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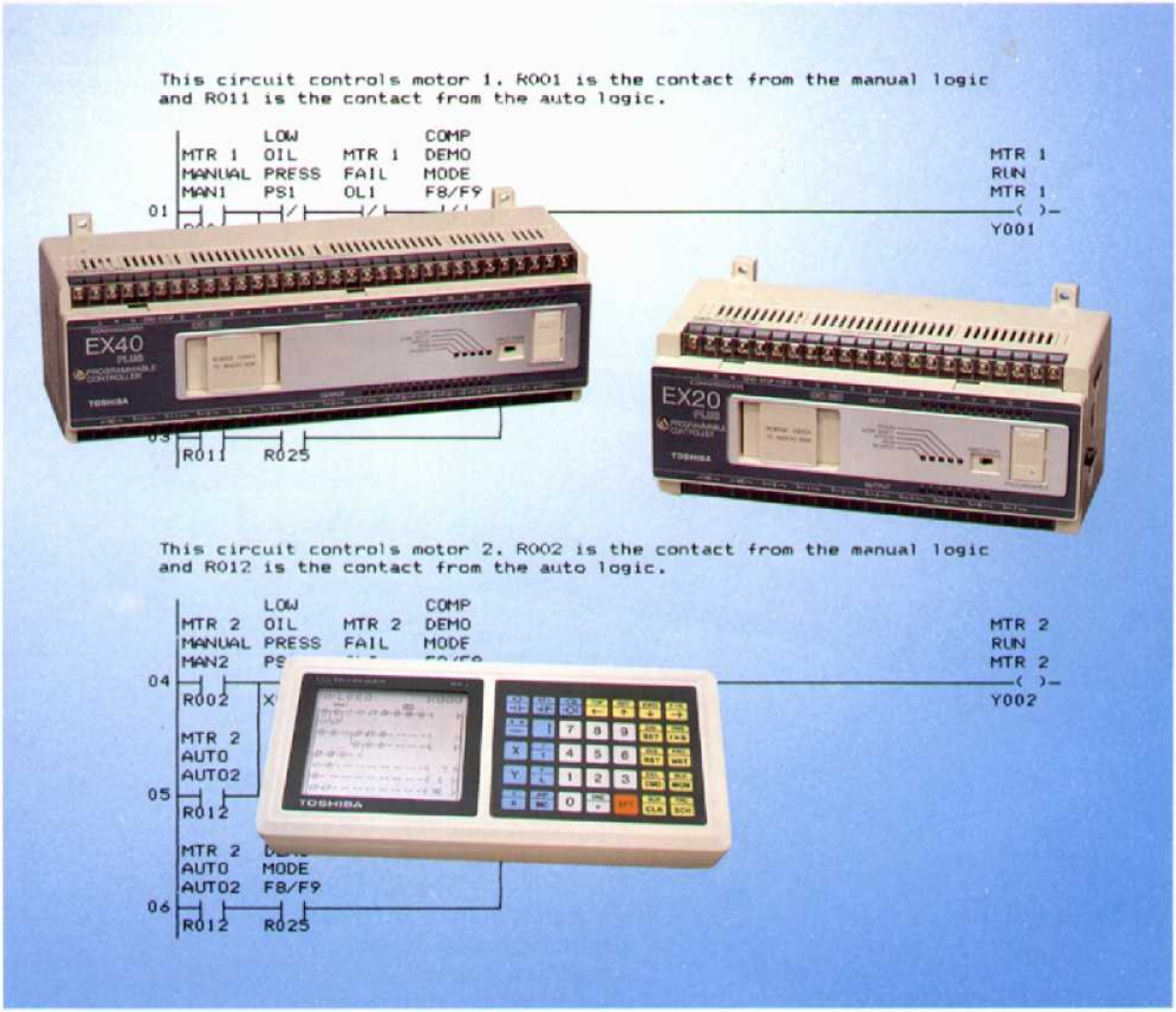
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Find the *Toshiba EX20 2MCRB 5* at our website: *Click HERE*

In Touch with Tomorrow

TOSHIBA

EX20PLUS/40PLUS PROGRAMMABLE CONTROLLERS



Advanced Features

- Programs in Ladder Logic
- Built in PROM Write & Erase
- High Speed 4kHz Counter
- 2 Channels Analog Input (option)
- Computer Interface (option)
- Critical I/O Update
- Bi-directional Shift Register
- 0.01 Second Timers

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GENERAL PURPOSE PROGRAMMABLE CONTROLLER

The EX20PLUS/40PLUS Series of Programmable Controllers provide a functional, economical, and compact alternative to conventional relay panels and to more expensive controllers.
Toshiba offers a flexible building block concept for I/O addition. The controllers are well suited to a large number of OEM and user applications including: small conveyor and palletizer, car wash, punch press, sequence start and shutdown, industrial washing and dying, hydraulic and pneumatic control, test equipment, material handling, etc.



All the necessary features

- 4KHz High Speed Input
  Up/down counter, 4/8 digits
- Easy Computer Linkage
  Up to 16 on one RS422 network
- High Performance Software
  Eight timers, 0.01 sec.
  Up/down counter
  Bi-directional shift register
  Critical I/O update
  All instructions used on EX20/40/40H
- 2 channel Analog Input
  0-5Vdc 0-10Vdc or 0-20mA, only one range/unit
  Program any point on analog range

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ALL THE NECESSARY SUPPORT PERIPHERALS

Personal Computer



LCD Programmer



Timer/Counter Access Unit



Computer Link Unit



EX20PLUS/40PLUS Basic Unit



Expansion Units

40-point expansion

20-point expansion

8-point expansion



PROM Module



Analog Input Unit

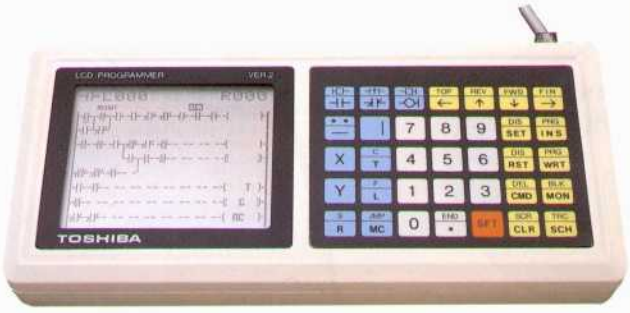


Printer Interface Unit



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PERIPHERAL DEVICES



LCD Programmer

- Programs contacts and coils
- Displays 8 lines and 10 columns
- I/O Force
- Block Monitor
- Trace Monitor
- Insert and Delete Columns, Rows and Screens
- Coil and Contact Search
- Monitor Timer and Counter
- Verify Contacts Closing and Coils Energized
- Compact Handheld Design

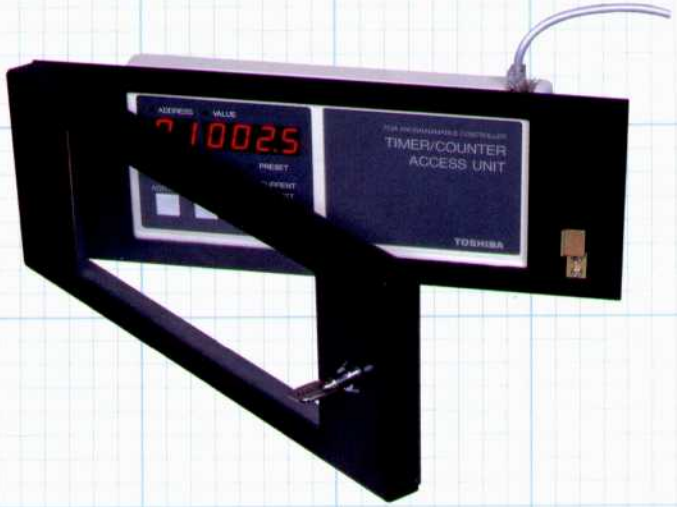


Timer/Counter Access Unit (TCAU)

- Change Preset Timer Values
- Change Preset Counter Values
- Monitor the Preset Values
- Monitor the Elapsed Timer or Count

Special NEMA 12 Mounting Bracket

- Hold TCAU or LCD Programmer
- Gasketed for positive seal
- Limited access thru key and lock





EEPROM Program Storage

- Program and erase in controller by command from LCD Programmer
- Allows operation of controller without battery
- Can change Timer/counter presets in module during operation

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EXPANDABLE I/O

For the most flexible I/O configuration, any of the input and output type expansion units can be used with the EX20PLUS and EX40PLUS. The number of expansion units that can be used with an EX20PLUS or EX40PLUS are listed in the table below.



EX40PLUS
Basic Unit (24 input + 16 output)

EX20
Expansion Unit (12 input + 8 output)

Discrete

Number of I/O points	Configuration
20	EX20PLUS
28	EX20PLUS — EX08
36	EX20PLUS — EX08 — EX08
40	EX20PLUS — EX20 (Expansion) or EX40PLUS
48	EX40PLUS — EX08
56	EX40PLUS — EX08 — EX08
60	EX40PLUS — EX20 (Expansion)
68	EX40PLUS — EX20 (Expansion) — EX08
76	EX40PLUS — EX20 (Expansion) — EX08 — EX08
80	EX40PLUS — EX40 (Expansion)



8 Point Expansion Unit

Toshiba's Model EX08 Expansion Unit allows custom addition to the controller by selecting either:

- 8 inputs
- 8 outputs
- 4 inputs and 4 outputs

Discrete and Analog Input

EX20PLUS — AI

EX20PLUS — AI — EX08

EX20PLUS — AI — EX20 (Expansion)

EX40PLUS — AI

EX40PLUS — AI — EX08

EX40PLUS — AI — EX20 (Expansion)

EX40PLUS — AI — EX40 (Expansion)



2 channel Analog Input

- 0-5 Vdc, 0-10 Vdc, or 0-20 mA, only one range/unit
- Program any point on analog range

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COMPUTER SOFTWARE FOR EX20/40 SERIES CONTROLLERS



Toshiba T-3100
Personal Computer

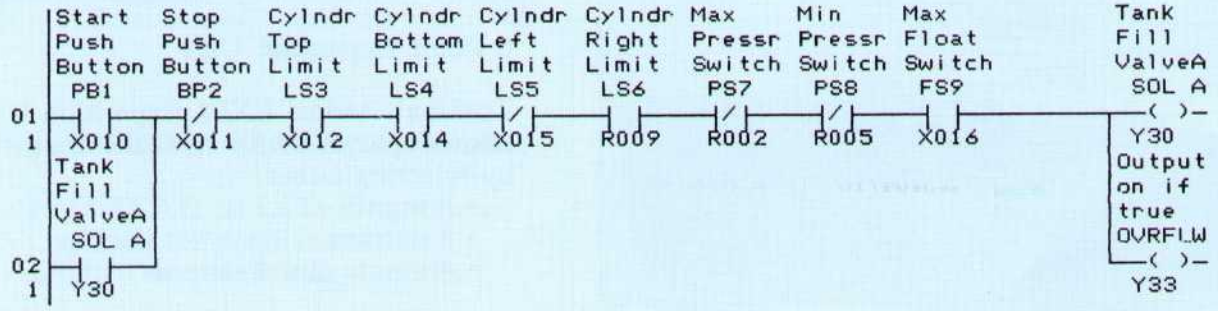
EX-PDD

The EX Program Development and Documentation System (EX-PDD) for Toshiba's EX series of Programmable Controllers is a software package that runs on any IBM-PC, -XT, or -AT Personal Computer and also some IBM-PC compatibles (such as Toshiba's Portable Personal Computers).

Sample Documentation

```
This is a ladder-diagram printout of the program shown on the sample
screens. PAGE, CIRCUIT, LINE, and DEVICE commentary can be included
in ladder-diagram printouts. The PAGE comment allows the user to describe
whole program segments. The maximum size available for the PAGE commentary
is 10 lines high by 76 characters wide. This is Page commentary for
Page 001, Sheet 1 of this program. COMMENTARY ON ALL Pages is
possible on the EX20/40 series PLC Each program Page can be serveral
sheets long in the ladder printout, depending on the overall length of the
commentary printed for the Page.

This Paragraph is a CIRCUIT comment for circuit 1 in this program. The
maximum size allowed for the CIRCUIT commentary is 5 lines high by
76 characters wide). The in-ladder cross reference is printed at the end
of page 001.
```





EX-PAL

PAL (Process Automation Language) is a proven high level programming language for integrating Personal Computers with Programmable Controllers. PAL incorporates data processing, operator input and graphics displays of Computers into automated systems using Programmable Controllers. PAL allows the operator of an automated control system to communicate directly with the Programmable Controllers in the system through the Personal Computer.

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FUNCTIONAL SPECIFICATIONS

FUNCTION		EX20	EX40	EX40H	EX20 PLUS	EX40 PLUS
Scan time		60μs/step		3μs/step	60μs/step	
Available memory		1k steps		1k/2k steps	1k steps	
Basic I/O points		20(12/8)	40(24/16)	40(24/16)	20(12/8)	40(24/16)
Max. expanded I/O		40(24/16)	80(48/32)	120(72/48)	40(24/16)	80(48/32)
Input types	Contact	Yes	Yes	Yes	Yes	Yes
	120 Vac	Yes	Yes	Yes	Yes	Yes
	24 Vdc	Yes	Yes	Yes	N/A	N/A
Output types	Relay	Yes	Yes	Yes	Yes	Yes
	AC Triac	Yes	Yes	Yes	N/A	N/A
	DC Transistor	Yes	Yes	Yes	N/A	N/A
Timers		16(0.1-999.9s)		64 (0.1-999.9s)	56(0.1-999.9s) 8(0.01-99.99s) (Only 40 if AI used)	
Counters		16(1-9999)		64 (1-9999)	64(1-9999) (Only 32 if HSC used)	
High Speed Counter (HSC)		N/A	N/A	N/A	4kHz max Up/down, 4/8 digits	
Internal relays	Retentive	128	128	128	128	128
	Non retentive	128	128	128	112	112
	Special purpose	N/A	N/A	N/A	16	16
Program instructions		Timer, Counter, Transitional contact, Step sequencer, Master control, Jump, Flip-flop, Shift register			Same plus Bi-directional shift register, Up/down counter, I/O up date	
PROM operation	Read	RM64/16 /17/66	RM64/16 /17/66	RM64/16 /17/66	RM64/16 /17/66	RM64/16 /17/66
	Write	RM64/16 /66	RM64/16 /66	RM64/16 /66	RM17/66	RM17/66
	Erase	RM16/66	RM16/66	RM16/66	RM17/66	RM17/66
	Change T/C presets *	N/A	N/A	N/A	Yes	Yes
	Run without battery	N/A	N/A	N/A	Yes	Yes
Documentation by IBM personal computer		Yes	Yes	Yes	Yes	Yes
UL/CSA Listed		Yes	Yes	Yes	Yes	Yes

* : Requires Ver. 2.3 Programmer

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