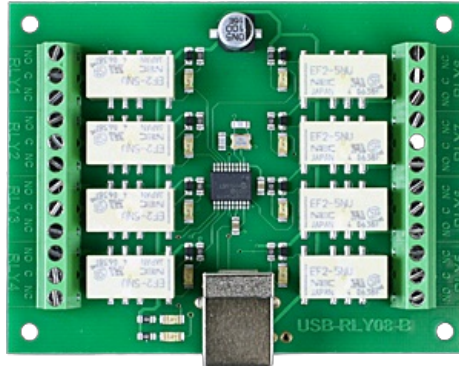# USB-RLY08B - 8 relay outputs
Technical Documentation

Overview
The USB-RLY08B provides eight volt free contact relay outputs with a current rating of up to 1Amp each. It is powered from any standard USB bus and has an exceptionally low maximum current consumption of approx. 90mA with all relays on. The relays are SPCO (Single Pole Change Over) types. The normally open, normally closed and common pins are all available on the screw terminals.

LED indication
The USB-RLY08B provides a red LED mounted immediately next to each relay to indicate whether it is in a powered state (LED on), there is also two LED's which will flash with USB transactions to and from the module, green indicating reception of data from the PC and yellow the transmission of data to the PC. Finally there is red power LED mounted on the opposite side of the board to the USB connector.

Relay power rating
If the contact load voltage and current of the relay are in the region enclosed by the solid and dotted lines in the figure below, the relay can perform stable switching operation. If the relay is used at a voltage or current exceeding this region, the life of the contacts may be significantly shortened.
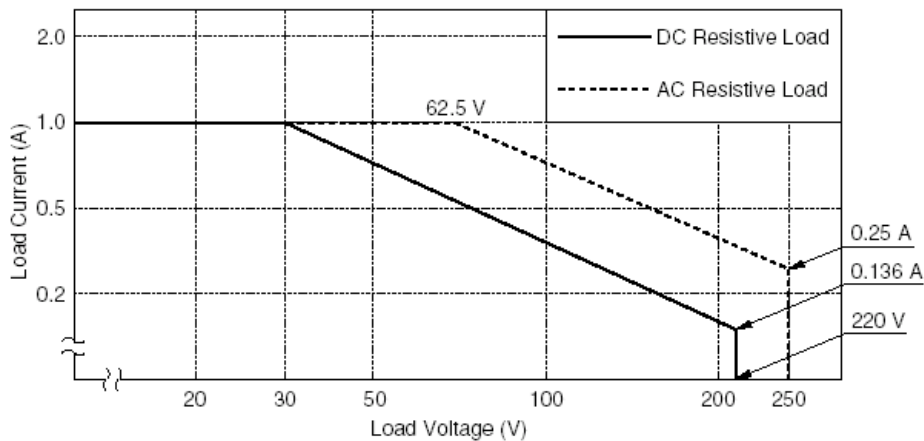

First Step - Get The Drivers
Before connecting the USB-RLY08B module, you should [download the driver](#) and unzip it to a temporary folder. Now connect the USB-RLY08B module and navigate windows to the temporary folder and install the driver. The USB-RLY08B will now appear as a COM port.

Which COM port?
After installing the drivers, and plugging in the USB-RLY08B module to a spare USB port, you will want to know which COM port it has been assigned to. This will vary from system to system depending on how many COM ports you currently have installed. To find out where it is, right click on your "My Computer" desktop icon and select the "Device Manager" tab. Now scroll down and open the "Ports (COM & LPT)" tab. You should see the USB serial port listed - COM2 in the example below. If you want to change the COM port number - just right click on it, select properties, select advanced and select the COM port number from the available list. The COM port default will probably be set up for 9600 baud, 8 data bits, no parity and one stop bits, but what ever it is just ignore it. These settings are not actually used because we have a full 12Mbits USB connection right into the heart of the processor.
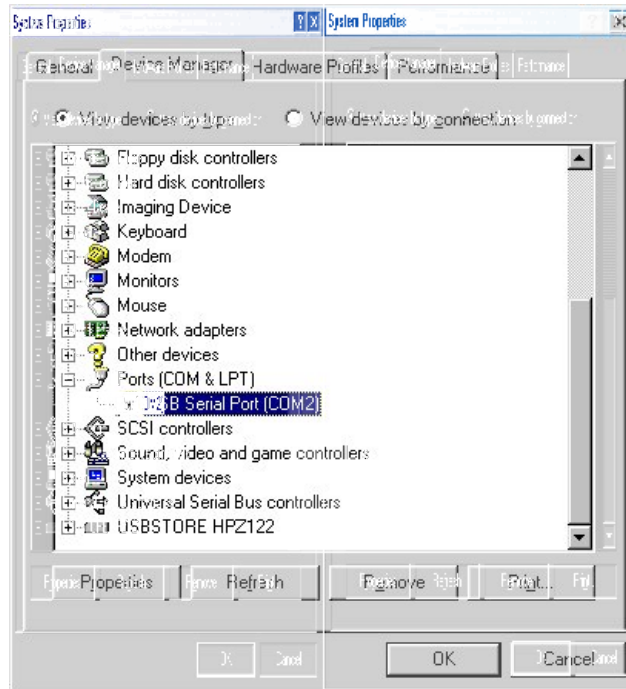
Commands

The USB-RLY08B operates with an easy to use command set as described in the table below. Most commands are only a single byte and if applicable the USB-RLY08B will automatically send its response. The only exception to this being the "Set relay states" command which requires and additional desired states byte to be sent immediately after the command byte.

Command		Action
dec	hex	
90	5A	Get software version - returns 2 bytes, the first being the Module ID which is 8, followed by the software version
91	5B	Get relay states - sends a single byte back to the controller, bit high meaning the corresponding relay is powered
92	5C	Set relay states - the next single byte will set all relays states, All on = 255 (11111111) All off = 0
100	64	All relays on
101	65	Turn relay 1 on
102	66	Turn relay 2 on
103	67	Turn relay 3 on
104	68	Turn relay 4 on
105	69	Turn relay 5 on
106	6A	Turn relay 6 on
107	6B	Turn relay 7 on
108	6C	Turn relay 8 on
110	6E	All relays off
111	6F	Turn relay 1 off
112	70	Turn relay 2 off
113	71	Turn relay 3 off
114	72	Turn relay 4 off
115	73	Turn relay 5 off
116	74	Turn relay 6 off
117	75	Turn relay 7 off
118	76	Turn relay 8 off

Board dimensions
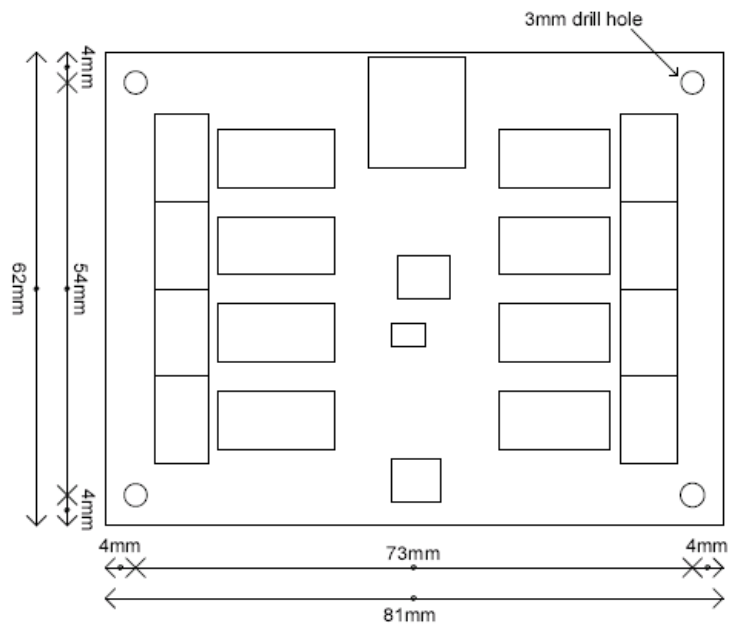
Test program and example source code

To get the USB-RLY08B up and running in the minimum amount of time we have put together an example program to demonstrate the functionality of the module.
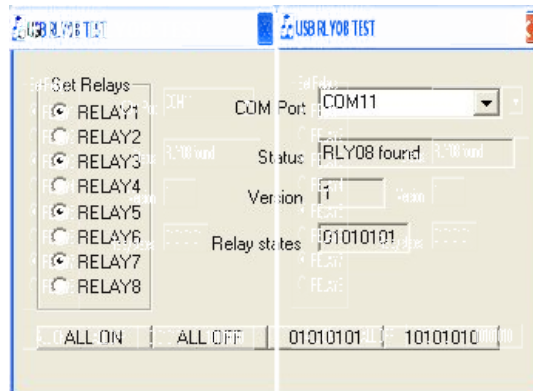
The test program is available as a built exe file here USB RLY08 TEST or as c++ source code here USB RLY08.zip