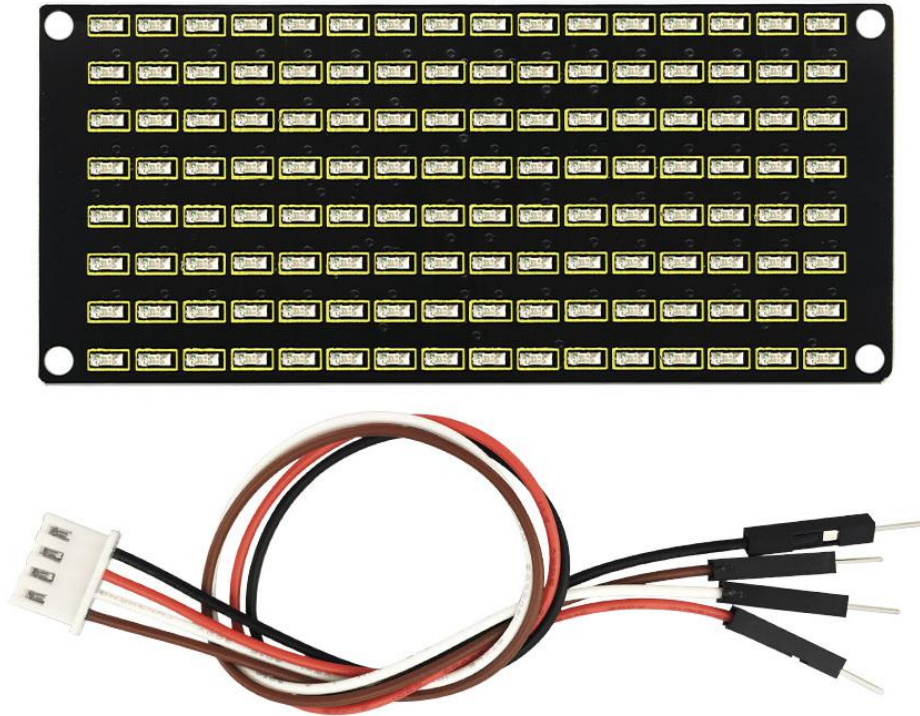


## Keyestudio 8x16 LED Matrix Panel



### Description:

Keyestudio 8x16 LED matrix panel comes with 128 LEDs and AIP1640 chip welded on the back.

This matrix has 128 bright LEDs arranged in a 8x16 grid on the front. On the back there are a AIP1640 chip and a 4Pin interface (GND, VCC, SDA, SCL).

Communicate this matrix with microcontrollers via I2C communication. Through controlling the AIP1640 chip, thus control the 128 LEDs on the panel turn on or off, displaying the images you want to show on the LED matrix. And the brightness of LED displays can be set in the code below. For easy wiring, it includes an HX-2.54 4Pin cable.



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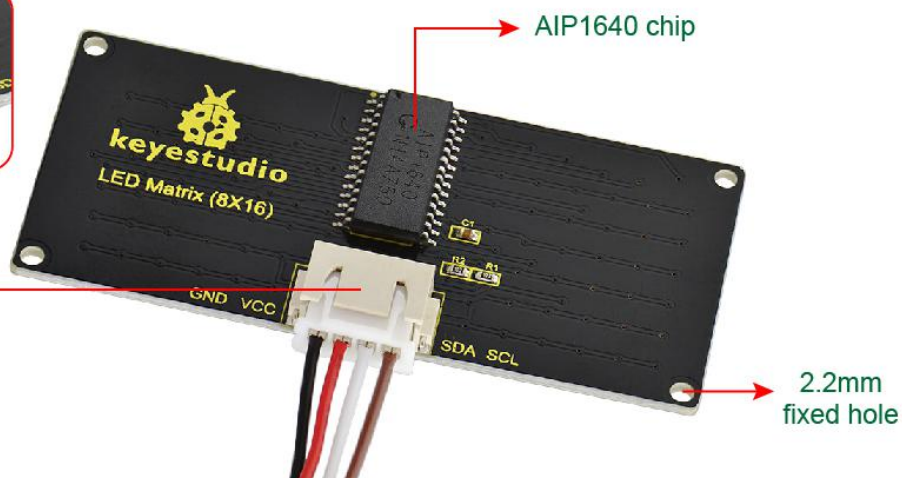
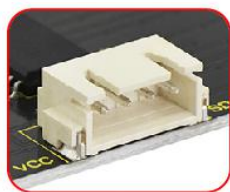
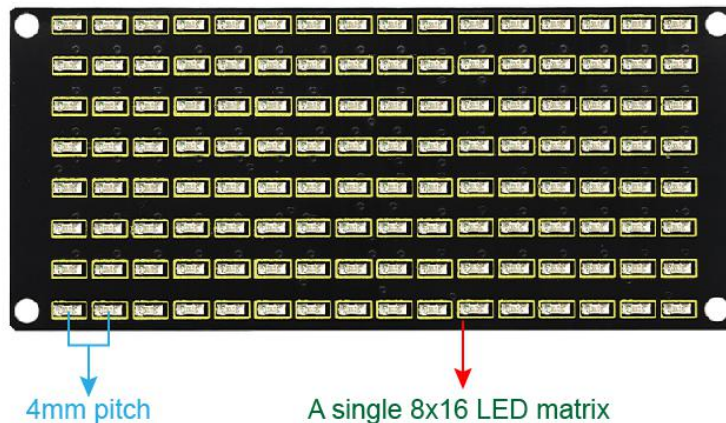
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## Comes with:

- A single 8x16 LED matrix- 4mm pitch
- An HX-2.54 4Pin cable

## Features:

- LEDs arranged in a 8x16 grid on the front
- Be driven by AIP1640 chip welded on the back
- Comes with a 4Pin interface
- With four 2.2mm fixed holes, easy to mount it on other devices.

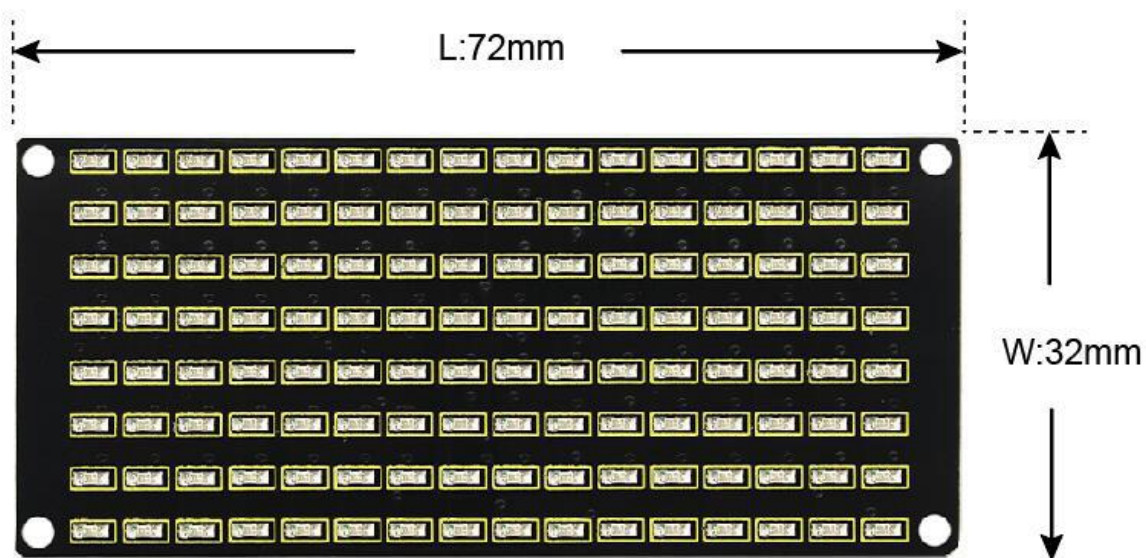




### Technical details:

- Operating Voltage: DC 3.3-5V
- Power loss: 400mW
- Oscillation frequency: 450KHz
- Driving current: 200mA
- Working temperature: -40~80°C
- Communication method: I2C communication
- Panel weight with 4PIN cable: 12.2g
- Dimensions: 72mmx32mmx8mm

### Dimensions:



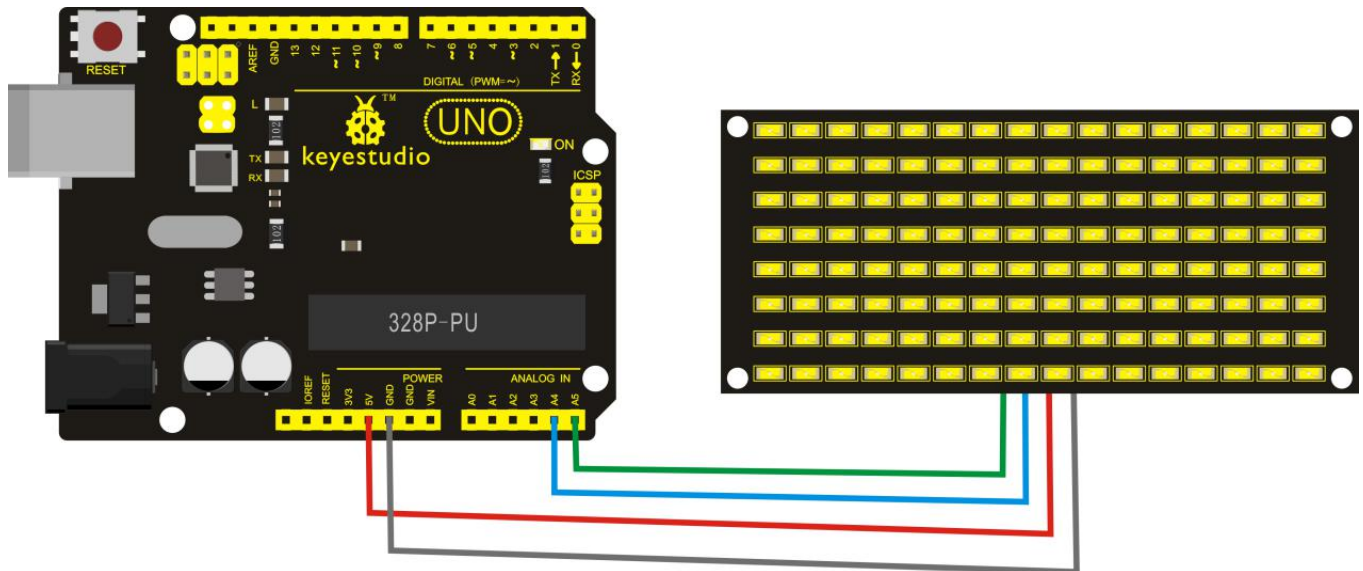


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## Connect it Up:

You can test this matrix panel with UNO board. You can easily connect them using an HX-2.54 4Pin cable. Connect the GND to GND, VCC to 5V, SDA to A4, SCL to A5.



## Back View:



## Upload the Code:

Below is an example code, you can copy and paste it on [Arduino IDE](#).

✓ [Download Arduino IDE](#)

✓ [Install Arduino Driver](#)

\*\*\*\*\*

//data display from right to left, from bottom to top, HIGH level display.

#define IIC\_SCL A5

#define IIC\_SDA A4

unsigned char data\_line = 0;

unsigned char delay\_count = 0;

unsigned char data\_display1 = 0;

unsigned char data\_display2 = 0;

unsigned char data\_display3 = 0;

unsigned char data\_display4 = 0;

unsigned char data\_display5 = 0;

unsigned char data\_display6 = 0;

unsigned char data\_display7 = 0;

unsigned char data\_display8 = 0;

unsigned char data\_display9 = 0;

unsigned char data\_display10 = 0;

unsigned char data\_display11 = 0;

unsigned char data\_display12 = 0;

unsigned char data\_display13 = 0;

unsigned char data\_display14 = 0;

unsigned char data\_display15 = 0;

unsigned char data\_display16 = 0;

void IIC\_start();

void IIC\_send(unsigned char send\_data);

void IIC\_end();

//unsigned char table[] = {0x01,0x02,0x04,0x08,0x10,0x20,0x40,0x80,0x80,0x40,0x20,0x10,0x08,0x04,0x02,0x01};

unsigned char table[4][16] = {

{0x00,0x00,0x00,0x00,0x26,0x41,0x86,0x80,0x80,0x80,0x86,0x41,0x26,0x00,0x00,0x00},

{0x00,0x00,0x00,0x00,0x00,0x1C,0x22,0x42,0x84,0x42,0x22,0x1C,0x00,0x00,0x00,0x00},

{0x00,0x00,0x00,0x00,0x20,0x44,0x42,0x84,0x80,0x84,0x42,0x44,0x20,0x00,0x00,0x00},

{0x00,0x00,0x00,0x00,0xC0,0x40,0xF8,0xD8,0x7E,0xFF,0xC0,0x00,0x00,0x00,0x00,0x00}};

void setup()

{

pinMode(IIC\_SCL,OUTPUT);

pinMode(IIC\_SDA,OUTPUT);





```
digitalWrite(IIC_SCL,LOW);
digitalWrite(IIC_SDA,LOW);
}
/*-----*/
void loop()
{
    /*****set the address plus 1*****/
    IIC_start();
    IIC_send(0x40);// set the address plus 1 automatically
    IIC_end();
    /*****end the process of address plus 1 *****/
    /*****set the data display*****/
    IIC_start();
    IIC_send(0xc0);// set the initial address as 0
    for(char i = 0;i < 16;i++)
    {
        IIC_send(table[data_line][i]);// send the display data
    }
    if(++delay_count >= 10)
    {
        delay_count = 0;
        data_line++;
        if(data_line >= 4)
        {
            data_line = 0;
        }
    }

    IIC_end();
    /*****end the data display*****/
    /*****set the brightness display*****/
    IIC_start();
    IIC_send(0x8A);// set the brightness display
    IIC_end();
    /*****end the brightness display*****/
    delay(100);
}
/*-----*/
void IIC_start()
{
    digitalWrite(IIC_SCL,LOW);
    delayMicroseconds(3);
    digitalWrite(IIC_SDA,HIGH);
    delayMicroseconds(3);
```

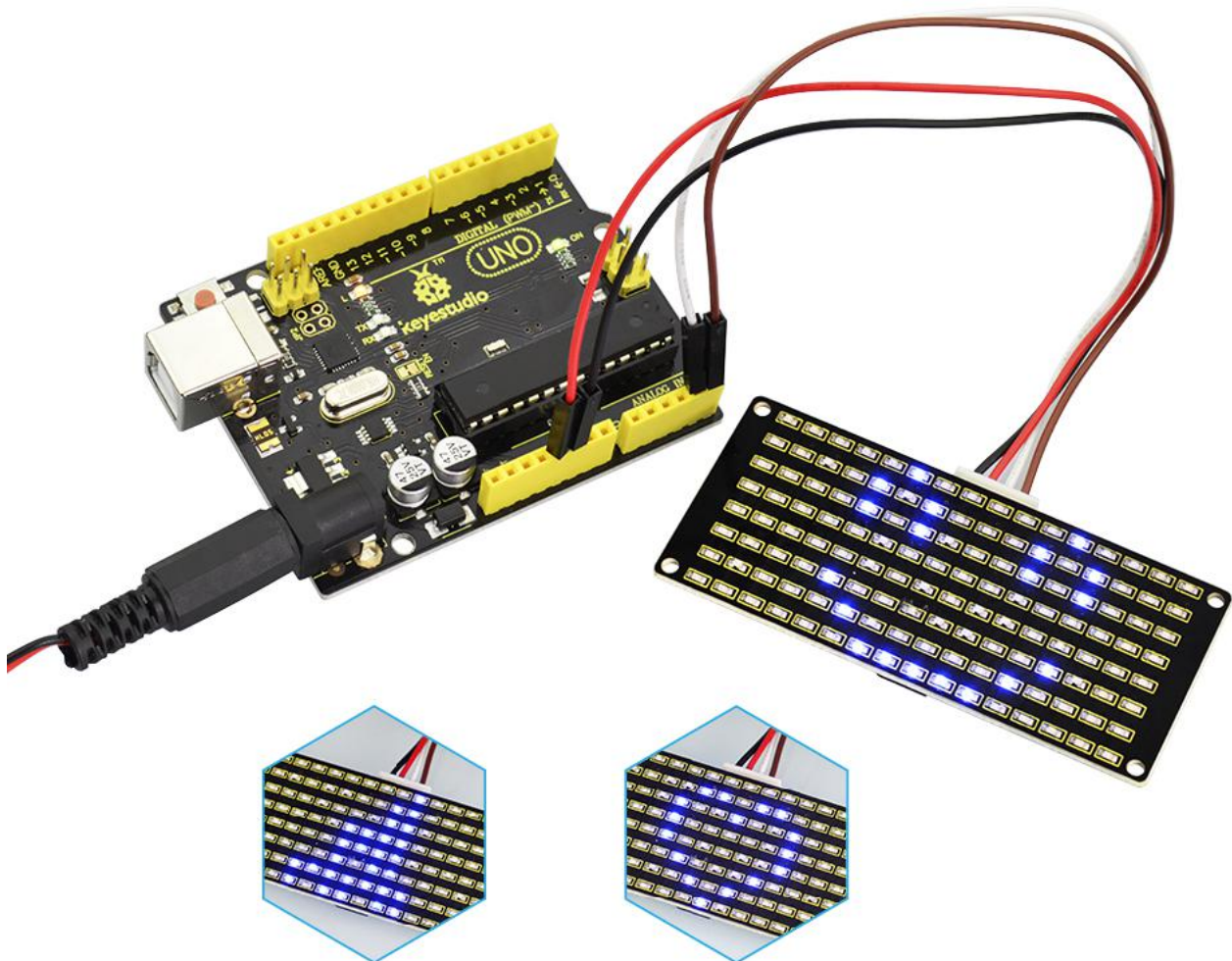


```
digitalWrite(IIC_SCL,HIGH);
delayMicroseconds(3);
digitalWrite(IIC_SDA,LOW);
delayMicroseconds(3);
}
void IIC_send(unsigned char send_data)
{
    for(char i = 0;i < 8;i++)
    {
        digitalWrite(IIC_SCL,LOW);
        delayMicroseconds(3);
        if(send_data & 0x01)
        {
            digitalWrite(IIC_SDA,HIGH);
        }
        else
        {
            digitalWrite(IIC_SDA,LOW);
        }
        delayMicroseconds(3);
        digitalWrite(IIC_SCL,HIGH);
        delayMicroseconds(3);
        send_data = send_data >> 1;
    }
}
void IIC_end()
{
    digitalWrite(IIC_SCL,LOW);
    delayMicroseconds(3);
    digitalWrite(IIC_SDA,LOW);
    delayMicroseconds(3);
    digitalWrite(IIC_SCL,HIGH);
    delayMicroseconds(3);
    digitalWrite(IIC_SDA,HIGH);
    delayMicroseconds(3);
}
```

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## What You Should See:

Upload well the above code to the board, you should see the LED matrix show different images like a heart and a smile.







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## Resources:

### Schematics for LED matrix:

[https://drive.google.com/open?id=1NQnj4WII2\\_E0N19DsurcPFBZMnHm0q-7](https://drive.google.com/open?id=1NQnj4WII2_E0N19DsurcPFBZMnHm0q-7)