TOSHIBA MACHINE

COMPO ARM ROBOT

Supported version TOP Design Studio V4.0 or higher



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

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communicate with an external device.



1. System configuration

The system configuration of TOP and "COMPO ARM ROBOT" is as follows:

Series	СРИ	Communication method	System setting	Cable
BA-III	CA25-M	RS-232C	<u>3.1 Settings example 1</u> (Page 4)	5.1. Cable table 1 (Page 8)

■ 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.

Select Device							
PLC select [CC	DM2]						
Filter : [All]			\sim		Search	: TOSHIBA	1
0.03						O Model	Vendor
Vendor		Model					
TOSHIBA MACHINE Co.,	Ltd	80	BA Series				
				A post	-	No.4	an Court
				Dack		Next	× Cancer
elect Device							
PLC Setting[BA Set	eries]						
Alias Name :	PLC1						
Interface :	Serial		\sim				
Protocol :	CPU Direct		\sim			Cor	nm Manual
String Save Mode :	First LH HL	Cha	inge				
Use Redundanc	v						
Operate Condition : A	ND ~						
Change Condition :	TimeOut	5	(Second)				
	Condition					E	dit
Primary Option							
Timoquit		mean					
Imeout	300 🖨	msec					
	0	msec					
Send Wait							
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					
Send Wait Retry	5]					

Settings			Contents	
TOP	Model	Check the TOP display and process to select the touch model.		
External device	Vendor	/endor Select the vendor of the external device to be connected to TOP. Select " TOSHIBA MACHINE ".		
PLC Select an external device to connect to TOP.				
		Model	Interface	Protocol
		BA-III CA25-	CPU Direct	OPEN PROTOCOL
		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

대한민국대표 터치패널 Touch Operation Panel

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.

Change HMI[H] Change PLC[G] Change PLC[G] Change PLC[G] PLC Buffer Sync. Date / Time Sync. Screen Option Unit Convert Project Option Screen Change HmiSetup Global Lock & Touch Project Style Splash Project Option Screen Change HmiSetup Global Lock & Touch Project Style Splash Change HMISetup HmiSetup Global Lock & Touch Project Style Splash Change HMISetup Global Lock & Touch Project Style S				
V Option Module Setting V Option Screen Change HmiSetup Option Initialization Edit Project Setting V CoMX (0) V Ethemet (0) Ethemet (0) Stat Mode-Menu Stat Mode-Menu Stat Storee No.=1 Latch Set=0~0 Communication Error Message=0				
Image: Control Module Section Project Option Screen Change HmiSetup Global Lock & Touch Project Style Splash Image: RFID (0)				
Windowski Windowski Windowski Edit Windowski Project Setting Him Setup Option Edit Windowski Project Setting Image: Setting Option Image: Setting Option Windowski Project Setting Image: Setting Option Image: Setting Option Windowski Start Mode-Menu Start Mode-Menu Start Mode-Menu USBDevice (0) Start Screen No. = 1 Latch Set=0~0 Latch Set=0~0 Communication Error Message=0 Communication From Message=0				
COM2 (1) Project Setting Project Setting A Project Setting B Project Setting B Project Setting B Project Setting				
Y w CON1 (0) Project Setting → P CC1 : BA Series HMIDisable =0 → W CON3 (0) Project Nume +New project Start Mode =Meru Start Mode =Meru But Start Mode =Meru Start Steren Nu = 1 Lath Use =0 Lath Use =0 Lath Use =0 Lath Use =0 DatabaseWeissage =1 DatabaseWeissage =1 DatabaseWeissage =1 DisplayPermission1con =0				
Control Panel				
System Devices Service Poption				
Serial X				
Serial Port: COM2 -				
PLC Security Date/Time Signal Level				
Baud Rate: 9600 -				
Ethernet Serial HDMI				
Stop Bit: 1				
Parity Bit: Even -				
Diagnostic File Ping Manager Auto Search Loopback Test				
Apply Cancel				

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

* 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 : BA Series"]

- Set the option of TOSHIBA MACHINE BA Series CPU Direct communication driver in TOP Design Studio.

Project Option			×
Change HMI[<u>H</u>] Add PL	C [A] Thange PLC[C] Celete PLC[D]		
 TOP Setting SYS: RD0810S Option Module Setting FieldBus (0) RFID (0) COM1 (0) COM3 (0) Ethernet (0) USBDevice (0) 	PLC Setting[BA Series] Allas Name : LC1 Interface : Serial Protocol : CPU Direct String Save Mode : First LH HL Change Operate Condition : I TimeOut Condition Condition Primary Option Timeout 300 msec Send Wait Image Main Image Change Image Image <	Co	mm Manual
		Apply	Close

Items	Settings	Remarks
Interface	Select "CPU Direct".	Refer to "2. External
Protocol	Select "CPU Direct".	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.	



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-232C		
Baud Rate	9600		Fixed
Data Bit	8		Fixed
Stop Bit	1		Fixed
Parity Bit	even		Fixed

* 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]

) 🔊 🖌	101	PLC		×
Bus System	Driver(COM2)	PLC1(BA Series) 🗸		
Run	Interface	Serial	•	
	Protocol	CPU Direct	•	
	Timeout	300 🖨 msec		
YNC	Send Wait	0 🖨 msec		
/iewer	Retry	5		
Ethernet				
reen				
hot Diagnostic				
[System]	Diagnostic		Apply	Cancel
Catting a				P

Items	Settings	Remarks
Interface	Select "CPU Direct".	Refer to "2. External
Protocol	Select "CPU Direct".	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.	



3.3 Communication diagnostics

■ Check the interface setting status between the TOP and 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		Check		Remarks	
System	How to connect the sy	stem	OK	NG	1 Cretem configuration	
configuration	Connection cable name	2	OK	NG	<u>1. System computation</u>	
TOP	Version information		OK	NG		
	Port in use	Port in use		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	NG		
		Speed	ОК			
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
External device	CPU name		OK	NG		
	Communication port name (module name)		ОК	NG		
	Protocol (mode)		OK	NG		
	Setup Prefix		OK	NG		
	Other detailed settings		OK	NG	4 Estemplishes anthree	
	Serial Parameter	Transmission	OK	NG	4. External device setting	
		Speed	ŬK			
		Data Bit	OK	NG		
		Stop Bit	OK	NG		
		Parity Bit	OK	NG		
	Check address range				6. Supported addresses	
			ОК	NG	(For details, please refer to the PLC	
					vendor's manual.)	



Configure the communication setting of the external device by referring to its user manual.



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 "**COMPO ARM ROBOT**")

■ RS-232C (1:1 connection)

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

*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.

Area	Bit address	Word address	RW	BIT				
MPST	0.00–3.31	0–3	R	32BIT	present position			
MOFF	0.00–3.31	0–3	R	32BIT	present offset value			
MCNT	1.00–99.15	1–99	R	16BIT	counter value			
MTMR	1.00–9.15	1–9	R	16BIT	timer value			
MTSK	0.00–0.15	0–0	R	16BIT	Read task No			
OVR	0.00-0.15	0–0	R/W	16BIT	Write override,Read override			
REST	0.00-0.15	0–0	W	16BIT	Reset			
CERR	0–0	0–0	W	16BIT	Cancel error			
SORG	0–0	0–0	W	16BIT	Synchronized origin search			
HOME	0–0	0–0	W	1BIT	Return to origin			
SVON	0–0	0–0	W	1BIT	1 : Servo ON 0 : Servo OFF			
HOST	0–0	0–0	W	1BIT	HOST ON			
SPEED	1–20.31	1–20	R/W	32BIT	SPEED TABLE			
ACCEL	1–20.31	1–20	R/W	32BIT	ACC DEC TABLE			
SPST	0.00-0.00	0–0	W	16BIT	Start sequential			
JOG-H	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R H SPEED -			
JOG+H	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R H SPEED +			
JOG-L	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R L SPEED -			
JOG+L	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R L SPEED +			
JOG-C	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R INCHING-			
JOG+C	0.00-3.00	0–3	W	1BIT	0:X 1:Y 2:Z 3:R INCHING+			
JOG_STOP	0.00–0.15	0–0	W	1BIT	JOG Stop			
PNT	0–999,0–3.32	0–999,0–3	R/W	32BIT	PNT COORDINATE TABLE			
STX	-	0–2500:0–25	R	16BIT	Read sequential text			
STAS	0-4,0-1.31	0-4,0-1	R	32BIT	status ST1 ST2			
MNIN	1.00-4.15	1–4	R	16BIT	Internal port			
MOUT	0-4,1-7,0-3.15	0-4,1-5,0-3	R	16BIT	output data			
MINP	0-4,1-7,0-3.15	0-4,1-7,0-3	R	16BIT	input data			
MODE	0.00-0.15	0–0	W	16BIT	0 : Program			
					1 : Step,			
					2 : Automatic			
					3 : Sequential			
					4 : Palletizing mode			
STOP	0.00-0.00	0–0	W	1BIT	Stop			