

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

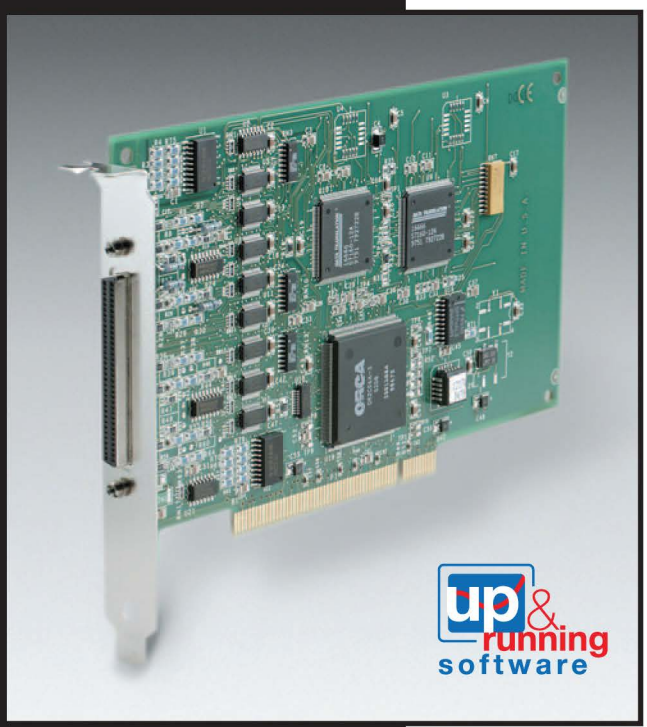
Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Tektronix / Keithley KPCI-3140* at our website: ***Click HERE***

KPCI-3140

8-Channel, 40MHz Counter/Timer with Digital I/O Board



- 8 counter/timers (16 bit)
- 4 interval timers (24 bit) capable of interrupting CPU on timeout
- Digital pattern recognition on 8-bit (Port D)
- 32 digital I/O lines for high channel count applications
- 40MHz clock frequency (max.)
- 32-bit DriverLINX® drivers plus bundled start-up software

Ordering Information

KPCI-3140 8-Channel Counter/ Timer PCI Board with Digital I/O

Functional Description

The KPCI-3140's integration of sophisticated timing, frequency and event counting, and digital I/O makes it a highly versatile, cost-effective alternative to using separate counter, timer, and digital I/O cards. This board contains eight 16-bit counter/timers, four 24-bit interval timers, and 32 digital I/O lines that can be programmed for input or output. Keithley's extensive software suite of 32-bit DriverLINX drivers is included. DriverLINX provides both an ActiveX and DLL interface for programming languages and test panels for easy performance verification.

Each of the eight counter/timers accepts both a clock input and a gate input signal, and outputs a clock output signal. Each counter can use a time base generated from an internal clock or from an external clock. Each counter can interrupt the CPU when it reaches a count of 0. The internal clock uses a 25ns time base with output frequencies ranging from 610Hz to 40MHz. An external clock is useful for pacing counter/timer operations at rates not available with the internal clock or for pacing at uneven intervals.

The clock output signal of one counter/timer can be routed internally to the clock input signal of the next counter/timer to cascade the two counter/timers. This creates a 32-bit counter/timer. To cascade more than two counter/timers, connect the counter/timers externally using the screw terminal panel accessory.

There are two methods for controlling the gate of each counter: by software or by an external gate signal. Use the external gate signal to trigger a one-shot output or to enable event counting, frequency measurement, or rate generation when the gate signal is active.

The KPCI-3140 allows the internal clock's output signal to be a pulsed output with either high-to-low transition or low-to-high transitions. The duty cycle (width) of the pulse can be programmed.

Interval Timers

The KPCI-3140 provides four 24-bit internal interval timers. An example of how these interval timers can be used is to generate a periodic interrupt to the host CPU to time an event, such as reading the digital inputs or updating the digital outputs. The interval timers use an internal clock input signal requiring no external connections. The frequency of the clock output signal range from 2.38Hz to 20MHz.

Digital I/O

The KPCI-3140 provides 32 digital I/O lines that can be programmed into 4 banks of 8 lines for input or output. The 24mA sink and 15mA source of the digital outputs can drive external solid-state relay modules.

This board generates an interrupt when any of the eight digital I/O lines corresponding to Digital I/O Port D changes state. The interrupts can be enabled one bit at a time on this port. Use this feature to monitor critical signals or to signal the host computer to transfer data to or from the board.

ACCESSORIES AVAILABLE

CAB-305	68-pin, 79 inch shielded cable
STP-68	Screw terminal panel (not CE approved)
STP-3140	Screw terminal panel
STP-ENCL	General purpose enclosure for STP-3140 and STP-68

APPLICATIONS

- Event counting
- Digital control
- Frequency measurements
- Interval measurements
- Complex pulse generation

Great mix of counters, timers, and digital I/O

DATA ACQUISITION PRODUCTS

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

KPCI-3140

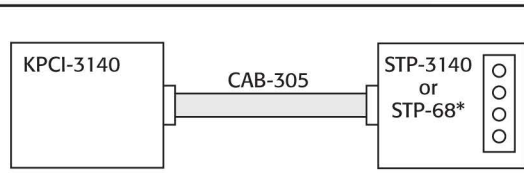
8-Channel, 40MHz Counter/Timer with Digital I/O Board

Connector Pin Assignments

The Counter/Timer and Digital input and output connections are made with a 68-pin connector.

Digital Ground	68	■ ■	34	Digital Ground
C/T Clock Input 0	67	■ ■	33	C/T Clock Input 1
C/T Clock Output 0	66	■ ■	32	C/T Clock Output 1
C/T Gate Input 0	65	■ ■	31	C/T Gate Input 1
C/T Gate Input 2	64	■ ■	30	C/T Gate Input 3
C/T Clock Output 2	63	■ ■	29	C/T Clock Output 3
C/T Clock Input 2	62	■ ■	28	C/T Clock Input 3
Digital Ground	61	■ ■	27	Digital Ground
Digital I/O Port A, Line 0	60	■ ■	26	Digital I/O Port A, Line 1
Digital I/O Port A, Line 2	59	■ ■	25	Digital I/O Port A, Line 3
Digital I/O Port A, Line 4	58	■ ■	24	Digital I/O Port A, Line 5
Digital I/O Port A, Line 6	57	■ ■	23	Digital I/O Port A, Line 7
Digital Ground	56	■ ■	22	Digital Ground
Digital I/O Port B, Line 0	55	■ ■	21	Digital I/O Port B, Line 1
Digital I/O Port B, Line 2	54	■ ■	20	Digital I/O Port B, Line 3
Digital I/O Port B, Line 4	53	■ ■	19	Digital I/O Port B, Line 5
Digital I/O Port B, Line 6	52	■ ■	18	Digital I/O Port B, Line 7
Digital I/O Port C, Line 0	51	■ ■	17	Digital I/O Port C, Line 1
Digital I/O Port C, Line 2	50	■ ■	16	Digital I/O Port C, Line 3
Digital I/O Port C, Line 4	49	■ ■	15	Digital I/O Port C, Line 5
Digital I/O Port C, Line 6	48	■ ■	14	Digital I/O Port C, Line 7
Digital Ground	47	■ ■	13	Digital Ground
Digital I/O Port D, Line 0	46	■ ■	12	Digital I/O Port D, Line 1
Digital I/O Port D, Line 2	45	■ ■	11	Digital I/O Port D, Line 3
Digital I/O Port D, Line 4	44	■ ■	10	Digital I/O Port D, Line 5
Digital I/O Port D, Line 6	43	■ ■	9	Digital I/O Port D, Line 7
Digital Ground	42	■ ■	8	Digital Ground
C/T Clock Input 4	41	■ ■	7	C/T Clock Input 5
C/T Clock Output 4	40	■ ■	6	C/T Clock Output 5
C/T Gate Input 4	39	■ ■	5	C/T Gate Input 5
C/T Gate Input 6	38	■ ■	4	C/T Gate Input 7
C/T Clock Output 6	37	■ ■	3	C/T Clock Output 7
C/T Clock Input 6	36	■ ■	2	C/T Clock Input 7
Power Ground	35	■ ■	1	+5V Output

Configuration Guide



Specifications

COUNTER/TIMER

NUMBER OF COUNTER/TIMER CHANNELS: 8.

CLOCK INPUTS:

- **Threshold Voltage:** 0.98V.
- **Input Sensitivity:** ±200mV.
- **Input Hysteresis:** 60mV.
- **Input Current (V_{IN} = 0):** 0.
- **Input Current (V_{IN} = 5V):** 0.5mA.
- **Minimum Pulse Width:** 25ns (high); 25ns (low) sampled by 40MHz.
- **Maximum Frequency:** 40MHz typical.

GATE INPUTS:

- **High-Level Input Voltage:** 2.0V minimum.
- **Low-Level Input Voltage:** 0.8V maximum.
- **Minimum Pulse Width:** 25ns (high); 25ns (low) sampled by 40MHz.

COUNTER OUTPUTS:

- **Output Driver High Voltage:** 2.0V minimum (I_{OH} = –15mA); 2.4V minimum (I_{OH} = –3mA).
- **Output Driver Low Voltage:** 0.5V maximum (I_{OH} = 24mA); 0.4V maximum (I_{OH} = 12mA).

DIGITAL INPUT/OUTPUT

NUMBER OF LINES: 8 bidirectional per port.

INPUTS:

- **Input Type:** Level-sensitive.
- **High-Level Input Voltage:** 2.0V minimum.
- **Low-Level Input Voltage:** 0.8V maximum.
- **Minimum Pulse Width: Ports A, B, C:** Not applicable. **Port D:** 66ns high and low. (The minimum pulse width applies only to interrupt-on-change detection. Pulses less than the minimum may not be detected as a change.

OUTPUTS:

- **Output Driver High Voltage:** 2.4V minimum (I_{OH} = –15mA).
- **Output Driver Low Voltage:** 0.5V minimum (I_{OL} = 12mA).

ENVIRONMENTAL

OPERATING TEMPERATURE: 0° to 70°C.

STORAGE TEMPERATURE: –25° to 85°C.

RELATIVE HUMIDITY: To 95%, non-condensing.

COMPLIANCE: Conforms to European Union directive 89/336/EEC (EMC directive), EN55022 and EN50082-1. (Product is CE marked.)

DIMENSIONS: 6.875 in L × 4.2 in W (PCI short card).

I/O CONNECTOR: 68-pin AMP (#749621-7).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP