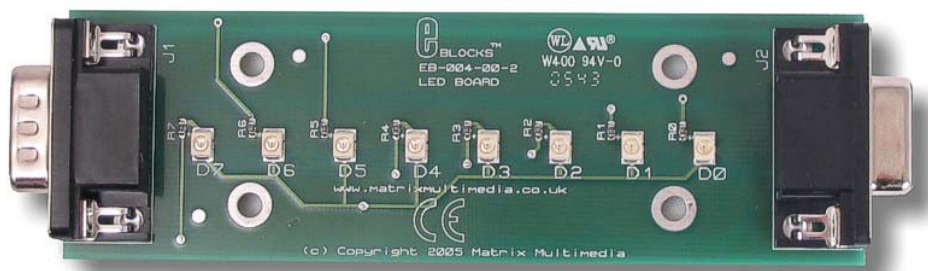




LED board datasheet EB004-00-2



Contents

1	About this document.....	2
2	General information.....	3
3	Board layout	4
4	Testing this product	5
5	Circuit description	6
	Appendix 1 Circuit Diagram	

1 **About this document**

This document concerns the Matrix Power Board code EB04 version 2.

The order code for this product is EB004.

1.1 ***Trademarks and copyright***

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

1.2 ***Other sources of information***

There are various other documents and sources that you may find useful:

Getting started with E-Blocks.pdf

This describes the E-blocks system and how it can be used to develop complete systems for learning electronics and for PICmicro programming.

PPP Help file

This describes the PPP software and its functionality. PPP software is used for transferring hex code to a PICmicro microcontroller.

C and assembly strategies

Not provided for this product.

1.3 ***Disclaimer***

The information in this document is correct at the time of going to press. Matrix Multimedia reserves the right to change specifications from time to time. This product is for development purposes only and should not be used for any life-critical application.

1.4 ***Technical support***

If you have any problems operating this product then please refer to the troubleshooting section of this document first. You will find the latest software updates, FAQs and other information on our web site: www.matrixmultimedia.com . If you still have problems please email us at: support@matrixmultimedia.co.uk.

2 General information

2.1 *Description*

The board allows you to connect up to 8 LEDs to any of the I/O ports on an upstream board to indicate the status of each line on the port. The LED board connects to upstream boards using a 9 way D type plug. Further downstream boards can also be connected to the LED board using the 9 way D type socket. This allows the LED board to be used as to indicate the status of the lines on an E-blocks bus within a system.

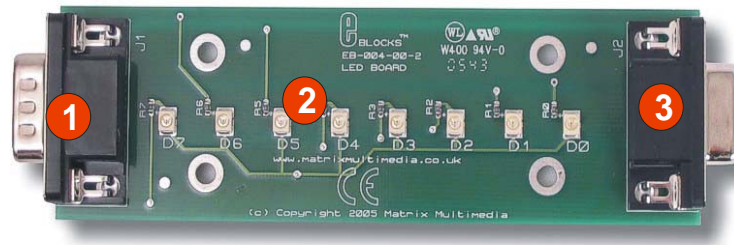
2.2 *Features*

- E-blocks compatible
- Low cost
- Upstream and downstream D-type connectors
- Compatible with most I/O ports in the E-Block range (up to 8 I/O lines via 9 way D-type connector)
- Ease to develop programming code using Flowcode icons.
- 3.3 Voltage compatible

2.3 *Block schematic*

Not supplied.

3 Board layout



EB004-74-1.cdr

- 1) 9 Way D-type Plug
- 2) 8 x LEDs D0 – D7
- 3) 9 Way D-type socket

4 Testing this product

The following program will test the circuit. The test file can be downloaded from www.matrixmultimedia.com.

4.1 **System Setup**

Multi-programmer board (EB006) with:

PIC16F88

19.6608 MHz crystal

SW2 on Xtal setting

Loaded with "follower.hex" firmware

LED board inserted into Port B of the Multiprogrammer

14V applied to Multiprogrammer. Multiprogrammer in normal (as opposed to Low Voltage Programming) programming mode.

4.2 **Test Procedure**

Check the illumination of all LEDs on the board.

5 Circuit description

The circuit board consists of 8 digital inputs on a 'downstream' 9-way D-type plug. This routes each bit of the bus to an identical LED circuit and to a 9 way D-type socket that can be used for adding further E-blocks in a bus configuration.

When 5V is applied to each circuit the relevant LED will light up. The minimum voltage required on each circuit to make the LED light up is around 1.8V. The resistor in each circuit is to limit the amount of current through the LED.

5.1 Using the LED board in a bus configuration

Care must be taken when connecting another E-block to the LED board. If you try to use one of the lines on the bus as an input then the LED circuit will have an effect on the line: this has the advantage that each LED circuit can be used as a status indicator of the logic level of a particular bus. It has the disadvantage that the LED does take several milliamps and you will therefore need to drive the bus line with a low impedance source. The LED circuit is not suitable for checking the status of analogue inputs.

5.2 3.3V operation

This board will operate from upstream boards running from a 3.3V supply.

Appendix 1 – Circuit diagram

