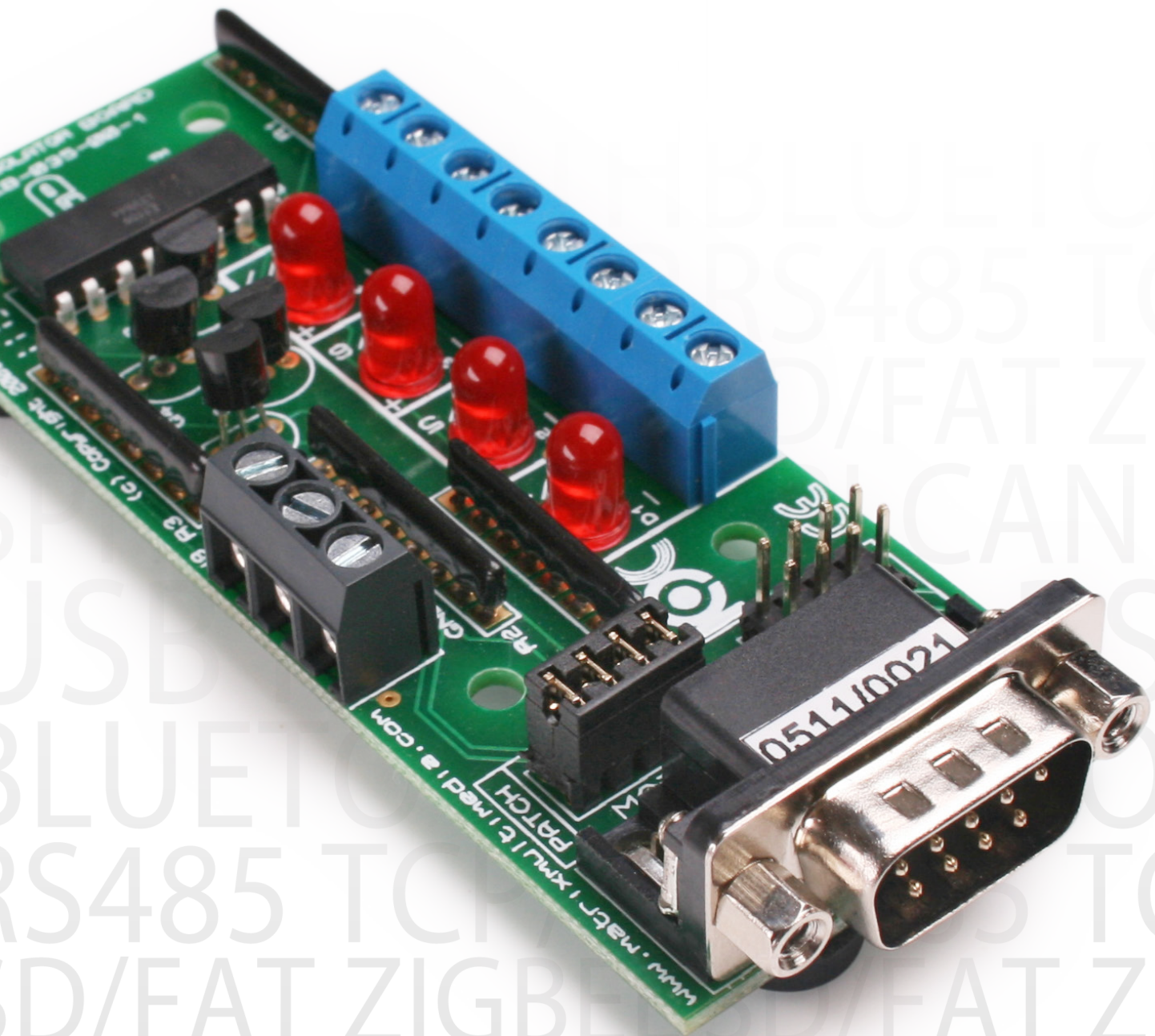


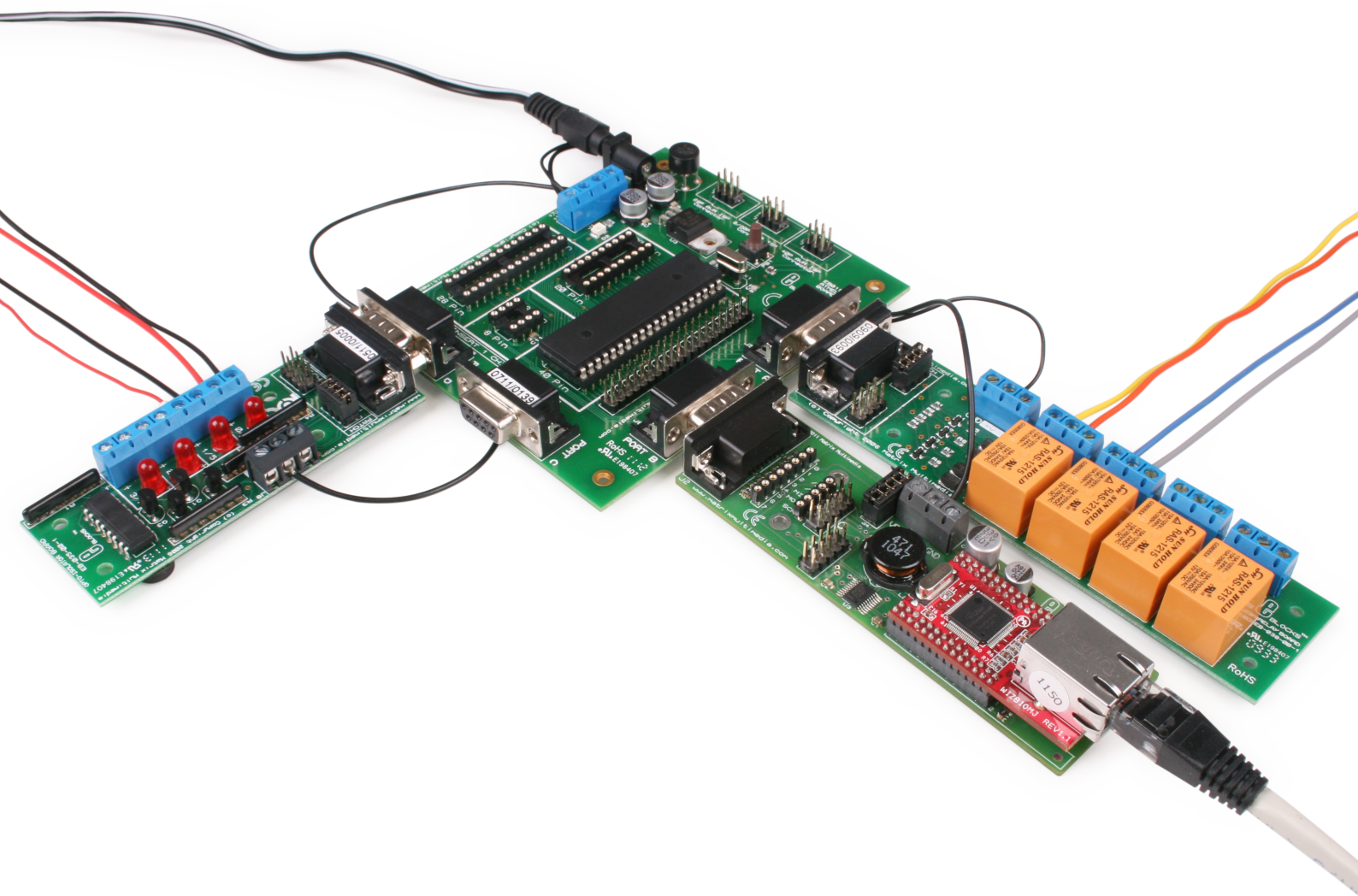
EBLOCKS[®]

Opto-isolator board



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About this document

This document concerns the EB035 E-blocks opto-isolator board.

1. Trademarks and copyright

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

2. Disclaimer

The information provided within this document is correct at the time of going to press. Matrix TSL 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

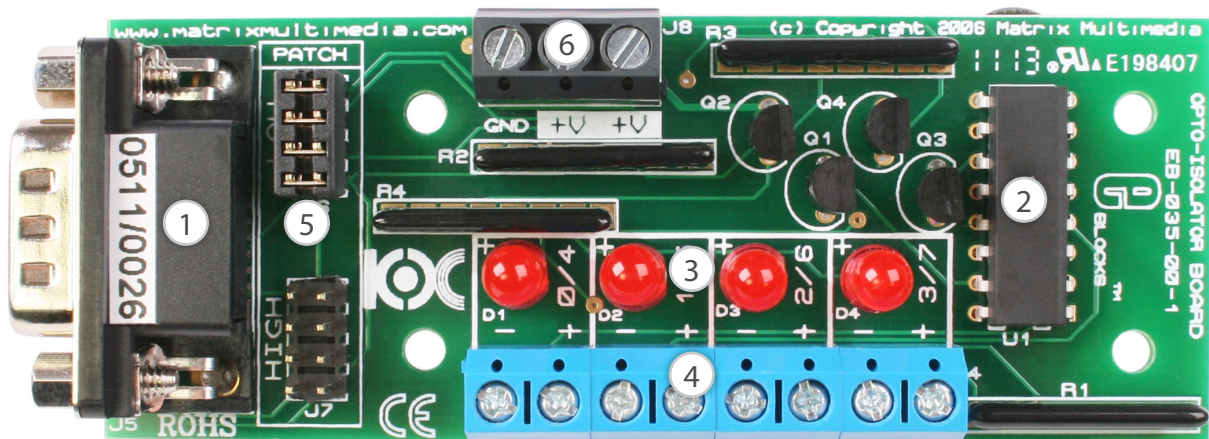
for all E-blocks, which can be found in the Support section of the website.

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



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

1. 9-way downstream D-type connector
2. TLP620-4
3. LEDs
4. Output screw terminals
5. High / low nibble selection
6. Power screw terminals

Patch system

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

General information

This E-block is designed to allow electrical isolation between circuits. Because the opto-isolator board uses light to transmit information it can be used to protect circuits operating at lower voltages (i.e. microcontrollers) from circuit operating at high voltages (i.e. motors).

1. Opto-isolator rating

The EB035 opto-isolator board creates an interface between an upstream E-block and circuits operating at higher voltages. The onboard chip is a TLP620-4 opto-isolator. Information on this chip can be found at the [Isocom website](#).

2. Features

- Provides the capacity to operate two circuits at different voltage levels
- Provides the ability to isolate up to four circuits
- Employs LEDs for instantaneous acknowledgement of board status
- E-blocks compatible

A set of jumper links is available for the opto-isolator board. Jumper links provide the user with the ability to control the TLP620-4 with either the HIGH nibble or LOW nibble.

Circuit description

The EB035 rotary encoder circuit can be observed on page 5.

From the circuit it can be seen that the main device on the board is the TLP620-4. This is a quad transistor output opto-isolator which is powered from the +V output on the EB006 mutliprogrammer board.

The onboard opto-isolator chip contains four internal LEDs which are illuminated when current flows through their corresponding inputs. This in turn allows current to flow through the corresponding output transistor to ground. In this situation the external transistors (Q1, 2, 3, 4) and their associated LEDs are off.

When no current flows through the internal LEDs the output transistors of the chip are switched off. This allows current to flow into the base of the external transistors (Q1, 2, 3, 4). subsequently current flows through the external transistors which in turn illuminates their corresponding LED.

Therefore, when the TLP620-4 is in operating mode the external LEDs are not illuminated. When the TLP620-4 is not in operating mode the external LEDs are illuminated.

1. 3.3V operation

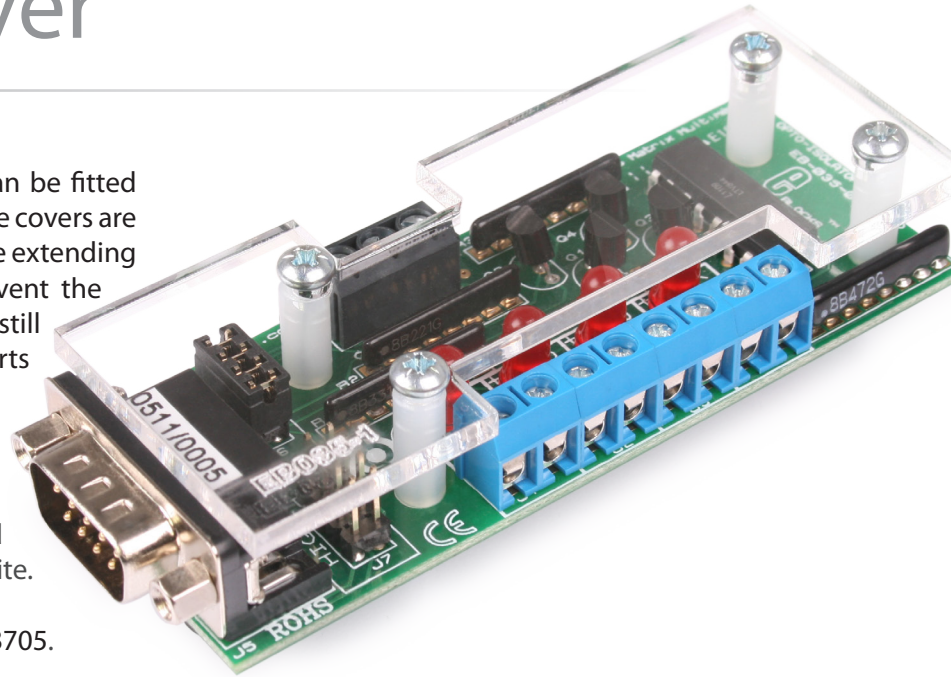
This board is compatible with upstream boards operating off 3.3V.

Protective cover

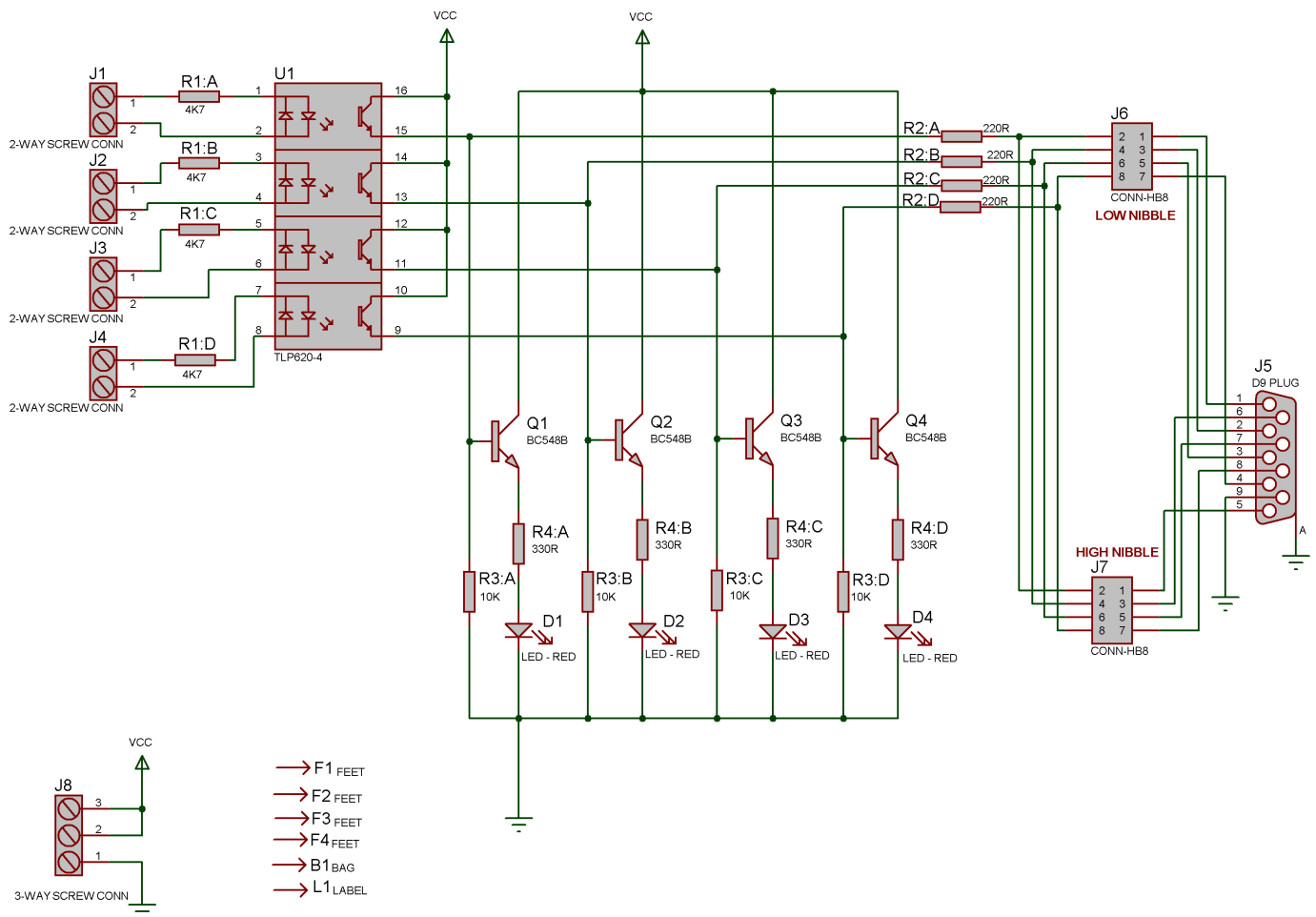
Most of the boards in the E-blocks range can be fitted with a plastic cover as an optional extra. These covers are there to protect your E-blocks board therefore extending the life of the board. The covers also prevent the removal of external components while still allowing for the adjustment of applicable 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 EB005 LCD board is EB705.



Circuit diagram





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