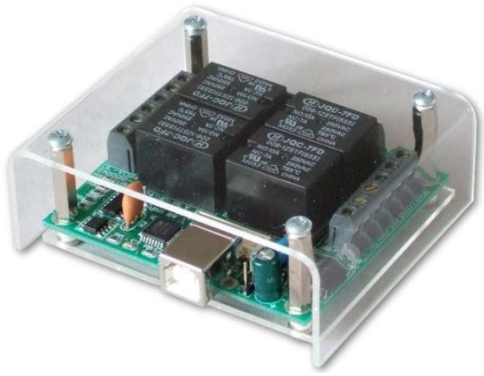
## Features

- USB connected & powered card, 4 opto-isolated relays (two types available) and 4 DIO channels
- Low cost, high density, small profile, stackable
- OS compatibility: Win98SE/ME/2K/XP/Vista/CE/7/8/10, Mac OSX and Linux
- Example code downloads available for: Labview, VB, VC, C#, JAVA, Agilent VEE, Delphi and Python. Uses simple ASCII/Hex text command strings
- Command set & software interface is identical to our existing range of both serial & USB port products. If you have previously used our products, code written can be easily ported to this product
- USB 0V & +5V available via screw terminal blocks. Can be used for onward powering or switching of target application, contact closure purposes etc. (300mA max). Option to power relays from an external +5V supply.
- Relays are SPDT, Form C, changeover type, with N/O, COM and N/C contacts. Edge mounted screw terminal block access to N/O COM & N/C relay contacts (4 on-board relays) via edge mounted screw terminal blocks
- Two types of relay available: 10A/240V AC power relay and 1A, high sensitivity (gold contact) signal relay. See page 2 for detailed relay specs.
- USB opto-isolation to the four on-board relays = 2500V (ACVrms min).
- LED status indicators for USB power/ connection and relay activation status
- PCB tracking (& power relays) are designed to handle 10 amps @ 240V AC, or 8A @ 30V DC (switched or continuous)
- Supplied with nylon feet. Clear Perspex cover & base option available
- DIN rail base clip (with Perspex cover) mount option also available
- CE, RoHS & BS9001:2000 compliant



## Description

Low cost, general purpose, USB connected & powered card with 4 on-board, opto-isolated, relays (two relay types available) and 4 DIO channels.

Available with the option of two types of relay, a 240VAC/10Amp power relay, or a 30VDC/1A high sensitivity (gold contact) signal relay.

PCB tracking of the USB4PRMx is designed to handle 10 Amps.

The UB4SRMx has two LEDs to indicate data transfers between your control hardware and the relay card for help with debugging and testing. The USB4SRMx also has a linked option for complete Opto-Isolation of the relay circuits. See Data Sheet 57 for details.

3 relay voltage options are available on the Power version of the boards. The boards also have 4 LED relay status indicators.

Available with a fixed screw terminal block (see images) giving access to N/O, COM & N/C relay contacts, four DIO channels and the USB 0V & +5V power which can be used for onward switching to your target application.

The 5V logic level DIO channels are capable of supplying +/-25mA per channel.

Relays can also be powered from an external +5V supply (USB power can be isolated via link header).

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

The card is RoHS compliant and CE marked.

**NOTE**
The USB4SRMx has an optional SPI/I2C capability. See Data Sheet 57 (USB4-SPI-I2C-SRMx)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## *Specification*

### Power supply
USB or external 5V powered (up to 4 relays @ 40mA per relay).

### Digital I/O signals
I/O Low, 0V to 1.5VDC (Typical). I/O High, 4V to 5V DC (Max) per channel.

Outputs, sink/source 25mA

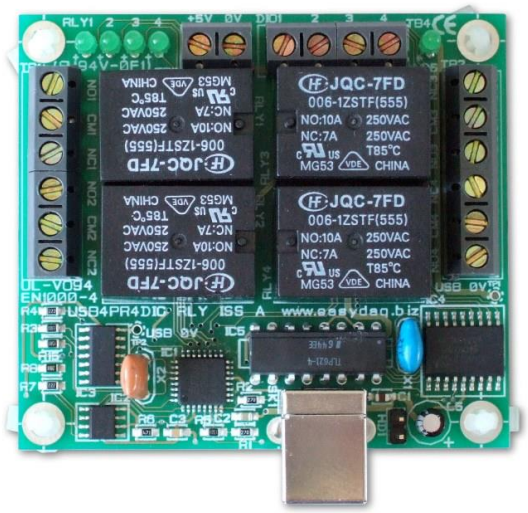
### Control Interfaces
USB 1, 2 or 3, Type B connector, hot pluggable.

### Operating temp range
0 to 70$^0$C

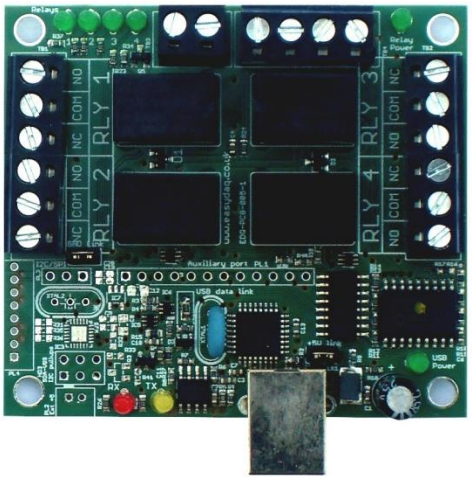
### Dimensions
Dimensions 64mm (D) 72mm (W) 25mm (H) (exc feet), Weight 80g.

## *Specification: Relays*

| Parameter | 5V Power relays | 6V Power relays | 12V Power relays | Signal relays |
|---|---|---|---|---|
| Rated voltage/current | 5VDC/71mA each | 6VDC/60mA each (50mA at 5V) | 12VDC/30mA each | 5VDC/42mA each |
| Must operate/release voltage | 75%/10% of rated voltage | | | 75%/10% of rated voltage |
| Contact ratings | 10A/240VAC or 8A 30VDC | | | 1A/120VAC or 1A 30VDC |
| Contact resistance | 100mΩ max | | | 100mΩ max |
| Operate/release time | 10mS/5mS | | | 5mS/5mS |
| Contact bounce period | 0.6mS operate/ 7.2mS release | | | 0.6mS operate/ 7.2mS release |
| Contact material | $AgSnO_2$ | | | AgAu |
| Operational life (min) | Mechanical $10^7$ / Electrical $10^5$ | | | Mechanical $10^7$ / Electrical $10^5$ |
| Contact arrangement | SPDT, Form C | | | SPDT, Form C |




# USB4PRMx




# USB4SRMx

See Data Sheet 57 for more options for this board

## *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 single ASCII characters (+ status byte). These are commands that address each port of the PIC device (Hex equivalent shown in brackets). The card can also be commanded via HyperTerminal – see below.

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

ASCII 'B' (42H), X Initialises the card (sets the port & channel I/O directions). 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.

## *Using a terminal emulator to control and test EasyDAQ cards*

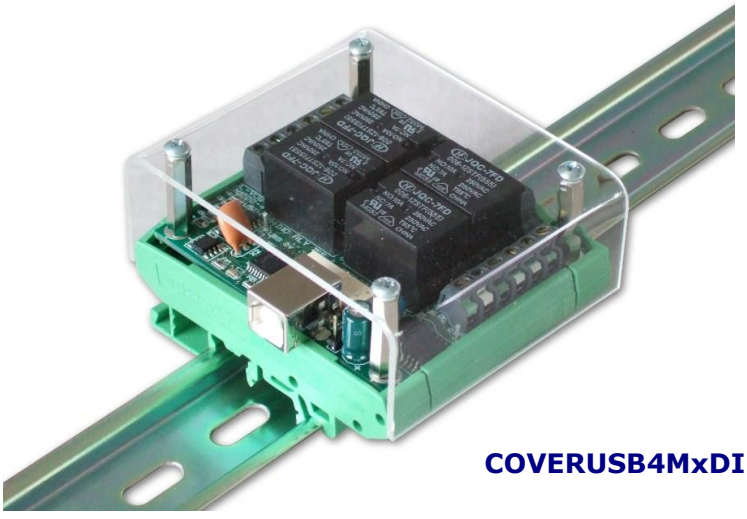
As the control sequences are simple ASCII, EasyDAQ cards can be controlled and tested using a terminal emulator program. Please see our Data Sheet 50 for details.

## *Example downloads*

Example driver files and executables are available from the 'downloads' area of our website (http://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 our USB or serial port products on a previous project, 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).



**COVERUSB4MxDIN**

**Guidelines regarding technical information and use of our products**

Products and specifications described in this Data Sheet are subject to change for improvement without notice. Please be sure to confirm the latest product specifications with us before you finalise your design.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