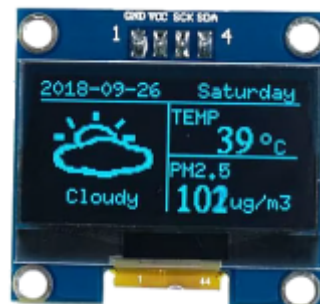


SSH1106/SSD1306 OLED Display with I²C communication

The SSD1306 and SH1106 (often misspelled as SSH1106 or SSH1306) are both popular single-chip CMOS OLED drivers used for small monochrome displays (0.91", 0.96", 1.3"). While they are very similar and often share the same I²C address (0x3C), they are not directly compatible because of differences in memory mapping and supported operating modes.



The key difference is that the SH1106 has more internal RAM (132x64) compared to the SSD1306 (128x64). As a result, a 128x64 display using an SH1106 chip may display garbage pixels or appear shifted by 2 pixels on each side when controlled with a standard SSD1306 library.

- **SSD1306:** Works with standard libraries like Adafruit_SSD1306
- **SH1106:** Requires specific libraries, such as Adafruit_SH110x or U8g2 (using U8G2_SH1106_128X64_NONAME...)

Feature	SSD1306	SH1106 (SSH1106)
Max Resolution	128 x 64	132 x 64
Internal RAM	128 x 64 bits	132 x 64 bits
Addressing	Page, Horizontal, Vertical	Mostly Page Mode only
Hardware Scroll	Yes	No
Typical Use	0.96" OLED	1.3" OLED
Driver Library	Adafruit_SSD1306	U8g2 / Adafruit_SH110x


Both are commonly used with Arduino, Raspberry Pi, and ESP8266/ESP32 via I²C (SDA/SCL) or SPI, typically requiring only 4 pins (VCC, GND, SDA, SCL). If an SH1106 display is initialized with an SSD1306 library, the screen will likely show "garbage" or shifted lines.

SSH1106 Chip 128 x 64 Pixel	SSD1306 Chip 64x48 Pixel	SSD1306 Chip 128 x 32 Pixel	SSD1306 Chip 128 x 64 Pixel
0.96 Inch	0.96 Inch	0.91 Inch	-

Pinout

Pin Label	Function	Description
GND	Ground	Ground (0V)
VCC	Power	3.3V or 5V (Most modules have a voltage regulator)
SCL	Clock	I ² C Clock (D0 pin)
SDA	Data	I ² C Data (D1 pin)

- Note on Ordering: On some cheap modules, VCC and GND are swapped. Verify your module label before powering it up to avoid damage.
- I²C Address: Usually **0x3C** or **0x3D**.





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2026/02/14 23:38

Features of particular types

Name	ID	Characteristics
AZ-Delivery 1.30' IIC V21		1.3 inch OLED Display SH1106 128 x 64 pixel
AZ-Delivery 0.96 inch OLED SSD1306		0.96 inch OLED SSD1306 128 x 64 pixel

SSH1106 Arduino

1. Installing the **olikraus/u8g2** library (installation only works manually) from here: <https://github.com/olikraus/u8g2>
2. Example program:

```
#include <Arduino.h>
#include <U8g2lib.h>
#include <Wire.h>

// Constructor for SH1106 128x64 I2C (Hardware I2C)
// U8G2_R0: No rotation. U8X8_PIN_NONE: No hardware reset pin.
U8G2_SH1106_128X64_NONAME_1_HW_I2C u8g2(U8G2_R0, /* reset=*/ U8X8_PIN_NONE);

void setup(void) {
```

```

u8g2.begin();
}

void loop(void) {
  u8g2.firstPage();
  do {
    // https://docs.rs/u8g2-fonts/latest/u8g2_fonts/fonts/index.html
    u8g2.setFont(u8g2_font_ncenB14_tr); // Set font
    u8g2.drawStr(0, 24, "Hello World!"); // Draw text
  } while ( u8g2.nextPage() );
}

```

I²C topics on lamaPLC

Page	Date	Tags
• lamaPLC Communication: 1-Wire	2026/04/23 21:51	1-wire , communication , bus , microlan , i2c , uart , usart , ds18b20
• lamaPLC Communication: I²C	2025/09/23 21:25	i2c , i c , smbus , philips , bus , communication , arduino
• lamaPLC project: Sension SCD CO² measurement module	2026/04/15 19:34	scd30 , scd40 , scd41 , iaq , ndir , sensor , i2c , arduino code
• LamaPLC: AHT10 Modul	2026/03/22 03:14	communication , i2c , temperature , humidity , sensor , aht , aht 10 , modul
• LamaPLC: AHT20 / BMP280 Modul	2026/04/23 21:52	bmp280 , aht20 , adafruit , temperature , humidity , pressure , sensor , arduino , code , i2c
• LamaPLC: APDS - Avago ALS and proximity detection sensors with I²C communication	2026/04/23 21:52	avago , apds-9900 , apds-9930 , apds-9960 , als , proximity , detection , gesture recognition , gesture , i2c , communication , sensor , arduino , code
• lamaPLC: Arduino Modul: BME680	2026/05/12 18:40	code , c , 2026 , arduino , bme680 , sensor , i2c , comunication
• lamaPLC: AS5600 Magnetic Induction Angle Measurement Sensor Module	2026/05/13 00:06	communication , i2c , as5600 , as-5600 , magnetic , induction , angle , sensor
• lamaPLC: Bi-Directional Logic Level Converter 3.3V ↔ 5V	2026/04/12 00:34	bi-directional , logic level converter , i2c , uart , spi
• LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I²C communication	2026/04/23 21:52	bme280 , bme680 , bme688 , bmp180 , bmp280 , hw-611 , hw611 , bosch , temperature , humidity , pressure , sensor , arduino , i2c , communication , ai , cjmcu , volatile organic compounds , vocs , volatile sulfur compounds , vscs , iaq
• LamaPLC: CJMCU-219/INA-219 breakout board/IC with I²C communication	2026/04/23 21:52	cjmcu-219 , ina-219 , ina219 , breakout board , i2c , communication , sensor , voltage , current , arduino , code , cjmcu
• LamaPLC: CJMCU-3216 / AP-3216 integrated digital ambient light and proximity sensor module/IC with I²C communication	2026/04/23 21:52	cjmcu-3216 , cjmcu , ap-3216 , ap3216 , ambient light , proximity , sensor , arduino , code , i2c , communication

- [lamaPLC: CJMCU-811 CCS811 Gas Sensor \(VOCs TVOC CO2\)](#) 2026/04/23 21:52 [cjmcu-811](#), [ccs811](#), [gas](#), [sensor](#), [vocs](#), [tvoc](#), [eco2](#), [co2](#), [arduino](#), [air quality](#) [metal oxide](#), [mox](#), [i2c](#), [micropython](#), [rp2040-eth](#)
- [LamaPLC: D6T Omron Non-Contact Thermal Sensors with I²C communication](#) 2026/04/23 21:52 [d6t](#), [d6t-32l](#), [d6t-44l](#), [d6t-8l](#), [d6t-1a](#), [omron](#), [non-contact](#), [thermal](#), [sensor](#), [i2c](#), [arduino](#), [code](#)
- [LamaPLC: DPS Infineon Temperature/Pressure sensors with I2C communication](#) 2026/04/23 21:52 [dps310](#), [infineon](#), [temperature](#), [pressure](#), [sensor](#), [arduino](#), [i2c](#), [communication](#), [code](#)
- [lamaPLC: Energy, power, current, and voltage](#) 2025/05/31 23:32 [i2c](#), [i c](#), [communication](#), [arduino](#), [energy](#), [power](#), [current](#), [sensor](#), [ina226](#) [ens160](#), [sciosense](#), [gas-quality](#), [i2c](#), [communication](#), [sensor](#), [arduino](#), [code](#), [eco2](#), [tvoc](#), [aqi](#), [indoor air quality](#), [iaq](#), [co2](#), [voc](#)
- [LamaPLC: ENS ScioSense Multi-gas sensors with I²C communication](#) 2026/04/23 21:52 [esp8266](#), [esp32](#), [esp32-c2](#), [esp32-c3](#), [esp32-c5](#), [esp32-c6](#), [esp32-c61](#), [esp32-h2](#), [esp32-s2](#), [esp32-s3](#), [esp32-p4](#), [espressif systems](#), [communication](#), [ethernet](#), [ip](#), [wi-fi](#), [thread](#), [zigbee](#), [matter](#), [homekit](#), [bluetooth](#), [mqtt](#), [adc](#), [spi](#), [uart](#), [i2c](#), [i2s](#), [rmt](#), [pwm](#), [usb](#), [usb otg](#), [twai](#)
- [lamaPLC: ESP32 / ESP8266](#) 2025/11/22 00:07 [gas](#), [sensor](#), [i2c](#), [onewire](#), [communication](#), [mq-3](#), [mq-4](#), [mq-5](#), [mq-6](#), [mq-7](#), [mq-8](#), [mq-9](#), [mq-135](#), [gm-102b](#), [gm-302b](#), [gm-502b](#), [gm-702b](#), [alcohol](#), [ch4](#), [natural gas](#), [smoke](#), [lng](#), [co](#), [co2](#), [lpg](#), [h2](#), [iso-butane](#), [nox](#), [nh3](#), [benzene](#), [town gas](#), [formaldehyde](#), [propane](#), [humidity](#), [temperature](#), [voc](#), [grv gas sens v2](#)
- [LamaPLC: Gas sensors](#) 2023/07/01 17:29 [stmicroelectronics](#), [lsm303dlhc](#), [i2c](#), [lsm303](#), [sensor](#), [gy-511](#), [6dof](#), [pololu](#), [module](#), [arduino](#)
- [lamaPLC: GY-511 6DOF sensor module](#) 2026/04/23 21:52 [ak8963](#), [gy-9250](#), [mpu-9250](#), [9-axis](#), [motion detection](#), [magnetometer](#), [communication](#), [i c](#), [i2c](#), [spi](#)
- [LamaPLC: GY-9250 MPU-9250/6500 9-axis Attitude Sensor Board](#) 2026/04/23 21:52 [sht21](#), [htu21](#), [si7021](#), [gy-21](#), [gy-213v](#), [hdc1080](#), [gy-213v-hdc1080](#), [cjmcu](#), [cjmcu-1080](#), [texas instruments](#), [temperature](#), [humidity](#), [sensor](#), [i2c](#), [communication](#), [arduino](#), [code](#)
- [LamaPLC: HDC Texas Instruments Temperature/humidity sensors with I²C communication](#) 2026/04/23 21:52 [i2c](#), [7-segment display](#), [display](#), [ht16k33](#), [arduino](#)
- [lamaPLC: HT16K33 display controller](#) 2026/04/23 21:51 [htu](#), [htu31d](#), [htu21d](#), [htu20d](#), [sht20](#), [htu20](#), [sht21](#), [htu21](#), [si7021](#), [gy-21](#), [gy-213v](#), [hdc1080](#), [si702](#), [gy-20](#), [sht31](#), [htu31](#), [si7031](#), [gy-31](#), [te connectivity](#), [temperature](#), [humidity](#), [i2c](#), [communication](#), [sensor](#), [arduino](#), [code](#)
- [LamaPLC: HTU TE Connectivity temperature/humidity sensors with I²C communication](#) 2026/04/23 21:52

• lamaPLC: INA modules with Arduino libraries	2026/04/23 21:52	i2c , i c , communication , arduino , energy , power , current , monitor , sensor , ina219 , gy-219 , ina226 , gy-216 , ina228 , gy-228 , ina237 , ina238 , ina260 , ina3221 , ina
• lamaPLC: INA226 - current/voltage/power monitor with I²C communication	2026/04/23 21:52	i2c , i c , communication , arduino , energy , power , current , monitor , sensor , ina226 , ina219 , ina
• lamaPLC: LCD 1602/2004 with I²C communication	2026/02/14 18:27	communication , i2c , display , lcd , 1602 , 2004 , hd44780 , pcf8574 , pcf8574t , pcf8574at , arduino
• LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module	2026/04/23 21:52	max30102 , max30100 , heart rate click , sensor , communication , i2c , arduino , code
• lamaPLC: MCP23017 / MCP23S17 16-Bit I/O Expander with Serial Interface I²C / SPI	2026/04/23 21:52	communication , i2c , mcp23017 , mcp23s17 , spi , i o expander , serial , cjmcu-2317 , cjmcu
• lamaPLC: MLX90614 (GY-906) infrared non-contact thermometer	2026/05/08 00:03	communication , i2c , temperature , mlx90614 , gy-906 , modul , infrared , non-contact thermometer , dsp , pwm , smbus , hailege
• lamaPLC: PCF857x I/O Expander chip/modul with I²C communication	2026/05/15 01:03	communication , i2c , pcf857x , pcf8574 , pcf8574a , pcf8575 , i o expander , i o extension , nxp , texas instruments
• LamaPLC: Pixart PAJ7620U2 Gesture recognition sensors/module with I²C communication	2026/04/23 21:52	paj7620u2 , gy-paj7620 , pixart , gesture recognition , i2c , communication , sensor , arduino , code
• lamaPLC: RP2040_ETH_Modul: I²C scanner	2026/05/12 16:20	code , micropython , 2026 , rp2040 eth , i2c , comunication
• lamaPLC: RP2040_ETH_Modul: MLX90614 simple	2026/05/12 17:06	code , micropython , 2026 , rp2040 eth , i2c , communication , mlx90614
• lamaPLC: RP2040_ETH_Modul: Read BME 680/688 sensor data	2026/05/12 21:06	code , micropython , 2026 , rp2040 eth , bme680 , i2c , sensor , communication
• lamaPLC: RP2040_ETH_Modul: Read BME 680/688 sensor data and store in Modbus input registers	2026/05/12 21:04	code , micropython , 2026 , rp2040 eth , bme680 , i2c , sensor , communication
• LamaPLC: SC16IS750 / SC16IS752: One or two serial (UART) ports from microcontroller via I²C or SPI communication	2026/04/23 21:52	cjmcu-750 , cjmcu-752 , cjmcu , nxp , sc16is750 , sc16is752 , uart , serial , i2c , spi , modul , converter , arduino , code
• LamaPLC: SGP Sensirion TVOC/VOC sensors with I²C communication	2026/04/15 19:41	sgp30 , sgp40 , sgp41 , sensirion , gas-sensor , i2c , communication , sensor , arduino , code , eco2 , voc , tvoc , indoor air quality , iaq , nox , hydrogen
• LamaPLC: SHT Sensirion Temperature/humidity sensor with I²C communication	2026/04/23 21:52	sht20 , sht21 , sht25 , sht30 , sht31 , sht35 , sht40 , gy21 , temperature , humidity , i2c , communication , sensor , arduino , code
• lamaPLC: Signal level converters	2026/02/14 23:47	pca9306 , i2c , voltage , level , converter

- [lamaPLC: st756x display drivers](#) 2026/05/20 16:17 [display, driver, i2c, spi, lcd, cog, oled, st7565, st7567, gm12864, gm12864-59n, gm12864-03a, gm12864-01a, gme12864-41](#)
- [lamaPLC: TCA9548A \(HW617\); Low-Voltage 8-Channel I²C Switch Module](#) 2026/02/14 23:51 [tca9548a, hw617, i2c, switch, communication, expansion board, arduino](#)
- [lamaPLC: TM1637 7-segment display](#) 2026/02/14 18:26 [i2c, 7-segment display, display, tm1637, arduino](#)
- [LamaPLC: TOFnnnC STMicroelectronics Time-of-Flight \(ToF\) sensors with I²C communication](#) 2026/04/23 21:52 [tof050c, vl6180, tof200c, vl53l0x, tof400c, vl53l1x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code](#)
- [LamaPLC: VL53Lnn STMicroelectronics time-of-flight \(ToF\) laser-ranging sensors with I²C communication](#) 2026/04/23 21:52 [vl53l0x, vl53l1x, vl53l0 1xv2, gy-530, time-of-flight, tof, laser-ranging, i2c, communication, sensor, arduino, code](#)
- [LamaPLC: VL6180X STMicroelectronics Time-of-Flight \(ToF\) sensor with I²C communication](#) 2026/04/23 21:52 [vl6180x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code](#)
- [lamaPLC: XGZP68xx: Silicon Pressure Sensors/Module](#) 2026/05/15 15:17 [communication, i2c, sensor, modul, pressure, cfsensor, xgzp68xx, xgzp6810d, xgzp6857d, xgzp6859d, xgzp6887d, xgzp6897d, xgzp6899a, piezoresistive, capacitive](#)
- [Magnetic angle sensors](#) 2026/04/23 21:52 [magnetic angle sensor, magnetic flux, sensor, spi, i2c, pwm, communication, modul, as5047p, as5600, mt6701, mt6816, mt6835, tle5012b, amr, gmr, tmr, anisotropic magnetoresistive](#)
- [SSH1106/SSD1306 OLED Display with I²C communication](#) 2026/02/14 18:27 [i2c, oled, display, ssd1306, sh1106, ssh1106, arduino, cmos](#)

[i2c, oled, display, SSD1306, SH1106, SSH1106, Arduino, CMOS](#)

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