# TOSHIBA

# T Series, V Series

# **COMPUTER LINK Driver**

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 devices required for connection, the setting of each device, cables, and configurable systems.

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Select a TOP model and an external device.

**3.** TOP communication setting

#### Page 4

Describes how to set the TOP communication.

## 4. External device setting Page 9

Describes how to set up communication for external devices.

### 5. Cable table

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Describes the cable specifications required for connection.

#### **6.** Supported addresses

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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 "TOSHIBA Computer Link" is as follows:

Series	CPU	Communication method	Communication setting	Cable
	T2E	RS-232C		
	IZE	RS-422	<u>3. TOP</u>	
T Series		RS-232C	communication	
	T2N	RS-422	setting	5.1. Cable table
	ТЗ/ТЗН	RS-422	4. External device	
V Carias		RS-232C	setting	
V Series	S2T/S2E	RS-422		

Connection configuration

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

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		ш	11	11	18.	2	
- 11						1 81	

 $\cdot$  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.

elect Device					X
PLC select [0	COM1]				
Filter : [All]		$\sim$		Search :	
				Mode	l 🔿 Vendor
Vendor		Model			
SANGJI Precision Co.,	Ltd.	🜮 T/V Ser	ies		
DEVA					
OPTICON					
TOHNICHI					
Giddings & Lewis Motio	on Control				
DELTA TAU Data Syste	ems				
KEYENCE Corporation					
Digital Electronics Corp	poration				
HONEYWELL					
MISUMI					
PARKER HANNIFIN Co	reaction				
	rporation				
TOSHIBA					
ATLAS COPCO					
TOSHIBA MACHINE CO	o… Itd ⊻				
elect Device PLC Setting[ T/V	Series ]				2
Alias Nam	e : PLC1				
	e : Serial	~			
	ol : TOSHIBA Con			Co	mm Manual
String Save Mode	e : First LH HL	Change			
Use Redundar					
Operate Condition :		• • ·	0		
Change Condition :	Condition	5 🚖 (Seco			Edit
	Condition				
Primary Option		-			
Timeout		msec			
Send Wait	0	msec			
Retry	5	]			
Station Num	1				
Series	T Series 🗸 🗸	]			

Settings		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 "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]

TOP Setting         Date / Time Sync.         Screen Option         Unit Convert           Top Setting         Project Option         Screen Change         HmiSetup         Global Lock & Touch         Project Style	
V Setting	
Windowski     Hill Secup Option       Project Setting     Hill Secup Option       Project Name New project     Start Mode-Menu       Wireless (0)     Start Sreen No.=1       Latch Use=0     Latch Use=0       USBDevice (0)     USBEror Message=0       USBEror Message=1     DatabaseMessage=1	Initialization Edit
Control Panel	
🐼 System 🔤 Devices 🔍 Serial	×
Serial Port: COM1 Signal Level © RS-232C \circ RS-422(4) \circ R	▼ S-485(2)
PLC Security Date/Tim Baud Rate: 9600	
Data Bit: 8	•
☑ [] ☑            Stop Bit: 1	•
Ethernet Serial HDMI Parity Bit: Odd	•
Flow: Off	~
Auto Search Loopbac	ck Test
Diagnostic File Ping Apply	Cancel

Items	ТОР	External device	Remarks	
Signal Level (port)	RS-2	232C		
	RS4	422		
Baud Rate	9600			
Data Bit	8			
Stop Bit	1			
Parity Bit	0	dd		

\* 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.

Project Option			×
Change HMI[H] Mdd PL	C [A] Change PLC[C	Delete PLC[D]	
<ul> <li>TOP Setting</li> <li>SYS : RD 1520X</li> <li>Option Module Setting</li> <li>FieldBus (0)</li> <li>RFID (0)</li> <li>Device Setting</li> <li>COM1 (1)</li> <li>FLC1 : T/V Series [1]</li> <li>COM3 (0)</li> <li>Ethernet (0)</li> <li>Wireless (0)</li> <li>USBDevice (0)</li> </ul>	String Save Mode : Firs Use Redundancy Operate Condition : AND Change Condition : Time Con Primary Option Timeout 300 Send Wait 0 Retry 5 Station Num 1	1 al v SHIBA Computer Link pr v t LH HL Change Out 5 (Second) dition Edit	Comm Manual
[ L	、 		Apply Close

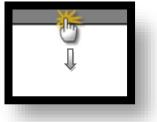
Items	Settings	Remarks
Interface	Select "Computer Link".	Refer to "2. External
Protocol	Select the communication protocol between the TOP and an external device.	device selection".
TimeOut (ms)	Set the time for the TOP to wait for a response from an external device.	
SendWait (ms)	Set the waiting time between TOP's receiving a response from an external device and	
	sending the next command request.	
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	ТОР	External device	Remarks	
Signal Level (port)	RS-2	32C		
	RS-	485		
Baud Rate	9600			
Data Bit	8			
Stop Bit	1			
Parity Bit	0	bd		

\* 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]

SendWait (ms)

Station No

Series

$\sim$					_		
	<b>©</b>	1001	PLC		×		
	🔯 Syste	Driver(COM1)	PLC1(T/V Series) 🗸				
Run		Interface	Serial 💌				
		Protocol	TOSHIBA Computer Li 💌				
MNC	PLC	Timeout	300 🖨 msec				
VNC		Send Wait	0 🖨 msec				
Viewer	II 🎧 I	Retry	5				
	Ethernet	Station N	1				
		Series	T Ser 💌				
Screen shot	intil <sup>~/*</sup>						
	Diagnostic						
	[System]	Diagnostic		Apply	Cancel		
Items	Cottings				Bornorika		
nterface	Settings	mmunication interf	ace between the TOP and an external devis		Remarks		
rotocol	-	Configure the communication interface between the TOP and an external device.Refer to "2.Configure the communication protocol between the TOP and an external device.device selection					
FimeOut (ms)	_		a response from an external device.				
		set the time for the for to wait for a response from an external device.					

Set the waiting time between TOP's receiving a response from an external device and

sending the next command request.

Enter the prefix of an external device.

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.

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. Containing firmulting		
configuration Connection cable r		e	OK	NG	1. System configuration		
ТОР	Version information		OK	NG			
	Port in use		OK	NG			
	Driver name		OK	NG			
	Other detailed setting	S	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	name (module name)	OK	NG			
	Protocol (mode)		OK	NG			
	Setup Prefix		OK	NG			
	Other detailed setting	S	OK	NG	4. Enternal device actions		
	Serial Parameter	Transmission Speed	ОК	NG	4. External device setting		
		Data Bit	OK	NG			
		Stop Bit	OK	NG			
		Parity Bit	OK	NG			
	Check address range	Check address range			6. Supported addresses		
			ОК	NG	(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

F	T-PDS	532 for 1	Windows ·	- EUNTIT	LED1 -	Main F	Program	Block 1								
Ei	le <u>E</u> di	t <u>V</u> iew	<u>S</u> earch	PLC <u>D</u> el	bug <u>C</u> o	mment	<u>O</u> ption	<u>W</u> indow	<u>H</u> elp							
	JĘ		. <u></u>			ю		≛	9							
E	2 [UN]	System	Paramete	are a								11-0-0-	×		픠	
1	14		Comments -						ate & Ti	me		OK	-1	-		
1	2-	Progra	im 1D:					Date: Tim <del>e</del> :		Se	stup	Cance	el 📗	_		
1	3⊢	System	n Comment	s:					Time & I	Date to P	°LG	<u>H</u> elp				
1	4-	Syster						Start I	Mode							
1	1	Mem	ory Capaci Steps Use	•	/ 8KW					O Aut						
1	5-		PLC Typ	be: S2T						Diag. Ms & Diag. I	-			1		
1	6-	т-	PLC Versio PDS Versio		532 for W	lindows	V2.14							-1		
1	7-	Men	nory Size &	Scan Time	~ 1	Reten	tive Memo	rv Area	1	Com	puter Li	nk		-		
1	8			2						<u></u> o	paror Er			-		
1	9-	Comput	terLink Se	tup			≤  🛟 ''	- Go	mmunio	cation P	'arame	ter			3	
1	10-		Station No	c 1	ㅋ -	OK	1		Gomm	Port	Е	aud Rate:	9600	•		
1	11-	Com	munication	Paramete		Cancel				7	_	<u>P</u> arity:	Odd	•		
Ľ	_		****			<u>H</u> elp				Modem	- 1	<u>D</u> ata Bits:	-		۲	
	-				****	3			Gu	ntrol		Stop Bits:	1	-		
	FFLIN	E		View		9		[	<u> </u>		Gancel		Help			
				JATEM						,	-				_	
				L												

- 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)

ТОР				PLC				
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		
$(\circ \circ)$	RD	2		2	RD	$(\circ \circ)$		
	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.

ТОР				PLC				
Pin	Signal	Pin	Cable connection	Pin	Signal	Pin		
arrangement*Note 1)	name	number		number	name	arrangement*Note 1)		
1 5	CD	1				1 8		
$(\circ \circ)$	RD	2		5	TXD	(° °)		
	SD	3	►	6	RTS	9 15		
6 9 Based on	DTR	4		7	SG	Based on		
communication	SG	5				communication		
cable connector	DSR	6		12	RXD	cable connector		
front,	RTS	7				front,		
D-SUB 9 Pin male	CTS	8	•	14	CTS	D-SUB 9 Pin female		
(male, convex)		9				(female, convex)		

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

#### ■ **RS-422** (1:1 connection)

ТОР				PLC				
Pin	Signal	Pin	Cable connection	Signal name				
arrangement*Note 1)	name	number						
1 5	RDA	1		TXA				
$\left( \circ \circ \right)$		2	•	ТХВ				
69		3	• · · · · ·	RXA	TXB			
6 9 Based on	RDB	4	└───┥│	TERM	IRXA 🔲			
communication	SG	5	└─── <b>│</b>	RXB				
cable connector	SDA	6	└─── <b>↓</b>	SG	FRXB			
front,		7			SG			
D-SUB 9 Pin male		8						
(male, convex)	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		
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	Т	-	00000 ~ 00999		
Timer Device	T.	00000 ~ 00999	-	L / H <sup>*1</sup>	
Counter Register	С	-	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	1	
File Register	F	00000.0 ~ 32767.15	00000 ~ 32767	1	

#### 6.2 V Series

Description	Device	Bit Address	Word Address	32 bits	Remarks
I Variable	IW	000000 ~ 08191F	00000 ~ 08191		
Q Variable	QW	000000 ~ 08191F	00000 ~ 08191		
System	SW	000000 ~ 00511F	00000 ~ 00511	*1	
Data	DW	00000.0 ~ 04095.15	00000 ~ 04095	L / H <sup>*1</sup>	
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	16	BIT	
Address	D00100	D00100	D00101	
Input data (hexadecimal)	12345678	5678	1234	