PICO-DIO16RO8

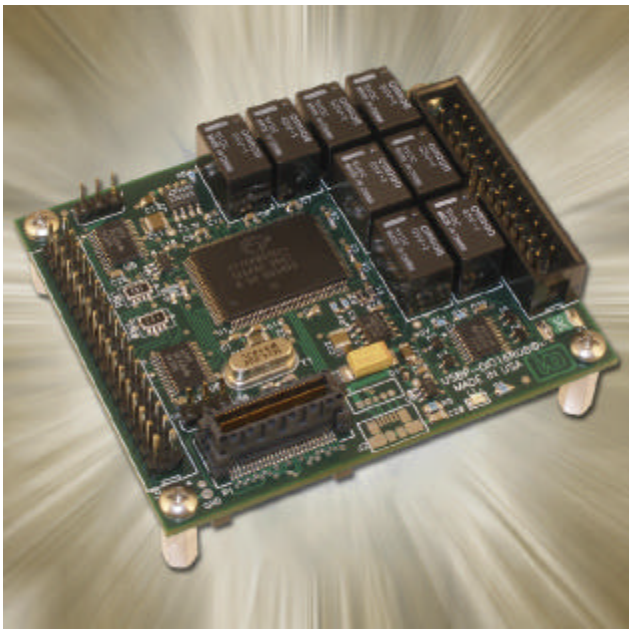
16 TTL/LVTTL Digital I/O
and 8 Relay Outputs Module

FEATURES

- **Pico-I/O™ USB device featuring SUMIT™ stacking connector**
- **16-channel TTL/LVTTL digital I/O**
- **All 16 I/O lines buffered with 32mA sink/source current capabilities**
- **8 Form C electro-mechanical relays switch 1A**
- **Up to 4 I/O expansion boards in SUMIT™ stack**
- **Custom high-speed function driver**
- **PICO-I/O™ module size (60mm x 72mm) & mounting capability**

FACTORY OPTIONS

- **Extended temperature**



FUNCTIONAL DESCRIPTION

The PICO-DIO16RO8 is an ideal OEM USB solution for adding embedded, easy-to-install buffered TTL/LVTTL digital I/O and relay output capabilities to any embedded computer supporting Pico-I/O™ and the SUMIT™ A connector. The Pico-I/O™ board standard (SFF-SIG: www.sff-sig.org) is the latest, smallest, stacking form factor for embedded I/O since the PC/104 standard using half the area of a PC/104 module. Up to four of the PICO-DIO16RO8 can be mounted together

Featuring 8 Form C (SPDT) electro-mechanical relays and 16 TTL/LVTTL buffered digital I/O lines, the unit is the smallest of its kind for digital monitoring and control using USB. The digital I/O lines have 32mA of both sink and source to drive external components and are available via a 34-pin IDC type vertical header. The pinout allows a simple accessory cable to interface to our 50-pin external signal conditioning products. The board can be switched from 5V to 3.3V signaling to match a particular device connected. The 8 relay outputs are de-energized at power-up to prevent an unintended control output signal. Data to the relays is latched. The relay contacts are available via a 26-pin IDC vertical header-keyed box type connector.

The PICO-DIO16RO8 draws all required power from the SUMIT™ connector of the SUMIT based embedded computer. The Pico-I/O™ size specification (4320 sq. mm) is exactly half of the PCB area of the popular PC/104 (8640 sq. mm) embedded board standard. The small size and easy connection makes the unit an excellent choice for a variety of embedded applications such as mobile, robotics, kiosks, and embedded medical and machine equipment.

The PICO-DIO16RO8 is designed to be used in rugged, industrial, and mobile environments and also has the option to be upgraded to extended temperature (-40 to +85°C) specifications for military and defense applications.

ACCESSORIES

The PICO-DIO16RO8 is available with optional cable assemblies, screw terminal boards and external signal conditioning boards supporting high current relays, 120/240AC modules, and optically isolated inputs.

SOFTWARE

The PICO-DIO16RO8 utilizes a high-speed custom function driver optimized for a maximum data throughput that is 50-100 times faster than the USB human interface device (HID) driver used by many competing products. This approach maximizes the full functionality of the hardware along with capitalizing the advantage of high-speed USB 2.0. The PICO-DIO16RO8 is supported for use in most USB supported operating systems and includes a free Linux and Windows 98se/Me/2000/XP/2003 compatible software package. This package contains sample programs and source code in Visual Basic, Delphi, C++ Builder, and Visual C++ for Windows. Also incorporated is a graphical setup program in Windows. Third party support includes a Windows standard DLL interface usable from the most popular application programs. Embedded OS support include Windows Xpe.

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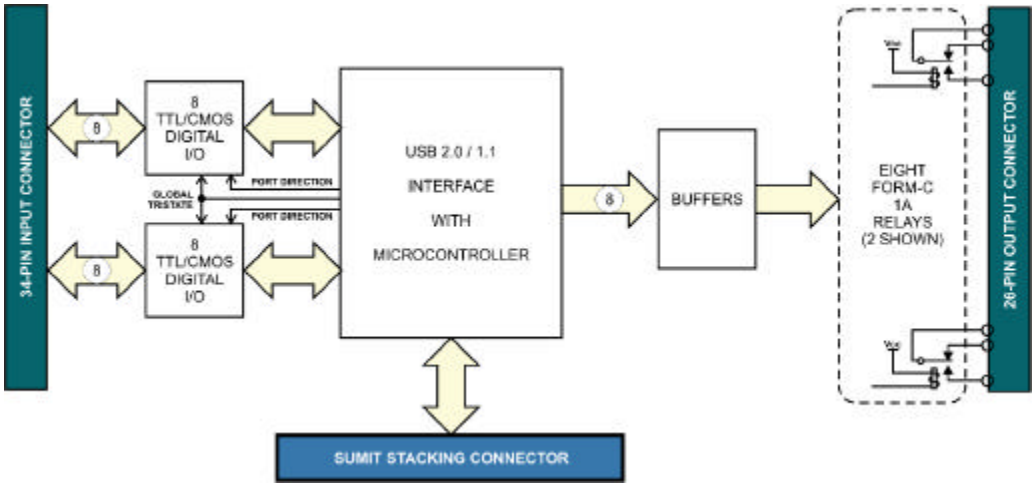
BLOCK DIAGRAM



SPECIFICATIONS

Digital I/O

Number:	16
Connector:	34-pin vertical IDC header
Signaling:	5V/3.3V signaling selectable

Digital Inputs (TTL Compatible)	5V signaling
Logic High:	2.0 to 5.0 VDC
Logic Low::	-0.5 to +0.8 VDC

Digital Outputs	5V signaling
Logic High:	2.0 VDC minimum, source 32 mA
Logic Low:	0.55 VDC maximum, sink 32 mA

Relay Outputs

Number:	Eight(8) SPDT form C
Connector:	26-pin vertical ID keyed box header
Contact Type:	Single crossbar; Ag with Au clad
AC Load:	0.5 A at 125 VAC (62.5 VA max.)
DC Load:	1A at 24 VDC (30 W max.)
Switching Voltage:	125 VAC, 60 VDC max.
Switching Current:	1A max.
Contact Resistance:	100 mOHM max
Contact Life: mech'l:	5 million operations min.
Operating Time:	5 msec max.
Release Time:	5 msec max.

Bus Type

USB 2.0 high-speed, USB 1.1 full-speed compatible

Bus Connectors

PICO-DIO16RO8	SUMIT A connector top and bottom

Environmental

Operating Temperature Range:	0?to 70?C (-40?to +85?C extended temperature option)
Storage Temperature Range:	-40?to +85?C
Humidity:	Maximum 90% RH, without condensation.
Board Dimension:	60mm x 72mm.

Power

+5VDC provided via SUMIT A connector with USB power switch limiting current to 500mA**
5V@ 30mA, typical (all relays off, add 30mA per relay)
5V@ 270mA, typical (all relays ON)

**If the application expects to have (all relays On), the amount of power to source any of the 16 digital I/O must be limited to less than 230mA or an average of 14mA per channel. If more current is necessary the USB power switch can be bypassed to provide up to 2A for high current applications.
Example: If eight of the channels are being used as inputs, then eight other digital lines could source 28mA average on their outputs.

Ordering Guide

PICO-DIO16RO8	16 digital I/O and 8 relay outputs

Options

-T	Extended temperature option

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