SERDIO24OPTO
24 channel Digital IO (Opto) card
Low cost DAQ & Control products

**EasyDAQ**
Neat products, low cost, no frills

Product Datasheet 16

Features

- User selectable opto-isolated inputs allow a max DC input voltage of 70V

- 5V DC external power supply

- Power consumption approx 120mA (all channels active @ max drive current)

- 2.5mm jack socket or screw terminal power connection option

- Example programs are available for LabView, Visual Basic and C++

- Supplied with nylon feet (will take self tapping screws)

- Corner mounting holes allow cards to be stacked if required

- A protective perspex cover & base is also available

- 5V max output voltage per channel

- 20mA (max) drive current per output (40mA max per 8 channels)

- Directly compatible with our range of 24 channel relay cards (see image)

- Option of either a 9 way D type (female) or 10 way header connector serial port connector

- Two output connector options (50 way header or single row of male header pins - allows board to be mounted as a daughter board

- 0V, 5V and 12V also taken to all output connector options

- Standard (9 way D Type straight through) serial cable required for connection to PC serial port

- 0V and 5V DC available at output connector
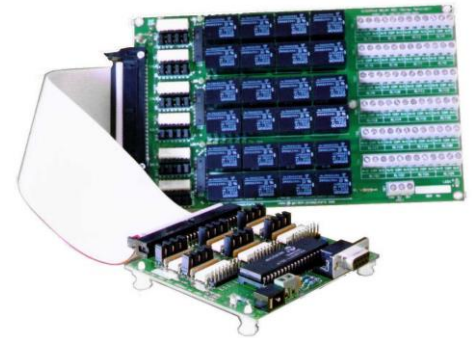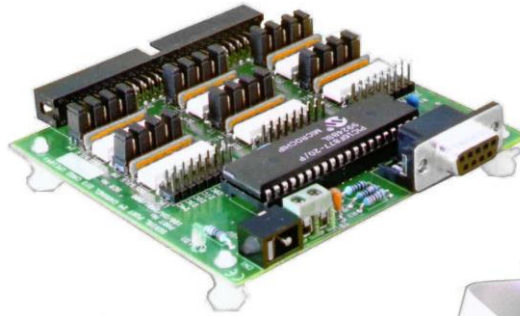
Description

This card is a PC104 profile channel digital input/output card designed to be connected to any RS232 compatible serial port serial and commanded via a simple command protocol. Inputs have the option of opto-isolation, with a max input voltage of 70V DC. Each output can be independently set to either a logic 0 or logic 1 or read under software control. This card is directly compatible with our range of 24 channel relay cards and can therefore be used to control upto 24 relays or to achieve a mixture of relay control and logic level digital input & output signals.

The card is available with the option of two alternative output connector types. It is designed with the option a 50 pin male bow header or with a single row of male header pins mounted on the under side of the card allowing it to be mounted as a daughter board.

Specifications

Serial Interface
Standard RS232 electrical interface with 9 way (female) D Type connector.
Power supply
5V DC
Power consumption
10 mA standby, 120 mA all relays active

Operating temp range
0-70^{0}C
Output channels
5V (max) @ 20mA (max) per output or 40mA (max) for per group of 8 channels
Dimensions
Dimensions approx 90mm (D) 95mm (W) 15mm (H) (exc feet)

Order codes

SERDIO24OPTO
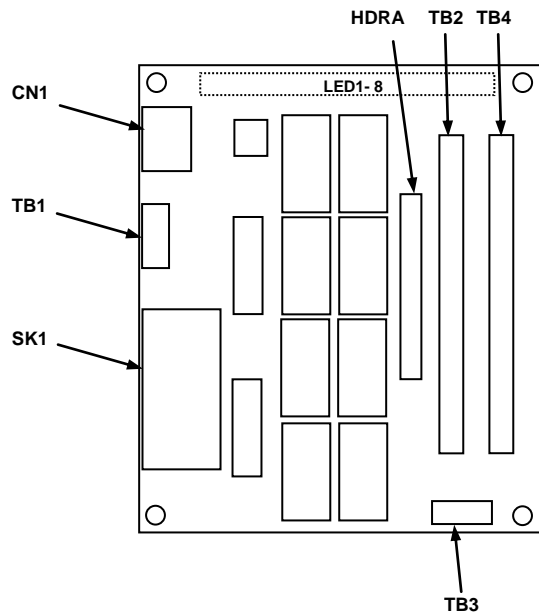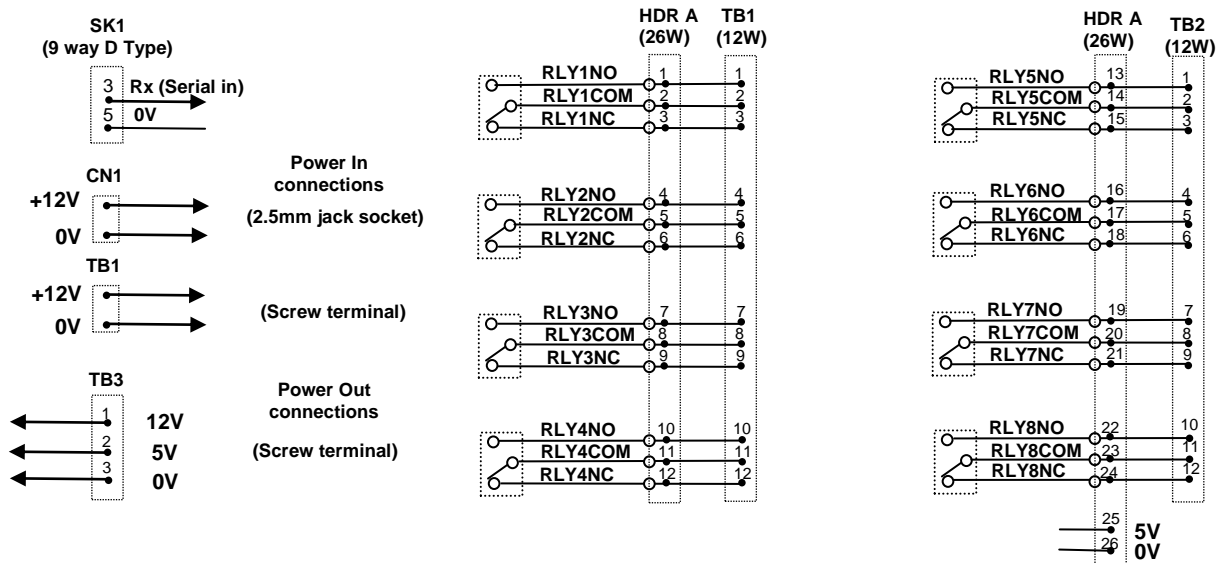9 way D type input & screw terminal output connector
SERHDRDIO24OPTO
10 way header input & screw terminal output connector

SERDIO24OPTO
24 channel Digital IO (Opto) card
Low cost DAQ & Control products

EasyDAQ
Neat products, low cost, no frills

Product Datasheet 16

Connection details

External connections to the card are shown below:

PCB layout

SERDIO24OPTO
24 channel Digital IO (Opto) card
Low cost DAQ & Control products

Product Datasheet 16

Serial Port settings
Baud rate: 9600
Parity: 0
Data: 8 bits
Stop bits: 1

Handshaking
None – output status reflects incoming data bytes.

Command format

The following commands show the ASCII characters required to command each port of the PIC device (Hex equiv shown in brackets - can be commanded via Windows HyperTerminal – see below).

Port B (Channels 1-8) commands:
A (41H), X   Read Port B (Char X=don't care. Device sends 1 byte of returned data).
B (42H), X   Set direction of Port B, 1=Input, 0= output. (i.e. X=10111111 (AFH) = bit 6 output, the rest inputs).
C (43H), X   Write data X to Port B (i.e. X=00000001 (01H), sets channel 1 to active).

Port C (Channels 9-16) commands:
D (44H), X   Read Port C (Char X=don't care. Device sends 1 byte of returned data).
E (45H), X   Set direction of Port C (see above example).
F (46H), X   Write data X to Port C (see above example).

Port D (Channels 17-24) commands:
G (47H), X   Read Port C (Char X=don't care. Device sends 1 byte of returned data).
H (48H), X   Set direction of Port C (see above example).
J (4AH), X   Write data X to Port C (see above example).

Valid data bytes are latched by the card until a further valid data byte is written to it.

Using Windows HyperTerminal
In order to test operation, the card can be connected to a serial port and controlled from HyperTerminal. Ensure port configuration is set as shown above, type (ASCII) characters shown above to achieve port direction and read or write command/data.

Example downloads
Example driver files and executables are available from the 'downloads' area of our website (www.easydaq.co.uk). Example programs are available for LabView, Visual Basic and C++.