

# CIO-CTR05 and CIO-CTR10 5 & 10 Channel Counter Timer Board with Digital I/O



CIO-CTR05



Shown smaller than actual size

- ✓ 5/10 16-Bit Counters
- ✓ Counts Frequency to 7MHz
- ✓ Generates Frequency Output
- ✓ 16/32 Digital I/O Lines

The CIO-CTR05 and CTR10 are 5 and 10-channel counter timer boards for IBM PC and compatible computers. The boards employ the 9513 counter/timer chip, providing five counters with 16-bit timer registers (the CIO-CTR10 has two 9513 chips). The 9513 is an extremely powerful and flexible component, software programmable for event counting, pulse and frequency measurement, alarm comparator and other input functions. As an output device, the 9513 can generate frequencies with complex duty cycles and provide one-shot and continuous outputs.

The 9513 counter may be chained together via software, enabling, in the CIO-CTR05, a 16, 32, 40 or 48-bit counter to be constructed within the chip. In the CIO-CTR10, a 32, 48, 64 or 80-bit counter may be constructed. In addition, the gate source and gating functions are software programmable. The CIO-CTR05 also has 8/8 digital inputs/outputs, while the CIO-CTR10 has 16/16 digital inputs/outputs.

Access to the PC bus interface is provided via two interrupt lines. A 1 MHz crystal on board supplies a precise source of timing pulses. For those writing their own programs the Universal Driver Library provides programming access from most high programming languages.

### Cabling and Connection

Cabling to the boards is via standard 37-pin D connector. The CIO-CTR05 has one connector, while the CIO-CTR10 has two. Each connector cable carries all counter inputs, outputs and gates for one 9513, 16 digital lines, +5 V and ground.

### Specifications

#### DIGITAL I/O

**Output Low:** 0.4 V max @ 3.2 mA

**Output High:** 2.4 V min @ -200 μA

**Input Low:** -0.5 V

**Input High:** 2.0 V min, VCC max

**Drive Capability:** 5 LSTTL loads

#### POWER CONSUMPTION

**CIO-CTR10:** +5 V @ 300 mA typ (500 mA max)

**CIO-CTR05:** +5 V @ 190 mA typ (320 mA max)

#### ENVIRONMENTAL

**Operating Ambient:** 0 to 50°C

(32 to 122°F); 0 to 90% RH,

non-condensing

**Storage Ambient:** -20 to 70°C (-4 to 150°F)

To Order (Specify Model Number)	
Model Number	Description
CIO-CTR05	5 channel counter, 16 channel digital I/O board, requires terminal panel and cable
CIO-CTR10	10 channel counter, 32 channel digital I/O board, requires 2 terminal panels and 2 cables
CIO-TERMINAL	16" x 4" screw terminal board with prototype area, requires C37FF-2 cable
CIO-MINI37	4" x 4" screw terminal board, requires C37FF-2 cable connection cable, 2 ft
CIO-UNIV-DRVR	Universal Driver Library for DOS and Windows

**Ordering Example:** CIO-CTR05 digital I/O/counter board with CIO-MINI37 terminal panel, C37FF-2 cable and OMEGACARE<sup>SM</sup> 1-year extended warranty for CIO-CTR05 (adds 1 year to standard 3-year warranty).

D3  
DIGITAL I/O AND  
COUNTER/TIMER CARDS