SCHNEIDER Electric Industries

UNI-TELWAY Driver

Supported version

TOP Design Studio V1.4.3 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 "Schneider Electric Industries – UNI-TELWAY" is as follows:

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

Connection configuration

 \cdot 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.

	_						
PLC select [CO)M1]						
Filter: [All]			\sim		Search :		Manadan
Vondor		Model			0	Model ()	vendor
YOKOGAWA Electric Cor	poration ^		Schneider M	DDBUS Maste	r Series		
Schneider Electric Indus	tries		UNITELWA	,			
(DT Systems			UNITIELWA				
RS Automation							
HITACHI IES	- 1						
FATEK Automation Corp	oration						
OFLITA Electronics							
(OYO Electronic Industr	ies						
VIGOR Electric Corporat	ion						
	Inc						
BACnat							
S MECADION							
-S MECAPION							
HIGEN MOTOR Co I m.					_		
PLC Setting[T/V S Alias Name :	Series]						
Interface	Serial		\sim				
Protocol	UNI-TELWAY		\sim		(Comm M	lanual
Christen Course March	 Einst I H HI 	Char	nge				
string save Mode							
Use Redundanc	у						
Use Redundance Operate Condition :	ND V	5	(Second)				
Use Redundanc Derate Condition : A Change Condition :	₩ WD ✓ TimeOut Condition	5	(Second)			Edit	
Use Redundance Derate Condition : A Change Condition :	ND V TimeOut Condition	5	(Second)			Edit	
Soring Save Mode : Use Redundance Operate Condition : A Change Condition : Primary Option Timeout	ND V TimeOut Condition	5	(Second)			Edit	
Use Redundance Operate Condition : A Change Condition : Primary Option Timeout Send Wait	y ND ✓ TimeOut 1 Condition	5	(Second)			Edit	
Vise Redundance Use Redundance Operate Condition : A Change Condition : Primary Option Timeout Send Wait Retry	Y ND ✓ I TimeOut I Condition	5 ¢	(Second)			Edit	
Vise Redundance Deperate Condition : A Change Condition : P Primary Option Timeout Send Wait Retry Client Address	y ND ✓ 1 TimeOut 1000 € 5 €	5 msec	: (Second)			Edit	
Vise Redundance Operate Condition : A Change Condition : Primary Option Timeout Send Wait Retry Client Address Network	y ND ✓ 1 TimeOut 10000 € 5 € 1 €	5 ¢	: (Second)		_	Edit	
Suring Save Mode : Use Redundance Operate Condition : A Change Condition : Primary Option Timeout Send Wait Retry Client Address Network Station	ND ✓ 1 TimeOut Condition 1000 ♥ 5 ♥ 1 ♥ 254 ♥	5 \$] msec] msec	. (Second)			Edit	
Use Redundance Operate Condition : A Change Condition : P Primary Option Timeout Send Wait Retry Client Address Network Station Gate	I TimeOut 1 TimeOut 1 Condition 0 5 1 0 254	5 \$] msec] msec]	: (Second)			Edit	
Use Redundanc Operate Condition : A Change Condition : Primary Option Timeout Send Wait Retry Client Address Network Station Gate	ND V I TimeOut I Condition 0 0 1 0 0 0 254 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 (] msec] msec]]	: (Second)			Edit	
Juse Redundant Operate Condition : Anage Condition : Primary Option Timeout Send Wait Retry Client Address Network Station Gate	ND ✓ 1 TimeOut 1 Condition 1 000 € 5 € 1 € 0 € 254 € 0 €	5 (] msec] msec	: (Second)			Edit	

Settings			Contents			
ТОР	Model	Check the TOP display and process to select the touch model.				
External device	Vendor	Select the vendor of the external dev	lect the vendor of the external device to be connected to TOP.			
		Please select "Schneider Electric Indu	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 extern connect is a model whose system can be configured.		external device you want to			



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 Desig	n Studio.
Project Option	X
Change HMI[H] Mdd PLC [A] Thange PLC[C]	Delete PLC[D]
Date / Time Sync. Scr	een Option Unit Convert
Option Module Setting Project Option Screen FieldBus (0)	Change HmiSetup Global Lock & Touch Project Style Splash PLC Buffer Sync.
→ ■ RFID (0) ✓ → Device Setting	Initialization Edit
COM2 (0) Project Setting Mini Setup Option Project Name-Niew project Start Kode=Menu Start Signen Nio.=1 Lathise=0 Lathise=0 Lathise=0 Start Signen Nio.=1 Lathise=0 Start Signen Nio.=1 Start Signen	ye=0
Control Panel	
🔯 System 🛛 🔤 Devid	es Serial X
PLC Security Date	Serial Port: COM1 Signal Level () RS-232C O RS-422(4) O RS-485(2)
	Baud Rate: 19200 -
🗆 🖂 🖾 🖂 📟 📟	Data Bit: 8 🔹
Ethernet Serial H	Stop Bit: 1
	Parity Bit: Odd 🔻
	Flow: Off 🗸
	Ping Auto Search Loopback Test
Manager	Apply Cancel

Items	ТОР	External device	Remarks
Signal Level (port)	RS-23	2C	
	RS-48	35	
Baud Rate	1920	0	
Data Bit	8		
Stop Bit	1		
Parity Bit	Odc	1	

* 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.

Project Option		×
Change HMI[H] Add PL	.C [A] TIT Change PLC[C] Celete PLC[D]	
 TOP Setting SYS: RD1520X Option Module Setting FieldBus (0) RFID (0) Device Setting COM1 (1) COM2 (0) COM3 (0) Ethernet (0) Wireless (0) USBDevice (0) 	PLC Setting[UHI-TELWAY] Alias Name : PLC1 Interface : Serial Protocol : UNI-TELWAY String Save Mode : FirstLHHL Change Use Redundancy Operate Condition : ImeOut Condition Edit Primary Option Timeout 1000 meec Retry S Client Address 1 Station 254 Gate 0	Comm Manual
	А	pply Close

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



(1) Communication interface setting

■ [Main Screen > Control Panel > Serial]

	*	Control Panel 🛛 🗙
	🔯 System 🛛 🔤	D Serial 🗙
Run		Serial Port: COM1 -
	PLC Security	Signal Level ● RS-232C ○ RS-422(4) ○ RS-485(2)
		Baud Rate: 19200 ▼
Viewer		Data Bit: 8
	Ethernet Serial	Stop Bit: 1
		Parity Bit: Odd 🔹
Screen	Here -	Flow: Off 👻
SHUT	Diagnostic File Manager	Auto Search Loopback Test
		Apply Cancel
	[System]	Close

Items	ТОР	External device	Remarks
Signal Level (port)	RS-23	2C	
	RS-48	35	
Baud Rate	1920	0	
Data Bit	8		
Stop Bit	1		
Parity Bit	Odc		

* 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]

	G	100	PLC	×
	🔯 Syste	Driver(COM1)	PLC1(UNI-TELWAY) -	
Run		Interface	Serial	
	:	Protocol	UNI-TELWAY 💌	
MNC	PLC	Timeout	1000 🖨 msec	
VNC		Send Wait	0 🖨 msec	
Viewer	∣ 🎧	Retry	5	
	Ethernet	Client Ac	1	
<u> </u>		Network	0	
Screen	- mat	Station	254 🜩	
shot	mil	Gate	0	
	Diagnostic			
	[System	Diagnostic		Apply Cancel

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.

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		Ch	eck	Remarks
System	How to connect the sy	stem	OK	NG	1 Cretem configuration
configuration	Connection cable name	5	OK	NG	1. System configuration
TOP	Version information		OK	NG	
	Port in use		OK	NG	
	Driver name		OK	NG	
	Other detailed settings		ОК	NG	
	Relative prefix	Project setting	OK	NG	
		Communication		NC	2. External device selection
		diagnostics	ŬK	NG	3. Communication setting
	Serial Parameter	Transmission	OK	NC	
		Speed	ÜK	NG	
		Data Bit	OK	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
External device	CPU name	OK	NG		
	Communication port n	ОК	NG		
	Protocol (mode)	OK	NG		
	Setup Prefix	OK	NG		
	Other detailed settings	OK	NG	4 Estemplishes estimat	
	Serial Parameter	Transmission	OK	NC	4. External device setting
		Speed	ŬK	NG	
		Data Bit	ОК	NG	
		Stop Bit	OK	NG	
		Parity Bit	OK	NG	
	Check address range				6. Supported addresses
			OK	NG	(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.

Bite Sdit Utilities View Tools PLC Debug Options Window 2 Image: State St	PL7 PRO : <untitled></untitled>	
Image: Second State Configuration Image: State Configuration Image: Second State Configuration	Eile Edit Utilities View Iools PLC Debug Options Window ?	
Application Browser Image: Configuration Image: Configurat		
	Image:	
	Ready OFFLINE USSYS GR7.0K MODI	F





Set up items	Value
Protocol	UNI-TELWAY LINK
Туре	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)



■ **RS-485** (1:1 connection)

TOP				External device		
Din arrangement	Signal	Signal Cable connection		Signal	Din arrangement	
Pin anangement	name		number	name	Pin arrangement	
	+		- 1	D (B)	3 6	
	- '		2	D (A)	1 the	
	SG		3	-	1	
			4	/DE	2	
SG			5	DPT		
			6	-	$\sum \frac{1}{\sqrt{2}}$	
+ الم			7	SG	Based on connector	
0			8	VCC (5V)	front	
					Male 8 pin mini DI	
					(Male, convex)	



■ **RS-485** (1:1 connection)



■ **RS-485** (1:1 connection)

TOP			External device			
Din errengement	Signal	Signal Cable connection name n	Pin	Pin Signal	D'a anna an t	
Pin anangement	name		number	name	Pin arrangement	
	+		- 14	D(B)		
	-		7	D(A)	1 8	
0	SG		15	SG	(Õ Õ)	
SG SG						
0] -					9 15	
					Connector front	
					Male 15 pin D-SUB	
0					(Male, convex)	

■ **RS-485** (1:1 connection)

ТОР				External device			
D'	Signal	Pin	Cable connection	Pin	Signal	Din arrangement	
Pin analigement	name	number		number	name	Pin analigement	
	RDA	1 -	•	- 19	D(B)		
1 5		2	 	12	D(A)	4 40	
		3		25	SG		
	RDB	4 -	<u>├</u>				
•	SG	5				Connector front	
Connector front	SDA	6 -	— •			Male 25 pin D-SUB	
Male 9 pin D-SUB		7				(Male, convex)	
(Male, convex)		8					
	SDB	9 -					

RS-485 (1:1 connection)

TOP			External device			
Din arrangement	Signal	Signal Cable connection r	Pin	Signal	Din arrangement	
Pin analigement	name		number	name	Pin arrangement	
	+ '		19	D(B)		
	_ ·		12	D(A)	4 40	
0	SG		25	SG		
SG SG					14 25	
					Connector front	
+ الم					Male 25 pin D-SUB	
0					(Male, convex)	



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 V	Vord	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 B	it	S00000 ~ S32767	-	1 bit	
System Data W	/ord	SW00000.00 ~ SW32767.15	SW00000 ~ SW32767	16 bit	
System Data D	word	SD00000.00 ~ SD32767.31	SD00000 ~ SD32767	32 bit	
	Timer type (PL7)	-	T1:000 ~ T1:255	8 bit	Read-only
PL7 Timer	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
	Timer type (TP, TON, TOF)		TM1:000 ~ TM1:255	8 bit	Read-only
IEC Timer	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
Preset type			C1:000 ~ C1:255	8 bit	Read-only
Counter	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
	Time base		DR1:000 ~ DR1:255	8 bit	Read-only
Drum	Activity time		DR2:000 ~ DR2:255	16 bit	Read-only
controller	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
	Preset type		MN1:000 ~ MN1:255	8 bit	Read-only
Monostable	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 type		R1:000 ~ R1:255	8 bit	Read-only
Register	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