

## PIC16F84A Matrix LED Display – Custom Text Guide

How to change in the source code?

Download the source code and compiled hex files from the following link

[http://www.manelsoft.com/projects/files/PIC16F84A\\_MATRIX\\_LED\\_DISPLAY\\_SOURCE\\_AND\\_HEX.zip](http://www.manelsoft.com/projects/files/PIC16F84A_MATRIX_LED_DISPLAY_SOURCE_AND_HEX.zip)

There are three projects included in the above zip file.

Please use the project 2 or 3 to modify the text.

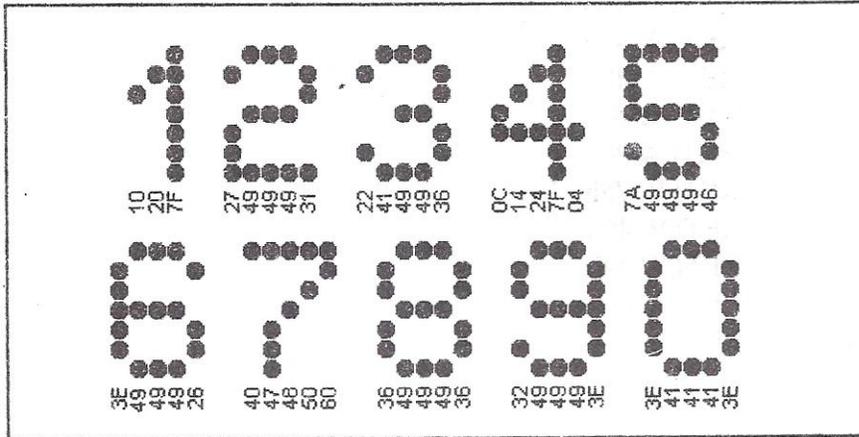
(Project 1 uses binary format to display text. Project 2 and 3 use hexadecimal format to display the text. Hexadecimal format is efficient than the binary format. This guide describes changing the Hexadecimal format)

**This code can display maximum 30 characters**

In project 2 and 3 source codes (RUN.asm and AMA 16.asm), you have to change from line 124 to RETURN statement to change the text.

```
121
122 ;***** PIC 16F84A RUNNING LED DESIGN **
123
124 TABLE ADDWF PCL,1 ;Add W to Program Counter
125     RETLW 00h ; BLANK LED
126     RETLW 00h ; BLANK LED
127         RETLW 3Fh ;P
128         RETLW 48h
129         RETLW 48h
130         RETLW 48h
131         RETLW 30h
132     RETLW 00h ; BLANK LED
```

Use the following guide to display numbers



For an example to display the number 2, code is

```

RETLW 27h    ;2
RETLW 49h
RETLW 49h
RETLW 49h
RETLW 31h
    
```

To display a space between two characters, use the following code

```

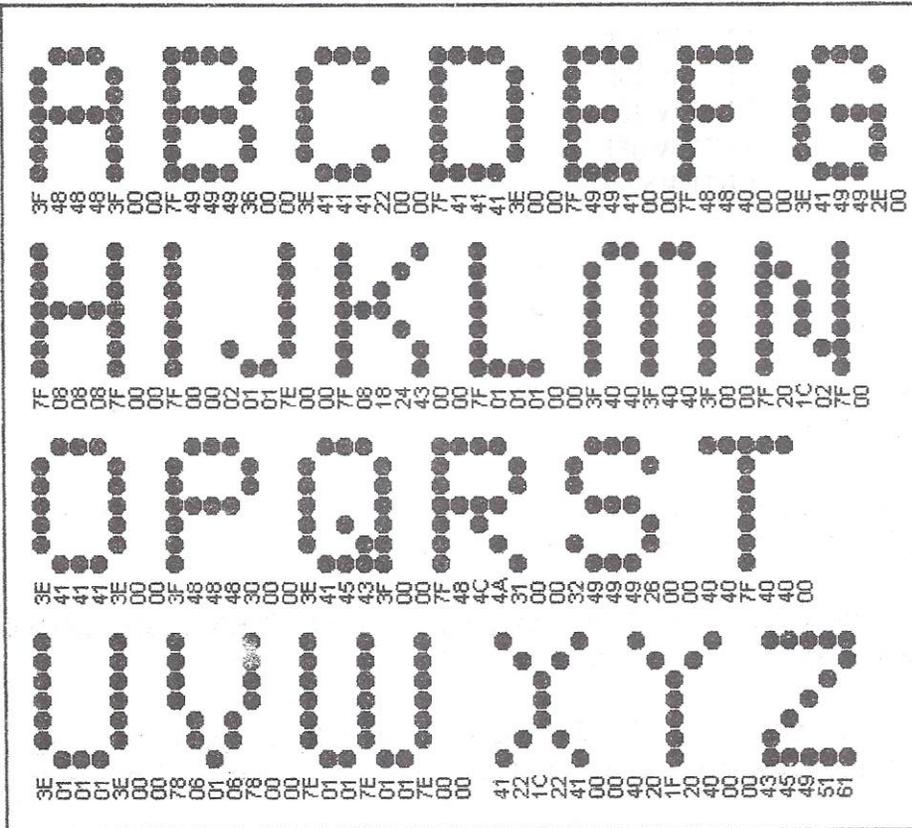
RETLW 00h    ; BLANK LED
RETLW 00h    ; BLANK LED
    
```

According to the above mentioned example, to display the text '1 2', use the following code

```

124 TABLE ADDWF PCL,1
125         RETLW 10h    ;1
126         RETLW 20h
127         RETLW 7Fh
128     RETLW 00h    ; BLANK LED
129     RETLW 00h    ; BLANK LED
130         RETLW 27h    ;2
131         RETLW 49h
132         RETLW 49h
133         RETLW 49h
134         RETLW 31h
135
136         RETLW 0FFh
137         RETURN
    
```

Use the following guide to display characters



For an example, to display the letter N, code is

```
RETLW 7Fh    ;N
RETLW 20h
RETLW 1Ch
RETLW 02h
RETLW 7Fh
```

Try to understand the above pattern and change the code to display your own text.  
If you try more, you can edit hex values to display symbols or your own custom shapes.  
Good Luck!

After you change the code, compile and generate the HEX file to program.

Prepared by – Dinesh Kumar Wickramasinghe

From the Book

PIC Programming

Author - Mr. Sarath Premachandra

(455AS City & Guild London)

Sri Lanka