

DESCRIPTION

The Kimat One Wire Keypad module instantly simplifies the implementation of a 4x4 or 3x4 keypad matrix. It uses just one analog pin as opposed to 7 or 8 pins without this module. It utilizes an array of resistors carefully chosen to allow unique voltage output for each keypress. It is then read by the microcontroller/Arduino ADC (analog) pins for decoding.

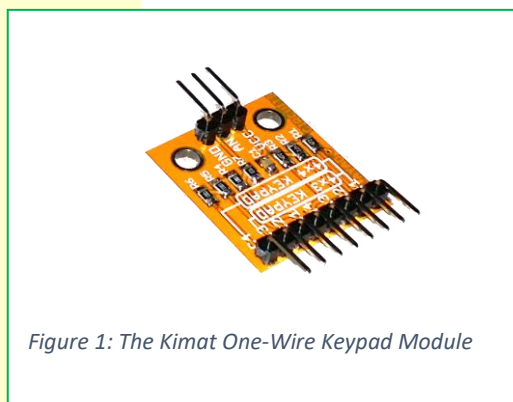


Figure 1: The Kimat One-Wire Keypad Module

INTERFACE HEADERS

Kimat One Wire Keypad Module Pin	Function
VCC	Connects to the 5V pin of the Arduino
AN	The analog voltage output. Connects to an analog input pin (ADC)
GND	Ground
KEYPAD 1-8	Connects to the keypad matrix

WIRING

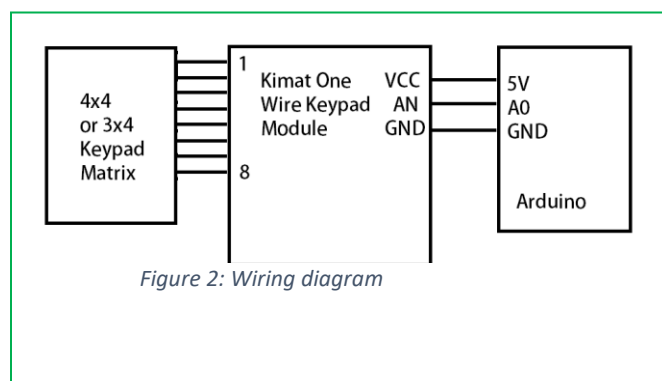


Figure 2: Wiring diagram

FEATURES and SPECIFICATIONS

- Simplifies Connections. One 3 lines required: an analog line, a 5V and a Ground line
- Saves 6-7 IO pins
- Plugs directly into the keypad.
- Supports the common dome matrix 4x4 and 3x4 keypads
- Arduino Compatible
- Simple analog voltage output with distinct level for each key
- Library available

LIBRARY

We have adopted Andrew Mascolo Jr's OnewireKeypad library:

<https://github.com/AndrewMascolo/OnewireKeypad>

We have tweaked the example to work specifically for the Kimat One Wire Keypad Module:

EXAMPLE CODE

```
#include <OnewireKeypad.h>

char KEYS[] = {
  '1', '2', '3', 'A',
  '4', '5', '6', 'B',
  '7', '8', '9', 'C',
  '*', '0', '#', 'D'
};

OnewireKeypad <Print, 16 > KP2(Serial, KEYS, 4, 4, A0, 4700, 1000, 10000, ExtremePrec );

void setup () {
  Serial.begin(115200);

  // This method is set in the constructor with a default value of 5.0
  // You only need to include this method if your Arduino is not supplying 5v to
  // the keypad. ie. ~4.7v or even with 3.3v Arduino boards too.
  //KP2.SetKeypadVoltage(5.0);
  KP2.SetKeypadVoltage(4.95);
}

void loop()
{
  if ( char key = KP2.GetKey() ) {

    switch (KP2.Key_State()) {
      case PRESSED:
        Serial << "Key: " << key << " State: ";
        Serial.println("PRESSED");
        break;

      case RELEASED:
        Serial << "Key: " << key << " State: ";
        Serial.println("RELEASED");
        break;

      case HELD:
        Serial << "Key: " << key << " State: ";
        Serial.println("HOLDING");
        break;
    }
  }
}
```

EXAMPLE CODE WITH 16x2 LCD

```

#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <OnewireKeypad.h>
char KEYS[] = {
  '1', '2', '3', 'A',
  '4', '5', '6', 'B',
  '7', '8', '9', 'C',
  '*', '0', '#', 'D'
};
LiquidCrystal_I2C lcd(0x3F,16,2);
OnewireKeypad <Print, 16 > KP2(Serial, KEYS, 4, 4, A0, 4700, 1000, 10000, ExtremePrec );

void setup () {
  Serial.begin(115200);
  lcd.init();
  lcd.backlight();

  // This method is set in the constructor with a default value of 5.0
  // You only need to include this method if your Arduino is not supplying 5v to
  // the keypad. ie. ~4.7v or even with 3.3v Arduino boards too.
  //KP2.SetKeypadVoltage(5.0);
  KP2.SetKeypadVoltage(4.95);
  lcd.setCursor(0,0);lcd.print(" LAYAD CIRCUITS ");
  lcd.setCursor(0,1);lcd.print("LC 1-WIRE KEYPAD");
  delay(2000);
  lcd.clear();
}
void loop()
{
  if ( char key = KP2.GetKey() ) {
    switch (KP2.Key_State()) {
      case PRESSED:
        lcd.clear();
        lcd.setCursor(0,0);lcd.print("LC 1-WIRE KEYPAD");
        lcd.setCursor(2,1);lcd.print(key);
        lcd.setCursor(4,1);lcd.print(": PRESSED");
        Serial.print(key);
        Serial.println(" PRESSED");
        break;
      case RELEASED:
        lcd.clear();
        lcd.setCursor(0,0);lcd.print("LC 1-WIRE KEYPAD");
        lcd.setCursor(2,1);lcd.print(key);
        lcd.setCursor(4,1);lcd.print(": RELEASED");
        Serial.print(key);
        Serial.println(" RELEASED");
        break;
      case HELD:
        lcd.clear();
        lcd.setCursor(0,0);lcd.print("LC 1-WIRE KEYPAD");
        lcd.setCursor(2,1);lcd.print(key);
        lcd.setCursor(4,1);lcd.print(": HOLDING");
        Serial.print(key);
        Serial.println(" HOLDING");
        break;
    }
  }
}

```

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