# **CODESYS V2 Serial**

Supported version TOP Design Studio

V1.0 or higher



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

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Describes the cable specifications required for connection.

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



## 1. System configuration

The system configuration of TOP and "CoDeSys V2 Serial" is as follows:

Series	CPU	Communication method	Communication setting	Cable
CoDeSys V2	-	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.

elect Device				×
PLC select [COM1]				
Filter : [All]	$\sim$	:	Search :	
			Mode	l 🔿 Vendor
Vendor BONGSHIN LOADCELL	Model			
	CoDes	Sys V2 Series		
FANUC Co., Ltd.				
MINEBEA Co., Ltd.				
Azbil Corporation				
KORO TECHNOLOGY				
ROBOSTAR				
Ebmpapst	_			
CoDeSys Automation Alliance				
Ophir Optronics Solutions Ltd.				
SERVOMEX				
Tiger Optics, LLC				
B & R Automation				
Peripheral Device				
OTHERS Manufacture	*			
PLC Setting[ CoDeSys V2 Alias Name : PLC1	Series ]			
Interface : Serial	~			
Protocol : Level2	~		Co	mm Manual
String Save Mode : First LH	HL Change			
Use Redundancy				
Operate Condition : AND	~	0		
Change Condition : TimeOut				Edit
Primary Option				
Primary Option				
Timeout	A mood			
Timeout 300	msec			
Send Wait 0	msec			
Send Wait 0 Retry 5	msec			
Send Wait 0	msec			
Send Wait 0 Retry 5	msec			
Send Wait 0 Retry 5	msec			
Send Wait 0 Retry 5	msec			
Send Wait 0 Retry 5	msec			

Sett	tings	Contents				
ТОР	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 "CoDeSys Automation Alliance".				
	PLC	Select an external device to con	Select an external device to connect to TOP.			
		Model Interface Protocol				
		CoDeSys V2 Series Serial Level2				

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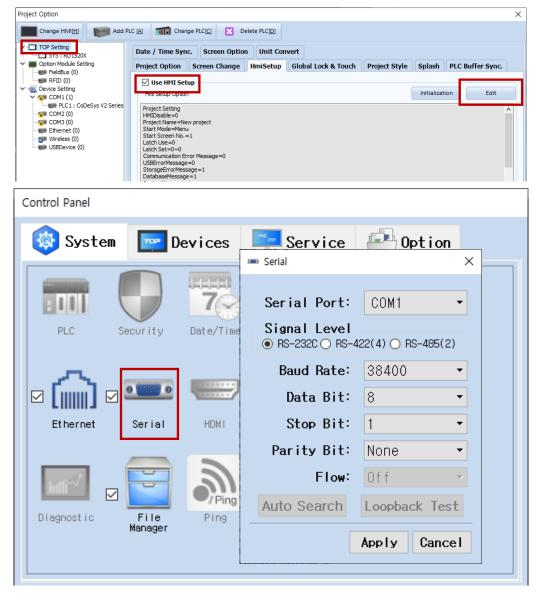
## 3. TOP communication setting

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	ТОР	External device	Remarks
Signal Level (port)	RS-2	232C	
Baud Rate	384		
Data Bit	8		
Stop Bit		I	
Parity Bit	NC	NE	

\*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.

#### External device connection manual for TOP Design Studio



#### (2) Communication option setting

- [ Project > Project Property > Device Setting > COM > "PLC1 : CoDeSys V2 Series"]
  - Set the options of the CoDeSys V2 Series communication driver in TOP Design Studio.

Project Option			×
Change HMI[H] Kald PLC [A]	Change PLC[C] Delete PLC[D]		
COM2 (0) COM3 (0) Coma (0)	I[ CoDeSys V2 Series ] as Name : [PLC1 Interface : Serial		omm Manual
< >>		Apply	Close

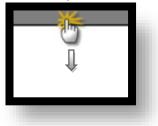
Items	Settings	Remarks
Interface	Select "Serial".	Refer to "2. External
Protocol	Select the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between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



#### 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]

	õ		Contro L Dono		rial	×	×	
Run VNC Viewer Screen shot	Ethernet	Devi Devi Security Date Serial H File P	Serial Po Signal Le • RS-232C C Baud Ra Data E Stop E Parity E Fla Auto Sear	ort: evel ) RS-4 ate: Bit: Bit: Bit: ow:	38400 8 1 None Off Loopback			
	[System]				Apply (	Close		
Toprx – Toprxo80	DOS				l	A 2021-0	08-31 05	:02:21 PW
Items		ТОР			Externa	al device		Remarks
Signal Level (port)			RS-23					
Baud Rate			3840	00				
Data Bit			8					
Stop Bit			1					

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

\* The above settings are setting <u>examples</u> recommended by the company.

Parity Bit

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.

NONE



### (2) Communication option setting

■ [Main Screen > Control Panel > PLC]

	õ	TUI	PLC		×	
Run VNC Viewer Screen shot	System     Image:	Send Wait Retry Motorola	PLC1(CoDeSys V2 Serial Level2 300 ♀ msec 0 ♀ msec 5 ♀ No ▼	Series) -		
	[System]	Diagnostic		L	Apply Cancel	
Toprx – Toprxo80	os			<b>A</b> 202	21-08-31 05:02:38 F	PM

Items	Settings	Remarks
Interface	Configure the communication interface between the TOP and an external device.	Refer to "2. External
Protocol	Configure the communication protocol between the TOP and an external device.	device selection".
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.	
Motorola Byteorder	Enable or disable Motorola Byteorder.	



#### **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.

ОК	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	How to connect the system		OK	NG	1. Containing from the	
configuration	Connection cable nam	OK	NG	1. System configuration		
ТОР	Version information	OK	NG			
	Port in use	OK	NG			
	Driver name	OK	NG			
	Other detailed setting	OK	NG			
	Relative prefix	Project setting	OK	NG		
		Communication diagnostics	ОК	NG	2. External device selection 3. Communication setting	
	Serial Parameter	Transmission Speed	ОК	NG		
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name	OK	NG			
	Communication port r	OK	NG			
	Protocol (mode)	OK	NG			
	Setup Prefix	OK	NG			
	Other detailed settings		OK	NG	A E translation of the	
	Serial Parameter	Transmission Speed	OK	NG	4. External device setting	
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range				6. Supported addresses	
			ОК	NG	(For details, please refer to the PLC vendor's manual.)	



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 "CoDeSys V2 Serial")

#### 5.1. Cable table

■ **RS-232C** (1:1 connection)

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

\*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.

Device	Bit Address	Word Address	32bit	Remarks
Input	IX0.00 – IX65535.15	IW0 – IW65535		
Output	QX0.00 – QX65535.15	QW0 – QW65535	L/H	
Marker	MX0.00 – MX65535.15	MW0 – MW65535		