# USB16VIOPTO

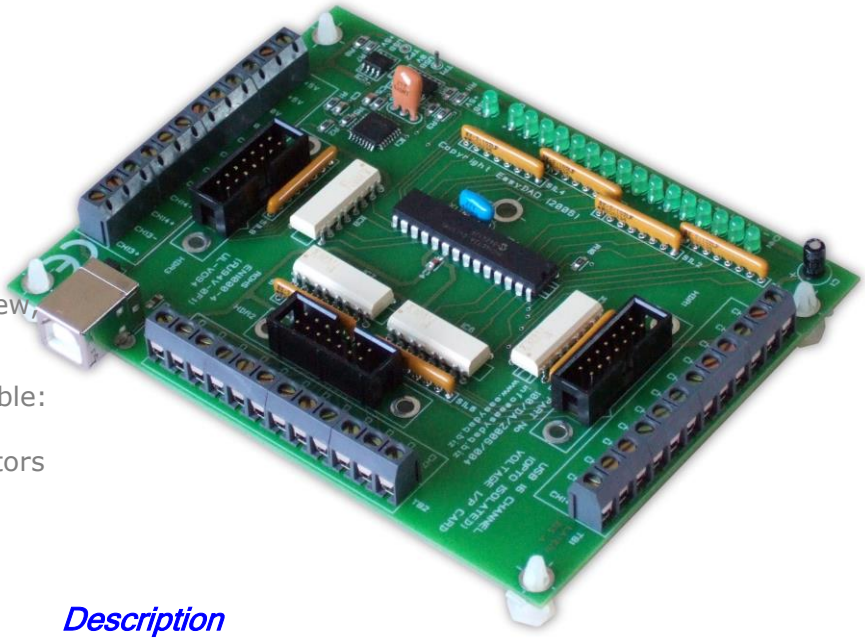
*Low cost Data Acquisition & Control products*

## USB 16 channel opto-isolated voltage input card

**Product Datasheet 26**

## Features

- USB connected/powered, hot pluggable, 16 channel (opto isolated) voltage input card
- Low cost, small profile, stackable
- OS compatibility: Win98SE/ME/2K/XP/Vista, Mac OSX and Linux
- Example code downloads available for: Labview, C, VB, Agilent VEE & Delphi
- Two types of screw terminal connector available: Fixed screw terminal blocks or two part (male/female), quick disconnect type connectors
- Same profile as our existing range of USB products. Several cards (of different types) from our existing range of USB card products could be stacked
- Opto isolated DC voltage input range (Logic High): 5V to 100V (DC max), Logic Low 0V to 1.5V
- USB opto-isolation from Voltage Input signals: 2500V (ACVrms min). Uncommitted opto-isolated inputs allow complete electrical isolation if needed
- LED status indicators for USB connection/ power, and all voltage input channels
- 0V/5V available at screw terminal and header connectors for onward powering (400mA max) or test/self test functions etc
- Screw terminal and (14W) header connector access to all voltage input channels
- Headers can be used for rapid connection to target hardware or for test/self test purposes
- Supplied with nylon feet
- Clear Perspex cover & base also available
- CE & RoHS, BS9001:2000 manufacture



## Description

Low cost, general purpose, USB connected & powered, 16 channel, opto-isolated, voltage input card.

Available with two types of screw terminal connector, a fixed screw terminal block (see image above) or a two part male/female type (see image on page 3).

Voltage input channels are also connected to three 14 way header connectors allowing rapid connection to OEM/users target hardware system, or allowing parallel connection for system test or self test functions etc.

Example programs are available in LabView, Visual C, Visual Basic, Agilent VEE and Delphi which demonstrate basic functionality of the card.

## Specifications

**USB Interface**
USB 1 & 2 compatible (virtual COM port)

**Voltage input signals**
I/O Low, 0V to 1.5VDC (Typ).
I/O High, 5V to 100V DC (Max) per channel.

**Operating temp range**
0-70$^0$C

**Power**
5V DC @ 100mA (max), powered from the USB port (500mA USB power max).

**Dimensions**
Dimensions 100mm (D) 130mm (W) 25mm (H) (with 2 part screw term connectors, exc feet), Weight 90g.

## Order codes

**USB16VIOPTO**
USB 16 channel voltage input card, with fixed screw terminal connectors

**USB16VIOPTO2**
USB 16 channel voltage input card, with 2 part (male/female) screw terminal connectors

# USB 16 channel opto-isolated voltage input card

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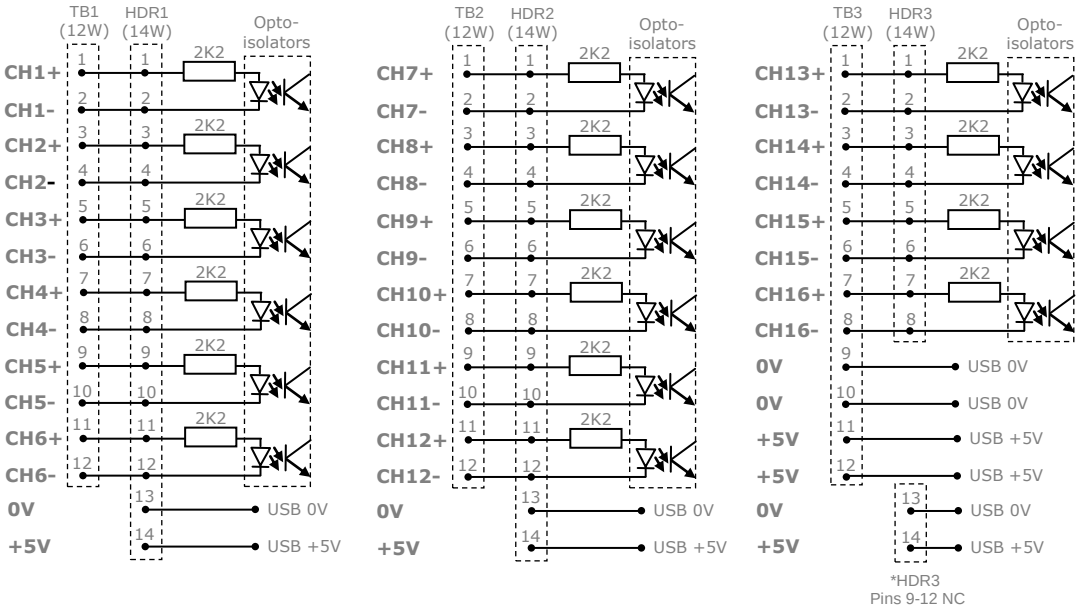
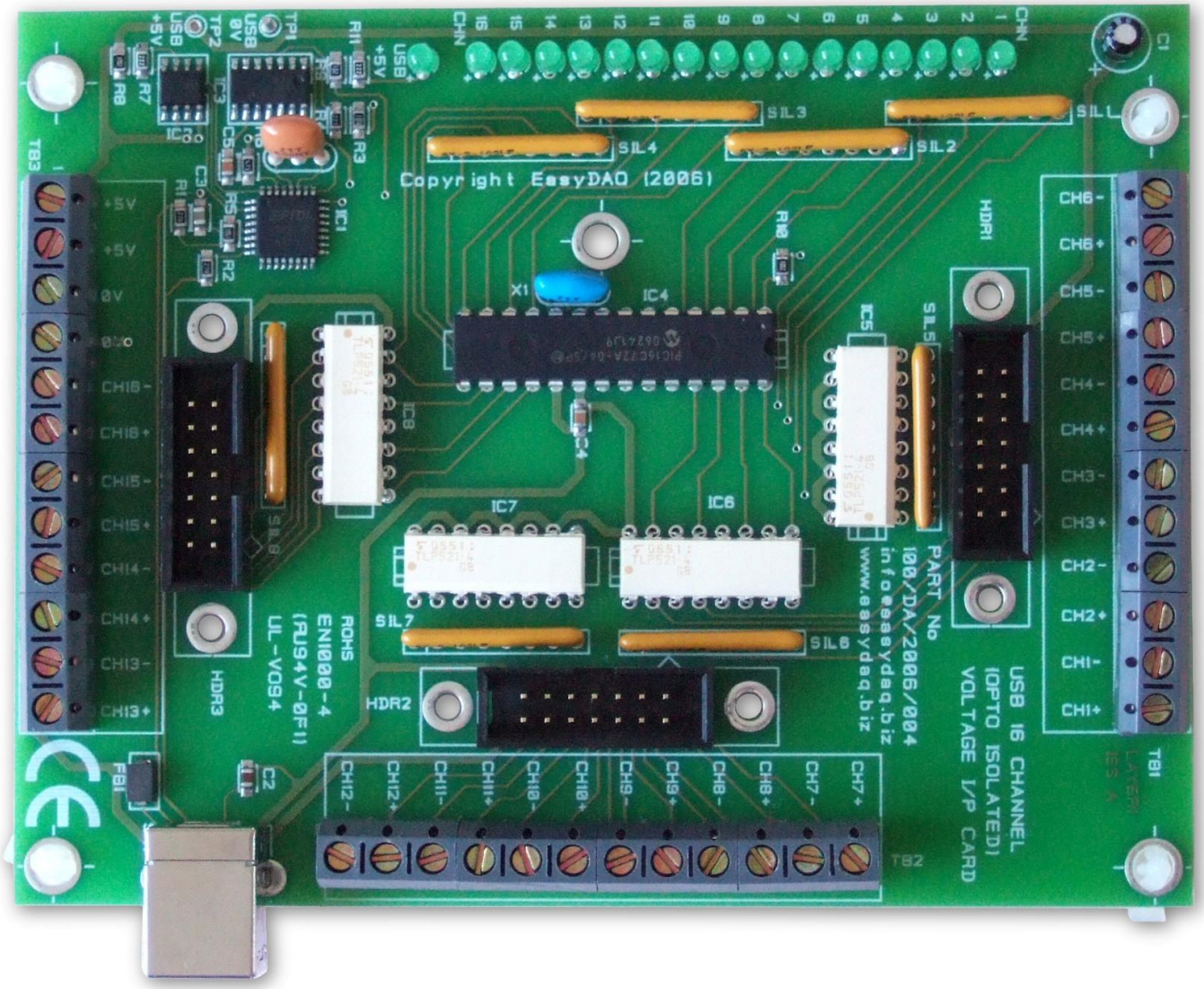



Voltage input channel configuration and screw terminal/header connector pin connections



## Serial Port settings

Baud rate: 9600
Parity: 0
Data: 8 bits
Stop bits: 1
Handshaking: None

## Auto detection & com port assignment

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

## Command format

The card is commanded via simple ASCII character (+ status byte) commands that address each port of the PIC device (Hex equiv shown in brackets). Can also be commanded via HyperTerminal – see below.

**Port B (Channels 1-8) commands:**

ASCII 'B' (42H), X Set direction of Port B, 1=Input, 0= output. (i.e. where X=10111111 (AFH) = sets bit 7 as an output, the rest as inputs).
ASCII 'A' (41H), X Read Port B (Char X=don't care. Device sends 1 byte of returned data).
ASCII 'C' (43H), X Write data X to Port B (i.e. X=00000001 (01H), sets channel 1 to active). Valid data bytes are latched by the card until a further valid data byte is written to it.

**Port C (Channels 9-16) commands:**

ASCII 'E' (45H), X Set direction of Port C, 1=Input, 0= output. (i.e. where X=10111111 (AFH) sets bit 7 as an output, the rest as inputs).
ASCII 'D' (44H), X Read Port C (Char X=don't care. Device sends 1 byte of returned data).
ASCII 'F' (46H), X Write data X to Port C (i.e. X=00000001 (01H), sets channel 1 to active). 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 Windows 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 currently available for LabView, Visual Basic, Visual C, Agilent VEE & Delphi.

## Uses existing USB & serial port software examples

This card uses the same software drivers & command interface that is used in our existing range of USB/Serial port relay & DIO card products. Therefore, if you have already used these products on previous projects, you may be able to re-use some or all of your code (or use a USB card in place of a serial port card).