

ATOMSOFT LCD LIBRARY

LCD Library Setup

This LCD Library is intended for 16x2 LCD Displays using the Hitachi HD44780 Interface in 4 Bit mode. Below is a general schematic and is intended for example use.

There are a few settings you must change if not using the configuration shown in the schematic. Since this is written in C (Microchip C18) this is simple task. The main settings are located in the "LCD.H" file.

```
#define lcd_rs LATBbits.LATB1 // define RS Pin
#define lcd_e LATBbits.LATB0 // define E Pin

#define lcd_DB7 LATAbits.LATA3 // define LCD Data Bit 7
#define lcd_DB6 LATAbits.LATA2 // define LCD Data Bit 6
#define lcd_DB5 LATAbits.LATA1 // define LCD Data Bit 5
#define lcd_DB4 LATAbits.LATA0 // define LCD Data Bit 4

#define lcd_db_tris TRISB // define LCD Data Bits TRIS
#define lcd_cnt_tris TRISA // define LCD Control Bits TRIS
```

The only other setting that needs to be changed is the speed in the "DELAY.H" file.

```
#define d_mhz 20000000 // 20 MHz = 20,000,000
```

EXAMPLE.C (Add C Files to Project)

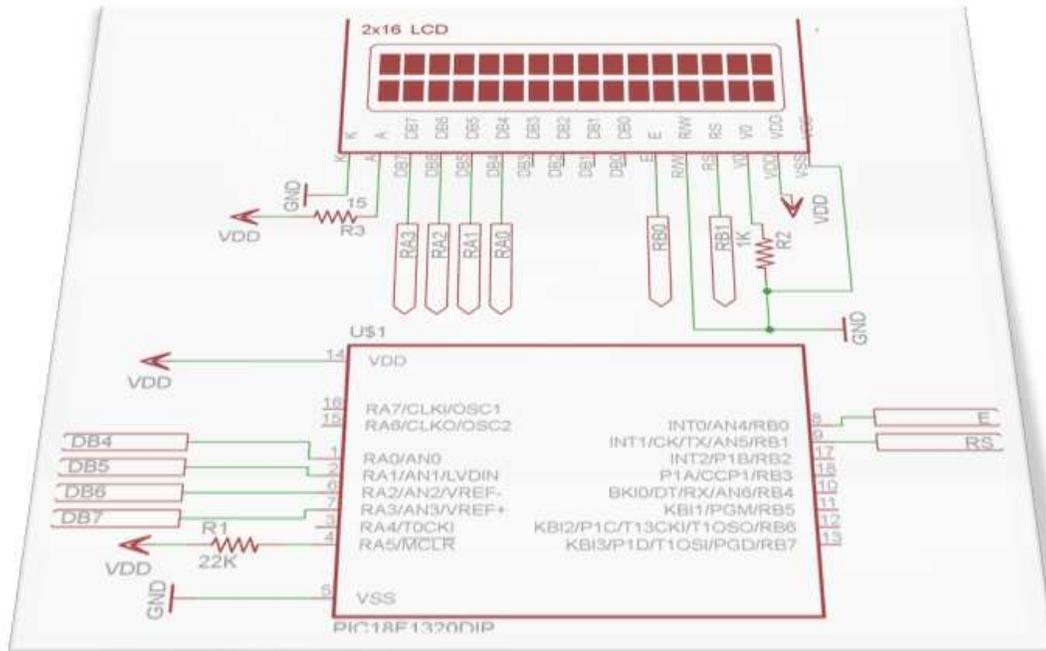
```
#include <p18F248.h>
#include <stdio.h>

#pragma config WDT = OFF, OSC = HS, LVP = OFF

char string[16];
void main (void) {
    lcd_init(); //Launch Initialize function
    sprintf(string, " AtomSoft ",0); //Set our character array(string) (max 16 Chars)
    lcd_string(string,1); //Send our string.
    sprintf(string, " Technology ",0); //Set our character array(string) (max 16 Chars)
    lcd_string(string,2); //Send our string.

    while(1); //Main Loop
}
```

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LCD Functions

lcd_init() :

This is the main initialization function. It will initialize the LCD for 4 Bit use. This must be called first before writing to the LCD.

lcd_e_togg():

Toggles the E line and tells the LCD that data is ready.

lcd_cmd(unsigned char letter):

Sends a single command to the LCD. (NOTE: sends a command **NOT** text.)

lcd_char(unsigned char letter):

Sends a single character to the LCD. (NOTE: sends text **NOT** commands.)

lcd_string(char *senpoint, char Line):

Sends a string to the LCD on the specified line. The “senpoint” must be a array of characters. Recommended use would be to create a buffer for data to be outputted and use “sprintf” to load a new string into the buffer and send the newly updated buffer. To Specify Line 1 of LCD set Line to “1” and for Line 2 set Line to “2”. (NOTE: See “Example.c” file for usage example.)

lcd_nybble(unsigned char nyb,char rs):

This is used for 4bit mode to send out 4 bits at a time by setting Data Bits defined in the header file.

lcd_clr_line(char line):

Clears a “line” on the LCD Display

Delay Functions

delay_s(char sec):

Delays “sec” number of seconds.

delay_ms(char msec):

Delays “msec” number of milliseconds.

delay_us(char usec):

Delays “usec” number of microseconds.