TOSHIBA

T Series, V Series

COMPUTER LINK 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

The system configuration of TOP and "TOSHIBA Computer Link" is as follows:

Series	CPU	Communication method	Communication setting	Cable
T Series	T2E	RS-232C	3. TOP communication setting 4. External device setting	5.1. Cable table
		RS-422		
	T2N	RS-232C		
		RS-422		
	T3/T3H	RS-422		
V Series	S2T/S2E	RS-232C		
		RS-422		

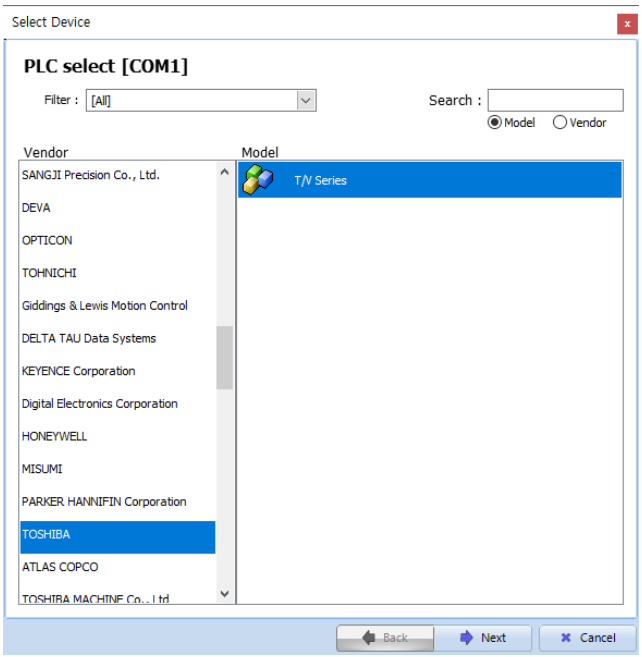
■ Connection configuration

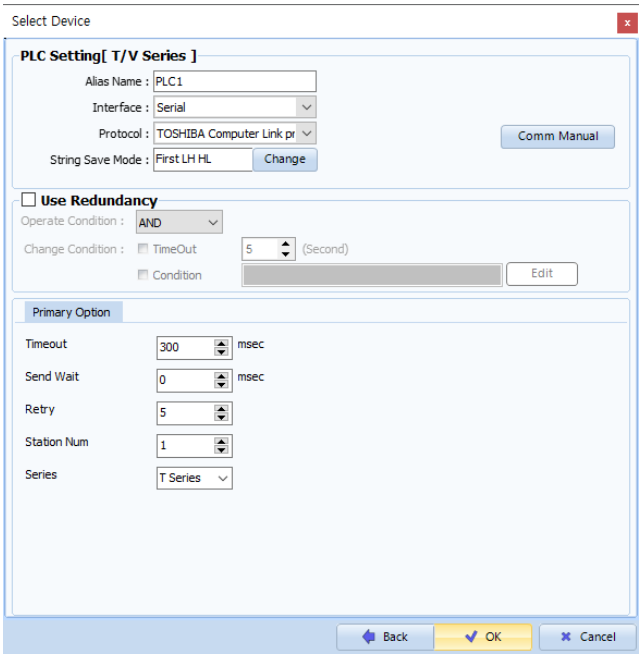
• 1:1 (one TOP and one external device) connection

• 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. Select "Toshiba".
	PLC	Select an external device to connect to TOP.

Model	Interface	Protocol
TOSHIBA Computer Link	Serial	TOSHIBA Computer Link protocol

3. TOP communication setting

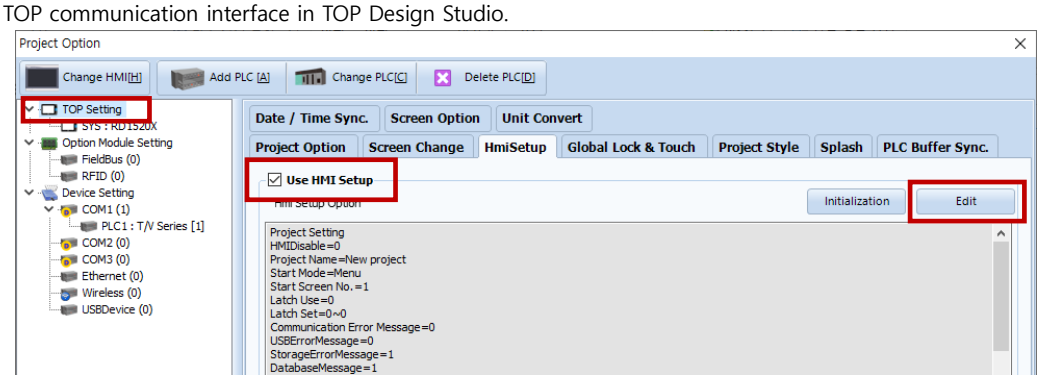
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

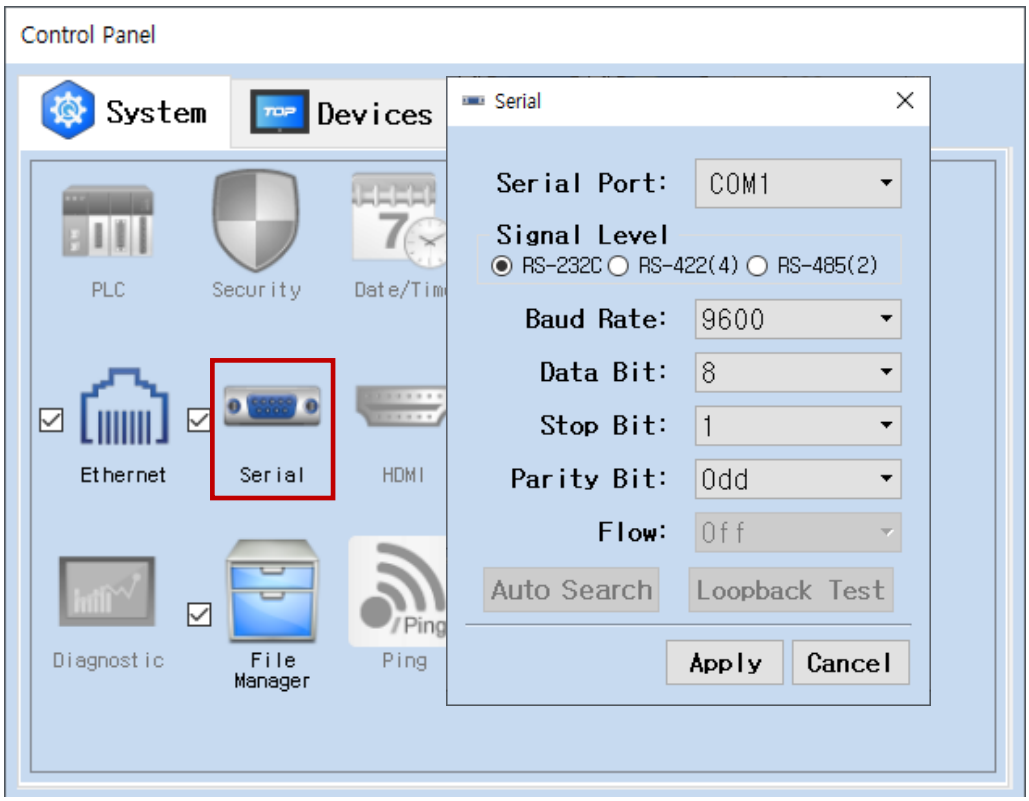
3.1 Communication setting in TOP Design Studio

(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)	RS-232C RS422		
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	Odd		

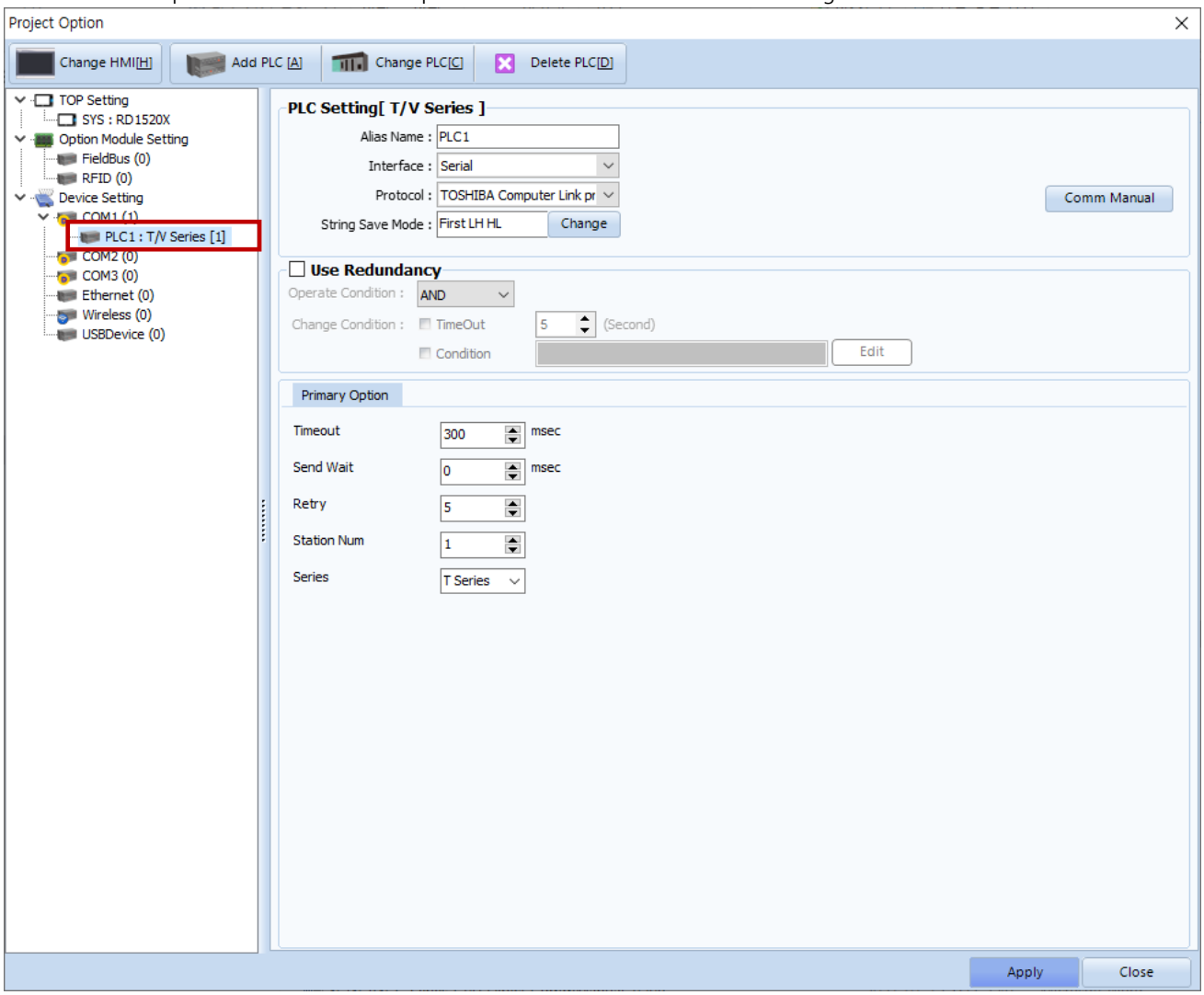
* The above settings are examples recommended by the company.

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 : TOSHIBA Computer Link"]

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

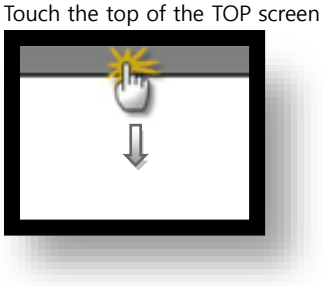


Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External device selection".
Protocol	Select the communication protocol between the TOP and an external device.	
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Station No	Enter the prefix of an external device.	
Series	Select T,V Series. (Device address change)	

3.2. Communication setting in TOP

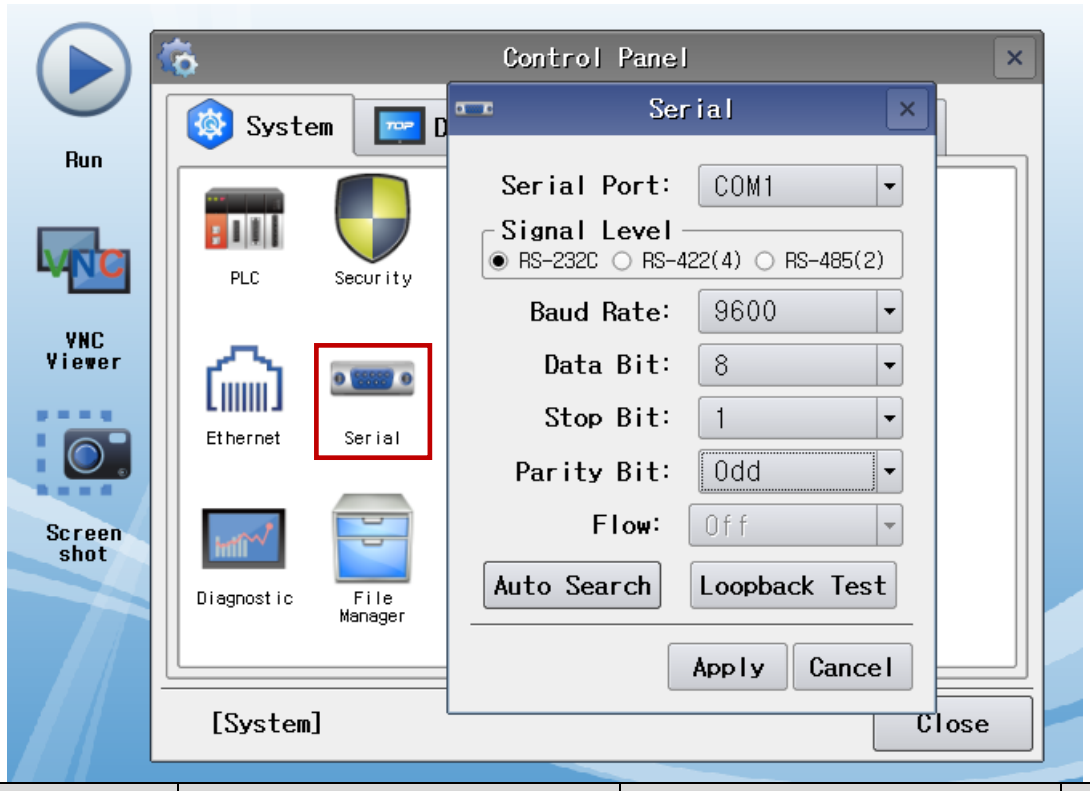
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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]



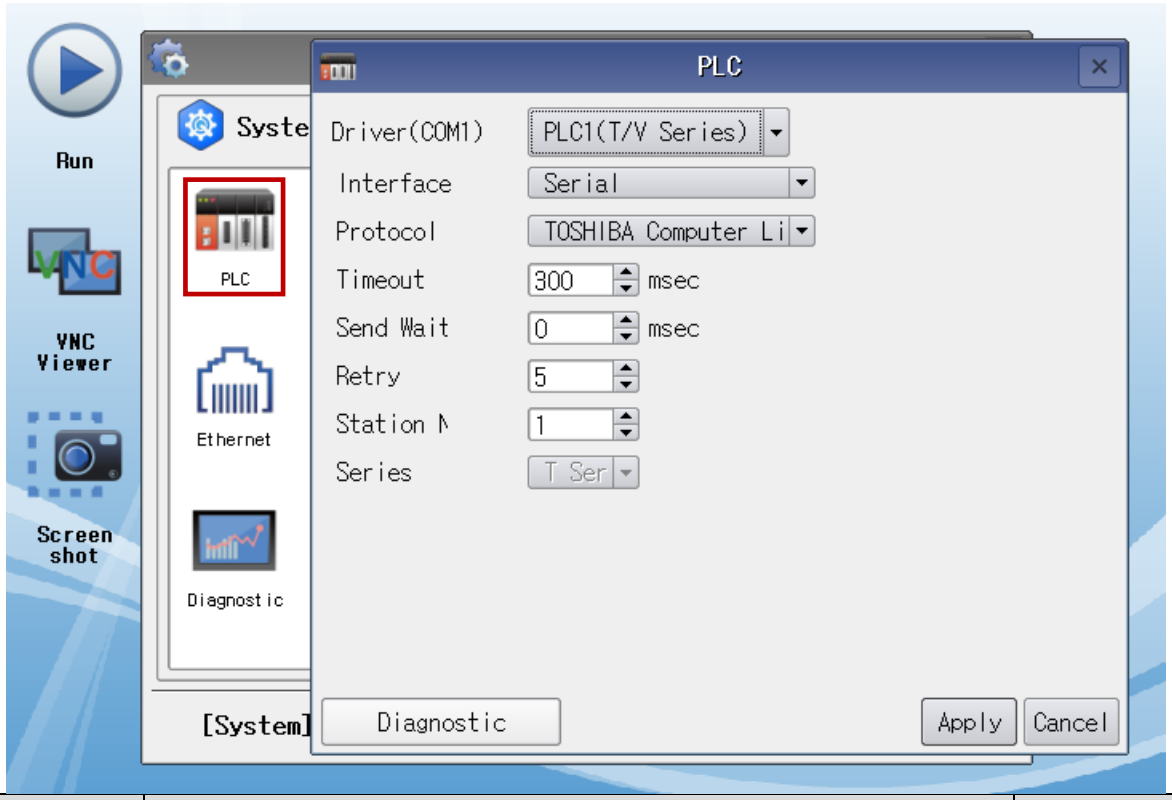
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C RS-485		
Baud Rate	9600		
Data Bit	8		
Stop Bit	1		
Parity Bit	Odd		

* 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.	
Station No	Enter the prefix of an external device.	
Series	Select T,V Series. (Device address change)	

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.

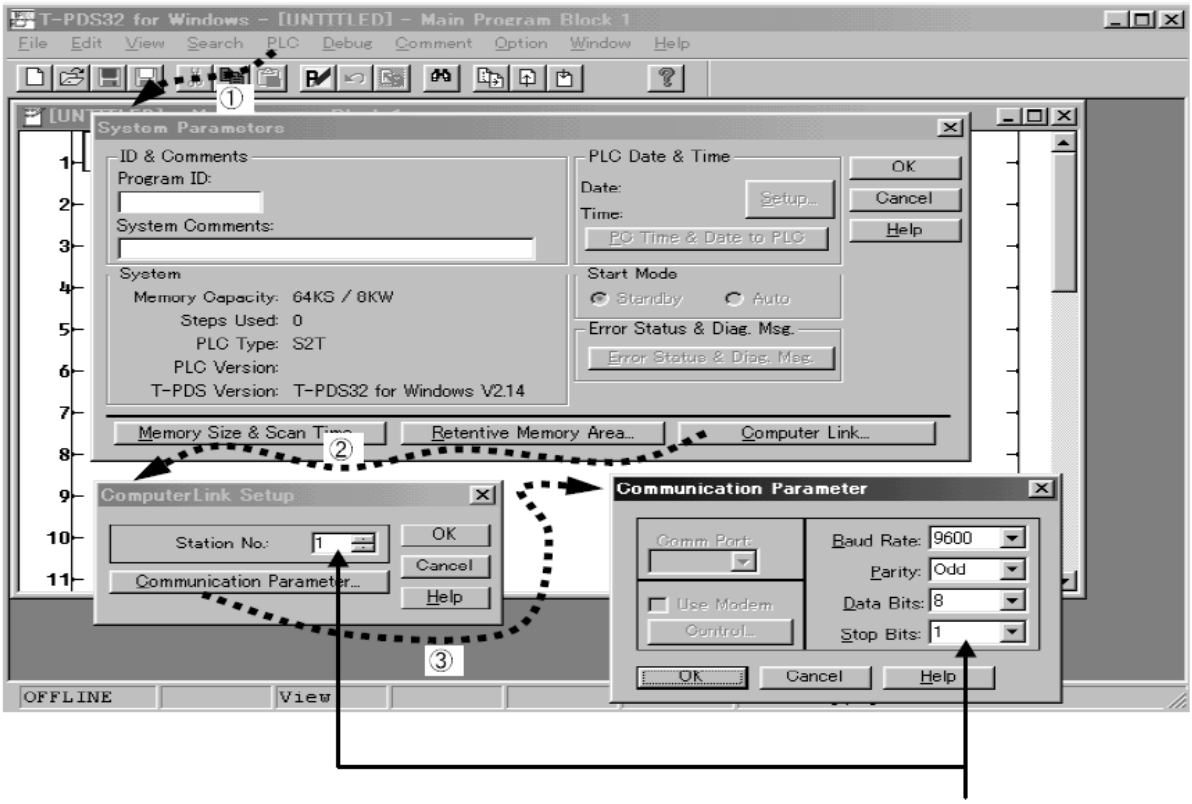
Items	Contents		Check		Remarks
System configuration	How to connect the system		OK	NG	1. System configuration
	Connection cable name		OK	NG	
TOP	Version information		OK	NG	2. External device selection 3. Communication setting
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		OK	NG	
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

Set as below using T Series and V Series Software "**T-PDS32**". For more detailed setting method than that described in this example, please refer to the PLC user manual.

*Programmer port of RS232C is fixed at [Baud Rate:9600bps, Data Bits:8, Stop Bits:1, Parity:odd].

- RS485 device setting



1. From the menu tab, go to [PLC]-> Click [System Parameter]

2. Click [Communication Parameter] at the bottom of [System Parameter]

3. Configure Station No at [ComputerLink Setup], and click [Communication Parameter]

4. From the [Communication Parameter] window, configure to the desired settings.

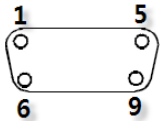
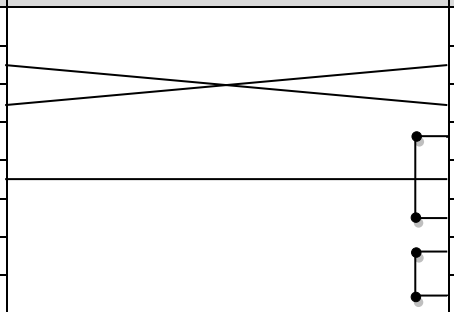
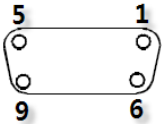
*If the V Series Model T-PDS32 is not supported, refer to the PLC manual for details on configuration.

5. Cable table

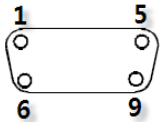
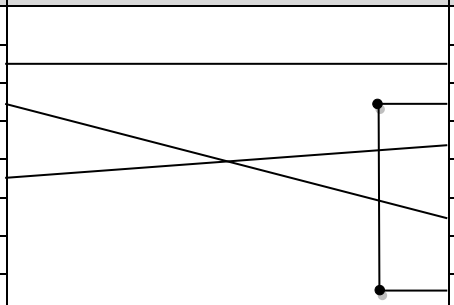
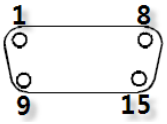
This chapter introduces a cable diagram for normal communication between the TOP and the corresponding device.
(The cable diagram described in this section may differ from the recommendations of "Toshiba")

5.1. Cable table

■ **RS-232C** (1:1 connection)

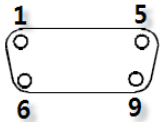
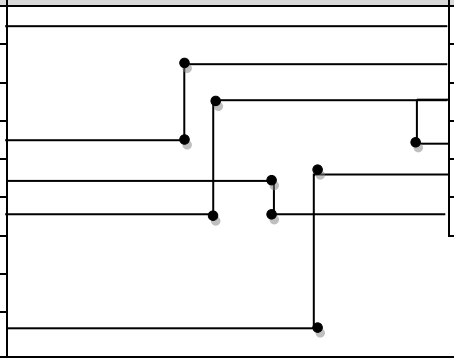
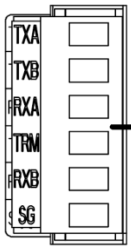
TOP			Cable connection	PLC		
Pin arrangement*Note 1)	Signal name	Pin number		Pin number	Signal name	Pin arrangement*Note 1)
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	CD	1		1	CD	 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)
	RD	2		2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

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

TOP			Cable connection	PLC		
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)	CD	1				 Based on communication cable connector front, D-SUB 9 Pin female (female, convex)
	RD	2		5	TXD	
	SD	3		6	RTS	
	DTR	4		7	SG	
	SG	5				
	DSR	6		12	RXD	
	RTS	7				
	CTS	8		14	CTS	
		9				

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

■ **RS-422** (1:1 connection)

TOP			Cable connection	PLC	
Pin arrangement*Note 1)	Signal name	Pin number		Signal name	
 Based on communication cable connector front, D-SUB 9 Pin male (male, convex)	RDA	1		TXA	
		2		TXB	
		3		RXA	
	RDB	4		TERM	
	SG	5		RXB	
	SDA	6		SG	
		7			
		8			
	SDB	9			

*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.

6.1 T Series

Description	Device	Bit Address	Word Address	32 bits	Remarks
Input	XW	000000 ~ 00511F	00000 ~ 00511	L / H*1	
Output	YW	000000 ~ 00511F	00000 ~ 00511		
Auxiliary Relay	RW	000000 ~ 00999F	00000 ~ 00999		
Special Relay	SW	000000 ~ 00255F	00000 ~ 00255		
Link Relay	LW	000000 ~ 00255F	00000 ~ 00255		
Timer Register	T	-	00000 ~ 00999		
Timer Device	T.	00000 ~ 00999	-		
Counter Register	C	-	00000 ~ 00511		
Counter Device	C.	00000 ~ 00511	-		
Link Register Relay	Z	000000 ~ 00999F	-		
Data Register	D	00000.0 ~ 08191.15	00000 ~ 08191		
Link Register	W	00000.0 ~ 02047.15	00000 ~ 02047		
File Register	F	00000.0 ~ 32767.15	00000 ~ 32767		

6.2 V Series

Description	Device	Bit Address	Word Address	32 bits	Remarks
I Variable	IW	000000 ~ 08191F	00000 ~ 08191	L / H*1	
Q Variable	QW	000000 ~ 08191F	00000 ~ 08191		
System	SW	000000 ~ 00511F	00000 ~ 00511		
Data	DW	00000.0 ~ 04095.15	00000 ~ 04095		
Data	RW	000000 ~ 04095F	00000 ~ 04095		
User Register	F	00000.0 ~ 32767.15	00000 ~ 32767		

*Note 1) The lower 16 BIT data of 32 BIT data is saved in the address whose screen has been registered, and the upper 16 BIT data is saved in the address next to the address whose screen has been registered.

Ex. When saving 32BIT data hexadecimal data 12345678 in address D00100, it is saved to 16BIT device address as follows:

Items	32BIT	16BIT	
Address	D00100	D00100	D00101
Input data (hexadecimal)	12345678	5678	1234