

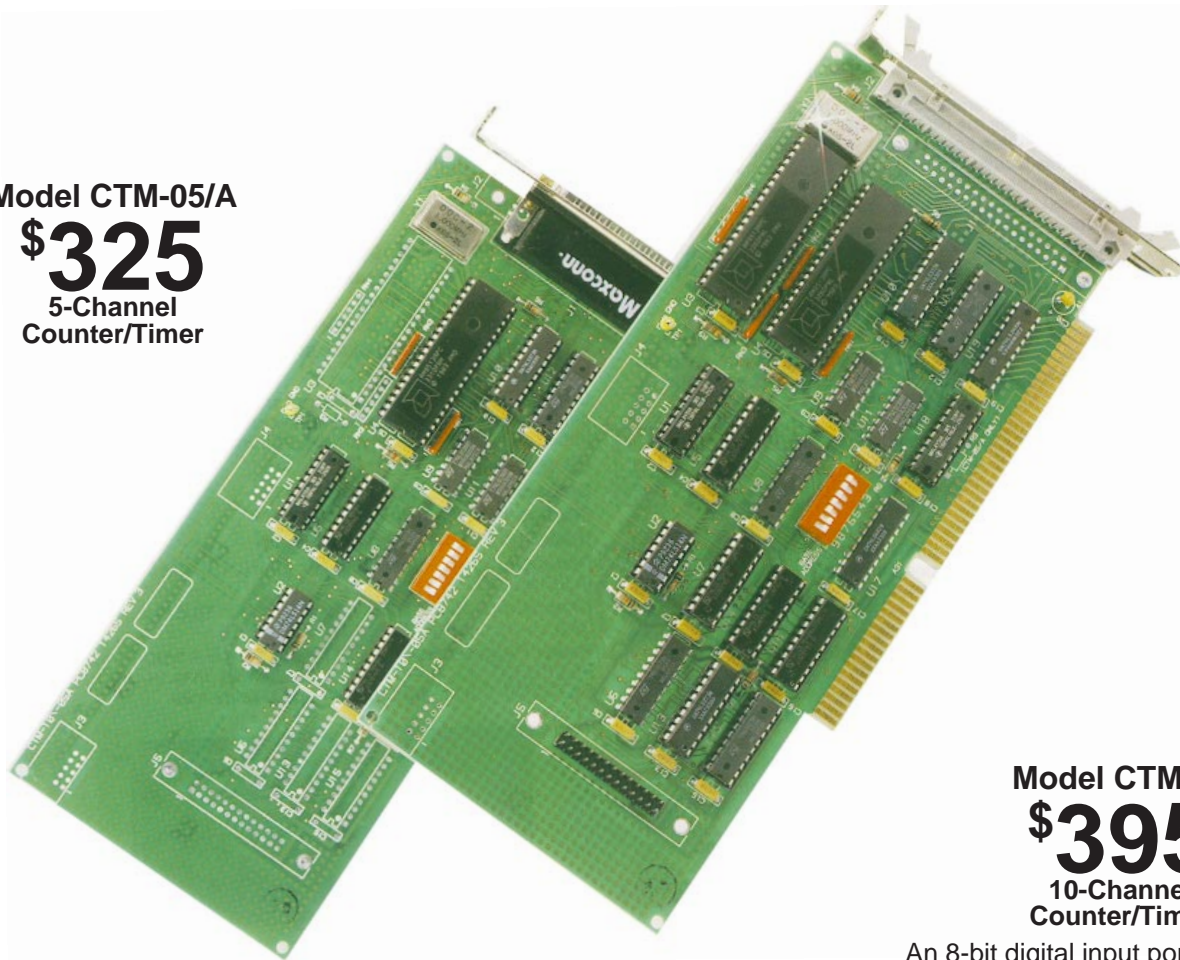


5 and 10-Channel Counter-Timer Boards

Model CTM-05/A

\$325

5-Channel Counter/Timer



Shown smaller than actual size

- ✓ 5/10 Independent 16-Bit Counters
- ✓ CTM-05 Compatible
- ✓ Counts Frequency to 7 MHz
- ✓ Up/Down and Binary/BCD Counting
- ✓ Internal 1 MHz Frequency Source
- ✓ Programmed Frequency Output
- ✓ Complex Pulse Generation
- ✓ One-Shot or Continuous Outputs

✓ Programmable Count/Gate Source Selection

✓ Programmable Input/Output Polarities

The CTM-05/A and CTM-10 are 5 and 10-channel counter/timer boards for IBM PC and compatible computers. Building on the capabilities of the CTM-05 board, these boards add support for AT interrupts and the Trigger Bus, a means of synchronizing multiple DAS boards. The CTM boards use a standard 9513 counter/timer chip for event counting, pulse measurement, frequency measurement and pulse generation.

Model CTM-10

\$395

10-Channel Counter/Timer

An 8-bit digital input port and 8-bit digital output port are also available, along with an external interrupt.

Counter inputs are software selectable for active high/low operation. Each counter may be gated in hardware or by software. Counters can be programmed for either up/down counting in either binary or BCD. All five counters can be connected by software to form a 32, 48, 64 or 80-bit counter.

Advanced Triggering

The CTM-10 can be used to trigger DAS boards either singly or in groups through their gate and external clock inputs. The CTM-10 has two pairs of gate/clock signals, and can be used to synchronize DAS boards operating at different sampling rates determined by the CTM-10 A and B counters. Trigger Bus operation is enabled under software control by the CTM-10 board.



D/I/O



IBM AT

Programming

The CTM boards are supported by a set of drivers and examples. The software supplied with each board includes a call driver compatible with Microsoft C, QuickBasic, Professional Basic and Visual Basic for DOS, and Borland Turbo C and TurboPascal. Also included is a base address setup program and example programs for all supported languages.

Connector Pin Assignments

All counter and digital I/O for the CTM-05/A is through the rear panel of the computer. For soldered connections, a standard 37 pin D-female is the correct mating part.

To simplify field wiring, use the STA-U Screw Terminal Board or STP-37 Screw Terminal Panel and the C-1800 cable. Direct screw terminal connection is possible with the STC-37.

For the CTM-10, both Unit A and Unit B counters are provided on a standard 50-pin D-type male connector.

The digital I/O and the remaining (seldom used) control signals are provided on a standard 25-pin D-type male connector.

Specifications

COUNTER/TIMER

Type: AM9513; two in CTM-10

No. of Counters: 5 in CTM-05/A; 10 in CTM-10

Counting Modes: Up/down, binary/BCD

Max Input Rate: 7 MHz

Min Pulse Width: 70 ns high, 70 ns low

On-Board Time Base: 1 MHz $\pm 0.01\%$ (0 to 70°C)

Input Low Voltage: 0.8 V max

Input Low Current: 10 μ A max

Input High Voltage: 2.2 V min

Input High Current: -10 μ A max

Output Low Voltage: 0.4 V max at 3.2 mA

Output High Voltage: 2.4 V min at -200 μ A

PARALLEL DIGITAL I/O

External Interrupts/Enable: 1/1, CTM-05/A; 2/2, CTM-10

ISA Interrupts: 3, 5, 7, 11 or 15

INPUTS AND INTERRUPTS

Type: LSTTL

Input Bits: 8



Low Voltage: 0.8 V max
Low Current: -0.4 mA max
High Voltage: 2.0 V min
High Current: 20 μ A max

OUTPUTS

Type: LSTTL

Output Bits: 8

Low Voltage: 0.5 V max at $I_{\text{sink}} = 8.0$ mA

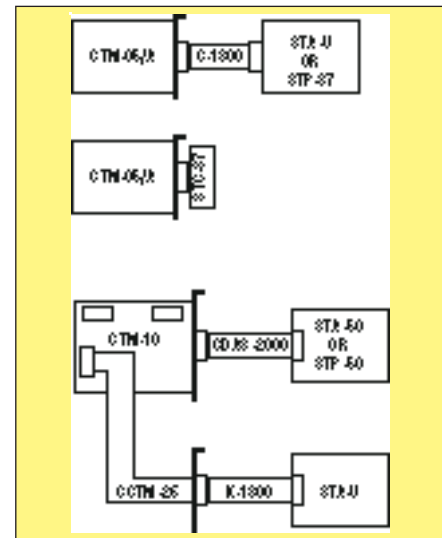
High Voltage: 2.4 V min at $I_{\text{source}} = -0.4$ mA

Power: +5 V; 800 mA typ/1.3 A max for CTM-05/A; 1 A typ/1.7 A max for CTM-10

Operating Ambient: 0 to 50°C (32 to 122°F), 0 to 95% RH, non-condensing

Dimensions: 114 H x 229 W x 19 mm D (4.5" x 9" x 0.75"); 3/4 slot

Configuration Guide



To Order (*Specify Model Number*)

Model Number	Price	Description
CTM-05/A	\$325	5-channel counter/timer board
CTM-10	395	10-channel counter/timer board

Each board supplied with software on 3.5" and 5.25" disks and complete operator's manual.

CTM-05/A Accessories

Model Number	Price	Description
STA-U	\$120	Universal screw terminal accessory, requires C-1800 cable
STP-37	70	Low cost screw terminal panel, requires C-1800 cable
STC-37	110	Direct screw terminal connector
C-1800	30	Cable to STA-U or STP-37

CTM-10 Accessories

Model Number	Price	Description
STA-50	\$120	Screw terminal accessory board, requires CDAS-2000 cable
STP-50	80	Low cost screw terminal panel, requires CDAS-2000 cable
CDAS-2000	30	Cable to STA-50 or STP-50
CCTM-26	30	Auxiliary cable to DB-25 male connector
K-1800	30	18" cable from CCTM-26 to STA-U

Ordering Example: CTM-10 10-channel counter timer with STA-50 screw terminal accessory board and CDAS-2000 cable, \$395 + 120 + 30 = \$545.