

USB-RLY02 - 2 relay outputs at 16A

Technical Documentation



Overview

The USB-RLY02 provides two volt free contact relay outputs with a current rating of up to 16Amp each. The USB-RLY02 is powered and instructed from any standard USB bus and does not require any additional power. The relays are SPCO (Single Pole Change Over) types. The normally open, normally closed and common pins are all available on the screw terminals.

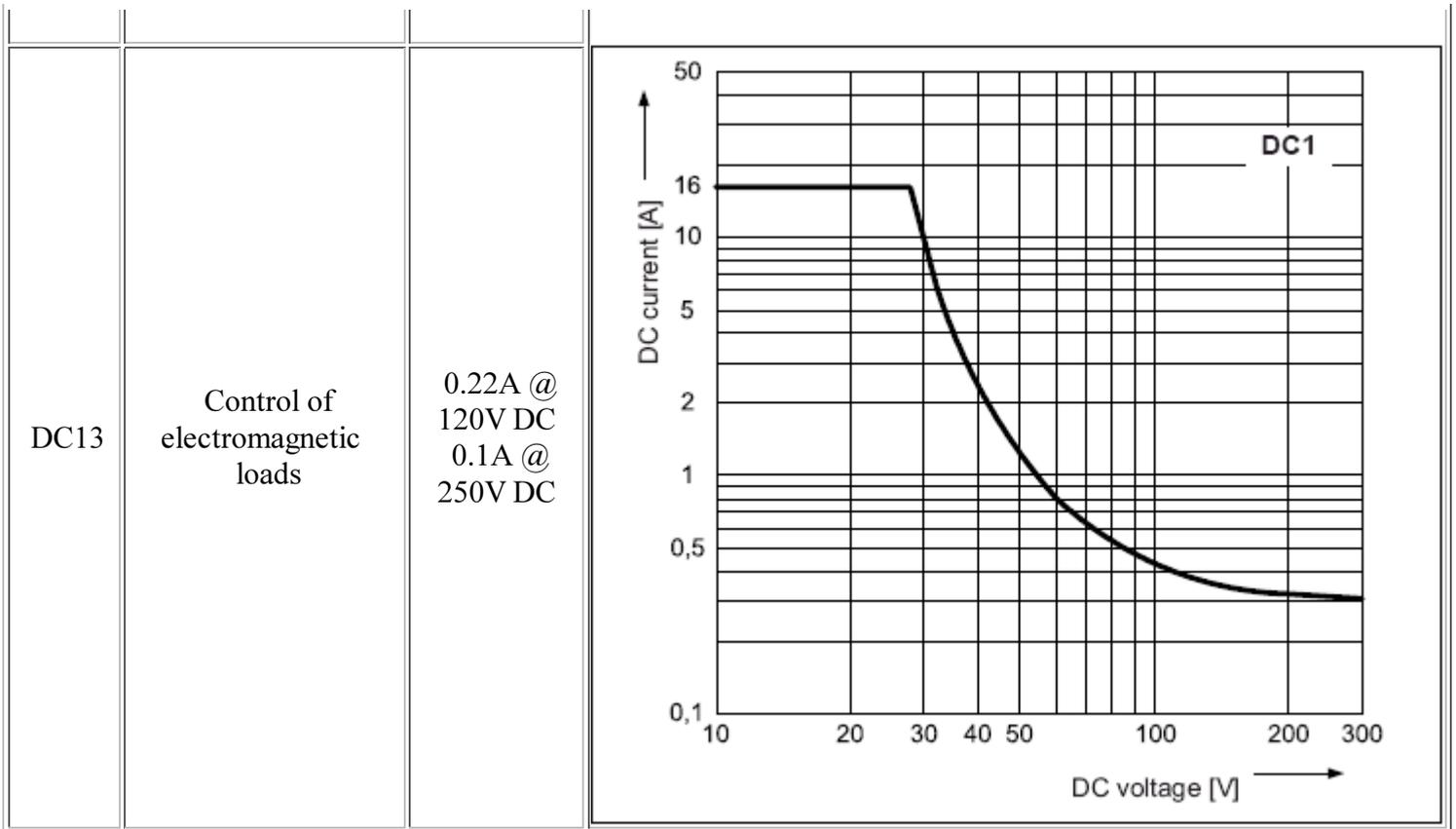
LED indication

The USB-RLY02 provides a red LED mounted immediately next to each relay to indicate whether it is in a powered state (LED on).

Relay power rating

If the contact load voltage and current of the relay are in the region below the solid line 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.

load type	Typical applications	Rating	Max DC load capacity
AC1	Non inductive or slightly inductive loads	16A @ 250V AC	
AC15	Control of electromagnetic load (>72VA)	3A @ 120V AC 1.5A @ 240V AC	
AC3	Control of motor	750W	
DC1	Non inductive or slightly inductive loads	16A @ 24V DC	



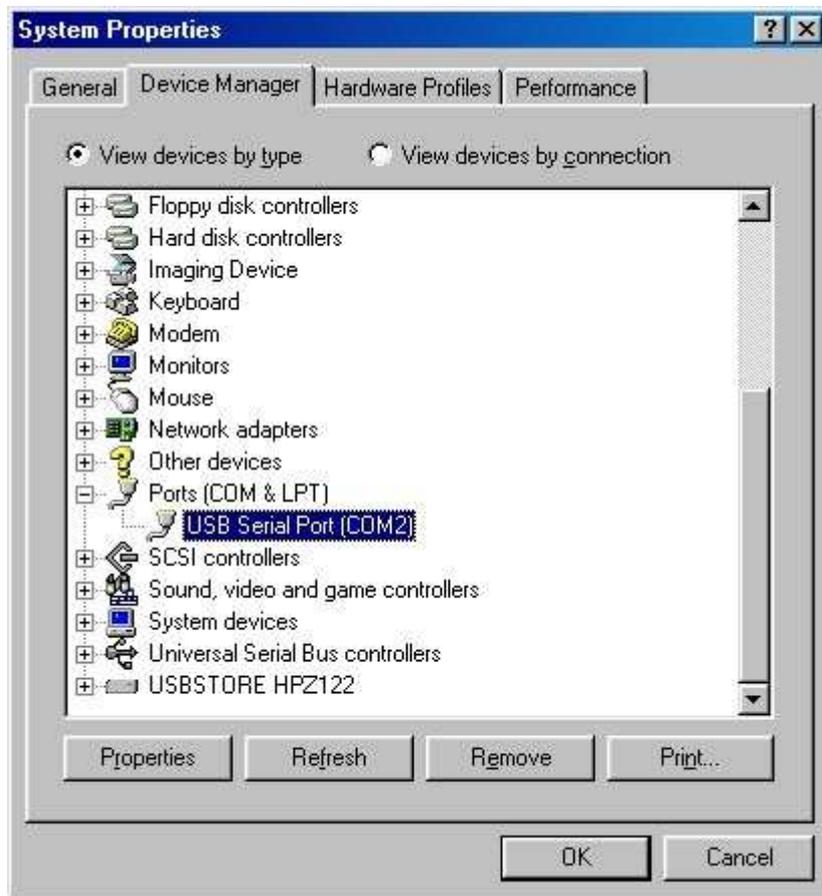
A full datasheet for the relays used on the RLY02 is here: [RM85 datasheet](#)

First Step - Install the Driver

The USB-RLY02 module uses the Microchip PIC24FJ32GB002 to handle all the USB protocols. Before using the USB-RLY02, you will need to download the [Devantech inf files](#) and unzip them into a temporary folder. Connect the RLY02 and windows will detect it and ask for the drivers. Point windows to the inf folder and it will install the driver. The RLY02 will now appear as a com port.

Which COM port?

After installing the drivers, and plugging in the USB-RLY02 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 may be left at the default baud rate etc, because they are not actually used - there is a direct USB connection into the processor.

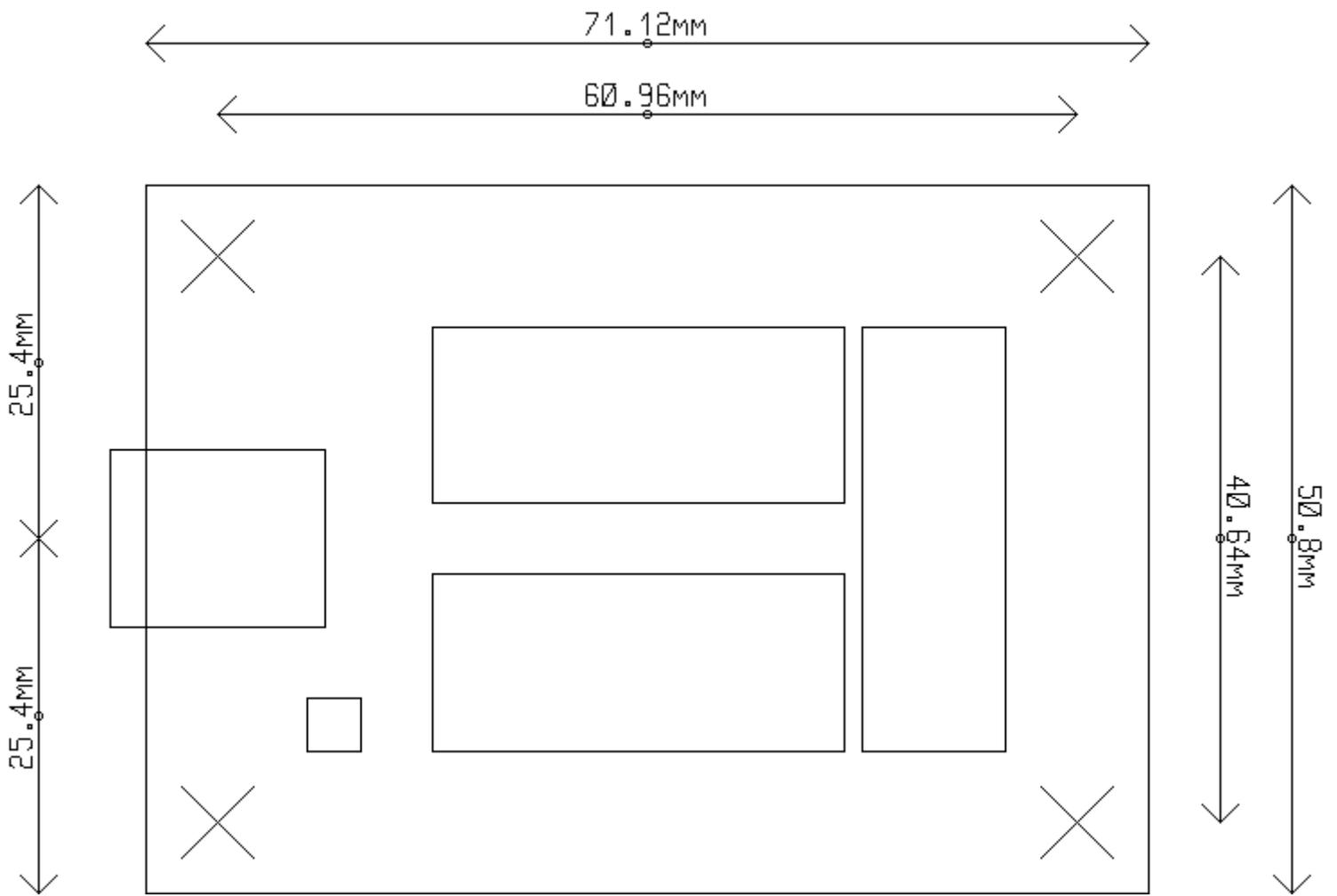


Commands

The USB-RLY02 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-RLY02 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	
90	5A	Get software version - returns 2 bytes, the first being the Module ID which is 10, 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 = 3 (xxxxxx11) All off = 0
100	64	All relays on
101	65	Turn relay 1 on
102	66	Turn relay 2 on
110	6E	All relays off
111	6F	Turn relay 1 off
112	70	Turn relay 2 off

Board dimensions



Test program

To get the USB-RLY02 up and running in the minimum amount of time we have put together a [RelayTest](#) program to demonstrate the functionality of the module.

