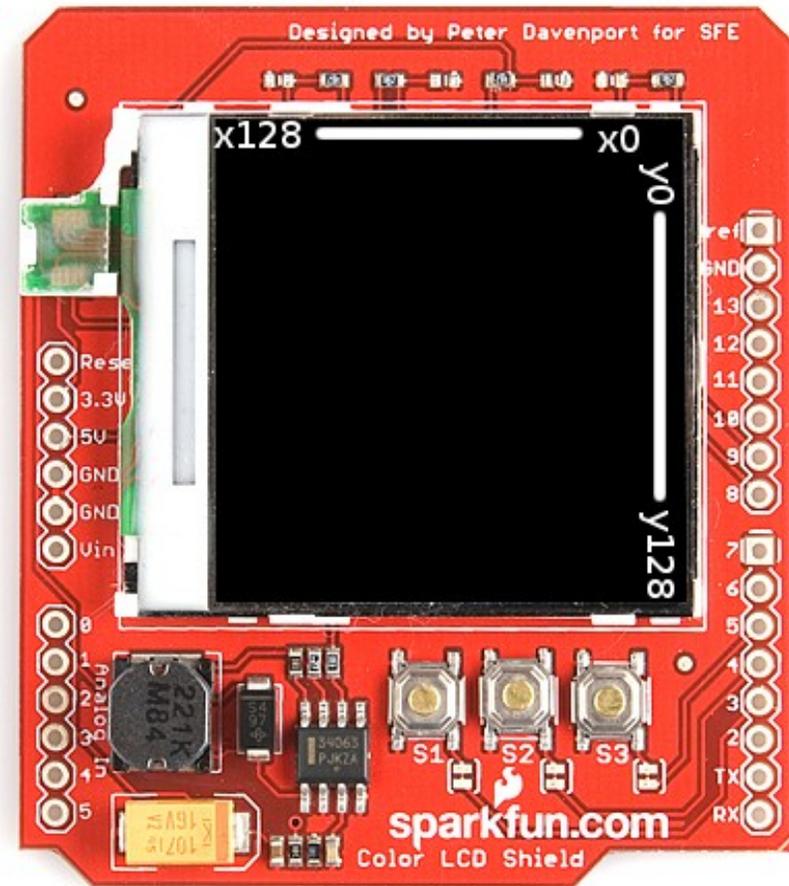


Color LCD Shield Operating Manual

Version 0.2



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Introduction

The SparkFun Color LCD Shield allows you to display visual information with your arduino easily and inexpensively. It uses a color LCD with a 128x128 resolution and 12 bit color.

This manual uses a library that can be found at tacomarobotics.org/LCD_Library_V-0_2.zip. To use this library select the files named LCD_driver.h, LCD_driver.h and copy and paste them in the folder that your Arduino sketch is in.

To use the LCD library in a sketch all you have to do is paste this at the top of your sketch:

```
//      Included files
#include <string.h>
#include <stdlib.h>
#include <stdio.h>
#include <ctype.h>
#include <avr/io.h>
#include <avr/interrupt.h>
#include <avr/pgmspace.h>
#include "WProgram.h"
#include "HardwareSerial.h"
//      External Component Libs
#include "LCD_driver.h"
```

And put:

```
  ioinit();          //Initialize I/O
  LCDInit();        //Initialize the LCD
```

at the top of setup.

Setting individual pixels.

To start out lets set an individual pixel. The function for setting an individual pixel is `LCDSetPixel(color, x, y);`

The "color" part tells the screen what color to set the pixel. There is a group of simple colors built into the library these are WHITE, BLACK, RED, GREEN, BLUE, CYAN, MAGENTA, YELLOW, BROWN, ORANGE, and PINK. To be valid these must be written in capitals. If you want to display a different color you must put in

a 12 bit hex value of that color.

“x” defines the x axis location and “y” defines the y axis position. The picture on the cover page shows how the x/y grid is oriented.

So if you want to display a red dot in the middle of the screen you would use this code:

```
| LCDSetPixel(RED, 64, 64); // Write red pixel
```

Drawing lines

The function for drawing a line is:

```
| LCDSetLine(x0, y0, x1, y1, color);
```

“x0” and “y0” set the location of the start of the line “x1” and “y1” set the end point. Color simply sets the color and can be set either with a hex code or one of the standard colors.

Drawing Rectangles

The function for drawing rectangles is:

```
| LCDSetRect(x0, y0, x1, y1, fill, color);
```

“x0” and “y0” set the location of the start of the rectangle “x1” and “y1” set the end point. “Fill” sets whether or not the rectangle is filled, if it is set to 0 it will not be filled if it is set to 1 the rectangle will be filled. Color simply sets the color and can be set either with a hex code or one of the standard colors.

Drawing Rectangles

The function for drawing circles is:

```
LCDDrawCircle(xCenter, yCenter, radius, color, circleType);
```

“xCenter” and “yCenter” set the location of the centre of the circle. Radius sets the circle's radius. Color simply sets the color and can be set either with a hex code or one of the standard colors. CircleType sets the type of circle. Circle types are: FULLCIRCLE, OPENSOUTH, OPENNORTH, OPENEAST, OPENWEST, OPENNORTHEAST, OPENNORTHWEST, OPENSOUTHEAST, OPENSOUTHWEST.

Thanks to

Text

Text can be displayed on the screen with this function:

```
| LCDPutStr(String, x, y, fColor, bColor);
```

String is the set of letters that you want to display, put these in between quotation marks like so "Words to display." "x" and "y" set the starting location of the string. "fColor" sets the color of the font and "bColor" sets the color of the background.

Input

On the Color LCD shield there are three buttons connected to digital pins 3-5. To use these buttons with your sketch all you need is to digitalRead the pins like this:

```
void loop()
{
  int s1, s2, s3;
  s1 = !digitalRead(kSwitch1_PIN);
  s2 = !digitalRead(kSwitch2_PIN);
  s3 = !digitalRead(kSwitch3_PIN);
  if (s1) {
    // Put the event you want to happen when button
    one is pushed here
  }
  else if (s2) {
    // Put the event you want to happen when button
    two is pushed here
  }
  else if (s3) {
    // Put the event you want to happen when button
    three is pushed here
  }
  delay(200);
}
```

Contrast

Screen contrast can be set with this function:

```
LCDContrast(contrast);
```

The contrast can be set between 0 and 63 . I found 44 to work well for me but

the best contrast differs between LCDs.