Introduction

(https://www.dfrobot.com/product-51.html)

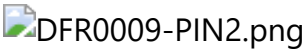
This is a very popular LCD Keypad shield for Arduino (https://www.dfrobot.com/product-51.html) or Freeduino board. It includes a 2x16 LCD display and 6 momentary push buttons. Pins 4, 5, 6, 7, 8, 9 and 10 are used to interface with the LCD. Analog Pin 0 is used to read the push buttons. The LCD shield supports contrast adjustment and backlit on/off functions. It also expands analog pins for easy analog sensor reading and display.

The LCD Keypad shield is developed for Arduino compatible boards (https://www.dfrobot.com/category-104.html), to provide a user-friendly interface that allows users to go through the menu, make selections etc. It consists of a 1602 white character blue backlight LCD. The keypad consists of 5 keys — select, up, right, down and left. To save the digital IO pins, the keypad interface uses only one ADC channel. The key value is read through a 5 stage voltage divider.

Specification

- Operating Voltage:5V
- 5 Push buttons to supply a custom menu control panel
- RST button for resetting arduino program
- Integrate a potentiometer for adjusting the backlight
- Expanded available I/O pins
- Expanded Analog Pinout with standard DFRobot configuration for fast sensor extension
- Dimension: 80 x 58 mm

Board Overview



Tutorial

Requirements

- **Hardware**
  - DFRduino UNO R3 (https://www.dfrobot.com/product-838.html)

- LCD Keypad Shield For Arduino (https://www.dfrobot.com/product-51.html)
- Analog Linear Temperature Sensor (https://www.dfrobot.com/product-76.html)

Function Explanation

LiquidCrystal(rs, enable, d4, d5, d6, d7)

Creates a variable of type LiquidCrystal. The display can be controlled using 4 or 8 data lines. If the former, omit the pin numbers for d0 to d3 and leave those lines unconnected. The RW pin can be tied to ground instead of connected to a pin on the Arduino; if so, omit it from this function's parameters. for example:

```
LiquidCrystal lcd(8, 9, 4, 5, 6, 7);
```

lcd.begin(cols, rows)

Initializes the interface to the LCD screen, and specifies the dimensions (width and height) of the display. begin() needs to be called before any other LCD library commands.for example:

```
lcd.begin(16, 2);
```

lcd.setCursor(col,row)

Set the location at which subsequent text written to the LCD will be displayed. for example:

```
lcd.setCursor(0,0);
```

lcd.print(data)

Prints text to the LCD.for example:

```
lcd.print("hello, world!");
```

lcd.write(data)

Write a character to the LCD.

More function can see:

- LiquidCrystal library (https://github.com/CainZ/LiquidCrystal/raw/master/LiquidCrystal.zip)

Connection Diagram

Plug the LCD Keypad to the UNO(or other controllers)

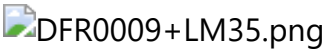
Temperture sensor: S(blue) -- A1()

Note: A0 has been occupied.

VCC(red) -- VCC

GND(black) -- GND

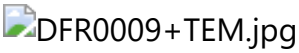
Tricks for changing sensor cable pin mapping (https://www.dfrobot.com/community/trick-for-changing-sensor-cable-pin-mapping.html)



Sample Code

```
/*************************************************

   Description:
   Reads an analog input on pin 1, prints the result to the LCD.
   This program takes the temperture sensor LM35 for example.

   Connection:
   Plug the LCD Keypad to the UNO(or other controllers)
   Temperture sensor:
   S(blue) -- A1()
     Note: A0 has been occupied.
   VCC(red) -- VCC
   GND(black) -- GND

*************************************************/

#include <LiquidCrystal.h>

LiquidCrystal lcd(8, 9, 4, 5, 6, 7);        // select the pins used on the LCD panel

unsigned long tepTimer ;

void setup(){
    lcd.begin(16, 2);                       // start the library
}

void loop(){
    lcd.setCursor(0, 0);                   // set the LCD cursor   position
    int val;                               // variable to store the value coming from the
    double data;                           // variable to store the temperature value comi
    val=analogRead(1);                     // read the analog in value:
    data = (double) val * (5/10.24);       // temperature conversion formula

    if(millis() - tepTimer > 500){         // output a temperature value per 500ms
             tepTimer = millis();

             // print the results to the lcd
             lcd.print("T: ");
             lcd.print(data);
             lcd.print("C");
     }
}
```

Expected Results



FAQ

Q&A	Some general Arduino Problems/FAQ/Tips
Q1	I do not understand your schematic. There are too many connectors illustrated than are mapping?
A1	The J1-J8 include the both the user interface, i.e. Analog pins, APC220(Serial) pins, Digit Arduino card, e.g. Uno/ Leonardo. Here is a simple mapping picture.
Q2	Why my LCD keypad cannot **display anything** on the Intel Edison (https://www.dfrobot route=product/product&product_id=1198&search=Intel%C2%AE+Edison+with+Ardui while all right on Romeo (https://www.dfrobot.com/index.php? route=product/product&product_id=1198&search=Intel%C2%AE+Edison+with+Ardui
A2	It works well if uploaded by Arduino 1.5.3 version, however, the latest 1.6.* have discarc **pinMode();** into the setup() like this:

```
void setup() {
  for(int i=4;i<10;i++){
  pinMode(i,OUTPUT);
  }
  lcd.begin(16, 2);  // set up the LCD's number of columns and rows
}
```

Q&A	Some general Arduino Problems/FAQ/Tips
A	For any questions, advice or cool ideas to share, please visit the **DFRobot Forum** (https://www.dfrobot.com/forum/).

More Documents

- LCDKeypad Shield v1.1 Schematics (https://www.dfrobot.com/image/data/DFR0009/LCDKeypad%20Shield%20V1.0%20SCH.pdf)
- Old version: LCD Keypad Shield Old Wiki Doc (https://www.dfrobot.com/wiki/index.php/Arduino_LCD_KeyPad_Shield__SKU:_DFR0009_)
- LCDKeypad Shield Schematics V1.0 (https://www.dfrobot.com/image/data/DFR0009/LCDKeypad%20Shield%20V1.0%20SCH.pdf)

(https://www.dfrobot.com/image/data/DFR0009/LCDKeypad%20Shield%20V1.0%20SCH.pdf)

Get **Gravity: 1602 LCD Keypad Shield For Arduino** (https://www.dfrobot.com/product-51.html) from DFRobot Store or **DFRobot Distributor**. (https://www.dfrobot.com/index.php?route=information/distributorslogo)

Turn to the Top