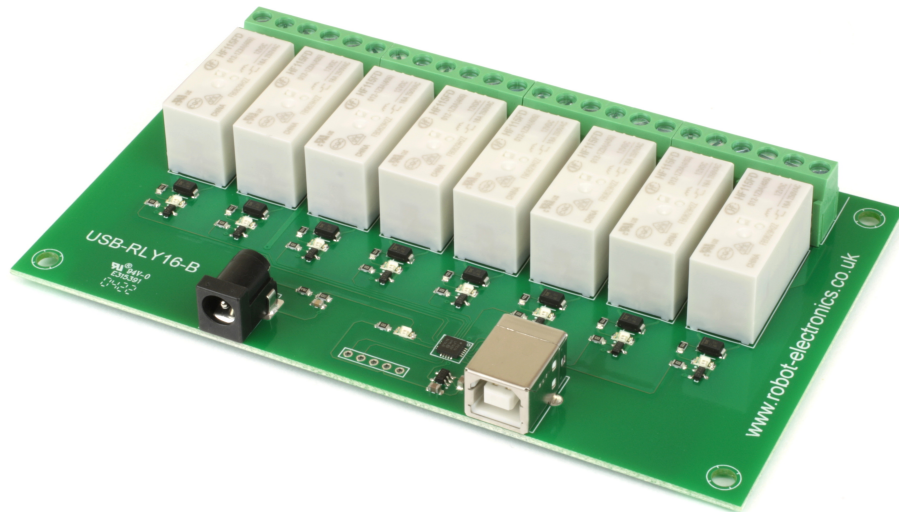


USB-RLY16-B

Technical Documentation



Overview

The USB-RLY16-B provides eight volt free contact relay outputs with a current rating of up to 16Amp each. The processor is powered and instructed from any standard USB bus and the relay power is obtained by the DC power input adaptor. The DC input jack is 2.1mm with positive core polarity, DC supplies are required to supply at least 500mA at 12vdc. The relays are SPCO (Single Pole Change Over) types. The normally open, normally closed and common pins are all available on the screw terminals.

Operating Temperature

-40C to +70C

LED indication

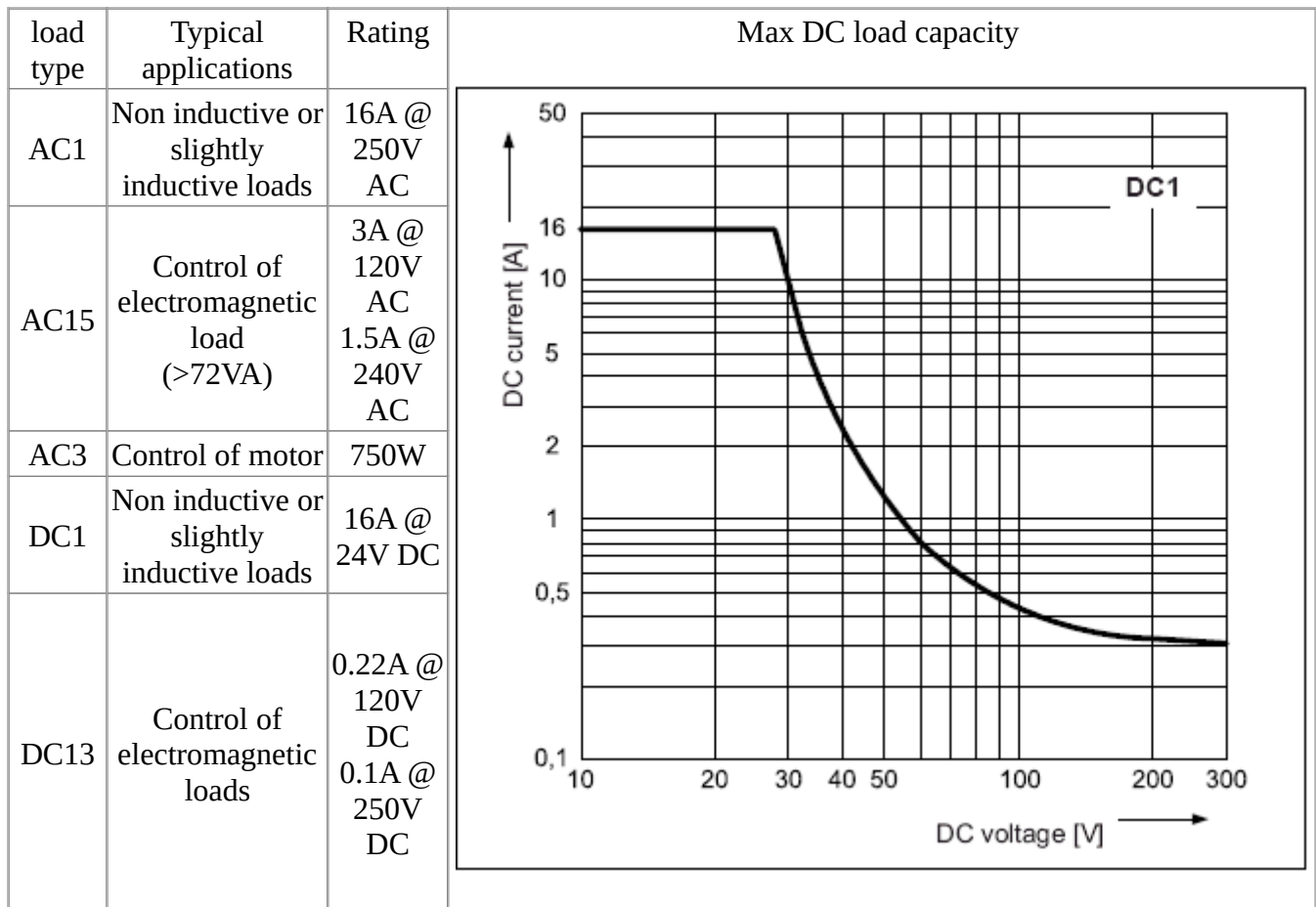
The USB-RLY16-B provides a red LED mounted immediately next to each relay to indicate whether it is in a powered state (LED on), there also a green power LED mounted near to the USB connector.

Communication

Plugging the module to Windows 10, Linux or IOS will result in the module automatically presenting itself as a virtual com port. The commands from the table further down can then be easily sent as if you were talking to a serial port. Please note there is no need to set the baud rate as it has no effect.

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.



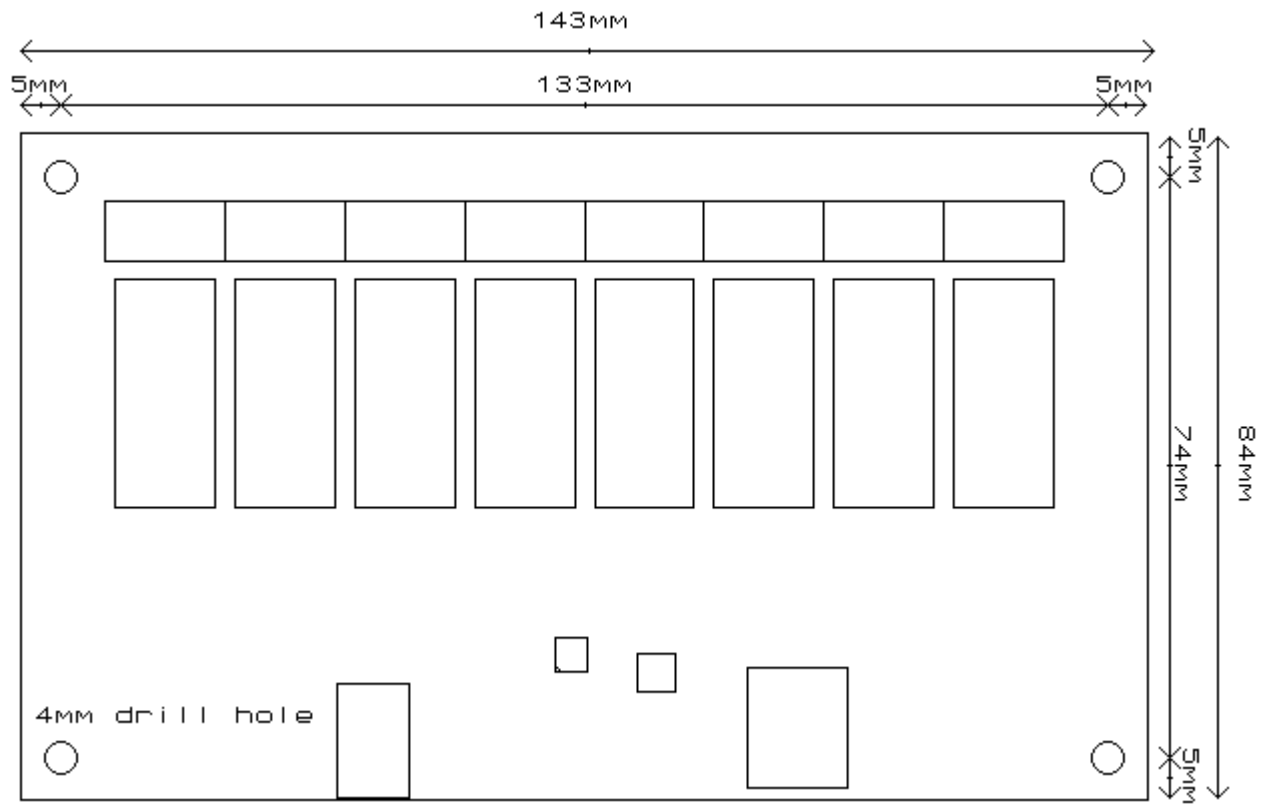
A full datasheet for the relays used on the USB-RLY16-B is here: [HF115FD datasheet](#)

Commands

The USB-RLY16-B 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-RLY16-B will automatically send its response. The only exception to this being the "Set relay states" command which requires an additional desired states byte to be sent immediately after the command byte.

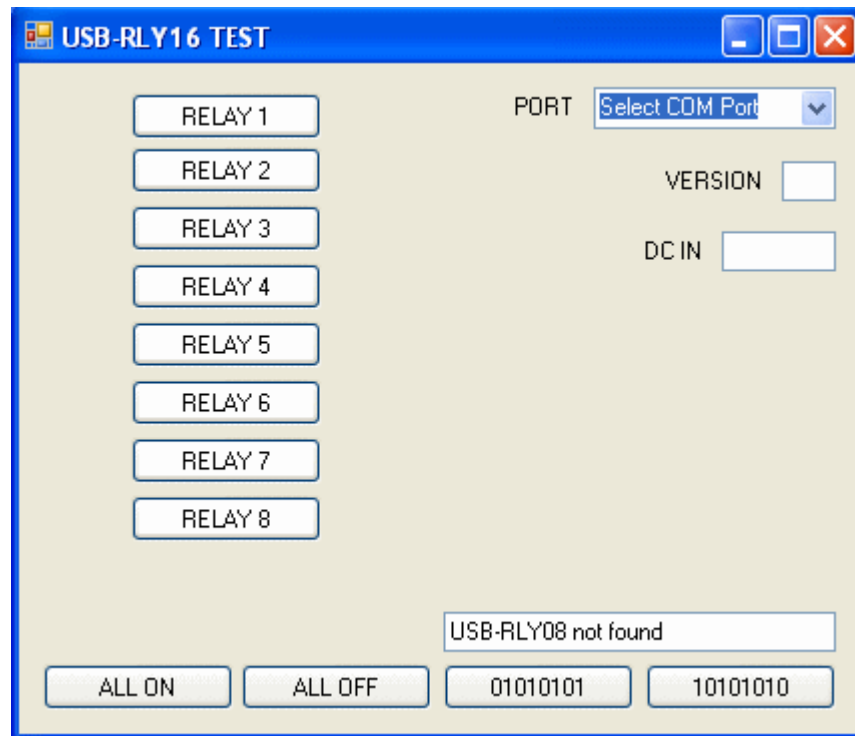
Command		Action
dec	hex	
56	38	Get serial number – returns 8 byte serial number of the module
90	5A	Get software version - returns 2 bytes, module ID (9), followed by the software version
91	5B	Get relay states - returns a byte, with each bit corresponding to the relay state
92	5C	Set relay states - the next byte will set all relays, all on = 255 (11111111) all off = 0
93	5D	Get DC input voltage - returns relay supply voltage as byte, 125 being 12.5V DC
94	5E	Set relay with timed pulse, follow with the relay number and then 16 bit integer time (high byte 1 st) in 10 ms units (total 4 bytes sent) Example – Set relay 4 for 30 seconds (3000 or 0xBB8 x 10ms) 0x5E, 0x04, 0x0B, 0xB8
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-RLY16 up and running in the minimum amount of time we have put together an example program to demonstrate the functionality of the module.



Visual studio express examples

Visual C# express

The test program is available as a visual c# express built exe file here [usb_rly16 test](#) or as visual c# express project here [usb_rly16_test.zip](#).

Visual basic express

The test program is available as a visual basic express built exe file here [usb_rly16vb](#) or as visual basic express project here [usb_rly16vb.zip](#).

Visual studio express is provided free from Microsoft here:

<http://www.microsoft.com/exPress/download/>

Visual studio express is provided free from Microsoft:

<http://www.microsoft.com/exPress/download/>