# USB4SRMxN

*Low cost Data Acquisition & Control products*

## USB relay card with 4 relays & 4 DIO chans

**Product Datasheet 51**

## Features

- USB connected & powered card, 4 relays (30VDC@1A gold plated contacts) and 4 general purpose DIO channels (logic level, rated @ 25mA per channel)
- Low cost, high density, small profile, stackable
- OS compatibility: Win98SE/ME/2K/XP/Vista, Windows CE, Windows 7, Mac OSX and Linux
- Example code downloads available for: Labview, VB, VC, C#, JAVA, Agilent VEE & Delphi. Uses simple ASCII/Hex text command strings
- Command set & software interface is identical to our existing range of Serial & USB port products. If you have previously used our products, your code can be easily ported to this product
- USB interface chip has a unique (factory set) serial number programmed into it. The card will be automatically assigned the next available USB port number when first connected to your target system. The USB port number will remain the same (if later reconnected) but can be manually changed using the device manager if needed.
- 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.
- PCB tracking (& relays) are designed to handle 1A @ 30V DC (switched or continuous)
- Relays are SPDT, Form C, changeover type, with N/O, COM and N/C contacts taken to edge mounted screw terminal blocks. See page 2 for detailed relay spec.
- LED status indicators for USB power & relay activation status. 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

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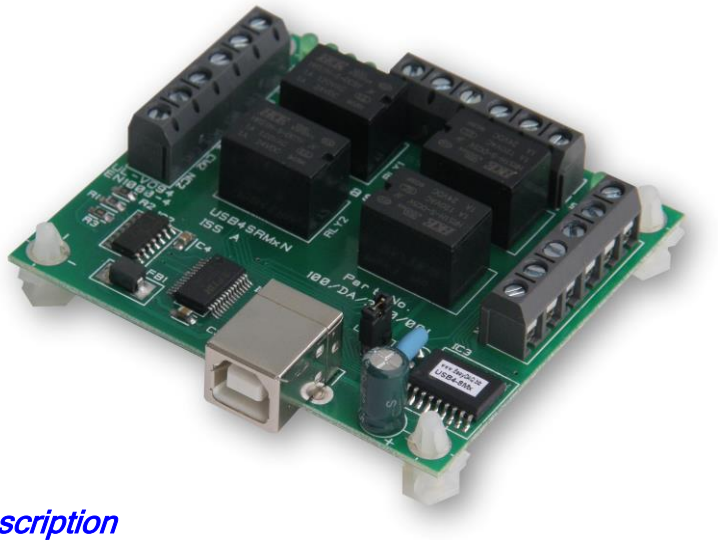


## Description

Low cost, general purpose, USB connected & powered card with 4 relays & 4 general purpose DIO channels. The card uses SM devices to achieve a compact, integrated design, resulting in a small profile and low weight. Relays & PCB tracking are designed to handle 1A/120VAC or 1A 30VDC. USB power & 4 relay status LED indicators.

Fixed screw terminal blocks (see images) give 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. DIO channels are capable of supplying 25mA per channel @ normal TTL voltage levels (+5VDC max).

Each card has a USB virtual COM port chip with a unique (factory set) serial number. The card is automatically assigned the next available COM port number by your OS. The COM port number will remain reserved (against the unique serial number, even if card is disconnected) but can be manually re-assigned via the Device manager if required.

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

## Specifications

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

**Digital I/O signals**
I/O Low, 0V to 1.5VDC (Typ). I/O High, 4V to 5V DC (Max) per channel. Outputs, sink/source 25mA

**Operating temp range**
-20 to +80$^0$C

**Power**
5V DC @ 200mA (max), powered from the USB port (500mA USB power max).

**Relays**
See spec on page 2

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

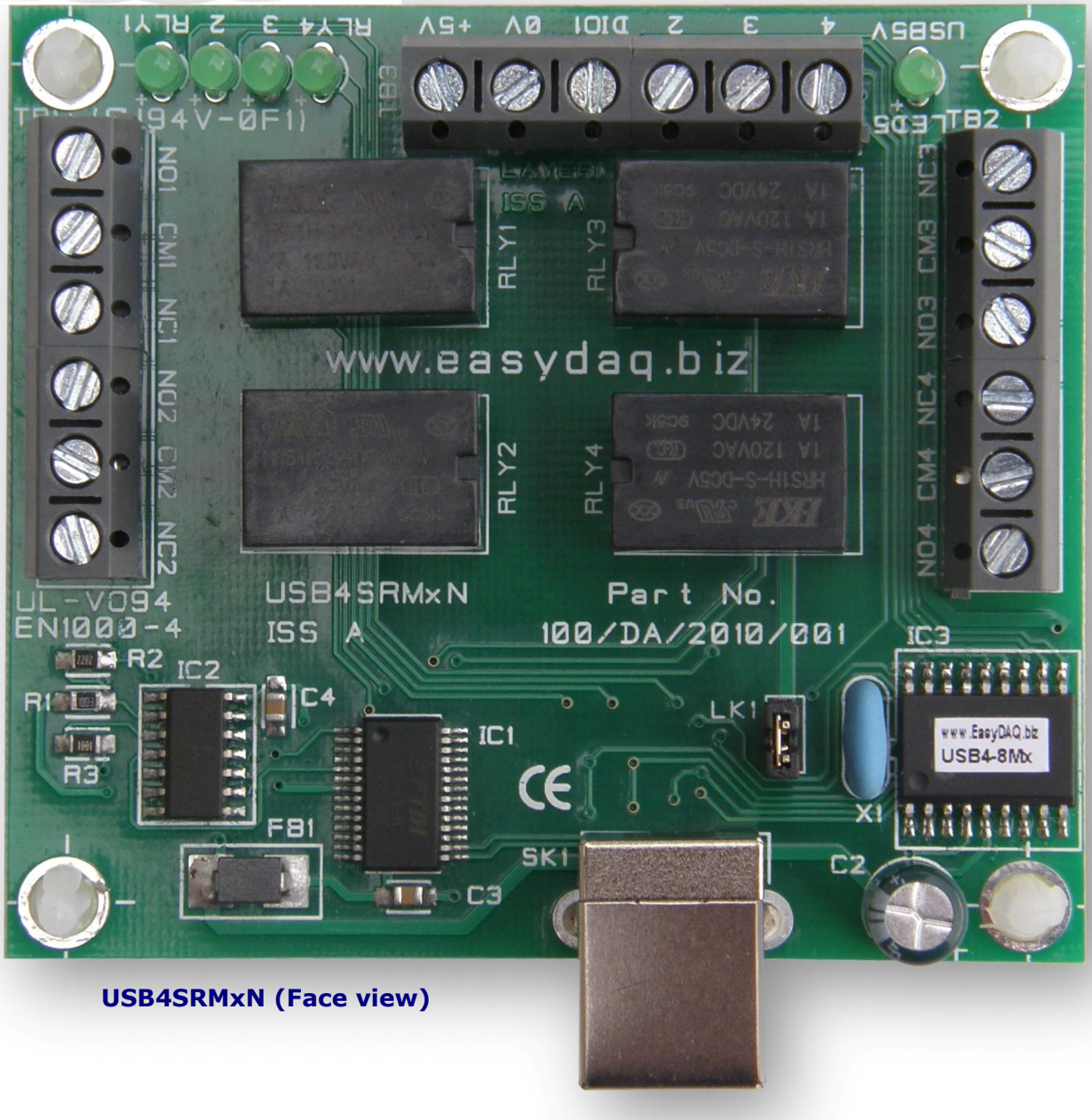
## Order code

**USB4SRMxN**
USB 4 power relays (1A), 4 DIO chan's & fixed conn's

*web:www.easydaq.co.uk email:sales@easydaq.co.uk*
*Tel: +44 (0) 1202 916411*

## *Specifications: Relays*

| Parameter | Specification (Power relays) |
|---|---|
| Rated voltage/current | 5VDC/40mA |
| Must operate/release voltage | 75%/10% of rated voltage |
| Contact ratings | 1A/120VAC or 1A 30VDC |
| Contact resistance | 100mΩ max |
| SW overhead & Operate/release time | 5mS/5mS |
| Contact bounce period | 0.6mS operate/ 7.2mS release |
| Contact material | AgAu |
| Operational life (min) | Mechanical $10^7$ / Electrical $10^5$ |
| Contact arrangement | SPDT, Form C |




**USB4SRMxN (Face view)**

## 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 the next available COM port. 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 to the unique serial number of this card.

## Command format

The card is initialised & commanded by sending a single ASCII character followed by a hex number (representing the required port status). The commands address the 8 bit DIO port of the PIC device. ASCII character Hex equivalent is shown in brackets). You must first set the port direction (as either input or output). If a channel is set as an input, your software must send a read command (of that channel) followed by a read of the serial port.

**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 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

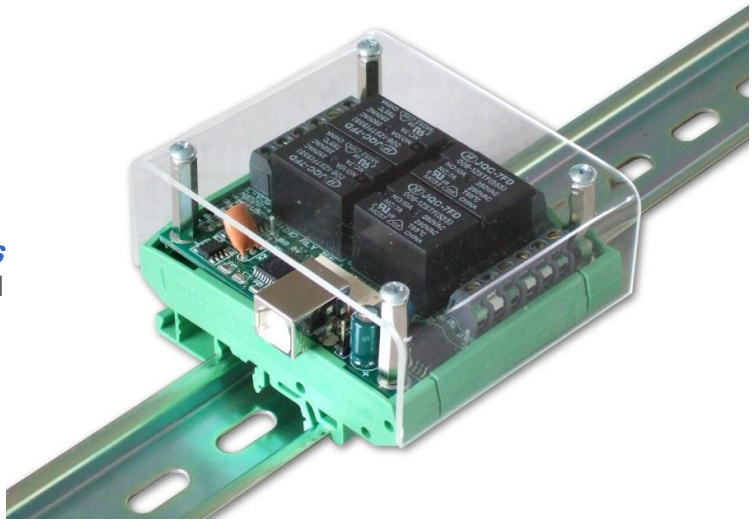
Example driver files and executables are available from the 'downloads' area of our website (http://www.easydaq.co.uk/). Example programs are currently available for LabView, Visual Basic, Visual C, Agilent VEE & Delphi.

## 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 can re-use some or all of your code (or switch to using a USB relay card instead of a serial port card).

If you are a Linux user, please refer to this web link for additional information and low level details on how to address and command the cards:

https://www.easydaq.co.uk/datasheets/Data%20Sheet%2034%20(Using%20Linux%20with%20EasyDAQ%20USB%20Products).pdf



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