SCHNEIDER Electric Industries

UNI-TELWAY Driver

Supported version TOP Design Studio V1.4.3 or higher

CONTENTS

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

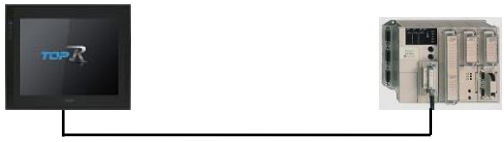
1. System configuration

The system configuration of TOP and "Schneider Electric Industries – UNI-TELWAY" is as follows:

Series	CPU	Link I/F	Communication method	Communication setting	Cable
Premium	TSX/TPMX P57 1□ TSX/TPMX P57 2□ TSX/TPMX P57 3□ TSX/TPMX P57 4□	TER Port on CPU unit	RS-232C	3. TOP communication setting 4. External device setting	5. Cable table
			RS–485 (2 wire)		
		AUX Port on CPU unit	RS–485 (2 wire)		
		"TSX P ACC 01" unit AUX/TER Port	RS–485 (2 wire)		
		"TSX SCA 62" Connection unit	RS–485 (2 wire)		
		"TSX SCY 21601" Communication module	RS–485 (2 wire)		
Micro	TSX 37 05 028 DR1 TSX 37 08 056 DR1 TSX 37 10 028 AR1 TSX 37 10 028 DR1 TSX 37 10 128 DR1 TSX 37 10 128 DT1 TSX 37 10 128 DTK1 TSX 37 10 164 DTK1 TSX 37 21 101 TSX 37 22 101 TSX 37 21 001 TSX 37 22 001	TER Port on CPU unit	RS-232C		
			RS–485 (2 wire)		
		AUX Port on CPU unit	RS–485 (2 wire)		
		"TSX P ACC 01" unit AUX/TER Port	RS–485 (2 wire)		
		TSX SCA 62	RS–485 (2 wire)		
Nano	TSX 07 3L □□28 TSX 07 30 10□□ TSX 07 31 16□□ TSX 07 31 24□□ TSX 07 32 □□28 TSX 07 33 □□28	Programming port on CPU unit	RS-232C		
			RS-485 (2 wire)		
		"TSX P ACC 01" unit AUX/TER Port	RS–485 (2 wire)		
		TSX SCA 62	RS–485 (2 wire)		

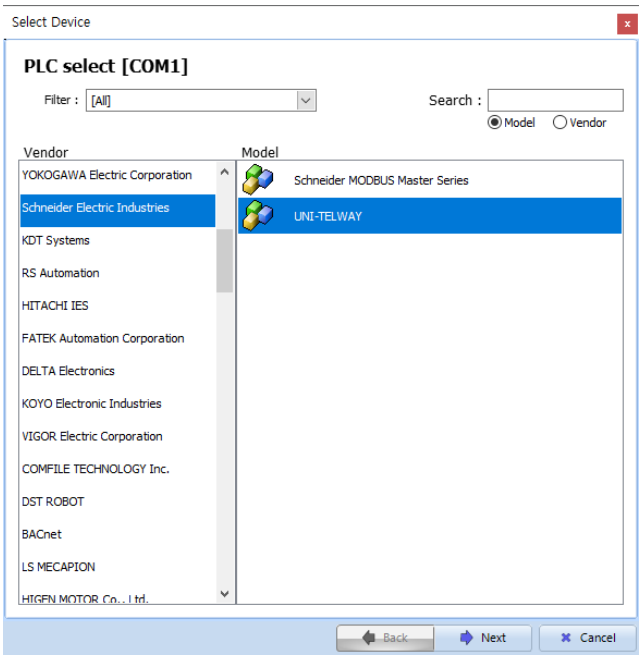
■ Connection configuration

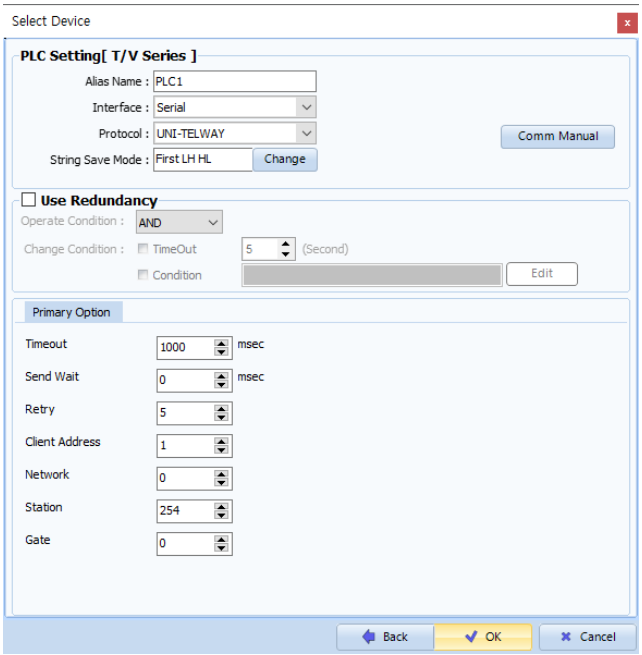
・1:1 (one TOP and one external device) connection



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. Please select “Schneider Electric Industries”.
	PLC	Select an external device to connect to TOP.

Model	Interface	Protocol
UNI-TELWAL	Serial	UNI-TELWAY

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.

3. TOP communication setting

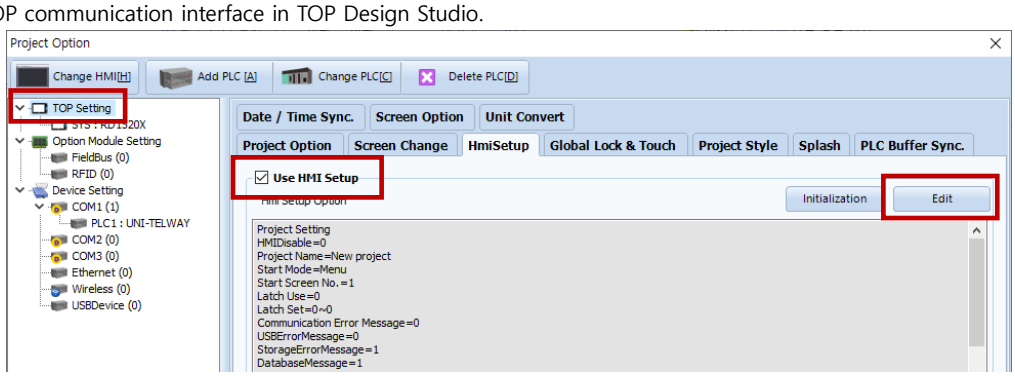
The communication can be set in TOP Design Studio or TOP main menu. The communication should be set in the same way as that of the external device.

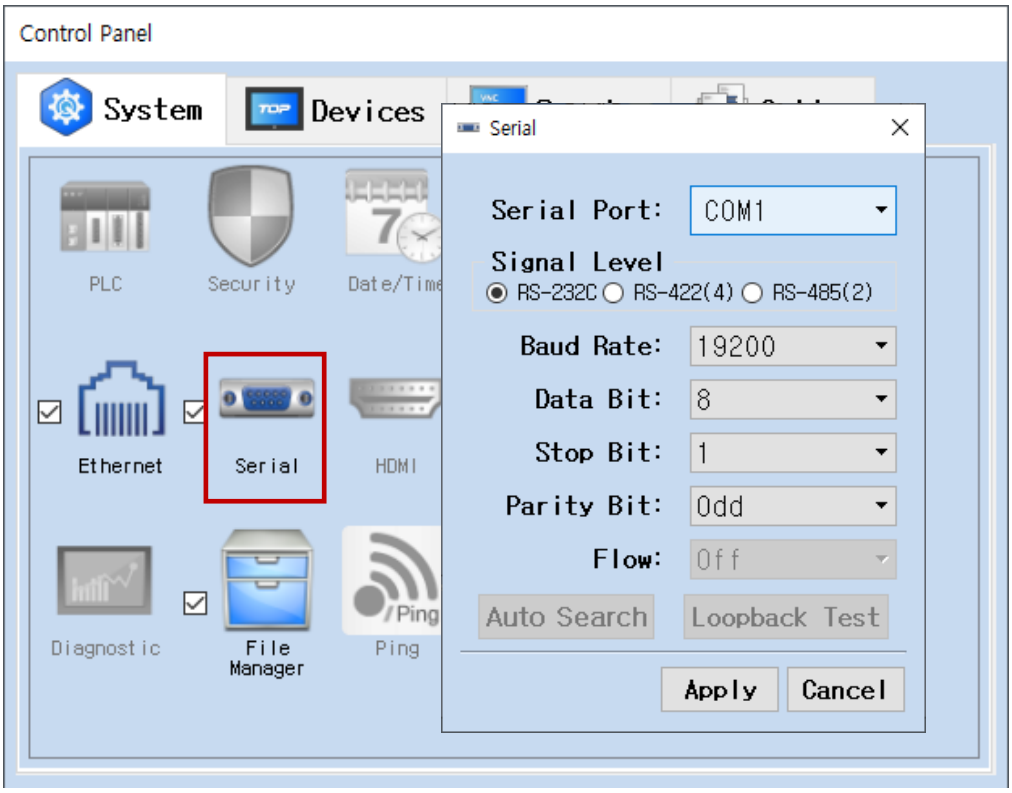
3.1 Communication setting in TOP Design Studio

(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 RS-485		
Baud Rate	19200		
Data Bit	8		
Stop Bit	1		
Parity Bit	Odd		

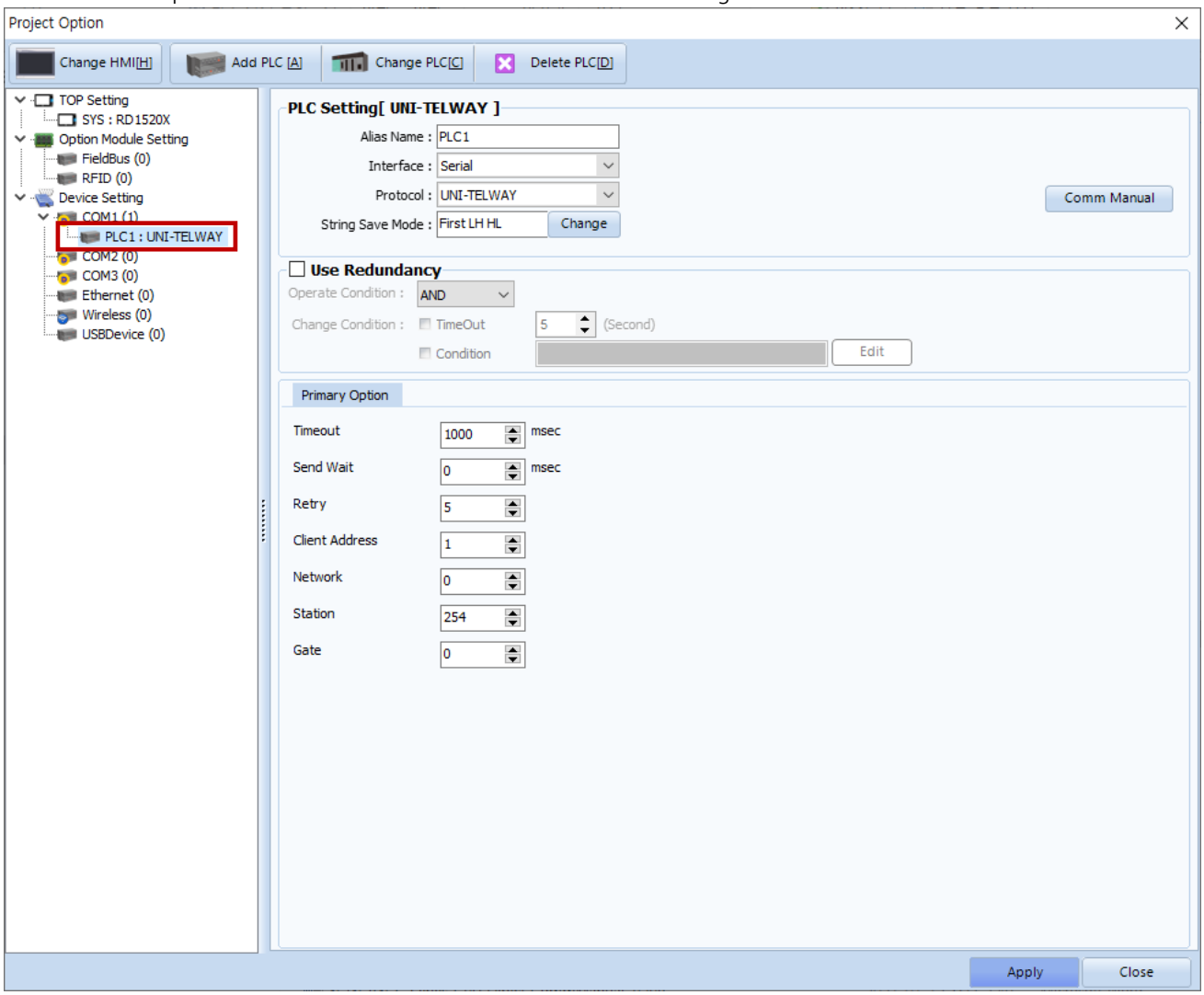
* The above settings are examples recommended by the company.

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 : UNI-TELWAY"]

– Set the options of the UNI-TELWAY communication driver in TOP Design Studio.

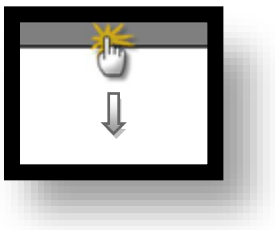


Items	Settings	Remarks
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and sending the next command request.	
Retry	Configures the number of attempts for data request.	
Client Address	Sets the prefix for which the TOP operates.	
Network	Enters the network number of the external device	
Station	Enters the station number of the external device.	
Gate	Enters the gate number of the external device.	

3.2. Communication setting in TOP

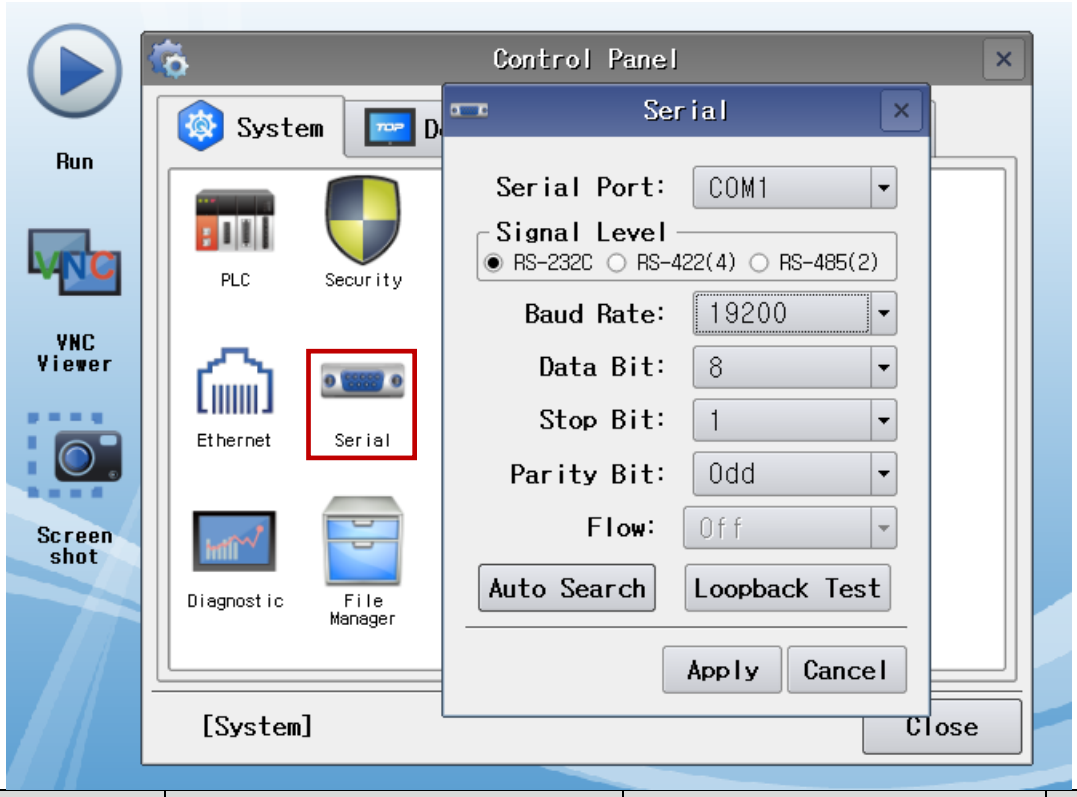
*** This is a setting method when "Use HMI Setup" in the setting items in "3.1 TOP Design Studio" is not checked.**

■ 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]



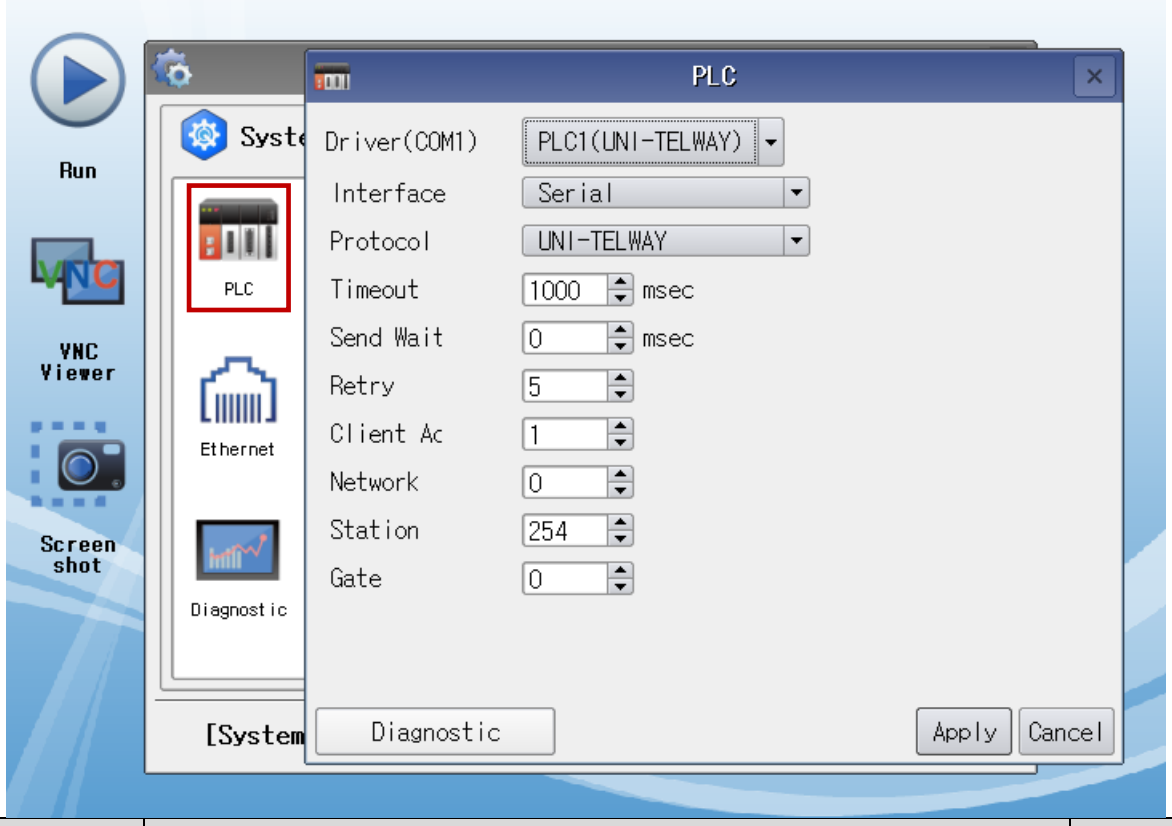
Items	TOP	External device	Remarks
Signal Level (port)	RS-232C RS-485		
Baud Rate	19200		
Data Bit	8		
Stop Bit	1		
Parity Bit	Odd		

* 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
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	Configures the number of attempts for data request.	
Client Address	Sets the prefix for which the TOP operates.	
Network	Enters the network number of the external device	
Station	Enters the station number of the external device.	
Gate	Enters the gate number of the external device.	

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

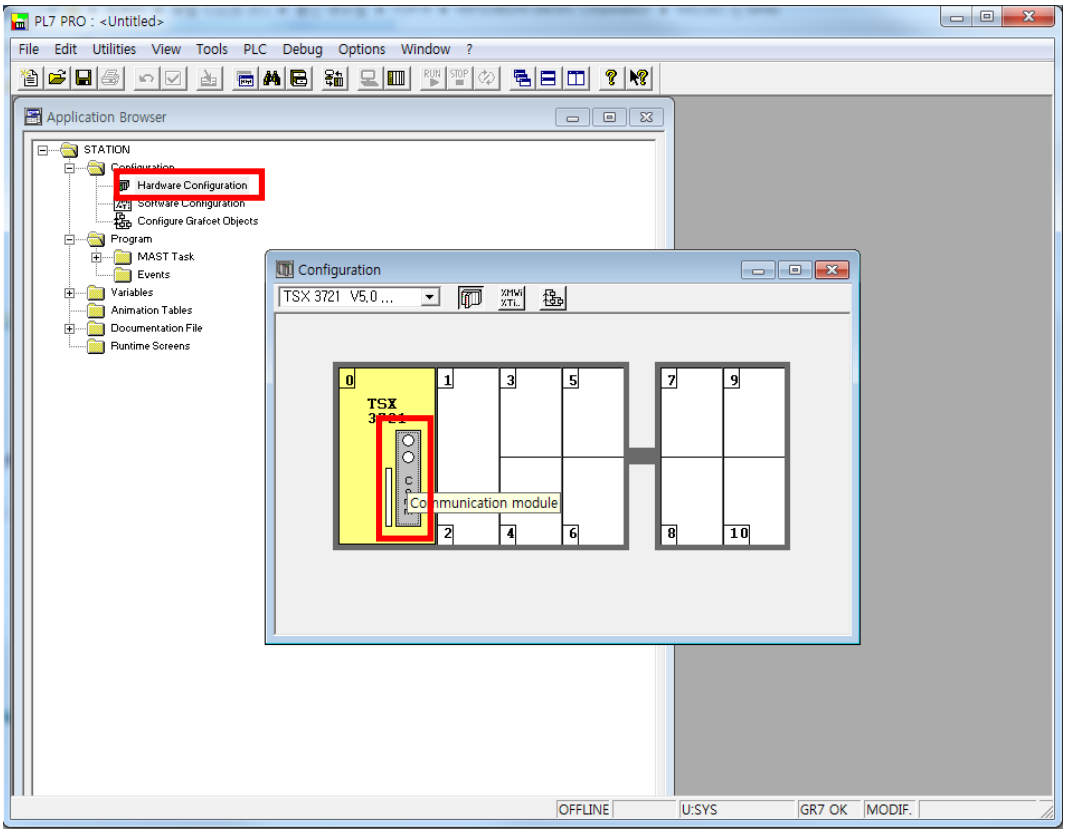
- If there is a problem with the communication connection with an external terminal, please check the settings in the sheet below.

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.)

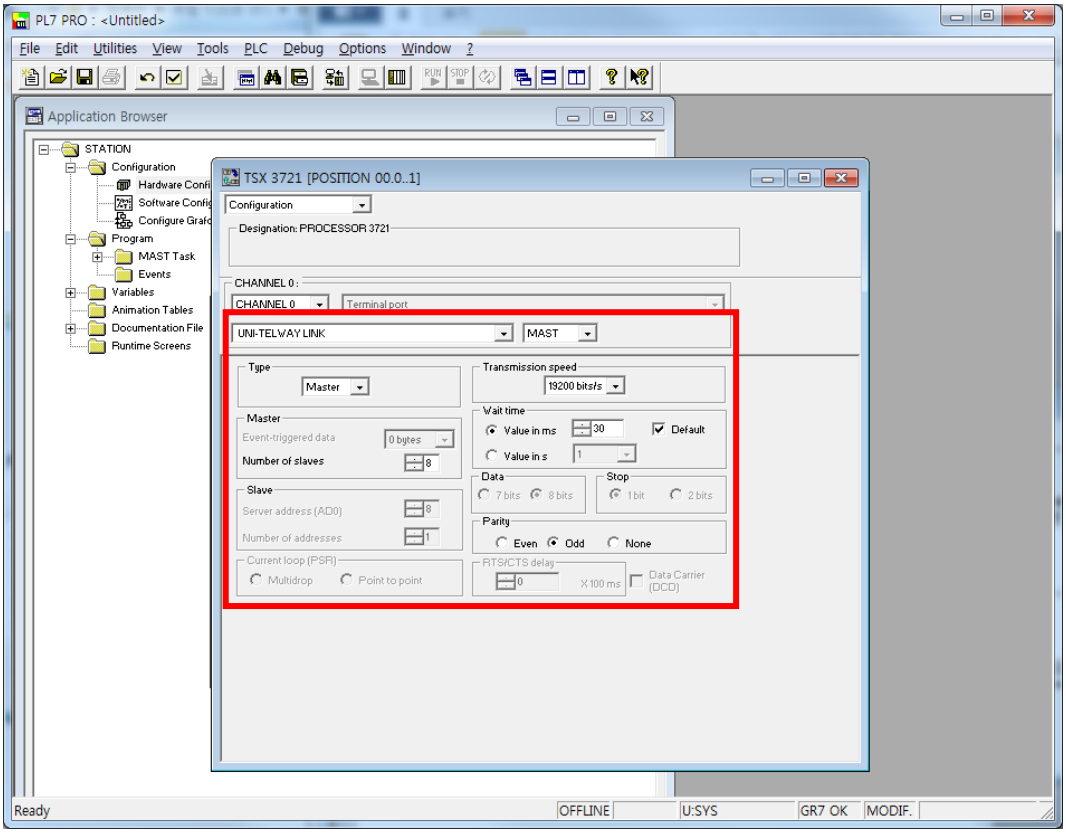
4. External device setting

Using the PLC software "PL7" of Schneider Electric Industries, configure as shown in the example below.
Refer to the user manual of the manufacturer for more details than those provided in this example.

Step 1. Open "Hardware Configuration" to load the configuration of the connecting port (module).



Step 2. Refer to the image below to configure the settings required for communication.



Set up items	Value
Protocol	UNI-TELWAY LINK
Type	Master
Transmission speed	19200 bps/s
Data	8 bits
Stop	1 bit
Parity	Odd
Number of slaves	8

*** Caution**

Communication will not occur if the client address is greater than the number of slaves in the TOP communication options.

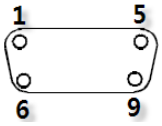
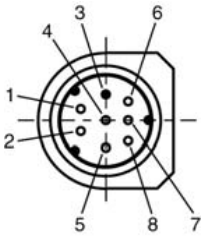
5. Cable table

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 "Schneider Electric Industries")

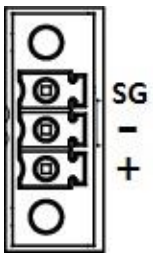
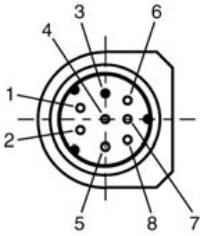
■ **RS-232C** (1:1 connection, COM1/COM2)

TSX PCX 1031 (2.5m) (Rotary switch : TER Direct)	

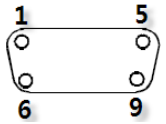
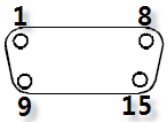
■ **RS-485** (1:1 connection)

TOP			Cable connection	External device		
Pin arrangement	Signal name	Pin number		Pin number	Signal name	Pin arrangement
 Connector front Male 9 pin D-SUB (Male, convex)	RDA	1		1	D (B)	 Connector front Male 8 pin mini DI (Male, convex)
		2		2	D (A)	
		3		3	-	
	RDB	4		4	/DE	
	SG	5		5	DPT	
	SDA	6		6	-	
		7		7	SG	
		8		8	VCC (5V)	
	SDB	9				

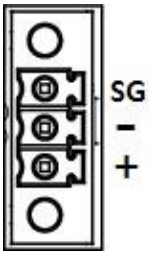
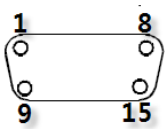
■ **RS-485** (1:1 connection)

TOP		Cable connection	External device		
Pin arrangement	Signal name		Pin number	Signal name	Pin arrangement
	+		1	D (B)	 Based on connector front Male 8 pin mini DI (Male, convex)
	-		2	D (A)	
	SG		3	-	
			4	/DE	
			5	DPT	
			6	-	
			7	SG	
			8	VCC (5V)	

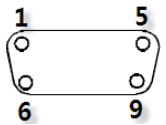
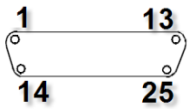
■ **RS-485** (1:1 connection)

TOP			Cable connection	External device		
Pin arrangement	Signal name	Pin number		Pin number	Signal name	Pin arrangement
 Connector front Male 9 pin D-SUB (Male, convex)	RDA	1		14	D(B)	 Connector front Male 15 pin D-SUB (Male, convex)
		2		7	D(A)	
		3		15	SG	
	RDB	4				
	SG	5				
	SDA	6				
		7				
		8				
	SDB	9				

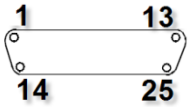
■ **RS-485** (1:1 connection)

TOP		Cable connection	External device		
Pin arrangement	Signal name		Pin number	Signal name	Pin arrangement
	+		14	D(B)	 Connector front Male 15 pin D-SUB (Male, convex)
	-		7	D(A)	
	SG		15	SG	

■ **RS-485** (1:1 connection)

TOP			Cable connection	External device		
Pin arrangement	Signal name	Pin number		Pin number	Signal name	Pin arrangement
 Connector front Male 9 pin D-SUB (Male, convex)	RDA	1		19	D(B)	 Connector front Male 25 pin D-SUB (Male, convex)
		2		12	D(A)	
		3		25	SG	
	RDB	4				
	SG	5				
	SDA	6				
		7				
		8				
	SDB	9				

■ **RS-485** (1:1 connection)

TOP		Cable connection	External device		
Pin arrangement	Signal name		Pin number	Signal name	Pin arrangement
	+		19	D(B)	 Connector front Male 25 pin D-SUB (Male, convex)
	-		12	D(A)	
	SG		25	SG	

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	Word	Size	Remarks
Internal Data Bit		M00000 ~ M32767	-	1 bit	
Internal Data Word		MW00000.00 ~ MW32767.15	MW00000 ~ MW32767	16 bit	
Internal Data Dword		MD00000.00 ~ MW32767.31	MD00000 ~ MD32767	32 bit	
Constant Data Word		KW00000.00 ~ KW32767.15	KW00000 ~ KW32767	16 bit	Read-only
Constant Data Dword		KD00000.00 ~ KD32767.15	KD00000 ~ KD32767	32 bit	Read-only
System Data Bit		S00000 ~ S32767	-	1 bit	
System Data Word		SW00000.00 ~ SW32767.15	SW00000 ~ SW32767	16 bit	
System Data Dword		SD00000.00 ~ SD32767.31	SD00000 ~ SD32767	32 bit	
PL7 Timer	Timer type (PL7)	-	T1:000 ~ T1:255	8 bit	Read-only
	Preset type	-	T2:000 ~ T2:255	8 bit	Read-only
	Preset value	-	T3:000 ~ T3:255	16 bit	
	Value	-	T4:000 ~ T4:255	16 bit	
	Time base	-	T5:000 ~ T5:255	8 bit	Read-only
	(Type PL7)	-	T6:000 ~ T6:255	8 bit	Read-only
	R output	-	T7:000 ~ T7:255	8 bit	Read-only
IEC Timer	Timer type (TP, TON, TOF)		TM1:000 ~ TM1:255	8 bit	Read-only
	Preset type		TM2:000 ~ TM2:255	8 bit	Read-only
	Preset value		TM3:000 ~ TM3:255	16 bit	
	Value		TM4:000 ~ TM4:255	16 bit	
	Time base		TM5:000 ~ TM5:255	8 bit	Read-only
	(Type = TP, TON, TOF)		TM6:000 ~ TM6:255	8 bit	Read-only
Counter	Preset type		C1:000 ~ C1:255	8 bit	Read-only
	Preset value		C2:000 ~ C2:255	16 bit	
	Value		C3:000 ~ C3:255	16 bit	
	Sortie E		C4:000 ~ C4:255	8 bit	Read-only
	D output		C5:000 ~ C5:255	8 bit	Read-only
	F output		C6:000 ~ C6:255	8 bit	Read-only
Drum controller	Time base		DR1:000 ~ DR1:255	8 bit	Read-only
	Activity time		DR2:000 ~ DR2:255	16 bit	Read-only
	Number of steps		DR3:000 ~ DR3:255	16 bit	Read-only
	Number of current step		DR4:000 ~ DR4:255	16 bit	Read-only
	Status of current step		DR5:000 ~ DR5:255	16 bit	Read-only
	F output		DR6:000 ~ DR6:255	8 bit	Read-only
	F status table		DR7:000 ~ DR7:255	16 bit	Read-only
Monostable	Preset type		MN1:000 ~ MN1:255	8 bit	Read-only
	Preset value		MN2:000 ~ MN2:255	16 bit	
	Value		MN3:000 ~ MN3:255	16 bit	
	Time base		MN4:000 ~ MN4:255	8 bit	Read-only
	R output		MN5:000 ~ MN5:255	8 bit	Read-only
Register	Register type		R1:000 ~ R1:255	8 bit	Read-only
	Register length		R2:000 ~ R2:255	16 bit	Read-only
	Input value		R3:000 ~ R3:255	16 bit	
	Output value		R4:000 ~ R4:255	16 bit	Read-only
	E output		R5:000 ~ R5:255	8 bit	Read-only
	F output		R6:000 ~ R6:255	8 bit	Read-only