

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



# Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China









## LCD Keypad Shield V2.0 SKU: DFR0374



#### Contents

- 1 Introduction
- 2 Specification
- 3 Layout
- 4 Tutorial

4.1 Requirements

4.2 How to Operate

4.2.1 Libraries

4.2.2 Sample Code

### Introduction

Our LCD Keypad Shield V2.0 is a 2 line, 16 character Arduino LCD display expansion shield, based on V1.0. We have simplified the APC interface and the other GPIO pins and retained 5 input buttons: 1 menu select button and 4 control buttons. We have provided a simple Arduino library that makes screen driving easier and means you do not have to learn complicated LCD working principles to get it functioning. It is compatible with most Arduino boards, such as UNO and Leonardo.



#### **IOREF pin** for Version 2:

The board's IOREF pin is connected with pin 5V! So when adding the DFR0374 to the stack of board( controller), the controller's supply voltage would changed to 5V! So it only can be compatible with the controller working at 5V. If you need to use controller working at other voltage, e.g. 3.3V, you need **CUT OFF** the IOREF pin of DRI0009.

We are deeply sorry about the mistake! We will revise the design in the next version.

### Specification

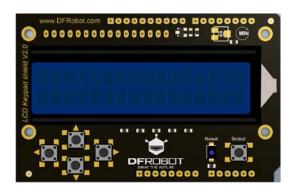
Operating Voltage: 5V

5 input buttonsDrive Pin: D4~D10

Module size: 54\*84mm

1602 blue background liquid crystal display (16 lines, 2 bytes)

### Layout



Pin	Function
ANALOG	BUTTON (SELECT, UP, RIGHT,
A0	DOWN, LEFT)
DIGITAL 4	DB4
DIGITAL 5	DB5
DIGITAL 6	DB6
DIGITAL 7	DB7
DIGITAL 8	RS (DATA OR SELECT)
DIGITAL 9	ENABLE
DIGITAL 10	Backlight Control

#### Tutorial

### Requirements

• Hardware UNO x1

LCD Keypad Shield V2.0 x1

Software

Arduino IDE V1.6.5 Click to Download Arduino IDE https://www.arduino.cc/en/Main/Software

### How to Operate

#### Libraries

- Download and install the LiquidCrystal Library: Click here to download library files (Arduino Library Installation Tutorial)
- https://github.com/CainZ/LiquidCrystal/raw/master/LiquidCrystal.zip
- https://www.arduino.cc/en/Guide/Libraries#.UxU8mdzF9H0
- Next, open the Arduino IDE and copy the following code to the IDE window.
- Select the correct serial port (the serial port varies depending on your machine) and board (Arduino UNO).
- When the code has successfully uploaded, try pressing buttons on the shield observe what happens with the LCD.

#### Sample Code

```
#include <LiquidCrystal.h>
/*****************
This program is used to test the LCD module display and 5 buttons.
// Select the pin used on LCD
LiquidCrystal lcd(8, 9, 4, 5, 6, 7);
// define the button
int lcd_key
int adc_key_in = 0;
#define btnRIGHT 0
#define btnUP
             1
#define btnDOWN
#define btnLEFT 3
#define btnSELECT 4
#define btnNONE
```

```
//read the button value
int read_LCD_buttons()
{
adc_key_in = analogRead(0);
                               // read analog A0 value
// when read the 5 key values in the vicinity of the following:
0,144,329,504,741
// By setting different threshold, you can read the one button
if (adc_key_in > 1000) return btnNONE;
if (adc_key_in < 50) return btnRIGHT;</pre>
if (adc_key_in < 250) return btnUP;
if (adc_key_in < 450) return btnDOWN;</pre>
if (adc_key_in < 650) return btnLEFT;</pre>
if (adc_key_in < 850) return btnSELECT;
// V1.0 Use the following version threshold:
if (adc_key_in < 50) return btnRIGHT;</pre>
if (adc_key_in < 195) return btnUP;
if (adc_key_in < 380) return btnDOWN;</pre>
if (adc_key_in < 555) return btnLEFT;</pre>
if (adc_key_in < 790) return btnSELECT;</pre>
return btnNONE;
void setup()
                               // star
lcd.begin(16, 2);
lcd.setCursor(0,0);
lcd.print("Push the buttons"); // display"Push the buttons"
void loop()
                                // The cursor is set at second. and have 9
lcd.setCursor(9,1);
spaces
lcd.print(millis()/1000); // Output waiting time
                                // The cursor moves to the beginning of the
lcd.setCursor(0,1);
second line.
lcd_key = read_LCD_buttons(); // read key
                                // display key
 switch (lcd_key)
  case btnRIGHT:
    lcd.print("RIGHT ");
    break;
   case btnLEFT:
    lcd.print("LEFT ");
    break;
```

```
case btnUP:
    {
      lcd.print("UP ");
      break;
    }
    case btnDOWN:
      {
      lcd.print("DOWN ");
      break;
    }
    case btnSELECT:
      {
      lcd.print("SELECT");
      break;
    }
      case btnNONE:
      {
      lcd.print("NONE ");
      break;
    }
}
```