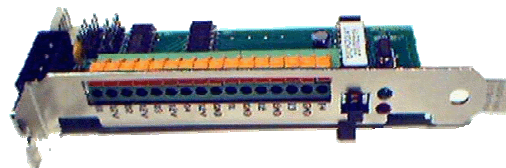## Serial I/O Interface With 4 Open Collector Outputs, 4 Inputs with Pull-ups

Features

- 16 spring cage clamp terminal blocks
- Four Open Collector Outputs
- Four fuse-protected 12V Supply Terminals
- Four Inputs for contact closure sensing
- Four Ground Terminals
- One Pushbutton input
- One Green LED
- One Red LED
- PCI Card Bracket with I/Os marked
- Two 10-Pin Headers supporting two standard serial port pin outs
- Floppy and Hard Drive style power connections

Applications

The Serial I/O interface is an easy way to digital I/O to your Mini-ITX and standard PC. Any PC with COM port pin headers on the motherboard may use the Serial I/O. PCs with DB9 serial ports may use the Serial I/O interface externally.

Linux users using Enhanced Machine Controller (EMC) software (http://www.linuxcnc.org) and other flexible CNC software will find the Serial I/O interface inputs useful for limit switches, and the outputs useful for controlling spindle motors, blowers, mist, flood, and more.

Point of sale systems may integrate the Serial I/O interface for opening the cash drawer using a solenoid attached to one of the outputs, and sensing the state (open/closed) of the cash drawer using a micro switch coupled to one of the inputs. A key switch could be attached to an input to provide a quick, convenient way for a clerk to logout and secure the register.

Security systems can use the 4 contact closure inputs to monitor door open/closed sensors, occupancy sensors, window open/closed sensors, beam break detectors, and any other contact closure switch type device. Outputs are useful for controlling lights, sounding alarms, and for controlling door latch solenoids to unlock doors.

Simple Serial Protocol

The simple serial protocol used by the Serial I/O Interface is easy to use. The interface is configured for 9600bps data rate, 8 data bits, no parity, and 1 stop bit.

The commands for the Serial I/O are:

```
Oxx    Output hexadecimal data xx
I      Input hexadecimal data
Ex     Even driven input
enable/disable (x=1 to enable)
H      Set half duplex operation
(Echo off)
F      Set full duplex operation
(Echo on)
V      Version check
```

See the Serial I/O manual for more detailed descriptions on how to control the I/O.

Specifications

Microcontroller	Atmel 89C4051 running at 11.0592MHz
Serial Configuration	9600bps, 8 data bits, no parity, 1 stop bit (9600-8-N-1)
5V Input	5V Typical, (4.5 minimum, 5.5V maximum)
12V Input	12V Typical (5V minimum, 50V maximum)
12V Output	Limited to 500mA maximum current by thermal PTC fuse
Output Current Sink	500ma peak, 175ma per output maximum sustained (See ULN2003A Datasheet for more detailed information)
Input Voltage Range	-0.7V to 12.7V, pulled up to 5V if left unconnected
Wire Gauge	Spring terminals accept 18AWG to 26AWG wire
ESD Protection	I/Os Tested to 8kV (No damage or resets)
Operating Temperature	-20C to 70C
Storage Temperature	-50C to 85C

Side view, dimensions are in inches.
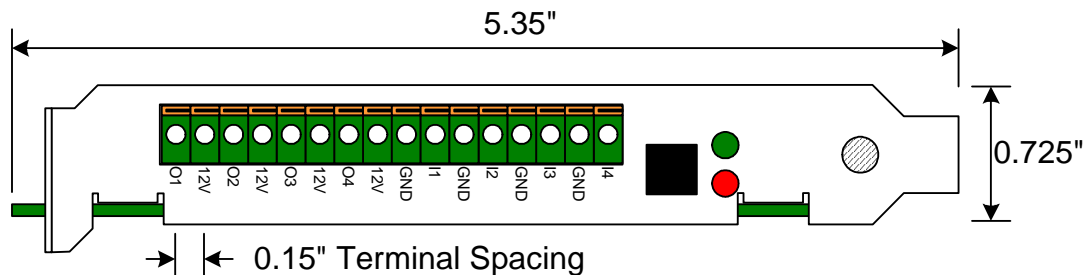
Drawing of board from top side showing connectors:
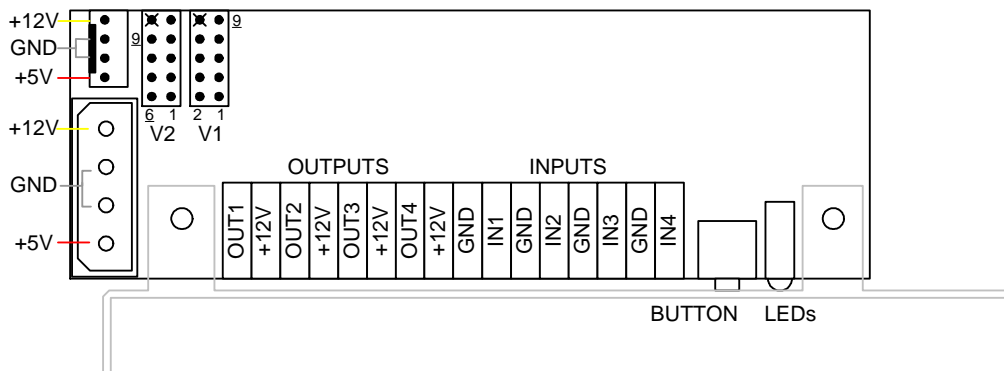
Ordering Information

SERIO-A	Serial I/O Interface Version A

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