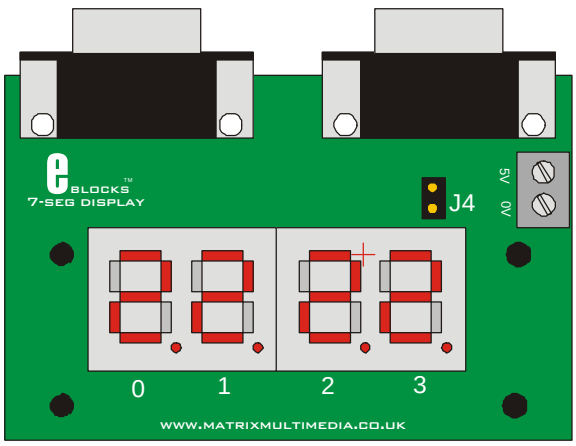
Quad 7-Segment Display datasheet



Contents

1 About this document

This document concerns the Matrix Quad Seven Segment Display code EB-008-00-1.

Trademarks and Copyright

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.

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.

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.co.uk. If you still have problems please email us at: support@matrixmultimedia.co.uk. When emailing please state the operating system, the version of PPP you are using.

2 General information

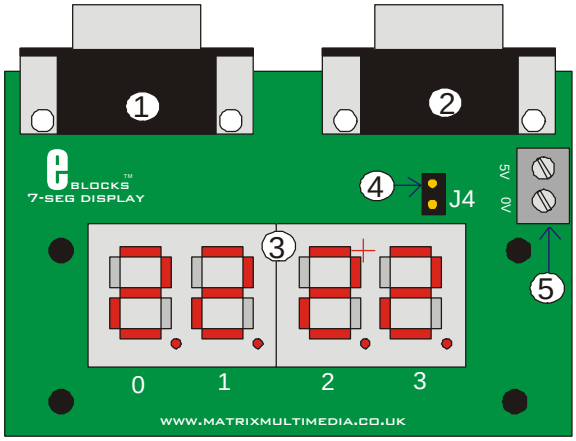
Description

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.

Features

- E-blocks compatible
- Low cost
- 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 Seven segment display Board Layout



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) Screw terminal

4 Getting Started

As can be seen the circuit diagram (Appendix 1) consists show the circuit used to connect to the displays. The following test enables the user to test that the functionality of the board is correct.

Testing the Quad 7-segment Display Board – 7_seg.hex

The following instructions explain the steps to test and use your 7-seg Board. The instructions assume that PPP is installed and functional. It also assumes that you are confident in sending a program to the PIC via the Multiprogrammer.

The 7_seg.hex program will light up each segment in turn of each display consecutively then will flash every.

1) Ensure power is supplied to all the necessary boards.
2) Insert the Seven Segment board into Port A and Port B of the Multiprogrammer
3) Ensure that the Multiprogrammer is in correct configuration
   - Fast mode (SW1 towards the centre of the board)
   - Ensure that a 19.6608MHz crystal is inserted in the Multiprogrammer board
   - SW2 is not used when in Xtal mode so it doesn't matter it's position
4) Program the a PIC16F88 with the test program 7_seg.*hex*
5) Check the illumination of all status of the displays.

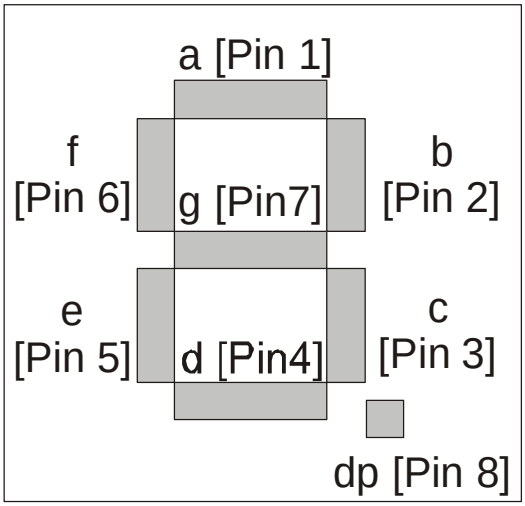
This should satisfy that the Quad Seven Segment Display Board is fully functional!

5 Circuit description

To use the full Quad 7 segment displays the board must be connected to two I/O ports of a PIC 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 and the bits on connector J1 [Pins 1 – 8] dictate which segments are lit. So for it to appear to display data on all 7-seg displays, multiplexing 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. It is also required that the link is connected on J4. Again J1 dictates which segments are illuminated.

The board requires a +5V supply. This can easily be achieved by connecting a +5V supply via a wire into the screw terminals. The USB Multiprogrammer (EB006001) has a screw terminal that provides the +5V that is required.



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.

Appendix 1 – Circuit Diagram