Keypad Board datasheet

Contents

1. About this document
2. General information
3. Board Layout
4. Getting Started
5. Circuit description

Appendix

1 Circuit Diagram

1 About this document

This document concerns the Matrix Keypad Board code EB-014-00-1.

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

A simple 4x3 keyboard that allows data entry into bus based systems. Flowcode macros for driving this E-block are available.

Features

- 4 by 3 keypad for E-blocks
- Flowcode macros available

3 Keypad Board Layout

1) 9 Way D-type Plug
2) Matrixed 3x4 data keypad

4 Getting Started

As can be seen the circuit diagram (Appendix 1) consists of a simple keypad in circuit with 7 resistors. The following program is used to test the functionality of the Keypad Board.

Testing the Keypad Board – keypad.hex

The following instructions explain the steps to test and use your Keypad 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 keypad.hex program will enable the LED board to light up the associated binary equivalent of the Keypad button that is pressed.

1) Ensure power is supplied to all the necessary boards.
2) Insert the Keypad Board into Port B of the Multiprogrammer
3) Insert the LED Board into Port A of the Multiprogrammer
4) 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
5) Program the a PIC16F88 with the test program *keypad.hex*
6) Press each button on the Keypad Board and check that the binary value of that Keypad number illuminates on the LED Board
   For example pressing keypad button 5 will illuminate "(MSB) 0 0 0 0 0 1 0 1 (LSB)"
   Note The * button on the keypad represents the number 10
   The # button on the keypad represents the number 11

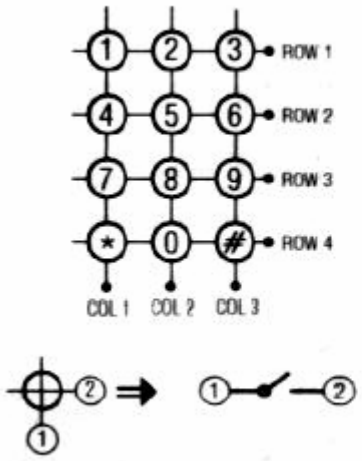
This should satisfy that the Keypad Board is fully functional!

5 Circuit description

The circuit board consists of 7 digital I/O lines on a 'downstream' 9-way D-type plug. This routes each bit to a particular line of the keypad. Columns 1, 2 and 3 and routed to bits 0, 1, and 2 respectively. Rows 1, 2, 3 and 4 and routed to bits 5, 6, 7 and 8 respectively. These values were chosen to enable the use of interrupts when connecting the keypad to Port B.

The diagram below shows the internal characteristics of the Keypad.

Circuit Diagram

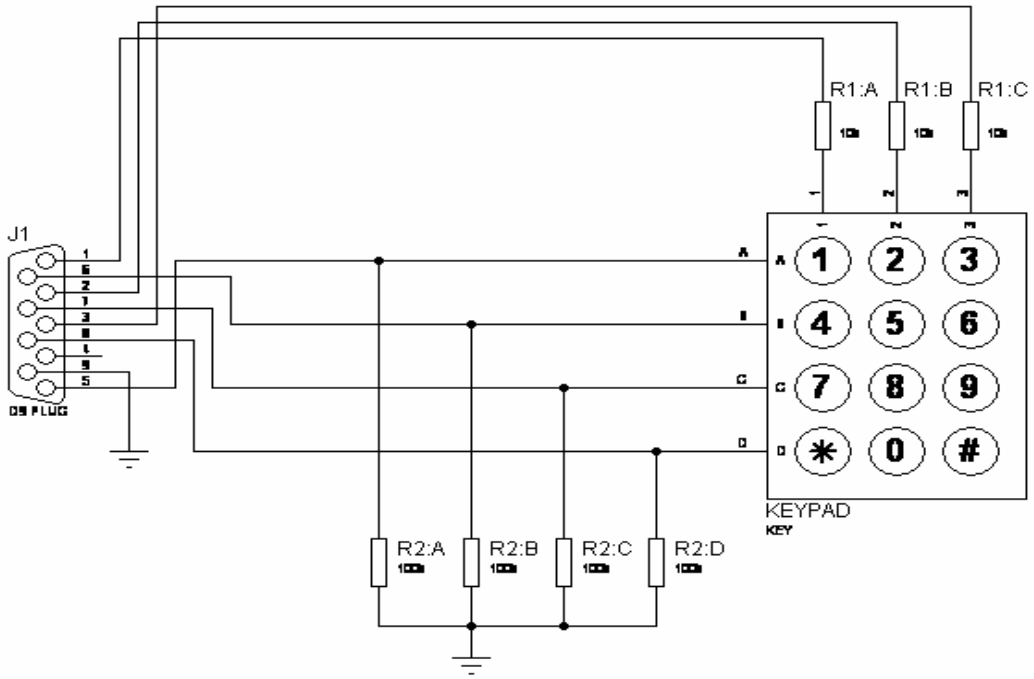


OUTPUT ARRANGEMENT	
Output pin no.	Symbols
1	
2	Col. 2
3	Row 1
4	Col. 1
5	Row 4
6	Col. 3
7	Row 3
8	Row 2
9	
10	

Appendix 1 – Circuit Diagram

THIS SYSTEM INCLUDES:-

⟶ FEET



Keypad Ref. No.	Keypad Pinout	Column / Row
1	4	Col 1
2	2	Col 2
3	6	Col 3
A	3	Row 1
B	8	Row 2
C	7	Row 3
D	5	Row 4

MATRIX MULTIMEDIA LTD. www.matrixmultimedia.co.uk (c) Copyright 2004 Matrix Multimedia	
TITLE: Keypad Board EB-014-00-1	DATE: 04/05/04
BY: Colin Carr REV: 1.0	PAGE: 1/1