USBDIO24
USB 24 channel digital I/O card
Low cost Data Acquisition & Control products

EasyDAQ
Neat products, low cost, no frills

Product Datasheet 21

Features

- USB powered and controlled - USB1 or 2 compatible (Type B USB connector)

- Available with LabVIEW, C++ and Visual Basic example control programs

- OS compatibility: Win98SE/ME/2K/XP/Vista, Windows CE, Mac OSX and Linux

- Can also be controlled with direct command input from terminal emulation programs (such as Windows HyperTerminal)

- Can be used with any of our range of DIO24Mx, 24 channel relay cards (see image below) – full opto isolation to 5000VAC via relay card opto isolators

- Mounting holes allow the USBDIO24 card to be mounted directly above the relay card

- LED status indicator for USB power

- Header connector (vertical, 50 way, with ejector latches) for DIO signal connections

- DIO connections are pin compatible with NI DIO24 (6503) digital I/O cards

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

- Corner mounting holes allow cards to be stacked if required

- Protective perspex cover & base available.

- USB (Type B) cable available if required

- C€ & RoHS compliant, BS9001:2000 manufacture
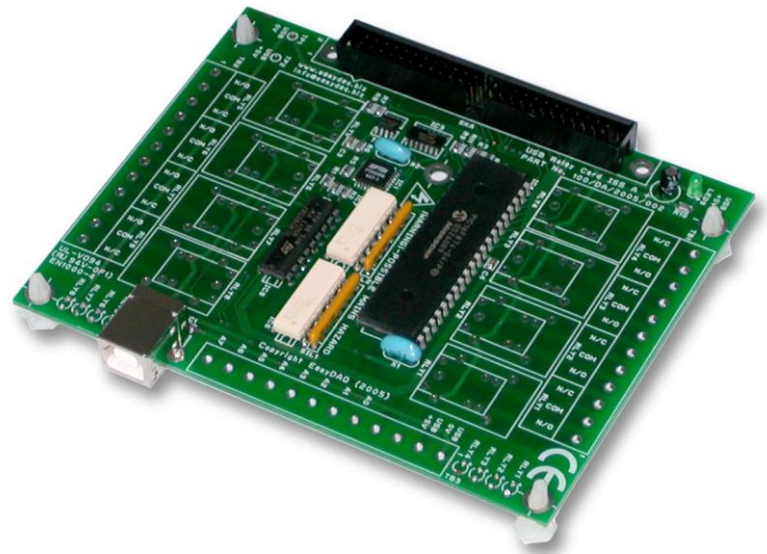
Description

General purpose USB controlled 24 channel digital input/output signal card. Hot pluggable and powered from the USB port, they are available with a range of software driver options, including direct control using simple ASCII characters sent from any terminal emulation program.

DIO signals connect via vertical, 50 way header connector (with ejector latches).

USB 0V & 5V power connections are also accessible on board and are connected to the 50 way header connector, making them readily available for onward connection to target system wiring if needed.

Specifications

USB Interface
USB1/2 compliant interface. Hot pluggable and powered from the USB port. Type B USB connector.

DIO signals
Output high 5.5VDC, output low 0.6V (max). Max output current sink or source (any pin) 25mA, max combined sink/source current (all ports) 200mA. DIO signal activate/ de-activate time: 1mS/1mS, (inc SW overhead).

Operating temp range
0-70^{0}C

Dimensions
Dimensions approx 106mm (D) 129mm (W) 15mm (H) (exc feet), Weight 55g.

Order code

USBDIO24
24 channel USB connected digital input/output card with vertical, 50 way (latching) header connector.

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Serial Port settings

Baud rate: 9600
Parity: 0
Data: 8 bits
Stop bits: 1

Handshaking

None – output status reflects incoming data bytes.

Auto detection & com port assignment

When you connect this card to a USB port on your computer, it will be auto-detected and ask you to install drivers (downloadable from the 'downloads' section of our website). After installation, this USB device will appear as a 'virtual' COM port and be assigned a COM port number. Following installation, the COM port number can be manually re-assigned via the control panel if required.

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++.
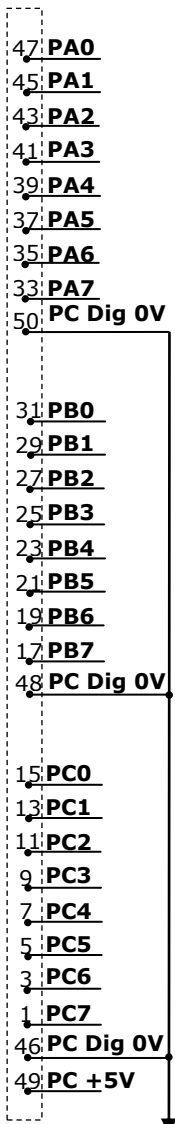
Uses existing serial port software examples

This card uses the same software drivers & command interface as that used in our range of serial port relay cards (SERDIO8/16/24 etc). Therefore, if you have already used the serial port cards you may be able to re-use your code or use a USB card in place of a serial port card.

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Header connector signal pin connections

HDR1 signals
HDR1 is a 50 way (male) vertical header connector with signal pin connections as shown below.

**HDR1
(50W Male Header)**

Pin	Signal
47	**PA0**
45	**PA1**
43	**PA2**
41	**PA3**
39	**PA4**
37	**PA5**
35	**PA6**
33	**PA7**
50	**PC Dig 0V**
31	**PB0**
29	**PB1**
27	**PB2**
25	**PB3**
23	**PB4**
21	**PB5**
19	**PB6**
17	**PB7**
48	**PC Dig 0V**
15	**PC0**
13	**PC1**
11	**PC2**
9	**PC3**
7	**PC4**
5	**PC5**
3	**PC6**
1	**PC7**
46	**PC Dig 0V**
49	**PC +5V**

Also connect to pins
44 to 2 inclusive (0V)