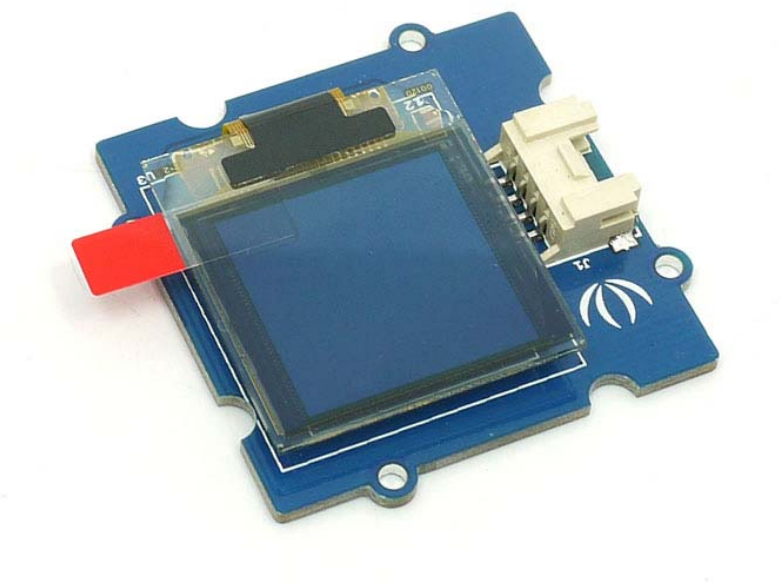
Grove - OLED Display 1.12"

Introduction

3.3V 5.0V I2C



Our new 1.12” OLED displays are perfect when you need a small display with 16 grayscale. The visible portion of the OLED measures 1.12” diagonal and contains 96x96 grayscale pixels. Because the display uses OLEDs, there is no backlight, and the contrast is very high.

This OLED uses the SSD1327 driver chip, which manages the display. You can talk to the driver chip using 4-wire I2C (clock, data, power, and GND pins).

- Communicate Mode: I2C
- Grayscale Display: 16 Gray shades.
- Supports both Normal and Inverse Color Display.
- Supports Continuous Horizontal Scrolling.
- Grove compatible Interface

Specifications

Item	Value
Operating Voltage	3.3/5 V
Dot Matrix	96x96
Display Color	16 Grayscale
OLED Display	LY120-96096
Driver Chip	SSD1327Z
Dot Size	0.15(W)mm x 0.15(H)mm
Dot Pitch	0.75(W)mm x 0.175(H)mm
Operating Temperature	-40~70 oC

Tip

More details about Grove modules please refer to Grove System

Platforms Supported

Arduino	Wio	BeagleBone	Raspberry Pi	LinkIt ONE
				

Caution

The platforms mentioned above as supported is/are an indication of the module's hardware or theoritical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Getting Started

Note

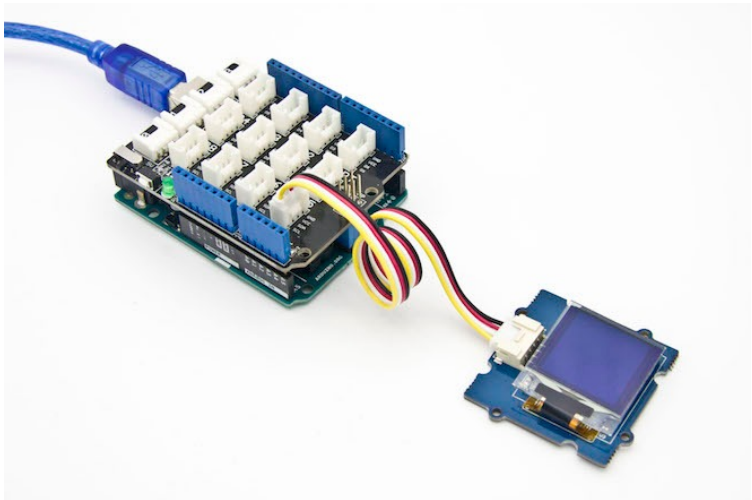
This chapter is based on Win10 and Arduino IDE 1.6.9

Connection

This is an easy-to-use module, what you need to do is connect the module to I2C port of a Base Shield. There’re 4 pins, defined as below.

pin	Function	Note	Cable color
pin1	SCL	I2C Clock	YELLOW
pin2	SDA	I2C Data	WHITE
pin3	VCC	Power, 5V/3.3V	RED
pin4	GND	Ground	BLACK

Grove - OLED Display 1.12`` is an **I2C** module, we connect it to **I2C** port at this demo.

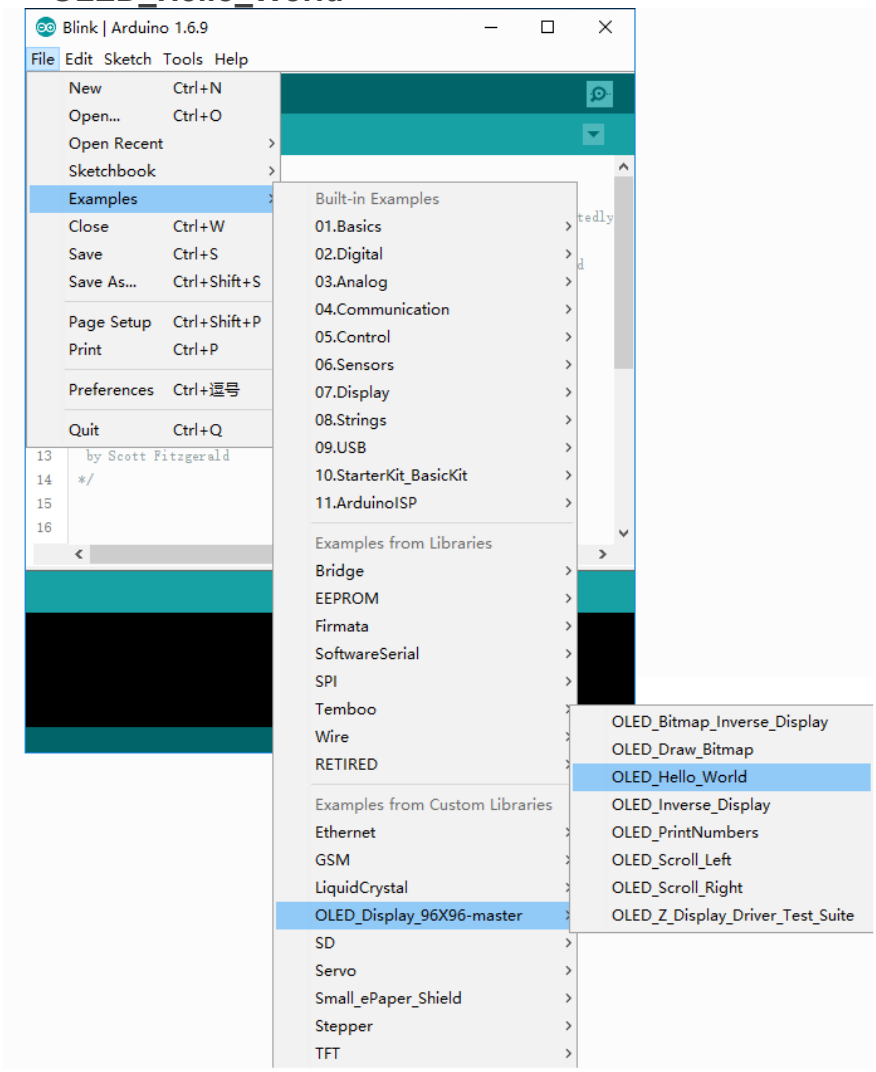


Software

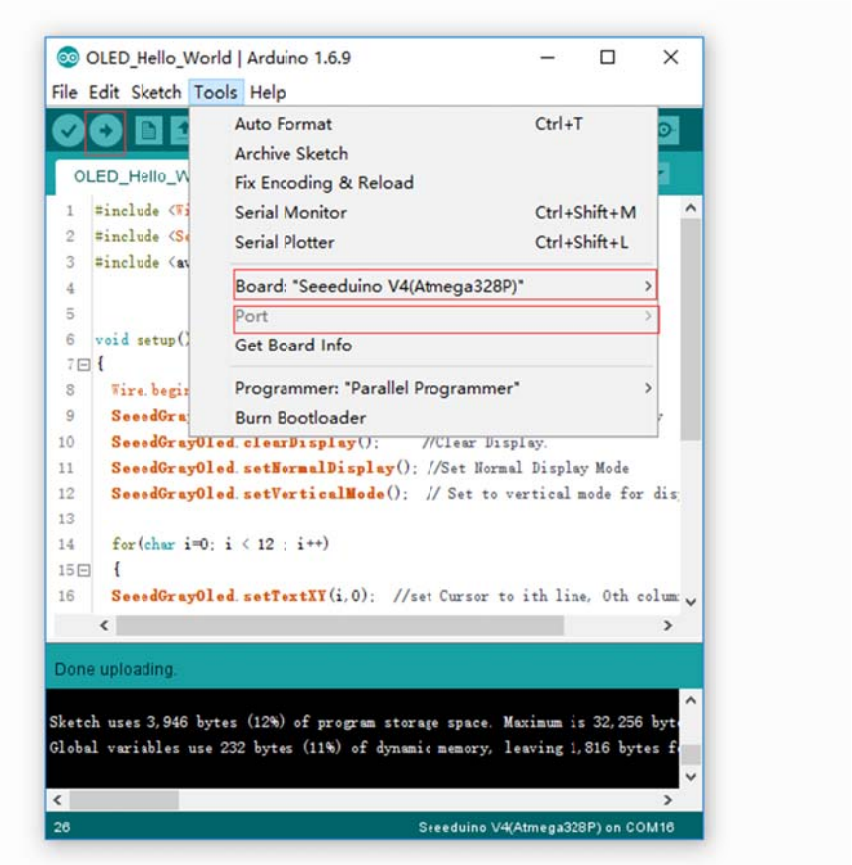
- Please follow how to install an arduino library procedures to install library.
- We provide an Arduino Library for this Grove - OLED Display 1.12inch, click on the below button to download it.
- Unzip the file and put to libraries folder of your Arduino IDE. There’re many examples in this library, which is consist of

1. OLED_Bitmap_Inverse_Display
2. OLED_Draw_Bitmap
3. OLED_Hello_World
4. OLED_Inverse_Display
5. OLED_PrintNumbers
6. OLED_Scroll_Left
7. OLED_Scroll_Right
8. OLED_Z_Display_Driver_Test_Suite

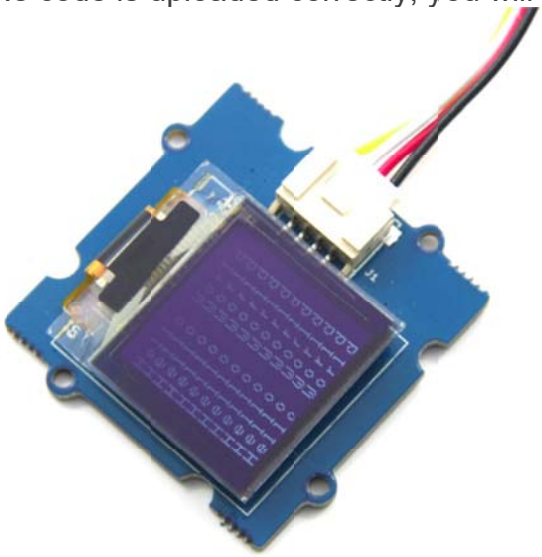
- Now let's try upload **OLED_Hello_World** to Seeeduino V4. Open your Arduino IDE, click on **File > Example > OLED_Display_96x96-master > OLED_Hello_World**



- When the code is open, select the right board and right COM Port, then click on Upload button which will take few seconds.



- If the code is uploaded correctly, you will see the hello world on the OLELD.



- Then please try the other examples to see what will happen.

APIs of the library

Seeed Gray OLED library provides complete software interfaces to exercise the capabilities of SSD1327Z driver with a 96x96 gray OLED. Almost all useful features are implemented and all functions are in public scope. This makes Seeed Gray

OLED Library extensible. Seeed Gray OLED library uses Arduino Wire library. Hence initialize wire library before initializing Seeed OLED library.

init()

Initializes the Seeed OLED frame and sets the display to Normal mode.

Example:

```
SeeedGrayOled.init();  //initialze SEEED Gray OLED display
```

clearDisplay()

Clears the whole screen. Should be used before starting a fresh start or after scroll deactivation. This function also sets the cursor to top left corner.

Example:

```
SeeedGrayOled.clearDisplay();  //clear the screen and set start position to top left corner
```

setNormalDisplay()

Configures the display to normal mode(non-inverse) mode.

Example:

```
SeeedGrayOled.setNormalDisplay();//Set display to normal mode (i.e non-inverse mode)
```

setContrastLevel(unsigned char ContrastLevel)

Set the contrast ratio of OLED display. ContrastLevel can be any number from 0 - 255. Example:

```
SeeedGrayOled.setContrastLevel(127); //Set display contrast ratio to half level( i.e 256/2 1 ).
```

setInverseDisplay()

Configures the display to inverse mode. Example:

```
SeeedGrayOled.setInverseDisplay();      //Set display to inverse mode
```

setHorizontalMode()

Configures the display to horizontal addressing mode. Example:

```
SeeedGrayOled.setHorizontalMode();      //Set addressing mode to Horizontal Mode
```

setVerticalMode()

Configures the display to vertical addressing mode. Texts are drawn in vertical mode. Please set the display to vertical mode before printing text. Example:

```
SeeedGrayOled.setVerticalMode();      //Set addressing mode to Vertical Mode
```

setTextXY(X,Y)

Set the text's position (cursor) to Xth Text Row, Yth Text Column.96x96 OLED is divided into 12 rows and 12 Columns of text. This row and column should not be confused with OLED Row and Column.

- X can be any number from 0 - 11.
- Y can be any number from 0 - 11.

Example:

```
SeeedGrayOled.setTextXY(0,0);  //Set the cursor to 0th Text Row, 0th Text Column
```

putChar(unsigned char c)

Print a character to OLED display starting from current address-pointer set by setTextXY(X,Y). This function is internally used by putString().

Example:

```
SeeedGrayOled.putChar('S'); //Print the character S
```

putString(cont char *string)

Print string to OLED display starting from current address-pointer set by setTextXY(X,Y) Example:

```
SeeedGrayOled.putString("Hello World!"); //Print the String
```

putNumber(long n)

Print numbers to OLED display starting from current address-pointer set by setTextXY(X,Y). Number can be any char,int or long datatype. It also takes care of -ve sign.

Example:

```
SeeedGrayOled.putNumber(-56123); //Print number -56123
```

drawBitmap(unsigned char *bitmaparray, int bytes)

Display a binary bitmap on the OLED matrix. The data is provided through a pointer to uni-dimensional array holding bitmap. The bitmap data is available in continuous rows of columns as like Horizontal Addressing mode. bytes is size of bitmap in bytes.

Example:

```
SeeedGrayOled.drawBitmap(SeeedLogo,96*96/8);   //  Draw binary Bitmap (96 pixels *96 pixels  / 8) bytes
```

setHorizontalScrollProperties

Set the properties of horizontal scroll.

- Direction can be any of Scroll_Left and Scroll_Right.
- startRow can be 0 - 127
- endRow can be 0 - 127. It should be greater than startRow
- startColumn can be 0 - 63
- endColumn can be 0 - 63. It should be greater than startRow
- scrollSpeed can be any of defines:Scroll_2Frames, Scroll_3Frames, Scroll_4Frames, Scroll_5Frames, Scroll_25Frames,Scroll_64Frames, Scroll_128Frames,Scroll_256Frames.

Example:

```
SeeedGrayOled.setHorizontalScrollProperties(Scroll_Left,72,95,0,47,Scroll_5Frames);  //Set the properties of Horizontal Scroll
```

activateScroll()

Enable scrolling. This should be used only after setting horizontal scroll properties. Example:

```
SeeedGrayOled.activateScroll();   //Enable scrolling.
```

deactivateScroll()

Disable scrolling. This should be used after activateScroll(); Example:

```
SeeedGrayOled.activateScroll();   //Disable scrolling.
```