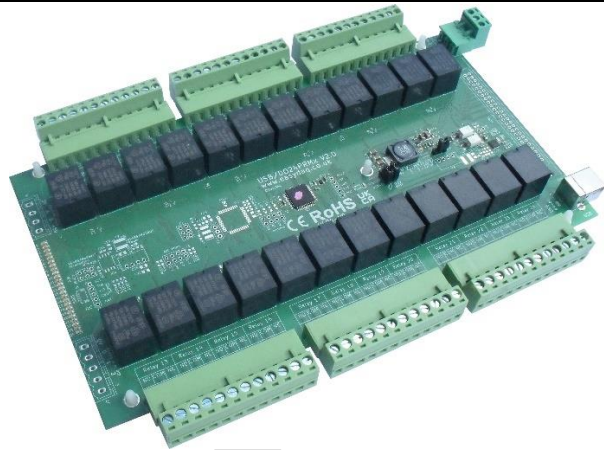


**Product Datasheet 64 DRAFT**

**Features**

- USB powered & controlled, 24 channel relay card
- Example code downloads available for: Python, Labview, VB, VC, C#, JAVA, Agilent VEE & Delphi. Uses simple ASCII/Hex text command strings
- OS compatibility: Windows 98SE, 2K, XP, Vista CE, 7, 10, 11 Mac OSX and Linux
- Choice of either 240VAC/10 Amp power relays or 30VDC/1A, high sensitivity (AuAg overlay, Ag Alloy contact, low contact resistance) signal relays
- USB24PRMxV2 version PCB Tracking is designed to handle 240VAC @ 10 amps
- Relays are SPDT, Form C, changeover type, with N/O, COM and N/C contacts taken to two part screw terminal blocks allowing quick connect/ disconnect of card
- USB power will support activation of up to 8 off 5 or 6V relays. See [Link Options](#)
- DC external power can be connected via a 3-way screw terminal connector to operate more than 8 relays (See [Link Options](#)) or 12V and 24V relay versions
- **NEW Onboard +9 to +30V Dc-Dc power supply**
- **NEW optional full isolation between USB bus and Relay operation. See [Link Options](#)**
- Operate/release time 5mS Max
- LED channel & supply status indicators are located along one end of the card giving visual indication of activation status. **NEW Tx and RX data indicators for debugging.**
- Stackable design with horizontal entry, 2-part (male/female) screw terminal blocks
- Supplied with nylon feet (will take self-tapping screws)
- Protective polycarbonate cover & base available & DIN rail mount option
- UKCA, CE & RoHS compliant



**Description**

General purpose USB 24 channel relay card, available with a choice of either power (240VAC/10amp) or high sensitivity signal (gold contact, low contact resistance) relays.

Relay control/activation is via USB 'virtual com port' commands. All relay contacts are connected to two-part screw terminal blocks along each side of the card.

**Specification**

**Control Interface**

USB 1 or 2, Type B connector, hot pluggable.

**Power supply**

USB powered (up to 8 relays) 5V DC (@ 40mA /80mA per relay) required for >8 relays

**Operating temp range**

-20 to +80°C

The use of horizontal mounted screw terminal connectors and USB connector allow easy and rapid connect/disconnect from users target system.

External power connection is made via a 3-way screw terminal block in one corner of the card.

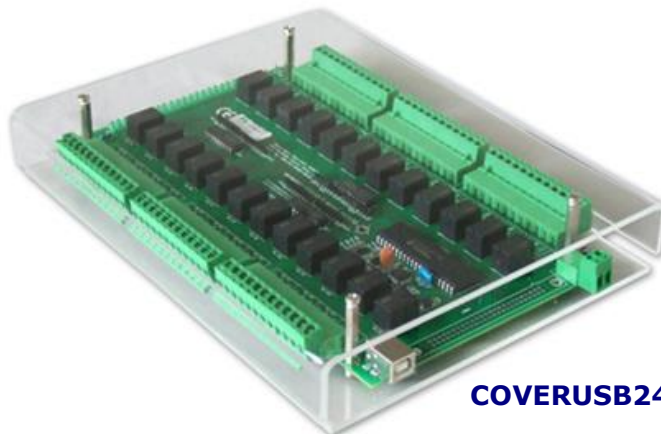
The card is stackable, via corner fixing holes, allowing low cost implementation of relay stack or matrix functions.

**Relays**

See page 2 for technical details of the relays used

**Dimensions**

Dimensions approx. 205mm (D) 126mm (W) 22mm (H) (exc. feet), Weight 360g (signal relays), 540g (power relays).

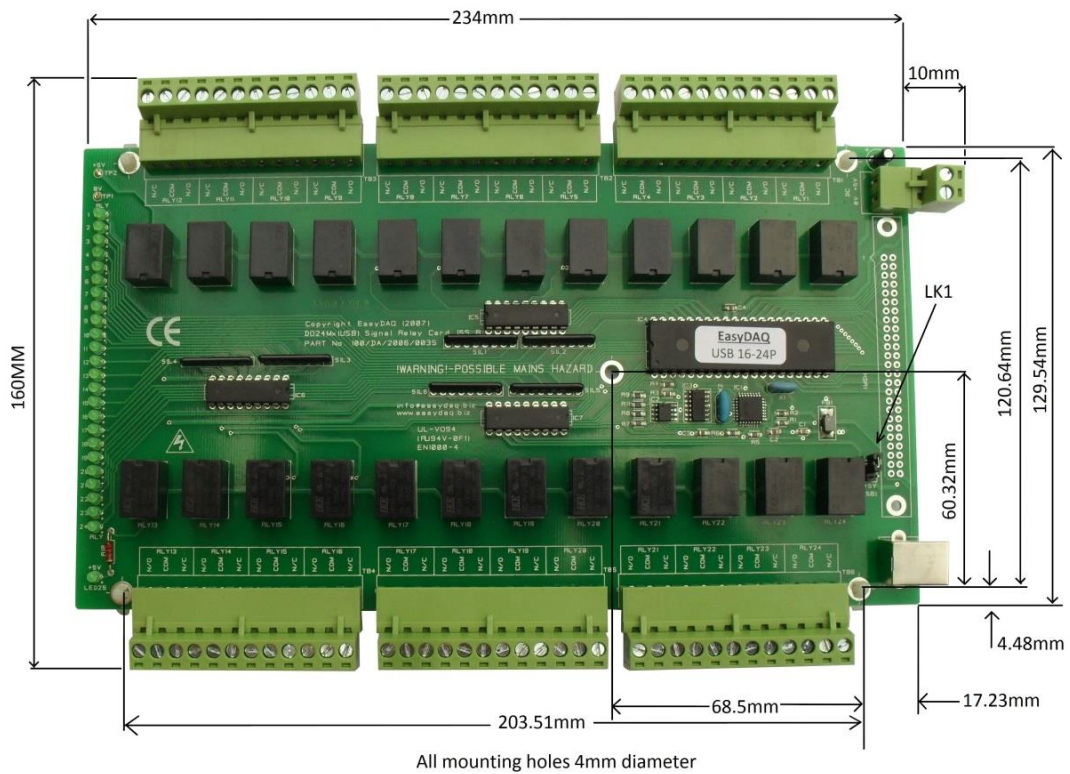


**COVERUSB24Mx accessory**

**Product Datasheet 64 DRAFT**

<i>Specifications: Relays</i>					
Parameter	5V Power relays	6V Power relays	12V Power relays	24V Power relays	Signal relays
Rated voltage/current	5VDC/71mA each	6VDC/60mA each (50mA at 5V)	12VDC/44mA each	24VDC/22mA 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 <sub>2</sub>				AuAg overlay, Ag Alloy
Operational life (min)	Mechanical 10 <sup>7</sup> / Electrical 10 <sup>5</sup>				Mechanical 10 <sup>7</sup> / Electrical 10 <sup>5</sup>
Contact arrangement	SPDT, Form C				SPDT, Form C

Dimensional drawing (USB24SRMx shown)

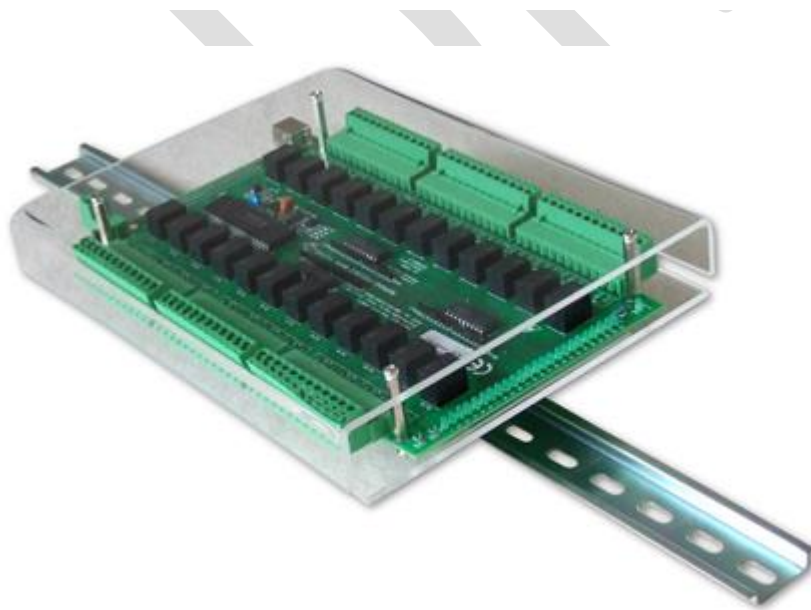
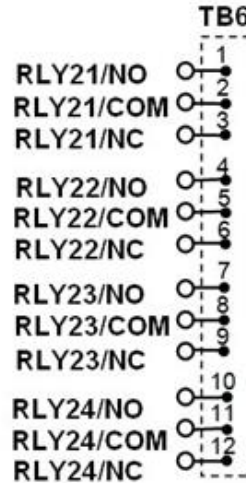
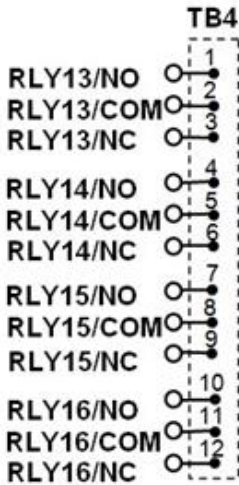
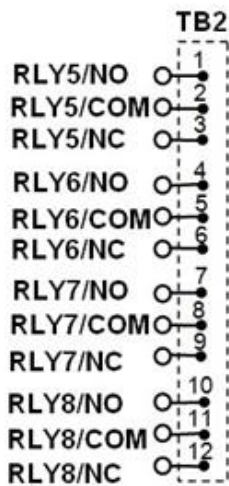
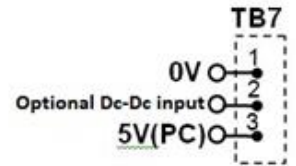
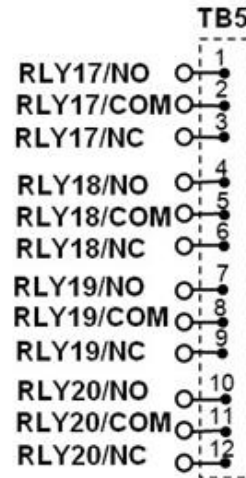
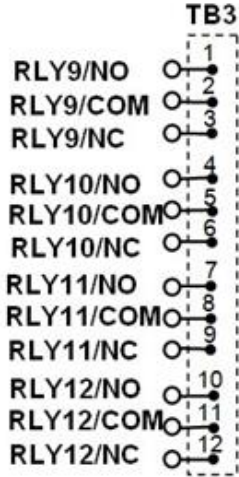
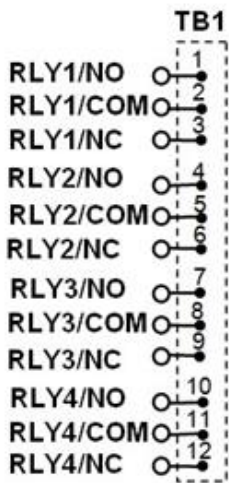


<i>Order codes</i>	
<b>USB24PRMxV2</b>	Our original USB 24 channel relay card, fitted with 6V relays (activated from 5V for lower power operation), 240VAC/10Amp, SPDT Power relays and two-part (right angle) screw terminal blocks giving access to NO/COM/NC relay contacts for all channels. <b>NEW onboard +9 to +30V Dc-Dc power supply.</b>
<b>USB24PRMxV2-5V</b>	As USB24PRMx above, but fitted with 5V relays for normal operation, preferably using an external power supply and links set to external power. <b>NEW onboard +9 to +30V Dc-Dc power supply.</b>
<b>USB24PRMxV2-12V</b>	As USB24PRMx above, but fitted with 12V relays for normal operation, using an external power supply and links set to external power. <b>NEW onboard +9 to +30V Dc-Dc power supply.</b>
<b>USB24PRMxV2-24V</b>	As USB24PRMx above, but fitted with 24V relays for normal operation, using an external power supply and links set to external power. <b>NEW onboard +9 to +30V Dc-Dc power supply.</b>
<b>USB24SRMx</b>	As above, but fitted with 5V, 30VDC/1A, high sensitivity (AuAg overlay, Ag Alloy) signal relays. Suitable for low voltage/current, or low contact resistance signal switching applications. Use a 5V external power supply and LK1 open if more than 8 relays are to be activated at one time. NOTE. Not yet available using a V2 board.

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**Connection details**

External screw terminal connections to the cards are shown below:



**COVERUSB24MxDIN option**

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**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 '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 Initialises the card (sets the port & channel I/O directions). Set direction of Port C  
 ASCII 'F' (46H), X Write data X to Port C (i.e. X=00000001 (01H), sets channel 9 to active).

**Port D (Channels 17-24) commands:**

ASCII 'H' (48H), X Initialises the card (sets the port & channel I/O directions). Set direction of Port D  
 ASCII 'K' (4AH), X Write data X to Port D (i.e. X=00000001 (01H), sets channel 17 to active).

**Using a Terminal Emulator**

In order to test operation, the card can be connected to a serial port and controlled from a terminal emulator program such as "PuTTY" or "Realterm". See our "[Data Sheet 50 \(Using Terminal Emulators to control and test EasyDAQ cards\)](#)". Ensure port configuration is set as shown above, type (ASCII) characters shown above to achieve port direction and read or write command/data.

**Link options**

For USB24SRMx see datasheet 28.

For USB24PRMxV2 variants:

The board has 3 links to route power to the logic and relays.

For the standard USB24PRMxV2 the default links are set up for USB power to the logic and relays. See [Figure 1](#)

Link	Description	Setting	Notes
JP3	Logic 5V selection	Link to USB+5V	USB 5V powering logic
JP19	Relay power selection	Link to USB+5V	USB 5V powering relays
JP4	0V link	Link to USB 0V	USB 0V on logic and relays

However, this setting will only allow a maximum of 8 off 6V relays at a time to be controlled reliably and does not fully isolate the USB from the relay circuits.

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Figure 1 USB24PRMxV2 Default links

An external power supply is required for powering more than 8 of the standard 6V relays. This can be a +5V supply connected to terminals 1 and 3 on TB7 or +9V to +30V connected to terminals 1 and 2 of TB7.

Link	Description	Setting	Notes
JP3	Logic 5V selection	Link to Ext+5V	External 5V powering logic
JP19	Relay power selection	Link to Ext+5V	External 5V powering relays
JP4	0V link	Link to Ext 0V	External 0V on logic and relays

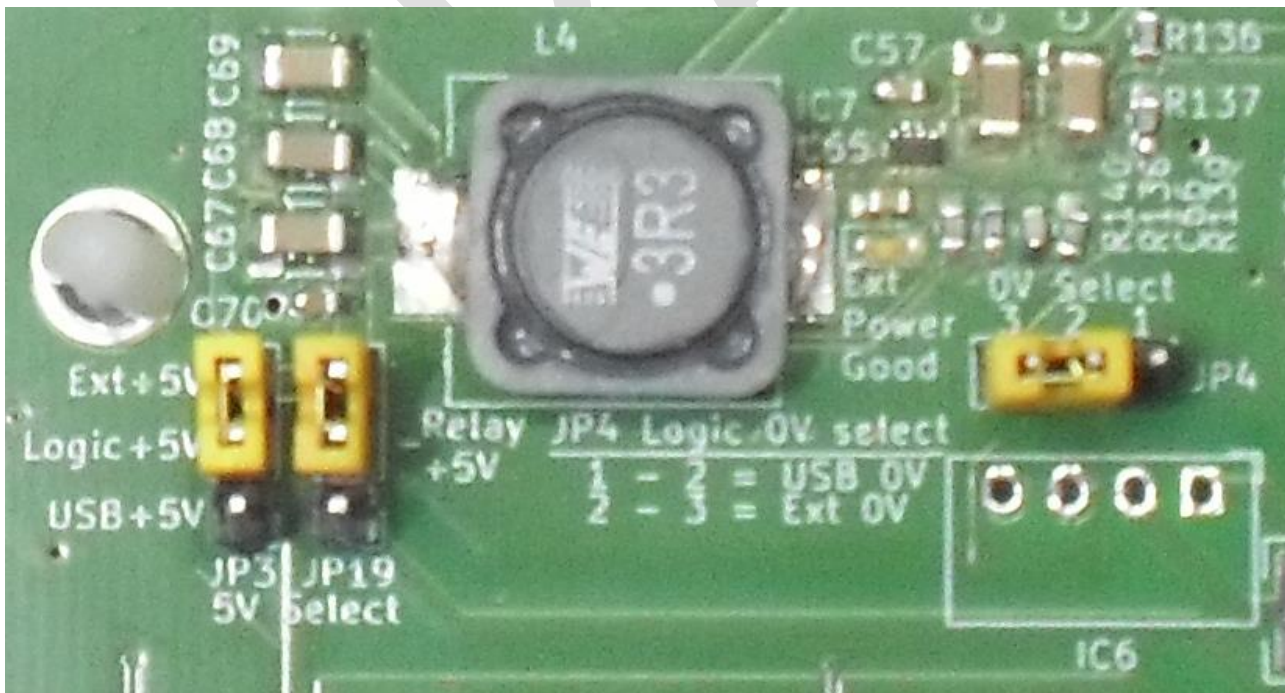


Figure 2 Links for external power and USB isolation.

This configuration allows full Opto-isolation of the USB circuit from the relay circuit.

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**NOTE.**

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This is a DRAFT version of a new datasheet. Some details may change. Contact us if there is any information that you require.

*Document versions*

Version number	Date	Notes
V1.0 Draft	18 <sup>th</sup> June 2024	Original. Current still a draft document. Based on Datasheet 28 V1.1

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