OPTICON

Barcode Scanner

Ethernet Driver

V1.4.10.20 or higher

Supported version TOP Design Studio



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1. System configuration

The system configuration of TOP and "OPTICON – Barcode Scanner" is as follows:

Series	Interface	Communication method	System setting	Cable
NLV-□□□□	Serial To Ethernet Converter	RS-232C	3. TOP communication setting 4. External device setting	5. Cable table

■ Connectable configuration

• 1:1 connection





2. External device selection

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

PLC select [CO	M11					
Tither a fear				Course (
Filter : [Alij		\ \		Search : [Model	○ Vendor
Vendor		Model				
BACnet	^	• 🔗 ва	rcode Scanner			
S MECAPION						
HIGEN MOTOR Co., Ltd.						
EMOTIONTEK						
RKC Instrument Inc.						
HANYOUNG NUX						
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Sett	ings		Contents	
ТОР	Model	Select the TOP model.		
	Vendor	Select the vendor of the external device. Select "OPTICON".		
		Select the external device to be	e connected to the TOP.	
External device		Model	Interface	Protocol
Model	Model	Barcode Scanner	Serial	Checksum combine
		Please check the system config connect is a model whose syste	guration in Chapter 1 to see if em can be configured.	the external device you want to



3. TOP communication setting

The communication can be set in TOP Design Studio or TOP system menu.

3.1 Communication setting in TOP Design Studio

(1) Communication interface setting

■ [Project] → [Property] → [TOP Setting] → [HMI Setup] → [Use HMI Setup Check] → [Edit] → [System] → [Serial] - Set the TOP communication interface in TOP Design Studio.

Option Module Setting FieldBus (0)	Date / Time S Project Option	ync. Screen Option Screen Change H	Unit Convert niSetup Global Lock & Touch Pro	ject Style Splash	PLC Buffer Sync.
PETD (0) Device Setting PC1: Barcode Sc COM3 (0) Ethernet (0) USBDevice (0)	✓ Use HHI S Hmi Setup Op Hmi Setup Op Project Setting HMDisable=0 Project Name= Start Mode=M Start Screen N Latch Use=0 Latch Set=0-4 Communication USBErrorMess StorageErrorM DatabaseMess	New project enu o. =1) Error Message=0 ge=0 essage = 1 age=1		Initializa	tion Edit
🔯 Syste	em 📴 D	evices	Service	- Optio	n
PLC	Security	Date/Time	Serial Port: Signal Level	COM1	485(2)
Ethernet	Serial	номі	Baud Rate: Data Bit: Stop Bit:	9600 8 1	• •
infli ²⁷		Ping	Parity Bit: Flow: Auto Search	None Off Loopback	• • Test

Items	ТОР	External device	Remarks	
Signal Level	RS-232C	RS-232C		
Baud Rate	960	9600		
Data Bit	8			
Stop Bit	1			
Parity Bit	Nor	None.		

Items	Description
Signal Level	Select the serial communication method between the TOP and an external device. (COM3 supports
	only RS-485.)
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 Settings > COM1 > Barcode Scanner]
 - Set the options of the BACnet MS/TP communication driver in TOP Design Studio.

Project Option		×
Change HMI[H] Add P	A Change PLC(C) Delete PLC(D)	
 TOP Setting SYS : TOPRX1500X Option Module Setting FieldBus (0) RFID (0) Device Setting COM1 (1) PLC1 : Barcode Scanner COM2 (0) COM3 (0) Ethernet (0) 	PLC Setting[Barcode Scanner] Alias Name : PLC1 Interface : Serial Protocol : Checksum combine Use Redundancy Operate Condition : AND ~	Comm Manual
USBDevice (0)	Change Condition : TimeOut 5 ◆ (Second) Condition Condition Primary Option Imeout 2000 ♥ msec Send Wait 0 ♥ msec Retry 5 ♥ Trigger SYS ♥ 00000.00 ♥ ₱ ₱ ₱ ₱ OK SYS ♥ 00000.01 ♥ ₱ ₱ ₱ NG SYS ♥ 00000.02 ♥ ₱ ₱ ₱ TimeOut SYS ♥ 00000.03 ♥ ₱ ₱ ₱ Data SYS ♥ 00100 ♥ ₱ ₱ ₱ • Error Message I0 ♥	Words
	- Message Scan error - Destination Data Address Scan Error : Input a message from address - Message Image: SYS 00200	•
		Apply Close

* The above settings are examples recommended by the company.

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.	*Note 1)
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external	
	device and sending the next command request.	
Retry	Configures the number of attempts for data reception upon failure.	
Trigger	Configures the Bit address for executing barcode scan.	
Success	Configures the enabled Bit address upon successful barcode scan.	
Error	Configures the enabled Bit address upon failed barcode scan.	
Data	Configures the address and word length for entering barcode data.	

*Note 1) Configure it to be longer than the receive latency of the barcode scanner.



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 <u>drag</u> it down. Touch "EXIT" in the pop-up window to go to the main screen.



(1) Communication interface setting

 $\blacksquare [Control Panel] \rightarrow [System] \rightarrow [Serial]$



Items	ТОР	External device	Remarks	
Signal Level	RS-232C	RS-232C		
Baud Rate	960	0		
Data Bit	8			
Stop Bit	1	1		
Parity Bit	None.			
Items	Description			
Signal Level	Select the serial communication method k	between the TOP and an external device.	(COM3 supports	
	only RS-485.)			

	Uny 13-405.)
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

 $\blacksquare [Control Panel] \rightarrow [System] \rightarrow [PLC]$

	1001	PLC	×
Run 🛛 🥸 Syst	e Driver(COM1)	PLC1(Barcode Scanner) 🗸	
	Interface	Serial 💌	_
	Protocol	Checksum combine 💌	
	Timeout	2000 🖨 msec	
	Send Wait	0 🖨 msec	
	Retry	5	
Et hernet	Trigger	SYS:00000.00:1:16:DEC:R	
	OK	SYS:00000.01:1:1:DEC:W	
creen her	NG	SYS:00000.02:1:1:DEC:W	
	TimeOut	SYS:00000.03:1:1:DEC:W	
	Data	SYS: 00100: 16: 16: DEC: RW	10 🖨 Words 🗸
	•		
[Syster	n] Diagnostic	c	Apply Cancel

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.	*Note 1)
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external	
	device and sending the next command request.	
Retry	Configures the number of attempts for data reception upon failure.	
Trigger	Configures the Bit address for executing barcode scan.	
Success	Configures the enabled Bit address upon successful barcode scan.	
Error	Configures the enabled Bit address upon failed barcode scan.	
Data	Configures the address and word length for entering barcode data.	

*Note 1) Configure it to be longer than the receive latency of the barcode scanner.



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 that the settings of the connected ports in [Control Panel] \rightarrow [System] \rightarrow [Serial] are the same as the settings of the external device.

- Diagnosis of whether the port communication is normal or not
- Touch "Communication Diagnostics" in [Control Panel] \rightarrow [System] \rightarrow [PLC].
- Check whether communication is connected or not.

Communication	Communication setting normal
diagnostics	
succeeded	
Error message	Communication setting abnormal
	- Check the cable, TOP, and external device settings. (Refer to 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 Cretem configuration		
configuration	Cable		OK	NG	1. System configuration		
ТОР	Version		OK	NG			
	Communication port		OK	NG			
	Communication driver and protocol		OK	NG			
	Other detailed settings		OK	NG			
	Relative prefix	Project setting	OK	NG			
		Communication	01/	NG	2. External device selection		
		diagnostics	ŬK		3. Communication setting		
	Serial Parameter	Transmission	OK	NG			
		Speed	ŬK				
		Data Bit	OK	NG			
		Stop Bit	OK	NG			
		Parity Bit	OK	NG			
External device	CPU		OK	NG			
	Communication port		OK	NG			
	Protocol		OK	NG			
	Setup Prefix		OK	NG			
	Other detailed settings		OK	NG	4. External device setting		
	Serial Parameter	Transmission	OK NG	NC	4. External device setting		
		Speed		K NG			
		Data Bit	OK	NG			
		Stop Bit	OK	NG			
		Parity Bit	OK	NG			



4. External device setting

Configure the IP and port number of the external device by referring to the vendor's user manual.

Scan the following barcodes in order.

Reset barcode scanner



Data format settings



* Data format

	Α	В	С
Part	Data size (Length)	Code data	Checksum
Length	2 bytes	N bytes	2 bytes
Description	Length of (A+B+C)	Code data	Exclusive OR of (A+B)
Description	Hex number	(Read result)	Hex number



5. Cable table

This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device. (The cable diagrams in this section may differ from the external device vendor's recommendations.)

■ RS-232C (1:1 connection)

TOP-R(X) (COM1)				External device		
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)
1 5		1		1		1 5
(° °)	RD	2		2	RD	(° °)
	SD	3		3	SD	6 9
Based on		4		4		Based on
communication	SG	5		5	SG	communication
cable connector		6		6		cable connector
front,	+5V	7		7		front,
D-SUB 9 Pin male	GND	8		8	GND	D-SUB 9 Pin male
(male, convex)		9		9	+5V	(male, convex)

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