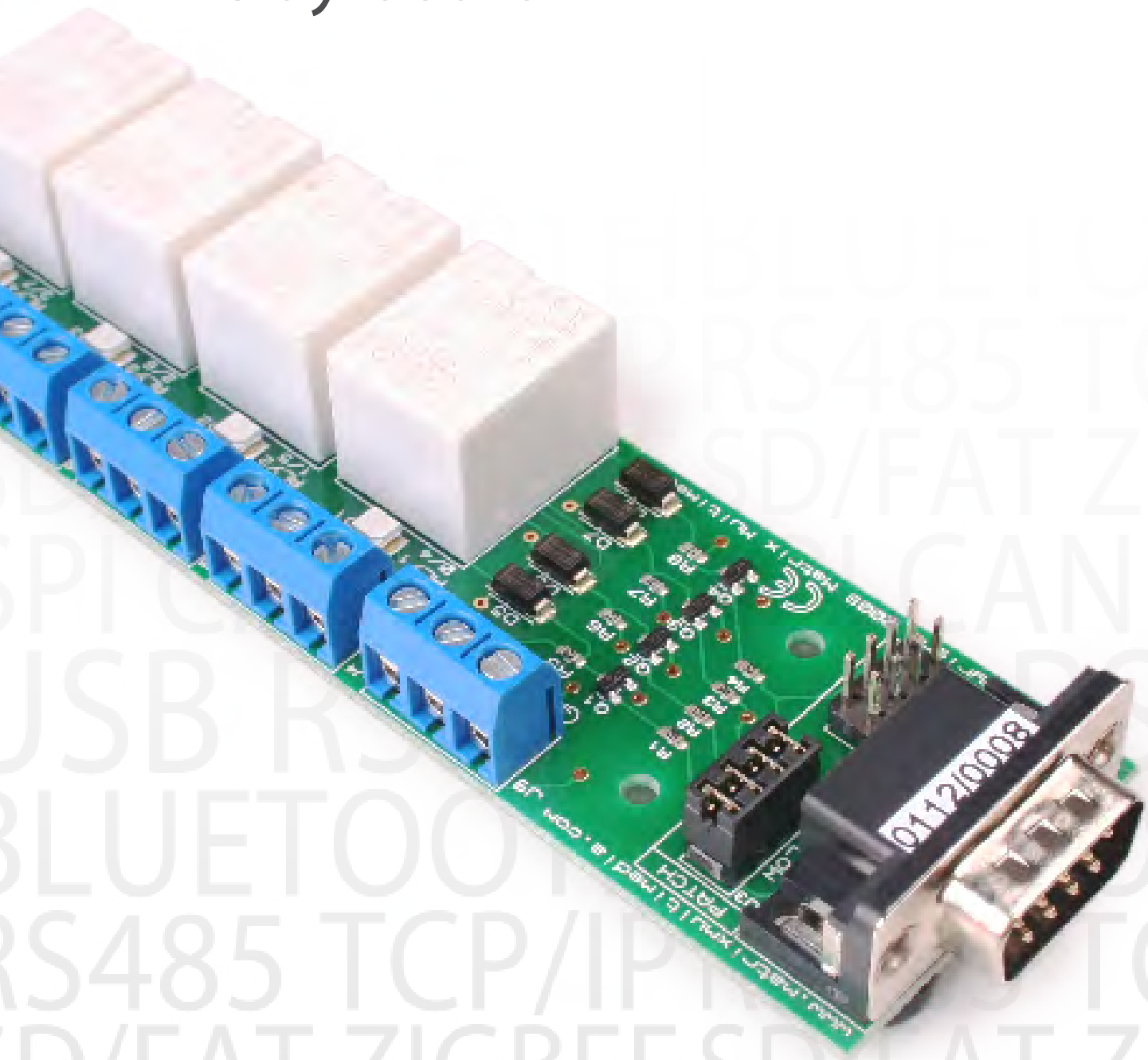
MATRIX

eBLOCKS®

Relay board



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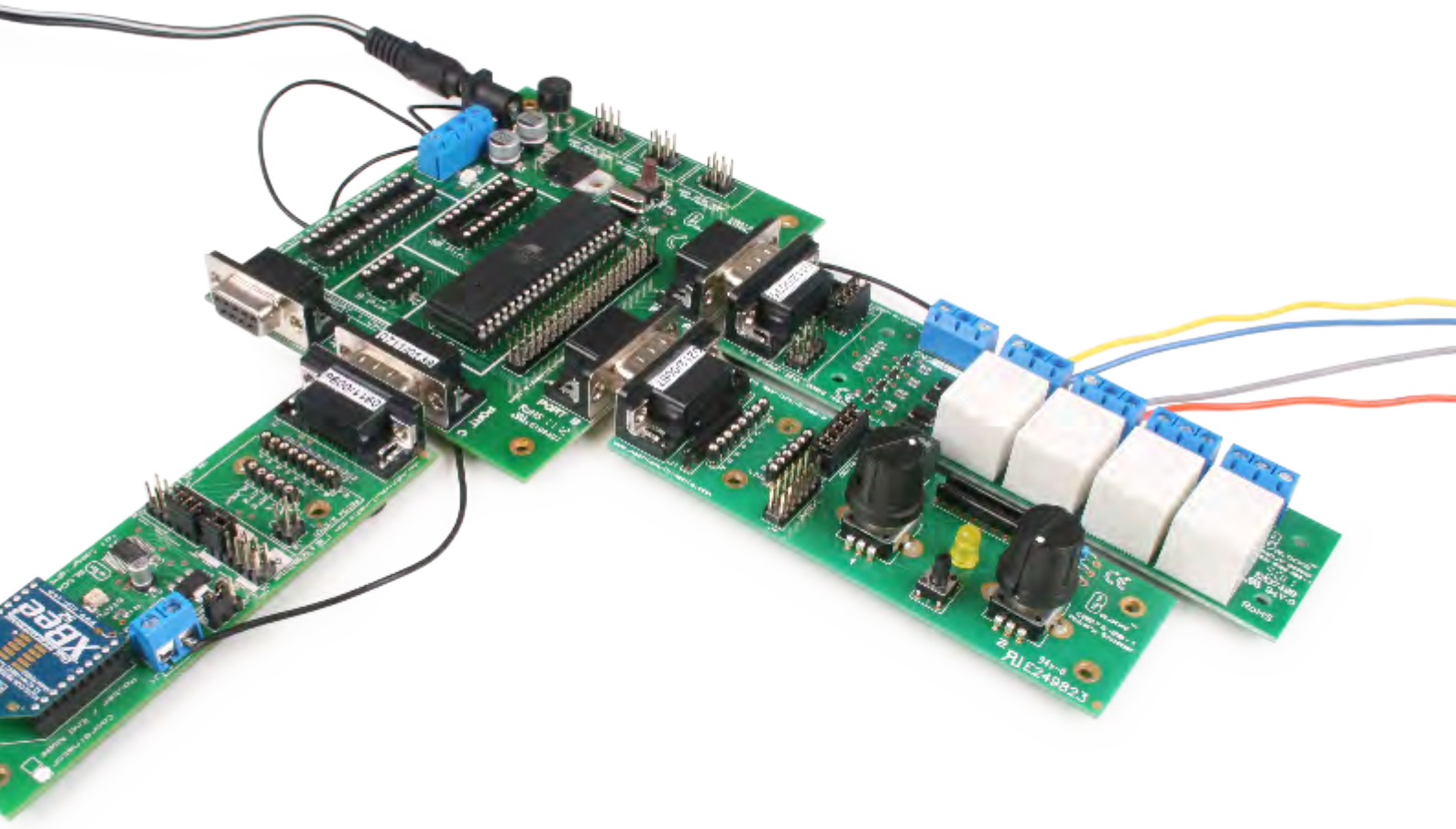

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About this document

This document concerns the EB038 E-blocks relay board.

1. Trademarks and copyright

PIC and PICmicro are registered trademarks of Arizona Microchip Inc. E-blocks is a trademark of Matrix Multimedia Ltd.

2. Disclaimer

The information provided within this document is correct at the time of going to press. Matrix Multimedia reserves the right to change specifications from time to time.

3. Testing this product

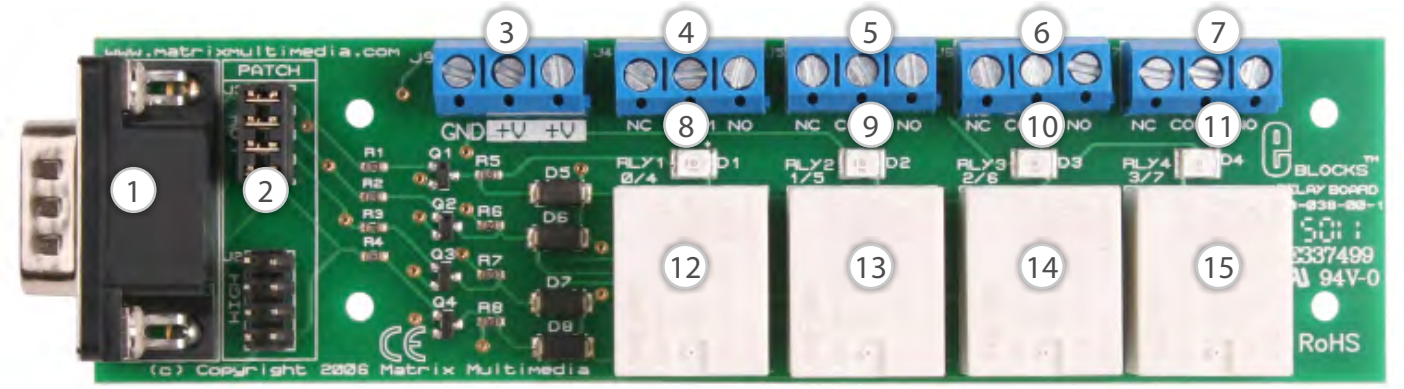
It is advisable to test the product upon receiving it to ensure it works correctly. Matrix provides test procedures for all E-blocks, which can be found in the Support section of the website.

4. Product support

If you require support for this product then please visit the Matrix website, which contains many learning resources for the E-blocks series. On our website you will find:

- How to get started with E-blocks - if you are new to E-blocks and wish to learn how to use them from the beginning there are resources available to help.
- Relevant software and hardware that allow you to use your E-blocks product better.
- Example files and programs.
- Ways to get technical support for your product, either via the forums or by contacting us directly.

Board layout



1. 9-way downstream D-type connector
2. Patch system
3. Power terminal
4. Output terminal 1
5. Output terminal 2
6. Output terminal 3
7. Output terminal 4
8. LED 1
9. LED 2
10. LED 3
11. LED 4
12. Relay 1
13. Relay 2
14. Relay 3
15. Relay 4

NB. Please ensure that the mode selection jumpers are arranged on the board with the metal connection strips positioned horizontally.

The patch system consists of two DIL connectors. Selecting the DIL connector labelled LOW permits the user to control the relays via bits 0 to 3. Selecting the DIL connector labelled HIGH allows the user to control the relays via bits 4 to 7. As stated previously please ensure mode selection jumpers are orientated correctly.

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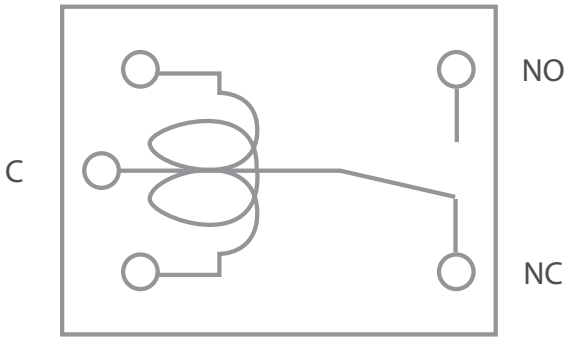
General information

As PICmicro microcontroller circuitry will not drive high power AC loads, some form of switch or 'relay' is required to perform the task. The EB038 quad relay board was designed to switch four relays on and off as a direct response to the low voltage input of an EB006 multiprogrammer board. This in turn allows the user to switch multiple devices (i.e. motors) simultaneously.

Relay rating

The EB038 quad relay board creates an interface between an upstream E-block and apparatus operating at a higher voltage. Each of the PCB mounted relays is rated at 12V/6A and contains a 400Ω coil. The diagram below illustrates a layout diagram of the relay.



Bottom view

C = Common
NO = Normally open
NC = Normally closed

LEDs are employed within the circuit to register the switching status of the relay (i.e. when relays switch to normally open, LEDs illuminate). VPWR must be greater than 12V.

A set of jumper links is available for the quad relay board. Jumper links provide the user with the ability to control the relays with the HIGH nibble or LOW nibble.

NB. VPWR cannot be 3.3V or 5V. VPWR must be greater than 12V. VPWR can be supplied by +14V on the EB006 board.

1. Features

- Provides the capacity to operate two circuits at different voltage levels
- Provides the ability to operate up to four devices (i.e. motors) at varying speeds
- Employs LEDs for instantaneous acknowledgment of relay setting
- E-blocks compatible

Circuit description

The EB038 quad relay circuit can be observed on page 5.

From the circuit it can be seen that individual D type connector pins are employed to switch specific relays which in turn control external circuitry.

The EB038 is powered from the +14V output on the EB006 multiprogrammer.

The common; normally open and normally closed relay pins are attached to their corresponding output terminal and labelled accordingly. Although the relays are capable of switching mains voltage it is recommended that the user does not exceed 24V.

1. 3.3V operation

This board is compatible with upstream boards operating off 3.3V.

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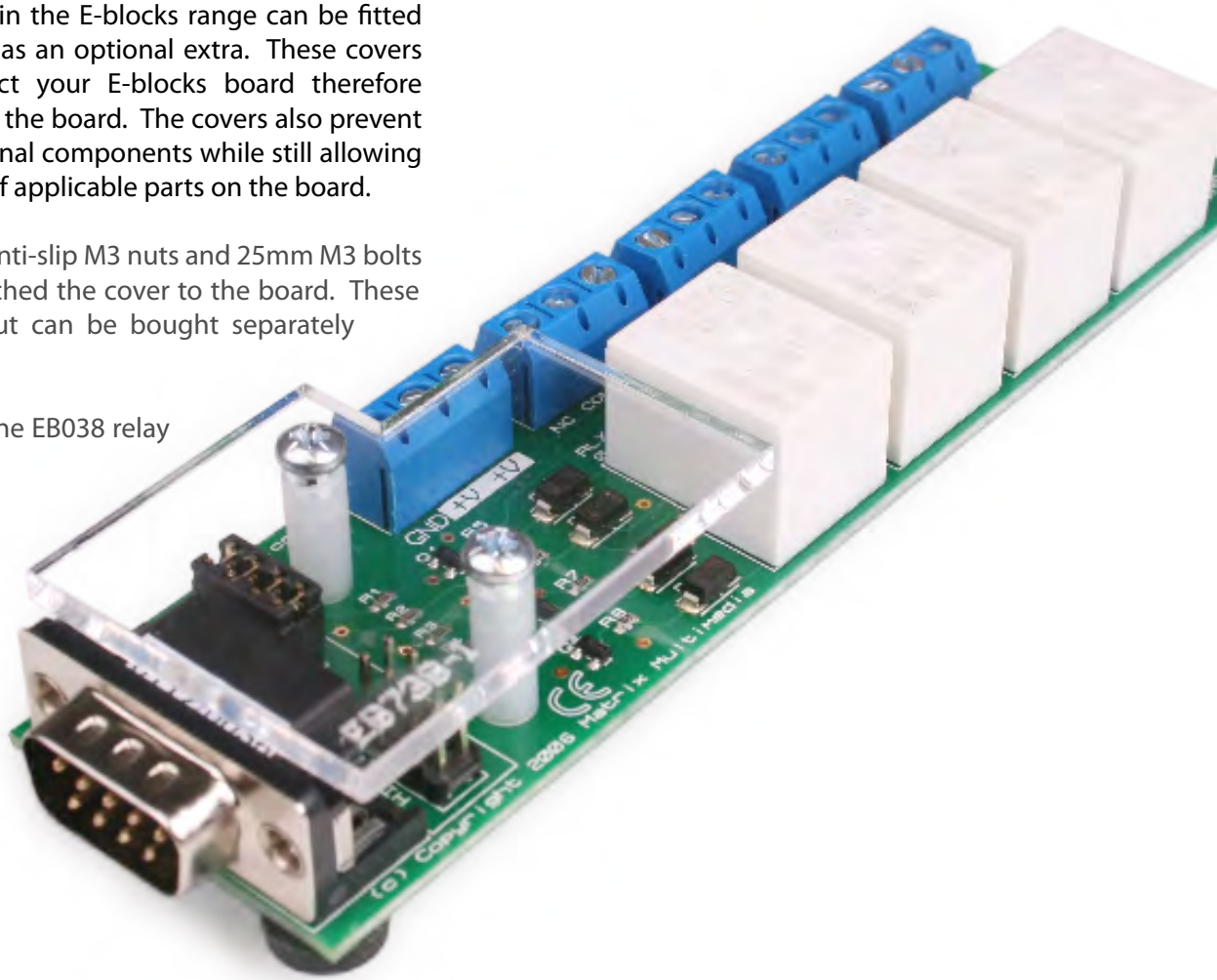
Protective cover

Most of the boards in the E-blocks range can be fitted with a plastic cover as an optional extra. These covers are there to protect your E-blocks board therefore extending the life of the board. The covers also prevent the removal of external components while still allowing for the adjustment of applicable parts on the board.

12mm M3 spacers, anti-slip M3 nuts and 25mm M3 bolts can be used to attached the cover to the board. These are not included but can be bought separately from our website.

The order code for the EB038 relay board is EB738.



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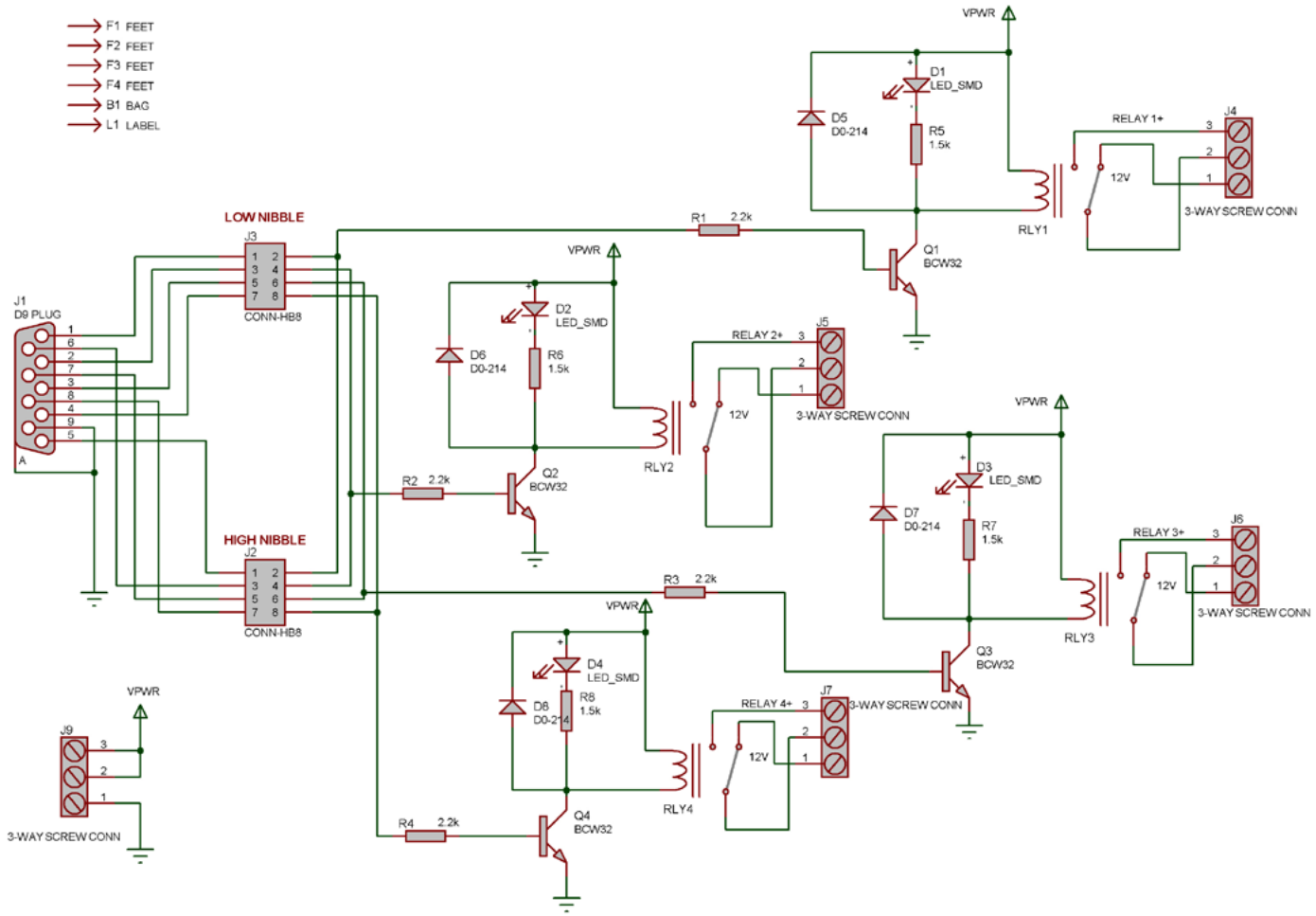
Circuit diagram



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