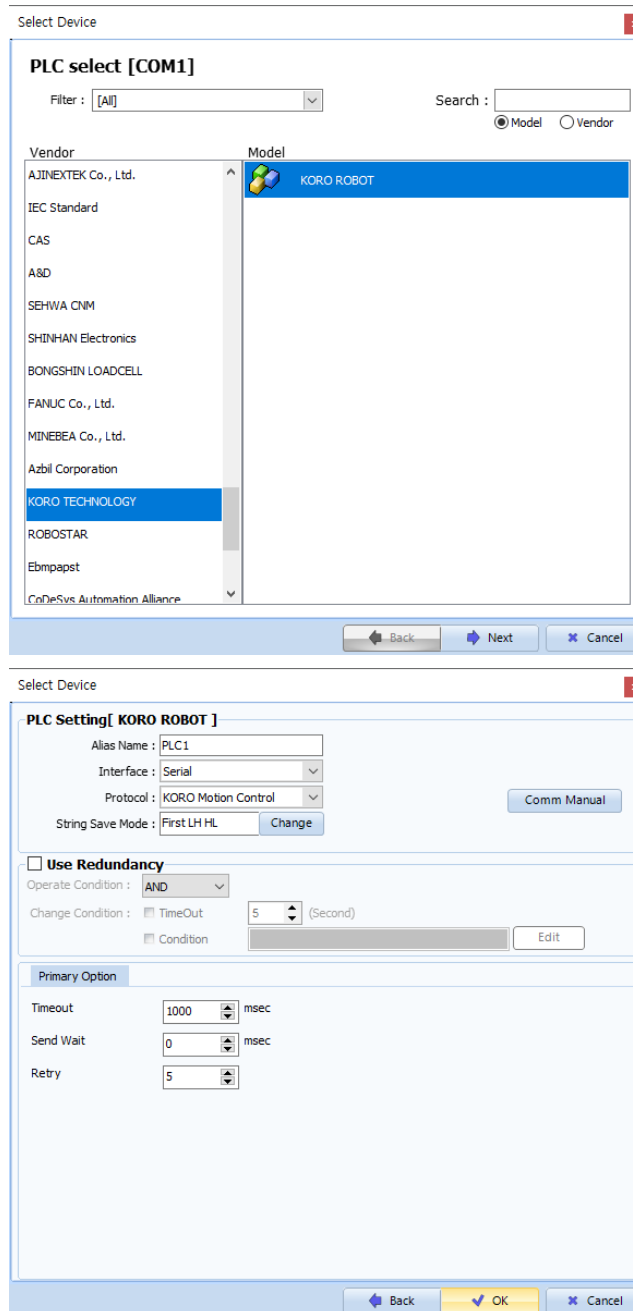
■ Connection configuration

- 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 "KORO TECHNOLOGY".		
	PLC	Select an external device to connect to TOP.		
		Model	Interface	Protocol
		KORO ROBOT	Serial	KORO Motion Control

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)	RS232C	RS232C	
Baud Rate	9600		Fixed
Data Bit	8		Fixed
Stop Bit	1		Fixed
Parity Bit	None		Fixed

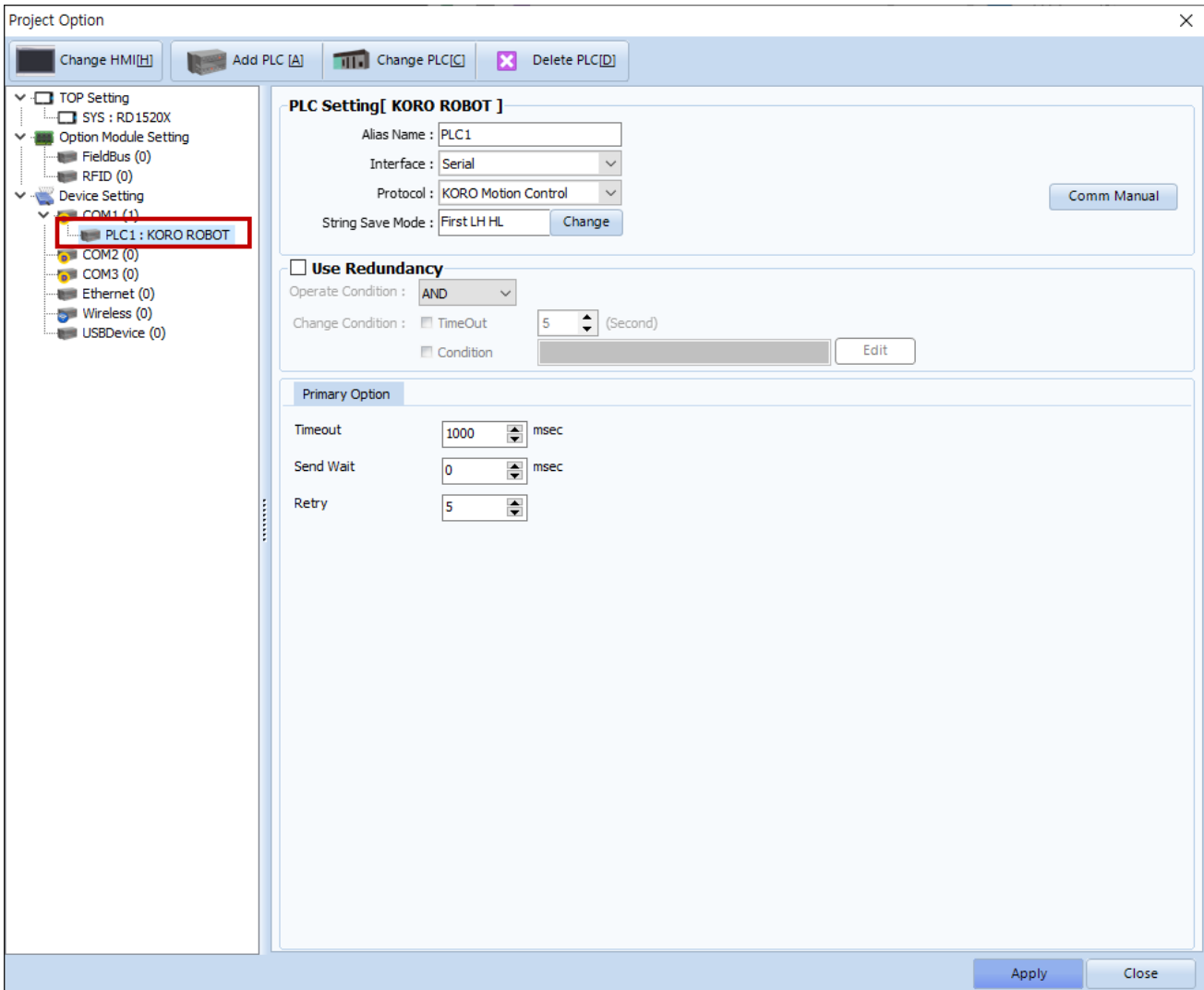
*Programmer port of RS232C is configured identically as the above example settings.

* 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 > "PLC1 : KORO ROBOT"]
 - Set the options of the KORO ROBOT communication driver in TOP Design Studio.

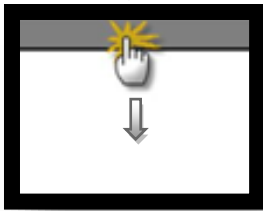


Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External device selection" .
Protocol	Select the communication protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between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

3.2. Communication setting in TOP

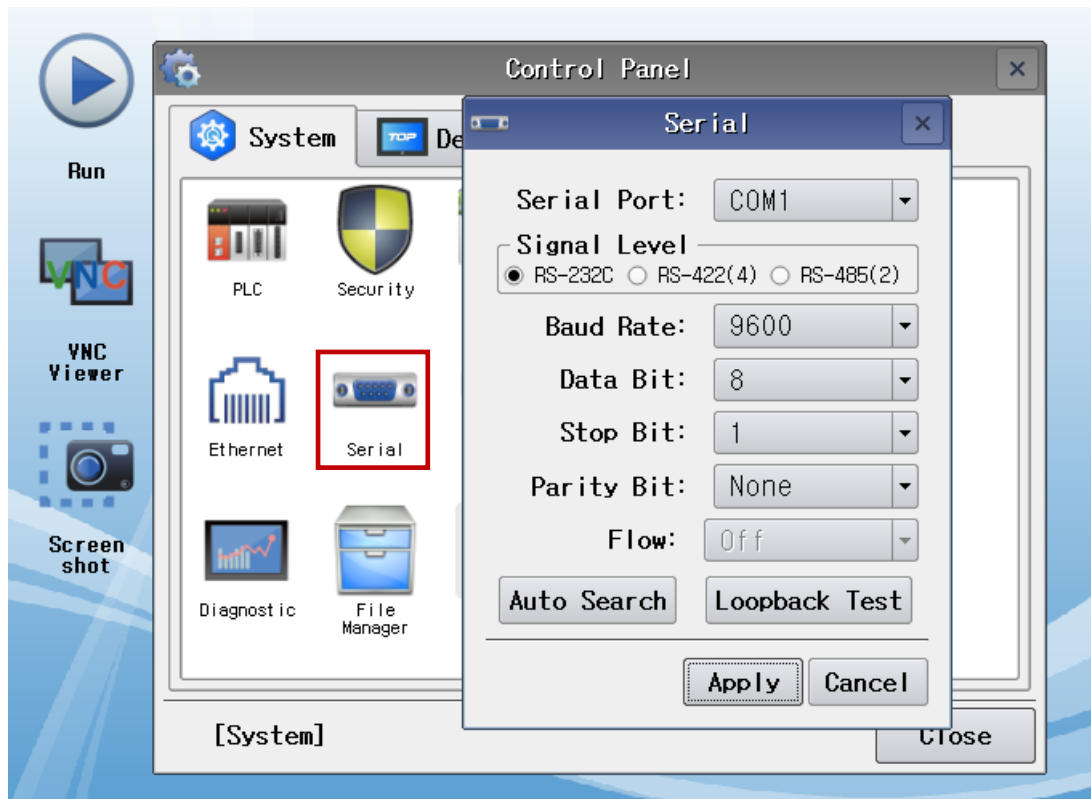
* This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.

- 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)	RS232C	RS232C	
Baud Rate		9600	Fixed
Data Bit		8	Fixed
Stop Bit		1	Fixed
Parity Bit		None	Fixed

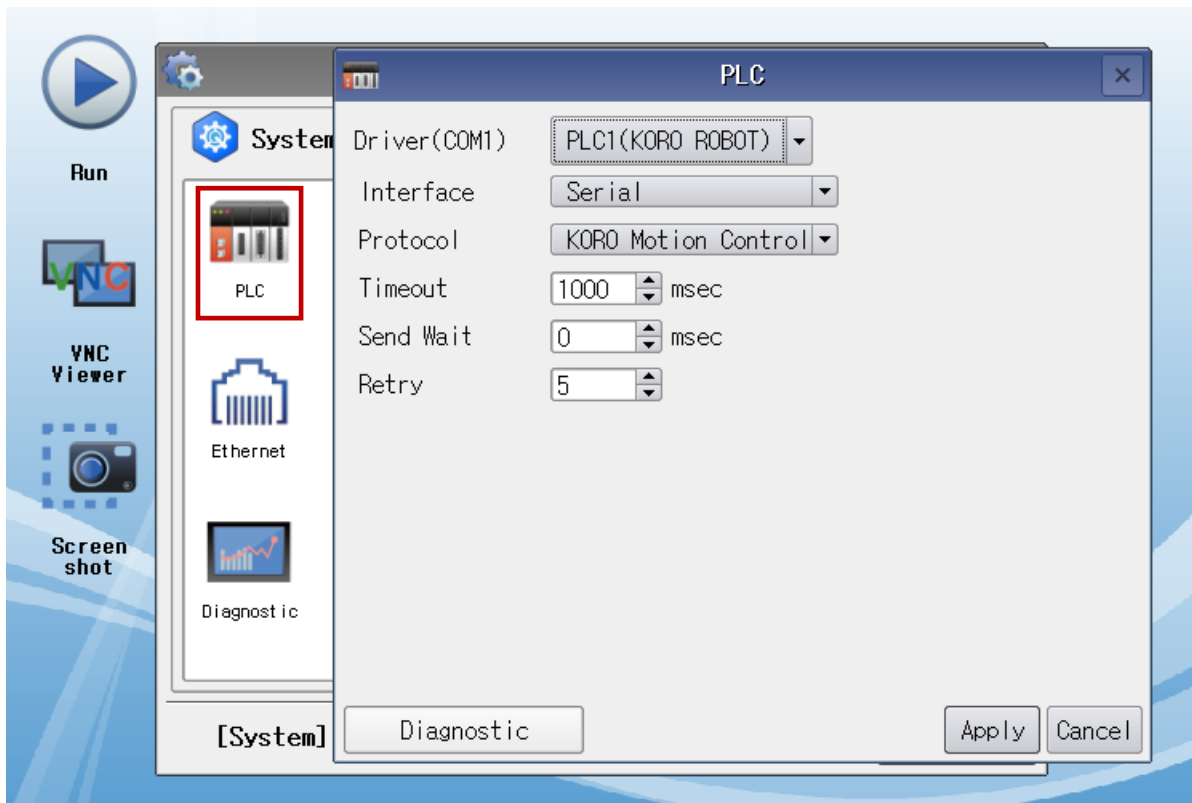
*Programmer port of RS232C is configured identically as the above example settings.

* 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.	

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

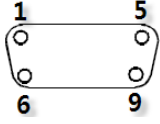

Refer to the vendor's user manual to identically configure the communication settings of the external device to that of the TOP.

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 "KORO TECHNOLOGY")

4.1. Cable table

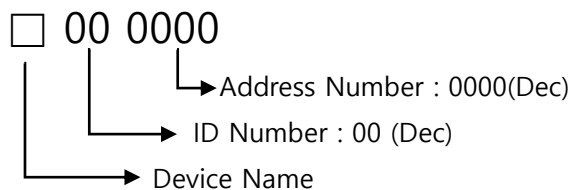
■ RS-232C

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

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	Bit Address	Word Address	SIZE	R/W	Description
A	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Acceleration/Deceleration
C	0000.00 – 9999.15	0000 – 9999	16Bit	R	Display "error status occurred" Address: 0–7 0: TXT 1: EMG 2: ESC 3: HOM 4: CW 5: CCW 6: ALM 7:RUN
D	0000.00 – 9999.31	0000 – 9999	32Bit	W	Pulse motion count
F	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Initial speed
G	0000.00 – 9999.15	0000 – 9999	16Bit	W	Run
H	0000.00 – 9999.15	0000 – 9999	16Bit	W	Execute original position
HZ	0000.00 – 9999.15	0000 – 9999	16Bit	W	Execute original position using Z figure.
HA	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the acceleration/deceleration value to use when executing the origin.
HAA	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the acceleration/deceleration value (Final) to use when executing the origin.
HD	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the distance value to use when executing the origin.
H1V	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the speed value 1 to use when executing the origin.
H2V	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the speed value 2 to use when executing the origin.
H3V	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Configure the speed value 3 to use when executing the origin.
I	0000.00 – 9999.31	0000 – 9999	32Bit	R	Display the input status of the sensor and general input. Address: 0–7 0: INPUT X 1: INPUT Y 2: JOG CW 3: JOG CCW 4: HOME 5: CW LIMIT 6: CCW LIMIT 7: EMERGENCY 8: S-READY 9: S-ALARM 10: S-INPOS
M	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Motor settings
N	0000.00 – 9999.31	0000 – 9999	32Bit	R/W	Assign variables
P	0000.00 – 9999.31	0000 – 9999	32Bit	R	Display current positional value
S	0000.00 – 9999.15	0000 – 9999	16Bit	W	Stop motor
SV	0000.00 – 9999.15	0000 – 9999	16Bit	R/W	Save execution data
V	0000.00 – 9999.31	0000 – 9999	32Bit	R/W	Speed
ZZ	0000.00 – 9999.15	0000 – 9999	16Bit	W	Set current position to 0