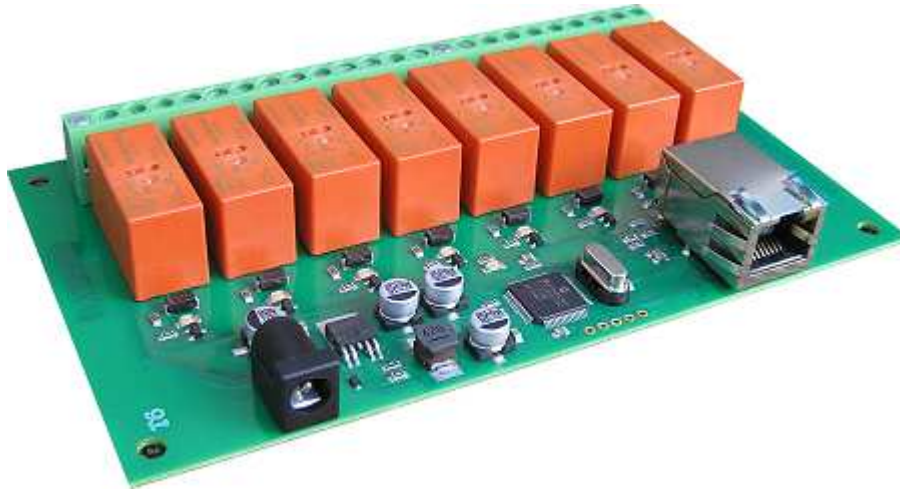


ETH-RLY16 - 8 relay outputs at 16A

Technical Documentation



Overview

The ETH-RLY16 provides eight volt free contact relay outputs with a current rating of up to 16Amp each. The module is power from a 12vdc supply which can be regulated or unregulated. 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.

LED indication

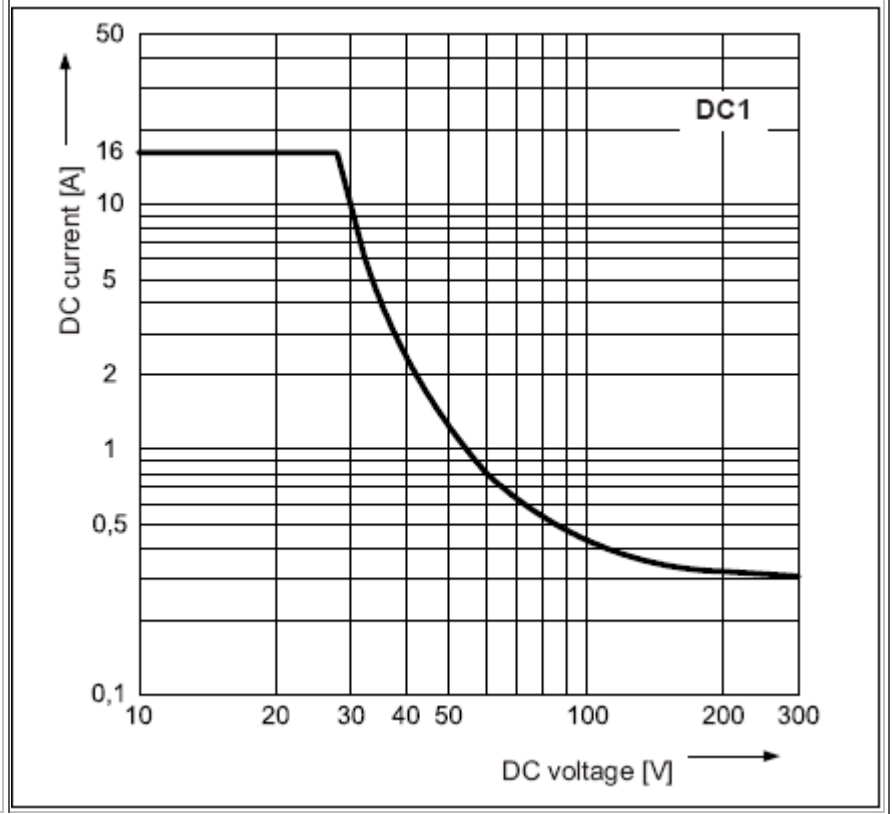
The ETH-RLY16 provides a red LED mounted immediately next to each relay to indicate whether it is in a powered state (LED on), there is also two LED's mounted in the Ethernet connector which will flash with Ethernet traffic. Finally there is green power LED just above the processor.

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.

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	
DC13	Control of electromagnetic loads	0.22A @ 120V DC 0.1A @	

250V DC



A full datasheet for the relays used on the ETH-RLY16 is here: [RM85 datasheet](#)

First Test

Having plugged in your 12vdc power supply and Ethernet connection, start up your web browser and type <http://ethrly16> into the address bar. You should see the following web page:

ROBOT ELECTRONICS

ETH-RLY16 Test Application

On the right you'll see the current status of the ETH-RLY16 board, Relay1 is to the right. Click the bullets to toggle the relays on the board.

The status is updated in real time. You will see this page automatically update when changing the relays with commands over TCP/IP.

Firmware Version 2

Relay's: (click to toggle)

[Technical Documentation](#)

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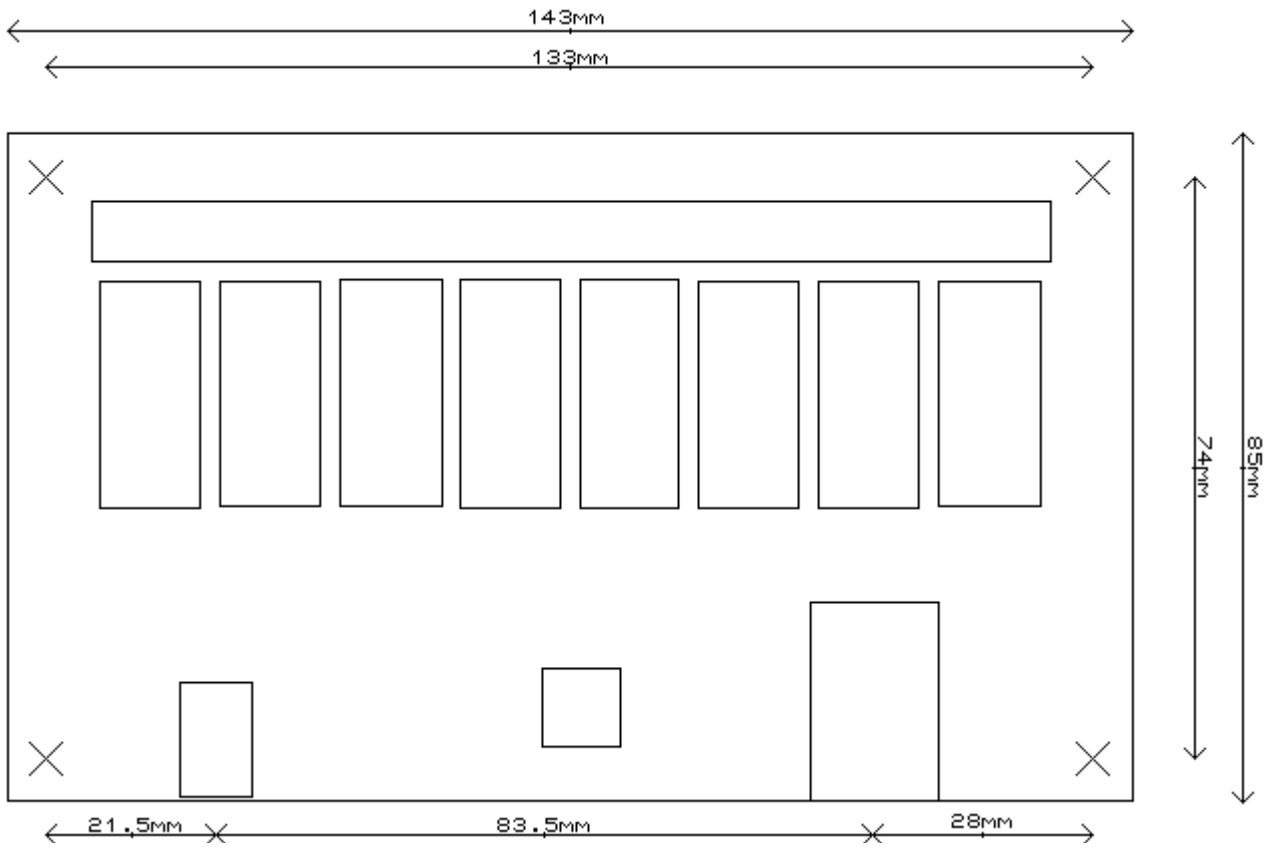
This webpage will allow you to switch the relays on and off by clicking the relay buttons (the red/gray circles). It also contains a link to this technical documentation page.

TCP/IP Commands

The ETH-RLY16 can also be controlled using a simple command set sent over TCP/IP on port 17494 (0x4456). Most commands are only a single byte and if applicable the ETH-RLY16 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.

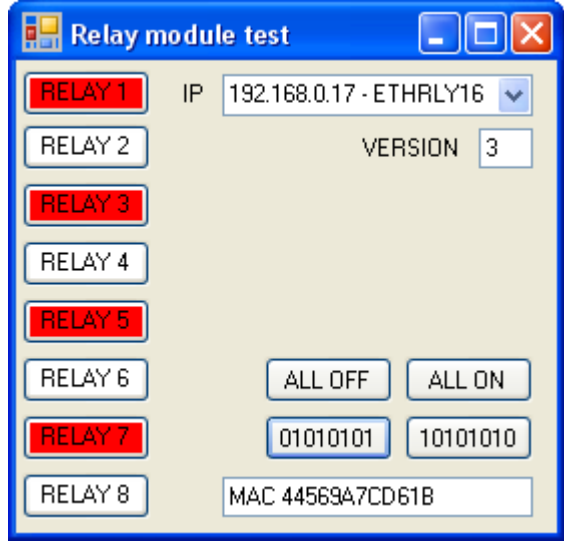
Command		Action
dec	hex	
90	5A	Get software version - returns a single byte, the software version number
91	5B	Get relay states - sends a single byte back to the controller, bit high meaning the corresponding relay is powered
92	5C	Set relay states - the next single byte will set all relays states, All 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
119	77	Get MAC Address. Returns the unique 6 byte MAC address of the module.

Board dimensions



Test program and example source code

To get the ETH-RLY16 up and running in the minimum amount of time we have put together an example program to demonstrate the functionality of the module. We provide the full source code for this program. You may examine this code to see how it works or use it as a starting point for your own application.



Visual studio express C# examples

The test program is available as Visual C# express ready built installation files [here](#), or as Visual C# express project with source files [here](#).

Visual studio express is provided free from Microsoft: <http://www.microsoft.com/exPress/download/>