

Toshiba

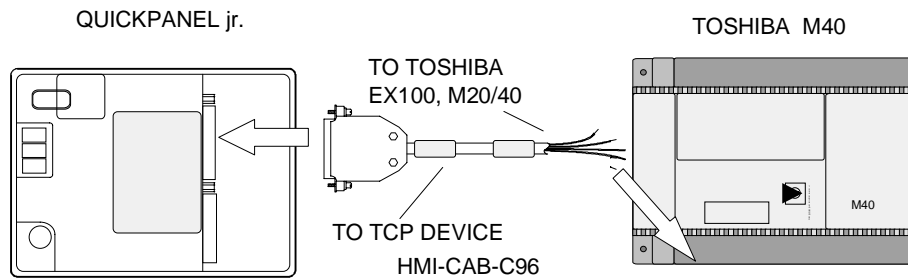
Toshiba T1, T2, T3, EX100, EX200B, EX250, EX500, M20/40

This section describes the operation of the target display with the Toshiba series Programmable Logic Controllers. The T2 and M40 series are presented in detail. The other series are similar in design and the interface connection is the same.

Connecting a target display to a Toshiba M20/40

The connection between a target display and the EX100 and M20/40 series PLC is RS-485, half duplex. The protocol can support 16 stations up to a maximum distance of 1km.

The terminal connections are located under the lower terminal cover. RXA and RXB should be jumpered with a 120 ohm, 1/2 watt resistor.



M20/40 Computer Link Switch Settings

The station selector switch and the dipswitches are located under the operation control switch cover. Set the station number on the rotary switch. The dipswitch settings shown in the following drawing are 9600, no parity, computer link enabled and 4K-step mode.



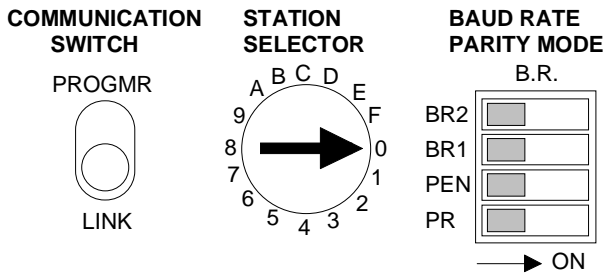
Connecting a target display to a Toshiba EX100

The EX100 has an RS-485 Terminal Block which makes it easy to connect the HMI-CAB-C96 cable. The terminal block connections are shown below.

TXA	<input type="checkbox"/>	TXA-Sending line A (output)
TXB	<input type="checkbox"/>	TXB-Sending line B (output)
RXA	<input type="checkbox"/>	RXA-Receiving line A (input)
TRM	<input type="checkbox"/>	TRM-Terminal for termination resistor
RXB	<input type="checkbox"/>	RXB-Receiving line B (input)
SG	<input type="checkbox"/>	SG-Signal ground

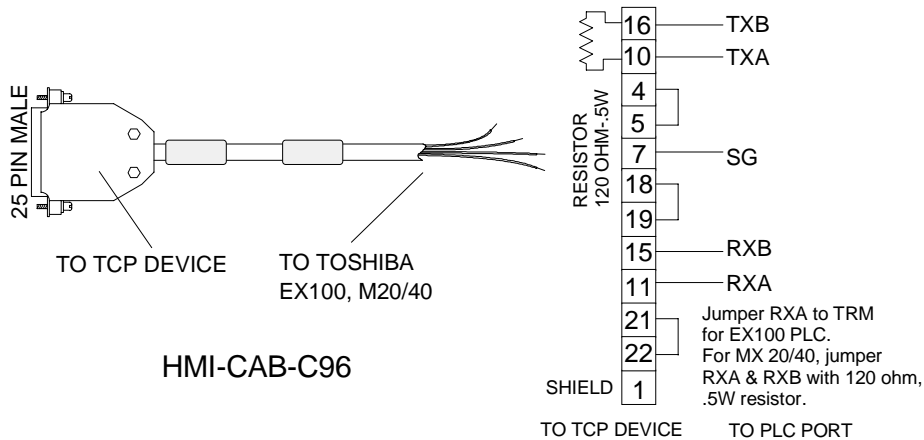
EX100 Computer Link Switch Settings

Set the communication switch to the LINK position. Set the station number on the rotary switch. The baud rate settings shown in the following diagram are 9600, no parity.



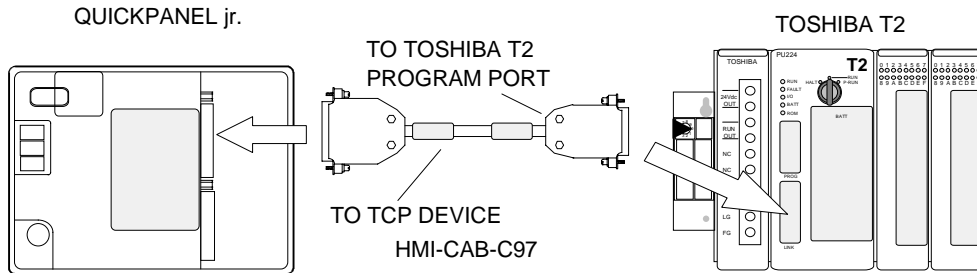
HMI-CAB-C96 Cable

This cable is used to connect a target display to a Toshiba EX100 or M20/40 series PLC.



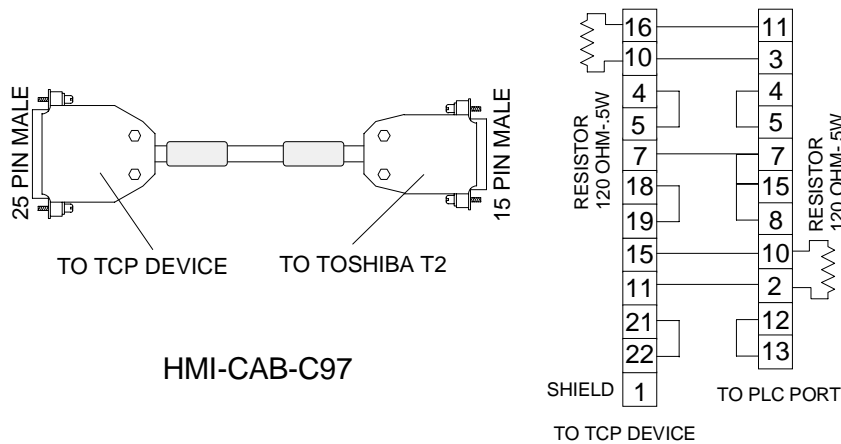
Connecting a target display to a Toshiba T2 PLC

The connection is RS-485. Connect the HMI-CAB-C97 cable to the LINK port.



HMI-CAB-C97 Cable

Use the following diagram to construct your own cable.

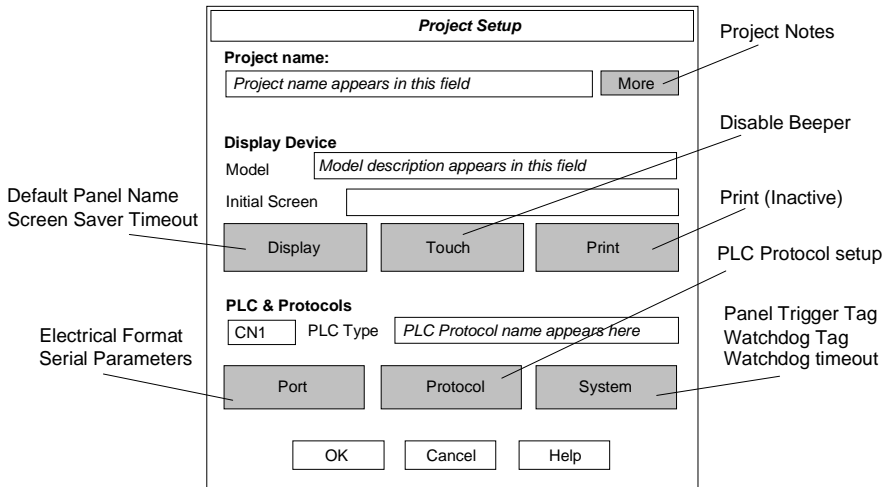


Setup for using Toshiba PLCs

Use the following procedure to ensure your target device is setup properly for the Toshiba PLC. The procedure is in condensed format. Only the required settings are outlined. For additional details, see Creating a New Project beginning on page 3.

Project Setup

The drawing is a diagram of the Project Setup dialog box. Each button will display an additional dialog box. Many settings are options and are not required to establish communications. Verify the *Project name* and *Display Device Model* are correct. Leave the Initial Screen name blank.



PLC Type

Select the PLC type from the list box. (**Toshiba**). See PLC Type on page 5.

Port Button

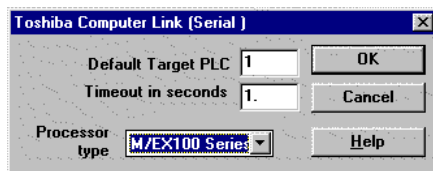
Click the Port button to display the Serial Parameters dialog. The port values are automatically set to standard default values. See Serial Parameters on page 6. The following settings are recommended for **Toshiba**.

Elect. Format	RS422/485 Full Duplex
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Handshake	None

Protocol Button

Click the Protocol button to display the dialog box associated with the selected PLC.

The drawing shows the setup dialog box for Toshiba Computer Link (Serial). Enter the Default Target PLC (CPU ID) number. Select the Processor type from the list box. (M/EX100, T1, T2, T3, EX250/500). The default setting for Timeout is correct for most applications.



Click OK to return to the Project Setup dialog box.

Toshiba Tag Variables

Format: MA:F{ L }_d

M - memory type

- X - input bit, all plcs
- XW - input register, all plcs
- Y - output bit, all plcs
- YW - output register, all plcs
- R - auxiliary bit, all plcs
- RW - auxiliary register, all plcs
- L - link relay, only t2s and t3s
- LW - link relay register, only t2s and t3s
- Z - link device, all plcs
- ZW - link device register, all plcs
- S - special, only t2s and t3s
- SW - special register, only t2s and t3s
- T - timer, all plcs
- T. - timer bit (single bit indicating completion), T1 - T3
- C - counter, all plcs
- C. - bit (single bit indicating completion), T1 - T3
- D - data register, all plcs
- F - files, t2s and t3s

NOTE: The X and Y memory types map to the SAME registers

NOTE: The X and Y memory types do not keep their values in run mode. For example, if you write a 1 to X00 you would see a value of one for an instant but it would go back to zero.

A - address NOTE: in the case of input devices x, y, r ... the last digit indicates the bit desired

F - format

- I - signed integer
- U - unsigned integer (DEFAULT FOR ALL REGISTER DATA)
- C - BCD
- F - float (NOT CURRENTLY SUPPORTED)
- A - ascii
- B - bit followed by number to specify which bit
- L or l - long data (32 bits) (NOT SUPPORTED)

d - destination

Destination address other than default target address.

Toshiba Tag Variable Table

Name	Address Range	Bit suffix Range	Writes supported	Value Range **	Sample(s)	Notes:
X	EX/M: 0 - 31 T1: T.B.A. T2: 0 - 63 T3: 0 - 255	0 - F	yes	0 or 1	X12	The last digit of the address indicates the desired bit
XWA or XWA:U	EX/M: 0 - 63 T1: T.B.A. T2: 0 - 63 T3: 0 - 255	N.A.	yes	0 - 65535	XW27	Unsigned integer default format
Y	EX/M: 0 - 31 T1: T.B.A. T2: 0 - 63 T3: 0 - 255	0 - F	yes	0 or 1	Y34F_14	The last digit of the address indicates the desired bit
YWA or YWA:U	EX/M: 0 - 63 T1: T.B.A. T2: 0 - 63 T3: 0 - 255	N.A.	yes	0 - 65535	YW56	Unsigned integer default format
R	EX/M: 0 - 63 T1:T.B.A. T2: 0 - 127 T3: 0 - 511	0 - F	yes	0 or 1	R457	The last digit of the address indicates the desired bit
RWA or RWA:U	EX/M: 0 - 63 T1:T.B.A. T2: 0 - 127 T3: 0 - 511	N.A.	yes	0 - 65535	R63	Unsigned integer default format
L	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 255	0 - F	yes	0 or 1	L346	The last digit of the address indicates the desired bit
LWA or LWA:U	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 255	N.A.	yes	0 - 65535	LW56	Unsigned integer default format
Z	EX/M: 0-31 T1:T.B.A. T2: 0 - 511 T3: 0 - 511	0 - F	yes	0 or 1	Z238	The last digit of the address indicates the desired bit
ZWA or ZWA:U	EX/M: 0-31 T1:T.B.A. T2: 0 - 1023 T3: 0 - 1023	N.A.	yes	0 - 65535	ZW245	Unsigned integer default format
S	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 255	0 - F	yes	0 or 1	S254F	The last digit of the address indicates the desired bit
SWA or SWA:U	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 255	N.A.	yes	0 - 65535	SW5	Unsigned integer default format
TA or TA:U	EX/M: 0-127 T1:T.B.A. T2: 0 - 255 T3: 0 - 511	N.A.	yes	0 - 32767	T6	Unsigned integer default format

T:A	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 511	N.A.	yes	0 - 1	T.19	This bit indicates that the timer has finished
CA or CA:U	EX/M: 0 -95 T1:T.B.A. T2: 0 - 255 T3: 0 - 511	N.A.	yes	0 - 65535	C12	Unsigned integer default format
C:A	EX/M: N.A. T1:T.B.A. T2: 0 - 255 T3: 0 - 511	N.A.	yes	0 - 1	C.99	This bit indicates that the counter has finished
DA:l	EX/M: 0 - 1535 T1:T.B.A. T2: 0 - 4095 T3: 0 - 8191	N.A.	yes	-32768 - 32767	D134:l	
DA:U or DA	EX/M: 0 - 1535 T1:T.B.A. T2: 0 - 4095 T3: 0 - 8191	N.A.	yes	0 - 65535	D7:U_1	Unsigned integer default format
DA:C	EX/M: 0 - 1535 T1:T.B.A. T2: 0 - 4095 T3: 0 - 8191	N.A.	yes	0 - 9999	D55:C	
DA:B#	EX/M: 0 - 1535 T1:T.B.A. T2: 0 - 4095 T3: 0 - 8191	0 - F	NO	0 - 1	D99:B5	
DA:A	EX/M: 0 - 255 T1:T.B.A. T2: 0 - 4095 T3: 0 - 8191	N.A.	yes	two packed ascii values	D34:A	
FA:l	EX/M: N.A. T1:T.B.A. T2: 0 - 1023 T3: 0 - 8191	N.A.	yes	-32768 - 32767	F134:l	
FA:U or FA	EX/M: N.A. T1:T.B.A. T2: 0 - 1023 T3: 0 - 8191	N.A.	yes	0 - 65535	F10:U	Unsigned integer default format
FA:C	EX/M: N.A. T1:T.B.A. T2: 0 - 1023 T3: 0 - 8191	N.A.	yes	0 - 9999	F8191:C	