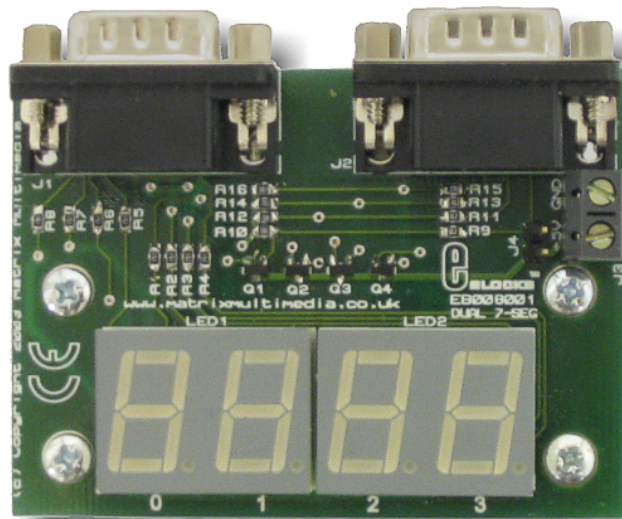


Quad 7-segment display board datasheet EB008-00-1



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Appendix 1 Circuit diagram

1. About this document

This document concerns the E-blocks Sensor board code EB008 version 1.

The order code for this product is EB008.

1. *Trademarks and copyright*

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

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

This is available as a free download from our web site.

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.

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

Description

This is the Quad seven-segment display from the E-block range. The display provides a quad seven-segment common anode display, with an option to operate off only one port using links. This display requires two E-blocks ports to operate all four displays. If only one seven segment display is needed then only one E-block port is required and a jumper link on the board can be used to permanently engage one of the display digits.

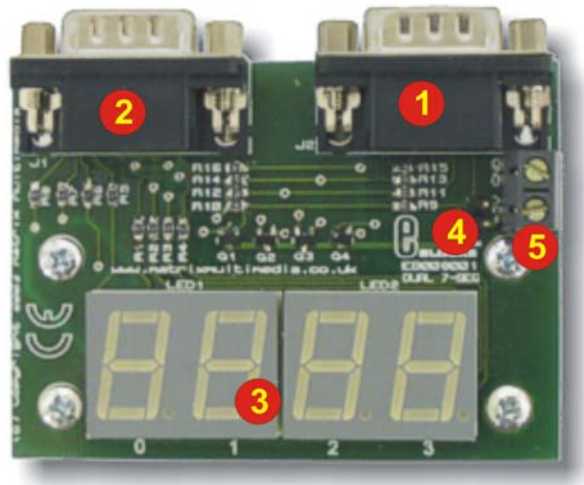
1. Features

- E-blocks compatible
- Quad common anode displays
- Operational link allows operation from only one I/O port (two I/O ports required for full quad operation)
- Compatible with most I/O ports in the E-Block range
- Ease to develop programming code using Flowcode icons.
- 3.3 Voltage compatible

2. Block schematic

Not supplied.

3. Board layout



EB007-74-1

- 1) 9 Way D-type Plug – Cathode
- 2) 9 Way D-type Plug – Anode
- 3) Quad 7-segment display
- 4) J4 – single display jumper
- 5) Power screw terminal

4. Testing this product

1. System Setup

PICmicro Multi-programmer board (EB006) with:

EB006 Options	Setting
Power supply	External, 14V
PICmicro device	16F88
SW1 (Fast/Slow)	Don't care
SW2 (RC/Xtal)	Xtal
Xtal frequency	19.6608MHz
Port A	7-segment display
Port B	7-segment display
Port C	
Port D	
Port E	
Test program	7_seg.hex

EB008 Options	Setting
J4	open

2. Test Procedure

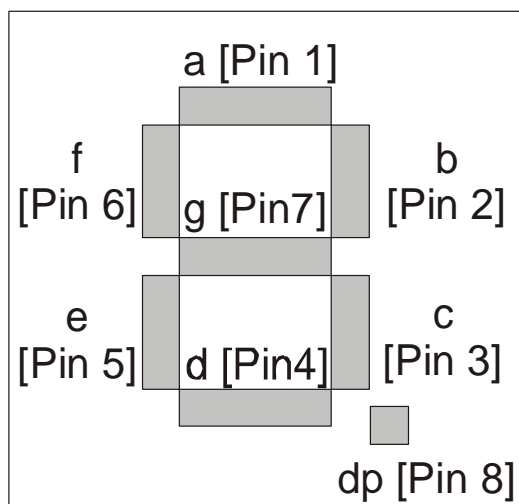
- 1) Wire power to all boards.
- 2) Configure system and board options as above.
- 3) Download the test program to the Multiprogrammer
- 4) The 7_seg.hex program will light up each segment in turn of each display consecutively then will flash every digit.

5. Circuit description

To use the full Quad 7-segment displays the board must be connected to two I/O ports of an upstream board via connectors J1 and J2. Also note that the link (on J4) **MUST NOT** be connected. As there are not enough pins on the connectors, each of the 4 7-segment displays are turned on in sequence using connector J2 and the appropriate data on connector J1 is displayed. Connector J2 [Pins 1 (left display) – 4 (right display)] are used to select which of the four 7-seg display digits are active. The signals from J2 are buffered by NPN transistors which provide power for the anodes of each digit. The bits on connector J1 [Pins 1 – 8] connect to the cathodes of each segment and hence dictate which segments are lit. Note that each cathode must go low for the segment to light. For a program showing 4 digit numbers a multiplexing algorithm is required.

The device can still operate using only one I/O port connected to J1, but this only allows one (the far left) display to be operational. Placing a link on J4 will permanently power the anode of the left hand digit so that only cathode data is needed for the individual LEDs to illuminate. Again J1 dictates which segments are illuminated.

The board is usually operated off a +5V supply. This can easily be achieved by connecting a +5V supply via a wire into the screw terminals.



The above diagram shows which pins illuminate which corresponding segment in an individual digit display. Please note that in the E-Block architecture that pin 1 will represent bit 0 of which ever port it is connected to.

3. 3.3V operation

This board is compatible with 3.3V systems.

