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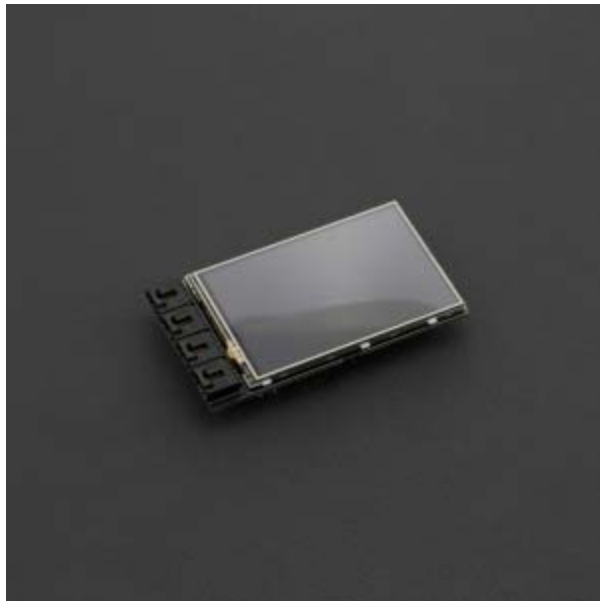
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## TELEMATICS 3.5" TFT Touch LCD Shield SKU: DFR0387

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### Introduction

For beginners to Arduino it can be daunting and risky to wire LCD driver circuits - one wrong connection and your component can be damaged. This LCD expansion board removes all the complications and risks.

The TELEMATICS 3.5" TFT Touch LCD Shield is an Arduino compatible display designed by DFRobot, with a resolution of 320x480, three serial ports and one IIC interface. It is perfectly compatible with Arduino DUE, Mega1280/2560, and Bluno Mega1280/2560. There is an on-board voltage switch which supports changing the output voltage between 3.3V and 5V to ensure that it

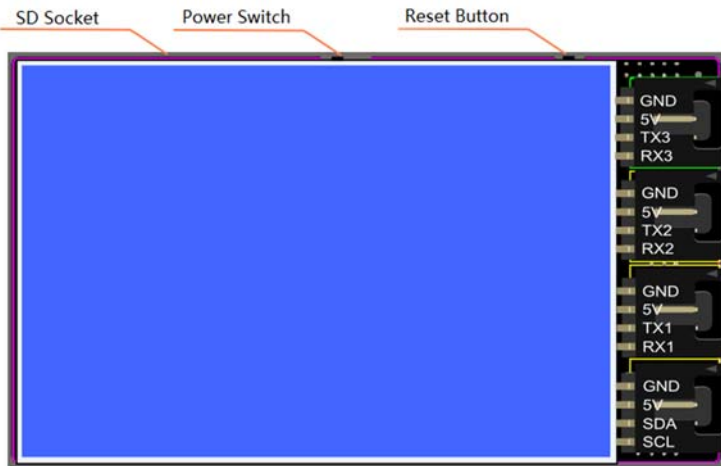
won't damage your DUE. In addition, the LCD shield comes with a MicroSD card slot on the back that can be used for data storage up to a maximum of 32GB. We also offer a variety of driver packages to help you implement different features.

 **Note:** Since the operating voltage of DUE and MEGA are different, the backlight brightness will change if you replace your Arduino platform. Please adjust the D8 PWM signal to control the brightness of the backlight

## Specification

- Screen Size: 3.5"
- Resolution Ratio : 320x480
- Power Supply: 5V
- Output Voltage: 3.3/5V
- Backlight Control Mode: D8 PWM signal
- Supports MicroSD card (Up to 32GB)
- Serial Ports: 3
- IIC interface: 1
- Compatible with Arduino Compatible DUE/Mega 1280/2560
- Compatible with the Bluno Mega 1280/2560
- Supports Touch Functionality
- Dimensions: 100x57mm/3.93x2.24 inches
- Weight: 70g

## Board Overview



### Note:

- **LCD Driving Pins:** D2, D3, D4, D5, D6, D8, D22~D41, D50~D53

Interface	Description
IIC Interface	IIC (SDA: 20; SCL: 21)
Serial1	Serial1
Serial2	Serial2
Serial3	Serial3
SD Driving Pins	D52->DATA0 D50->CMD D52->CLK D53->CD/DATA3

## Tutorial

### Requirements

- **Hardware**  
Bluno Mega 2560 x 1  
TELEMATICS 3.5" TFT Touch LCD Shield x 1
- **Software**  
Arduino IDE (Latest) [Click to Download Arduino IDE from Arduino®](#)  
[Download related Libraries. How to install libraries](#)  
<https://www.arduino.cc/en/Guide/Libraries#.UxU8mdzF9H0>

### Sample Code 1

In this section, we'll explain how to initialize the LCD screen. You can use "**setFontSize**" and "**setColor**" function to change the font and the color of the characters

```
1 /*
2 This code will demonstrate how to make the LCD display string with the
library
3 If you need to set the font size, you can call this function "setFontSi
ze()", and you can set the parameters:
4     FONT_SIZE_SMALL
5     FONT_SIZE_MEDIUM
6     FONT_SIZE_LARGE
7     FONT_SIZE_XLARGE
8
9 If you want to set the font color, you can call this function "setColor
()" with the parameters:
10    RGB16_RED----->RED
11    RGB16_GREEN----->GREEN
12    RGB16_BLUE----->BLUE
13    RGB16_YELLOW----->YELLOW
14    RGB16_CYAN----->CYAN
15    RGB16_PINK----->PINK
16    RGB16_WHITE----->WHITE
17
18
19
20 Created 2016-4-8
```

```

21 By Andy zhou <Andy.zhou@dfrobot.com>
22 version:V1.0
23 */
24 #include <Arduino.h>
25 #include <SPI.h>
26 #include <MultiLCD.h>
27
28 LCD_R61581 lcd;
29
30 void setup(){
31   lcd.begin();
32   lcd.setFontSize(FONT_SIZE_MEDIUM); //set font size
33   lcd.setColor(RGB16_RED); //set strings color
34   lcd.println();
35   lcd.println();
36   lcd.println("DFRobot!!!");
37   lcd.println("TELEMATICS LCD SHIELD V1.0");
38   lcd.println();
39   lcd.setColor(RGB16_WHITE);
40 }
41
42 void loop(){
43 }

```

## Sample Code 2

In this section, we'll explain how to use the SD card with LCD screen.

```

1 /*
2 /*
3 This code is to teach you how to use SD library.
4
5 Created 2016-4-8

```

```
6 By Andy zhou <Andy.zhou@dfrobot.com>
7 version:V1.0
8 */
9 #include <Arduino.h>
10 #include <SPI.h>
11 #include <MultiLCD.h>
12 #include <SD.h>
13 #include "datalogger.h"
14
15 #define STATE_SD_READY 0x1
16 #define STATE_OBD_READY 0x2
17 #define STATE_GPS_CONNECTED 0x4
18 #define STATE_GPS_READY 0x8
19 #define STATE_MEMS_READY 0x10
20 #define STATE_GUI_ON 0x20
21
22 LCD_R61581 lcd;
23 CDataLogger logger;
24
25 byte state = 0;
26
27 bool checkSD()
28 {
29     Sd2Card card;
30     SdVolume volume;
31     state &= ~STATE_SD_READY;
32     pinMode(SS, OUTPUT);
33
34     lcd.setFontSize(FONT_SIZE_MEDIUM);
35     if (card.init(SPI_HALF_SPEED, SD_CS_PIN)) {
36         const char* type;
37         switch(card.type()) {
38             case SD_CARD_TYPE_SD1:
39                 type = "SD1";
```

```
40         break;
41     case SD_CARD_TYPE_SD2:
42         type = "SD2";
43         break;
44     case SD_CARD_TYPE_SDHC:
45         type = "SDHC";
46         break;
47     default:
48         type = "SDx";
49     }
50
51     lcd.print(type);
52     lcd.write(' ');
53     if (!volume.init(card)) {
54         lcd.print("No FAT!");
55         return false;
56     }
57
58     uint32_t volumesize = volume.blocksPerCluster();
59     volumesize >>= 1; // 512 bytes per block
60     volumesize *= volume.clusterCount();
61     volumesize >>= 10;
62
63     lcd.print((int)volumesize);
64     lcd.print("MB");
65 } else {
66     lcd.println("No SD Card");
67     return false;
68 }
69
70 if (!SD.begin(SD_CS_PIN)) {
71     lcd.println("Bad SD");
72     return false;
73 }
```

```
74
75     state |= STATE_SD_READY;
76     return true;
77 }
78
79 void setup(){
80     lcd.begin();
81     lcd.setFontSize(FONT_SIZE_MEDIUM); //set font size
82     lcd.setColor(RGB16_RED); //set strings color
83     lcd.println();
84     lcd.println();
85     lcd.println("DFRobot!!!");
86     lcd.println("TELEMATICS LCD SHIELD V1.0");
87     lcd.println();
88     lcd.setColor(RGB16_WHITE);
89     if (checkSD()) {
90         uint16_t index = logger.openFile();
91         lcd.println();
92         if (index > 0) {
93             lcd.print("File ID:");
94             lcd.println(index);
95         } else {
96             lcd.print("No File");
97         }
98     }
99 }
100
101 void loop(){
102 }
```



## Sample Code 3

In this section, we'll explain how to use the touch function

```
1 #include <Arduino.h>
2 #include <SPI.h>
3 #include <MultiLCD.h>
4 #include "touch.h"
5
6 LCD_R61581 lcd;
7
8 void setup(){
9   lcd.begin();
10  lcd.setFontSize(FONT_SIZE_MEDIUM); //set font size
11  lcd.setColor(RGB16_YELLOW); //set strings color
12  lcd.println("DFRobot");
13  lcd.println("TELEMATICS LCD SHIELD V1.0");
14  lcd.println();
15  lcd.setColor(RGB16_WHITE);
16
17  touch.init();
18 }
19
20 void loop(){
21  lcd.setCursor(0, 8);
22  int x, y;
23  if ( touch.read(x, y) ){
24    lcd.print("X:");
25    lcd.print(x);
26    lcd.print(" Y:");
27    lcd.print(y);
28    lcd.print("  ");
29  } else {
30    lcd.print("          ");
```

31 }

32 }

## FAQ

For any questions/advice/cool ideas to share, please visit [DFRobot Forum](#).