

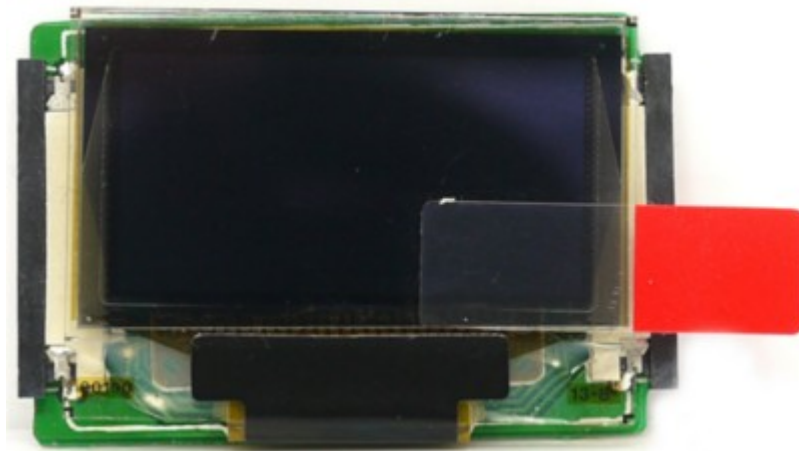
SEED TECHNOLOGY INC (SEEEDUINO)

OLED Frame 128x64

Model: OLE31833P

Introduction

OLED Frame is a display adapter designed for [Seeeduino Film](#) on popular user demand. **OLED Frame** is constructed with 128 x 64 dot matrix OLED module ([LY190](#)) and [SSD1308 driver IC](#). The display offers high brightness, self-emission, high contrast ratio, slim / thin outline, wide viewing angle, wide temperature range and low power consumption. This Frame makes [Seeeduino Film](#) and [Seeeduino Motion Frame](#) into a standalone wearable device.



Features

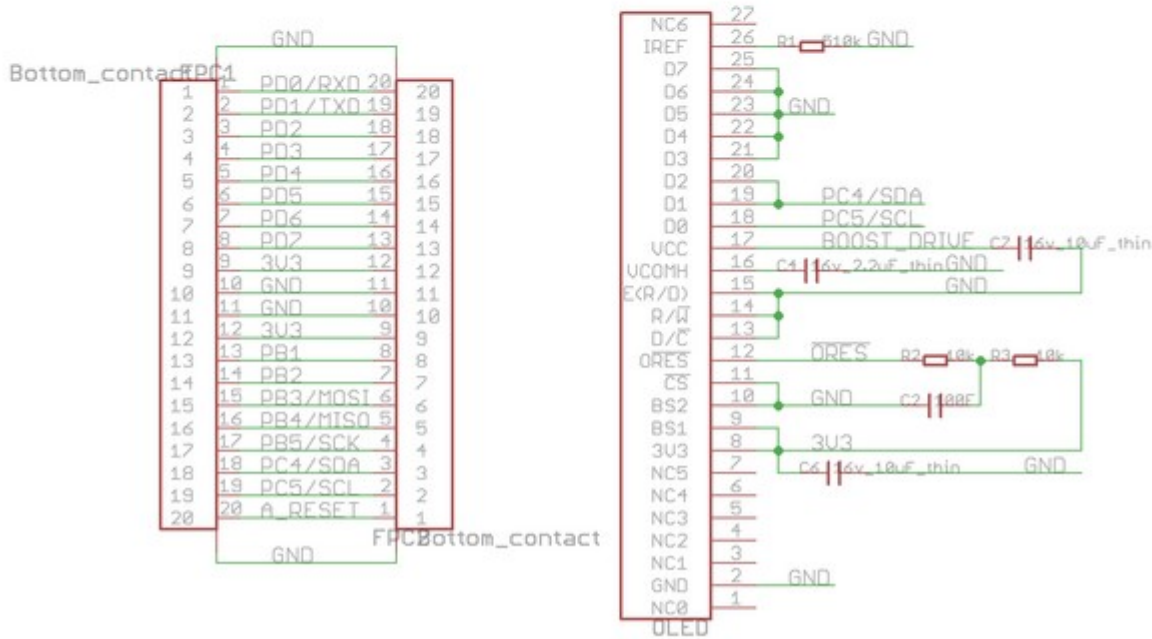
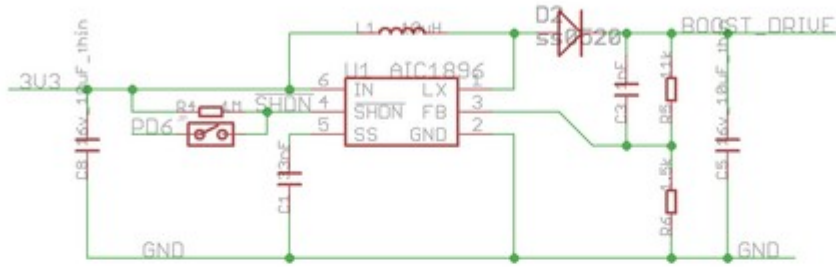
- Dot Matrix: 128 X 64 Pixels
- Color: Monochromatic Display (White)
- Supports both Normal and Inverse Color Display
- Supports Continuous Horizontal and Continuous Horizontal-Vertical Scrolling.
- Two 20 pin FPC connectors for attaching to [Seeeduino Film](#) and other Frames.
- Interface: I2C
- Wide range of operating temperature: -20°C~70°C

Application Ideas

- Display adapter for [Seeeduino Film](#).
- Portable battery operated applications.

Cautions

- **OLED module is very compact and fragile. Handle the display with care.**
- **Do not stress or drop the display to ground.**
- **Do not scratch the surface.**
- **Ensure the correct polarity for FPC connection**
 - **Connect Pin 1 of OLED FPC connector to Pin 1 of Seeeduino Film FPC connector.**



Specification

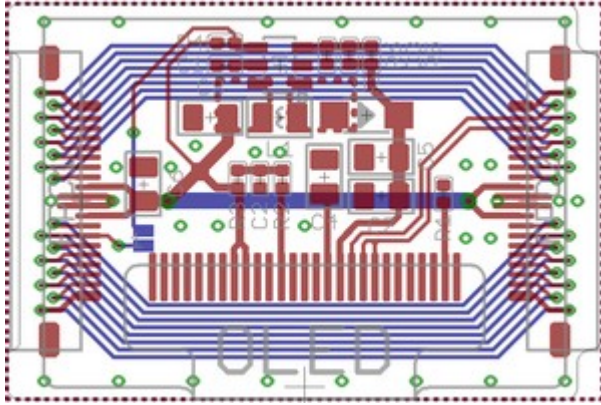
Items	Minimum	Normal	Maximum
Operating Voltage (VDD)	1.65V	3.0V	3.3V
Dot Matrix	128 X 64		
Display Color	White		
OLED Display	LY190-128064		
Driver IC	SSD1308Z		
Power Chip	AIC1896		
Dot Size	0.15(W)mm X 0.15 (H)mm		
Dot Pitch	0.17(W)mm X 0.175 (H)mm		
Operating temperature	-20°C~70°C		

Pin definition and Rating

- 20 FPC connector compatible with [Seeeduino Film](#) bus.

Mechanic Dimensions

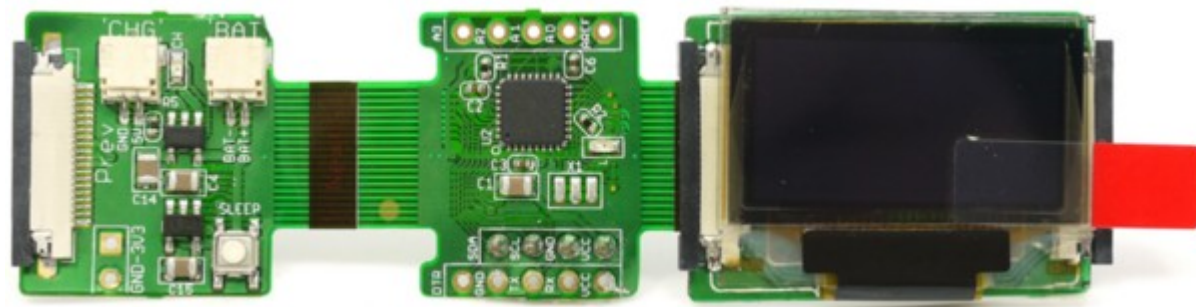
OLED Frame is of **31mm X 21mm** size.



Usage

Hardware Installation

Connect the **OLED Frame** to [Seeeduino Film](#) as shown below. Always ensure that Pin 0 of FPC connector is connected to Pin 0 of Seeeduino Film / other Frames. The programming examples described below uses this arrangement.



 OLED Frame Connected to Seeeduino Film

Programming

[[SSD1308Z](#)] driver chip used in **OLED Frame** supports protocols like 8080,6800 parallel interface, SPI and I2C serial interfaces. **OLED Frame** supports I2C interface alone. All communication between [Seeeduino Film](#) and **OLED Frame** is through I2C commands using Wire Library.

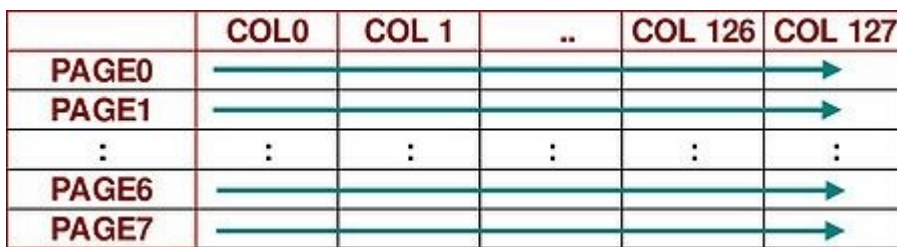
OLED Matrix Arrangement

SSD1308Z logically arranges the 128x64 OLED into 8 Pages of 128 Columns. Each column addresses 8 pixels.

	COL0	COL 1	..	COL 126	COL 127
PAGE0	8 Pixel	8 Pixel	8 Pixel	8 Pixel	8 Pixel
PAGE1	8 Pixel	8 Pixel	8 Pixel	8 Pixel	8 Pixel
:	:	:	:	:	:
PAGE6	8 Pixel	8 Pixel	8 Pixel	8 Pixel	8 Pixel
PAGE7	8 Pixel	8 Pixel	8 Pixel	8 Pixel	8 Pixel

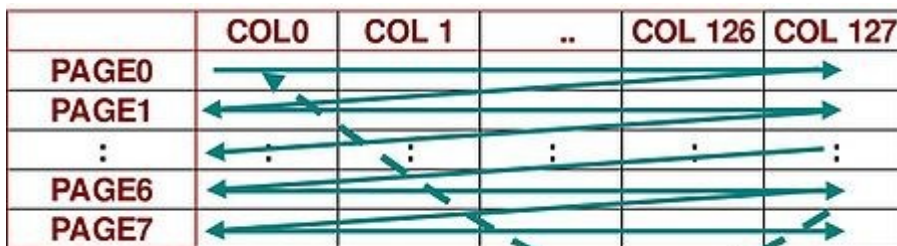
- SSD1308Z supports **three modes** of operation:

- - **Page Addressing**
 - In page addressing mode the display is addressable with 8 Pages of 128 Columns. The data always flows from left to right.
 - The address pointer automatically increase to right, as we write a byte to the page.
 - At the end of 127th Column, address pointer is reset to 0th Column
 - This mode is useful for displaying text page by page.



OLED 128x8 : Page Addressing Mode

- - **Horizontal Memory Addressing**
 - In Horizontal addressing mode the display is also addressable with 8 Pages of 128 Columns. The data always flows from left to right and then to next line.
 - The address pointer automatically increase as we write a byte to the page.
 - At the end of 127th Column, address pointer is reset to 0th Column of next page.
 - At the end of 127th Column of 7th Page(last page), address pointer is reset to 0th Column of 0th page.
 - This mode is useful for displaying images or large continuous text(multi-line text).



OLED 128x8 : Horizontal Addressing Mode

- - **Vertical Memory Addressing**
 - Here the data flows from top page to bottom page and then to next column. This mode is not used in the software driver provided. All possible OLED access can be implemented by the above modes.

Display Modes

The display color can be set to two modes by using commands provided. This changes the view without affecting the image buffer(RAM):

- **Normal Display Mode**
 - In this mode writing 1 paints a pixel white and 0 paints a pixel black. The background pixels are all black.
- **Inverse Display Mode**
 - In this mode writing 1 paints a pixel black and 0 paints a pixel white. The background pixels are all white.

Scrolling

- **Continuous Horizontal scroll**

A group of pages can be scrolled continuously either right or left using horizontal scrolling mode. To use this mode set the properties of horizontal scroll like:

- - Left or Right Scroll
 - Start Page
 - End Page
 - Speed of Scrolling
- To enable scrolling use activate command.
- To disable scrolling use deactivate command.
- Deactivating scrolling pauses the display as it is.
- If the original bitmap is to be displayed, clear the screen and reload the data.
- **Continuos Horizontal and Vertical scroll**

A group of pages can be scrolled continuously both horizontal and vertical. This mode is not supported by software driver provided. Users may implement this if required.

Application Programming Interfaces

[Seed OLED library](#) provides complete software interfaces to exercise the capabilities of SSD1308Z driver with a 128x64 OLED. Almost all useful features are implemented and all functions are in public scope. This makes Seed OLED Library extensible. Seed OLED library uses Arduino Wire library. Hence initialize wire library before initializing Seed OLED library.

init()

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

```
SeedOled.init(); //initialize SEED OLED display
```

clearDisplay()

Комплекующие для робототехники Роботы для сборки Собрать робота своими руками
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.

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

setNormalDisplay()

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

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

setBrightness(unsigned char Brightness);

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

```
SeedOled.setBrightness(127);            //Set display brightness to half level( i.e 256/2 -1 ).
```

setInverseDisplay()

Configures the display to inverse mode.

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

setPageMode()

Configures the display to page addressing mode.

```
SeedOled.setPageMode();                //Set addressing mode to Page Mode
```

setHorizontalMode()

Configures the display to horizontal addressing mode.

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

setTextXY(X,Y)

Set the text's position (cursor) to Xth Page, Yth Column.

- X can be any number from 0 - 7.
- Y can be any number from 0 - 127.

```
SeedOled.setTextXY(0,0);                //Set the cursor to 0th Page, 0th 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().

```
SeedOled.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)

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

putNumber(long n)

Комплекующие для робототехники Роботы для сборки Собрать робота своими руками
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.

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

drawBitmap(unsigned char *bitmaparray,int bytes)

Display a bitmap on the OLED matrix. The data is provided through a pointer to unidimensional array holding bitmap. The bitmap data is available in continuous pages of columns as like Horizontal Addressing mode.

- bytes is size of bitmap in bytes.

```
SeeedOled.drawBitmap(SeeedLogo,1024);    // 1024 = 128 Pixels * 64 Pixels / 8
```

setHorizontalScrollProperties(direction, startPage, endPage, scrollSpeed)

Set the properties of horizontal scroll.

- direction can be any of Scroll_Left and Scroll_Right.
- startPage can be 0 - 7
- endPage can be 0 - 7. It should be greater than startPage
- scrollSpeed can be any of defines

Scroll_2Frames, **Scroll_3Frames**, **Scroll_4Frames**, **Scroll_5Frames**, **Scroll_25Frames**, **Scroll_64Frames**,
Scroll_128Frames, **Scroll_256Frames**

activateScroll()

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

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

deactivateScroll()

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

```
SeeedOled.deactivateScroll();    //Disable scrolling.
```

Demonstration Applications

Seeed OLED library includes a comprehensive set of examples. Some of them are presented below with respective outputs. All these sketches uses the above hardware arrangement.

Hello World

```
#include <Wire.h>
#include <SeeedOLED.h>

void setup()
{
  Wire.begin();
  SeeedOled.init();    //initialize SEEED OLED display
  DDRB|=0x21;        //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;

  SeeedOled.clearDisplay();            //clear the screen and set start position to top left
corner
  SeeedOled.setNormalDisplay();        //Set display to normal mode (i.e non-inverse mode)
  SeeedOled.setPageMode();            //Set addressing mode to Page Mode
  SeeedOled.setTextXY(0,0);            //Set the cursor to Xth Page, Yth Column
  SeeedOled.putString("Hello World!"); //Print the String
```

```
}  
  
void loop()  
{  
  
}
```

Output

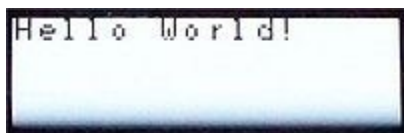


Hello World on Normal Display

Inverse Display

```
#include <Wire.h>  
#include <SeeedOLED.h>  
  
void setup()  
{  
  Wire.begin();  
  SeeedOled.init(); //initialize SEEED OLED display  
  DDRB|=0x21;      //digital pin 8, LED glow indicates Film properly Connected .  
  PORTB |= 0x21;  
  
  SeeedOled.clearDisplay(); //clear the screen and set start position to top left  
  corner  
  SeeedOled.setInverseDisplay(); //Set display to inverse mode  
  SeeedOled.setPageMode(); //Set addressing mode to Page Mode  
  SeeedOled.setTextXY(0,0); //Set the cursor to Xth Page, Yth Column  
  SeeedOled.putString("Hello World!"); //Print the String "Hello World!"  
  
}  
  
void loop()  
{  
  
}
```

Output



Print Numbers

```
#include <Wire.h>
#include <SeeedOLED.h>

void setup()
{
  Wire.begin();
  SeeedOled.init(); //initialize SEEED OLED display
  DDRB|=0x21;      //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;

  SeeedOled.clearDisplay(); //clear the screen and set start position to top left
corner
  SeeedOled.setNormalDisplay(); //Set display to Normal mode
  SeeedOled.setPageMode(); //Set addressing mode to Page Mode
  SeeedOled.setTextXY(0,0); //Set the cursor to 0th Page, 0th Column
  SeeedOled.putNumber(123); //Print number
  SeeedOled.setTextXY(1,0); //Set the cursor to 1st Page, 0th Column
  SeeedOled.putNumber(0xFFFF); //Print number
  SeeedOled.setTextXY(2,0); //Set the cursor to 2nd Page, 0th Column
  SeeedOled.putNumber(0xFFFFFFFF); //Print number
  SeeedOled.setTextXY(3,0); //Set the cursor to 3rd Page, 0th Column
  SeeedOled.putNumber(-123456); //Print number
}

void loop()
{
}
}
```

Output



putNumber

Horizontal Addressing Mode

```
#include <Wire.h>
#include <SeeedOLED.h>
```

```
void setup()
```

```

{
  Wire.begin();
  SeeedOled.init(); //initialize SEEED OLED display
  DDRB|=0x21;      //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;

  SeeedOled.clearDisplay(); //clear the screen and set start position to top left
corner
  SeeedOled.setNormalDisplay(); //Set display to Normal mode
  SeeedOled.setHorizontalMode(); //Set addressing mode to Horizontal Mode
  SeeedOled.putString("!\"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPQRSTUVWXYZ[\`^_`abcdefghijklmnopqrstuvwxyz{|}~"); //Print String (ASCII
32 - 126 )
}

void loop()
{
}

```

Output



ASCII String printed with Horizontal Mode

Draw Bitmap

- This bitmap array is generated from the below image using [gldtools](#). You can also use [LCD Assistant](#)
- Make sure the bitmap is arranged to a 8 bit boundary as each column is 8 bit wide. Eg: 128 x 64, 64 x 32, 8 x 8



Sample Image Used

```
#include <Wire.h>
```

Комплекующие для робототехники**Роботы для сборки****Собрать робота своими руками**

#include <SeedOLED.h>

#include <avr/pgmspace.h>

```

static unsigned char SeedLogo[] PROGMEM ={
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x80, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x80,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x60, 0xf0, 0xc0, 0x00, 0x00, 0x00, 0xfc, 0xff, 0x87, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x03,
0xff, 0xfc, 0x00, 0x00, 0x00, 0x80, 0xf0, 0x20, 0x00, 0x00, 0x80, 0xc0, 0xc0, 0x60, 0xe0,
0xc0,
0xc0, 0x00, 0x00, 0x00, 0xc0, 0xc0, 0xc0, 0x60, 0xe0, 0xc0, 0xc0, 0x80, 0x00, 0x00, 0x80,
0xc0,
0xc0, 0xe0, 0x60, 0xc0, 0xc0, 0x80, 0x00, 0x00, 0x00, 0xc0, 0xc0, 0xc0, 0x60, 0xe0, 0xc0,
0xc0,
0x80, 0x00, 0x00, 0x80, 0xc0, 0xc0, 0xe0, 0xe0, 0xc0, 0xc0, 0xf8, 0xf8, 0x00, 0x00, 0x00,
0x00,
0x00, 0xc0, 0xc0, 0xe0, 0x60, 0xc0, 0xc0, 0x80, 0x00, 0xc0, 0xf0, 0xf0, 0xf0, 0xc0, 0x00,
0xc0,
0xc0, 0x00, 0x00, 0x00, 0x00, 0xc0, 0xc0, 0x00, 0x00, 0x80, 0xc0, 0xc0, 0xe0, 0xe0, 0xc0,
0xc0,
0xf8, 0xf8, 0x00, 0xd8, 0xd8, 0x00, 0x00, 0x80, 0xc0, 0xc0, 0xe0, 0x60, 0xc0, 0xc0, 0x80,
0x00,
0x00, 0x03, 0x0f, 0x1e, 0x3c, 0x70, 0xe3, 0xcf, 0x9f, 0x30, 0x00, 0x00, 0x00, 0x00, 0x70,
0xbf,
0xcf, 0xe3, 0x70, 0x78, 0x3e, 0x0f, 0x03, 0x00, 0x00, 0x00, 0x33, 0x77, 0x66, 0x66, 0x66,
0x6c,
0x7d, 0x18, 0x00, 0x1f, 0x3f, 0x76, 0x66, 0x66, 0x66, 0x76, 0x37, 0x07, 0x00, 0x0f, 0x3f,
0x7f,
0x66, 0x66, 0x66, 0x66, 0x77, 0x27, 0x07, 0x00, 0x1f, 0x3f, 0x76, 0x66, 0x66, 0x66, 0x76,
0x37,
0x07, 0x00, 0x0f, 0x3f, 0x71, 0x60, 0x60, 0x60, 0x60, 0x31, 0x7f, 0x7f, 0x00, 0x00, 0x00,
0x00,
0x11, 0x37, 0x67, 0x66, 0x66, 0x6c, 0x7d, 0x38, 0x00, 0x00, 0x3f, 0x7f, 0x3f, 0x00, 0x00,
0x1f,
0x3f, 0x70, 0x60, 0x60, 0x70, 0x7f, 0x7f, 0x00, 0x0f, 0x3f, 0x71, 0x60, 0x60, 0x60, 0x60,
0x31,
0x7f, 0x7f, 0x00, 0x7f, 0x7f, 0x00, 0x06, 0x1f, 0x3b, 0x60, 0x60, 0x60, 0x60, 0x71, 0x3f,
0x1f,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x01, 0x01, 0x00, 0x00, 0x00, 0x00, 0x01,
0x01,
0x01, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
0x00,
0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0xf8, 0x48, 0x48, 0x48, 0xb0, 0x00, 0xc0,
0x20,

```

Магазин робототехники**Интернет-магазин роботов****Купить робота**

Комплекующие для робототехники					Роботы для сборки					Собрать робота своими руками				
0x20,	0x20,	0xc0,	0x00,	0xc0,	0x20,	0x20,	0x20,	0xc0,	0x00,	0x40,	0xa0,	0xa0,	0xa0,	0x20,
0x00,	0x00,	0xf0,	0x20,	0x20,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x08,	0x08,	0xf8,
0x08,	0x00,	0xc0,	0x20,	0x20,	0x20,	0xf8,	0x00,	0xc0,	0xa0,	0xa0,	0xa0,	0xc0,	0x00,	0x20,
0xa0,	0xa0,	0xc0,	0x00,	0x40,	0xa0,	0xa0,	0xa0,	0x20,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0xf8,	0x48,	0x48,	0x48,	0x08,	0x00,	0x20,	0x40,	0x80,
0x40,	0x20,	0x00,	0x20,	0xf0,	0x20,	0x20,	0x00,	0xc0,	0xa0,	0xa0,	0xa0,	0xc0,	0x00,	0xe0,
0x00,	0x20,	0xc0,	0x00,	0xc0,	0x20,	0x20,	0x20,	0xf8,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x03,	0x02,	0x02,	0x02,	0x01,	0x00,	0x01,
0x02,	0x02,	0x01,	0x00,	0x01,	0x02,	0x02,	0x02,	0x01,	0x00,	0x02,	0x02,	0x02,	0x02,	0x01,
0x00,	0x00,	0x01,	0x02,	0x02,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x02,	0x02,	0x03,
0x02,	0x00,	0x01,	0x02,	0x02,	0x02,	0x03,	0x00,	0x01,	0x02,	0x02,	0x02,	0x00,	0x00,	0x01,
0x02,	0x02,	0x01,	0x02,	0x02,	0x02,	0x02,	0x02,	0x01,	0x00,	0x00,	0x08,	0x06,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x03,	0x02,	0x02,	0x82,	0x02,	0x00,	0x02,	0x01,	0x01,
0x01,	0x02,	0x00,	0x00,	0x01,	0x02,	0x02,	0x00,	0x01,	0x02,	0x02,	0x02,	0x00,	0x00,	0x03,
0x00,	0x00,	0x03,	0x00,	0x01,	0x02,	0x02,	0x02,	0x03,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x82,	0x8c,	0x60,	0x1c,	0x02,	0x00,	0x1c,	0x22,	0x22,	0x22,	0x1c,	0x00,
0x1e,	0x20,	0x20,	0x00,	0x3e,	0x00,	0x00,	0x3e,	0x04,	0x02,	0x02,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x3e,	0x04,	0x02,	0x02,	0x00,	0x1c,	0x2a,	0x2a,	0x2a,	0x0c,	0x00,	0x12,	0x2a,
0x2a,	0x2a,	0x1c,	0x20,	0x1c,	0x22,	0x22,	0x22,	0x14,	0x00,	0x3f,	0x00,	0x02,	0x02,	0x3c,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,
0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,	0x00,

```

};

void setup()
{
  Wire.begin();
  SseedOled.init(); //initialize SEEED OLED display
  DDRB|=0x21; //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;
}

```

```

SeedOled.clearDisplay();           // clear the screen and set start position to top
left corner
SeedOled.drawBitmap(SeedLogo,1024); // 1024 = 128 Pixels * 64 Pixels / 8

}

void loop()
{

}

```

Output



Bitmap drawn with Horizontal Mode

Inverse Display

```

#include <Wire.h>
#include <SeeedOLED.h>
#include <avr/pgmspace.h>

static unsigned char SeedLogo[] PROGMEM =
{
//Copy this from above Bitmap sketch
//Copy this from above Bitmap sketch
//Copy this from above Bitmap sketch
};

void setup()
{
Wire.begin();
SeedOled.init(); //initialize SEEED OLED display
DDRB|=0x21; //digital pin 8, LED glow indicates Film properly Connected .
PORTB |= 0x21;

SeedOled.clearDisplay();           // clear the screen and set start position to top
left corner
SeedOled.setInverseDisplay();      //Set display to inverse mode
SeedOled.drawBitmap(SeedLogo,1024); // 1024 = 128 Pixels * 64 Pixels / 8

}

void loop()
{

}

```



Bitmap drawn in Inverse Display Mode

Scroll Horizontally

```
#include <Wire.h>
#include <SeeedOLED.h>
#include <avr/pgmspace.h>

static unsigned char SeeedLogo[] PROGMEM =
{
//Copy this from above sketch
//Copy this from above sketch
//Copy this from above sketch
};

void setup()
{
  Wire.begin();
  SeeedOled.init(); //initialize SEEED OLED display
  DDRB|=0x21; //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;

  SeeedOled.clearDisplay(); // clear the screen and set start position to top
left corner
  SeeedOled.drawBitmap(SeeedLogo,1024); // 1024 = 128 Pixels * 64 Pixels / 8
  SeeedOled.setHorizontalScrollProperties(Scroll_Right,4,7,Scroll_5Frames); //Set Scrolling
properties to Scroll Right
  SeeedOled.activateScroll(); // Activate Scrolling
}

void loop()
{
}
}
```

Set Brightness

```
#include <Wire.h>
#include <SeeedOLED.h>
#include <avr/pgmspace.h>

static unsigned char SeeedLogo[] PROGMEM ={
//Copy this from above sketch
//Copy this from above sketch
//Copy this from above sketch
};
```



```

unsigned char Brightness = 0;

void setup()
{
  Wire.begin();
  SeeedOled.init(); //initialize SEED OLED display
  DDRB|=0x21;      //digital pin 8, LED glow indicates Film properly Connected .
  PORTB |= 0x21;

  SeeedOled.setInverseDisplay(); // Set inverse display
  SeeedOled.clearDisplay();      // clear the screen and set start position to top
left corner
  SeeedOled.drawBitmap(SeeedLogo,1024); // 1024 = 128 Pixels * 64 Pixels / 8
}

void loop()
{
  Serial.

  SeeedOled.setBrightness(Brightness++); // Change the brightness 0 - 255
  SeeedOled.setPageMode();              // Set display addressing to page mode.
  SeeedOled.setTextXY(7,13);             // Set the Cursor position to 7th Page , 13th
Column
  SeeedOled.putNumber(Brightness);
  delay(50);                             // Delay 50ms between different brightness number
  if(Brightness >= 255)
  {
    Brightness = 0;                       // Reset Brightness to 0.
    SeeedOled.setTextXY(7,13);             // Display the brightness value starting from 7th
Row, 13th Column
    SeeedOled.putString("  ");           // Clear 13,14 and 15th Columns. As the numbers
are always left aligned - 2 digit and 3 digit will overwrite.

  }
}

```

Bill of Materials (BOM) /parts list

OLED_128x64_v0.9b

Part	Quantity	Value	Package
C1	1	33nF	0402
C2	1	100F	0402
C3	1	1nF	0402
C4	1	16v_2.2uF_thin	0805
C5,C6,C7,C8	4	16v_10uF_thin	0805
D2	1	ss0520	SOD123
FPC1,FPC2	2	Bottom_contact	FPC_0.5_20PS@1
JP	1	JP_SW	JP_SW
L1	1	10uH	0806
LOGO1	1	LOGO_SILK	LOGO_SILK
OLED	1		OLED128X64_BEND
R1	1	510k	0402
R2,R3	2	10k	0402
R4	1	1M	0402
R5	1	11k	0402
R6	1	1.5k	0402
U1	1	AIC1896	SOT23-6

FAQ

Please list your question here:

Support

If you have questions or other better design ideas, you can go to our [forum](#) or [wish](#) to discuss.

Version Tracker

	Revision	Descriptions	Release
v0.9b		Initial public release	Mar 21, 2011

Bug Tracker

Bug Tracker is the place you can publish any bugs you think you might have found during use. Please write down what you have to say, your answers will help us improve our products.

Additional Idea

The Additional Idea is the place to write your project ideas about this product, or other usages you've found. Or you can write them on Projects page.

Resources

- [Seeed OLED library](#)
- [OLED Frame Schematic PDF](#)
- [OLED Frame Schematic and Board Eagle Files](#)
- [SSD1308 Datasheet](#)
- [LY190 Datasheet](#)

How to buy

Click here to buy : http://www.seeedstudio.com/depot/oled-frame-128x64-p-797.html?cPath=163_167.

See Also

- [Seeeduino Film](#)
- [Seeeduino Motion Frame](#)
- [Film and Frame Tutorial](#)
- [Bluetooth Frame](#)
- [UartSB Frame](#)
- [Seeeduino Frame: Sewing](#)

Licensing

This documentation is licensed under the Creative Commons [Attribution-ShareAlike License 3.0](#) Source code and libraries are licensed under [GPL/LGPL](#), see source code files for details.

External Links

- Tools to create Bitmap array
 - Open Source: [gledtools](#)
 - Freeware: [LCD Assistant](#)