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› Hosyond 2.42-inch 128x64 IIC I2C OLED Display Module SSD1309 User Manual

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Model: 2.42-inch 128x64 IIC I2C OLED Display Module SSD1309

1. INTRODUCTION

This manual provides detailed instructions for the Hosyond 2.42-inch 128x64 IIC I2C OLED Display Module with SSD1309 driver. This module is designed for use with various development boards, including Arduino R3 and ESP32, offering a clear, high-contrast display for your projects. It features a wide voltage range (3V-5V) and low power consumption, making it suitable for a variety of applications.

Key features include:

- 2.42-inch white monochrome OLED screen with 128x64 resolution.
- Wide voltage compatibility (3V~5V) for 3.3V/5V logic without a level shifter.
- I2C communication requiring only 4 IO ports.
- Low power consumption compared to TFT screens.
- Wide viewing angle of 160°+.
- Protected by a sturdy iron frame for durability.

2. PRODUCT OVERVIEW

The Hosyond 2.42-inch OLED display module is a compact and versatile component for electronic projects. Below are visual representations of the module and its key interfaces.

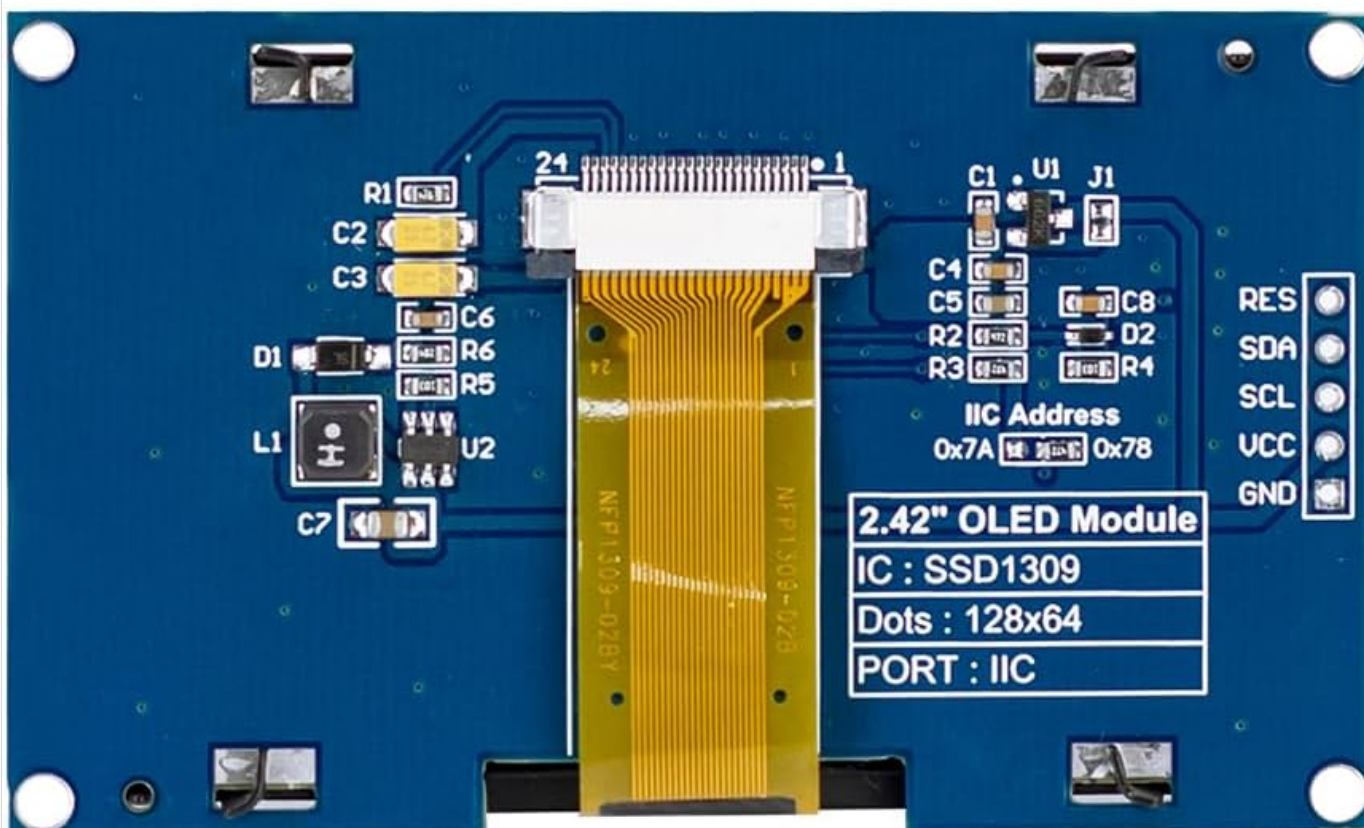
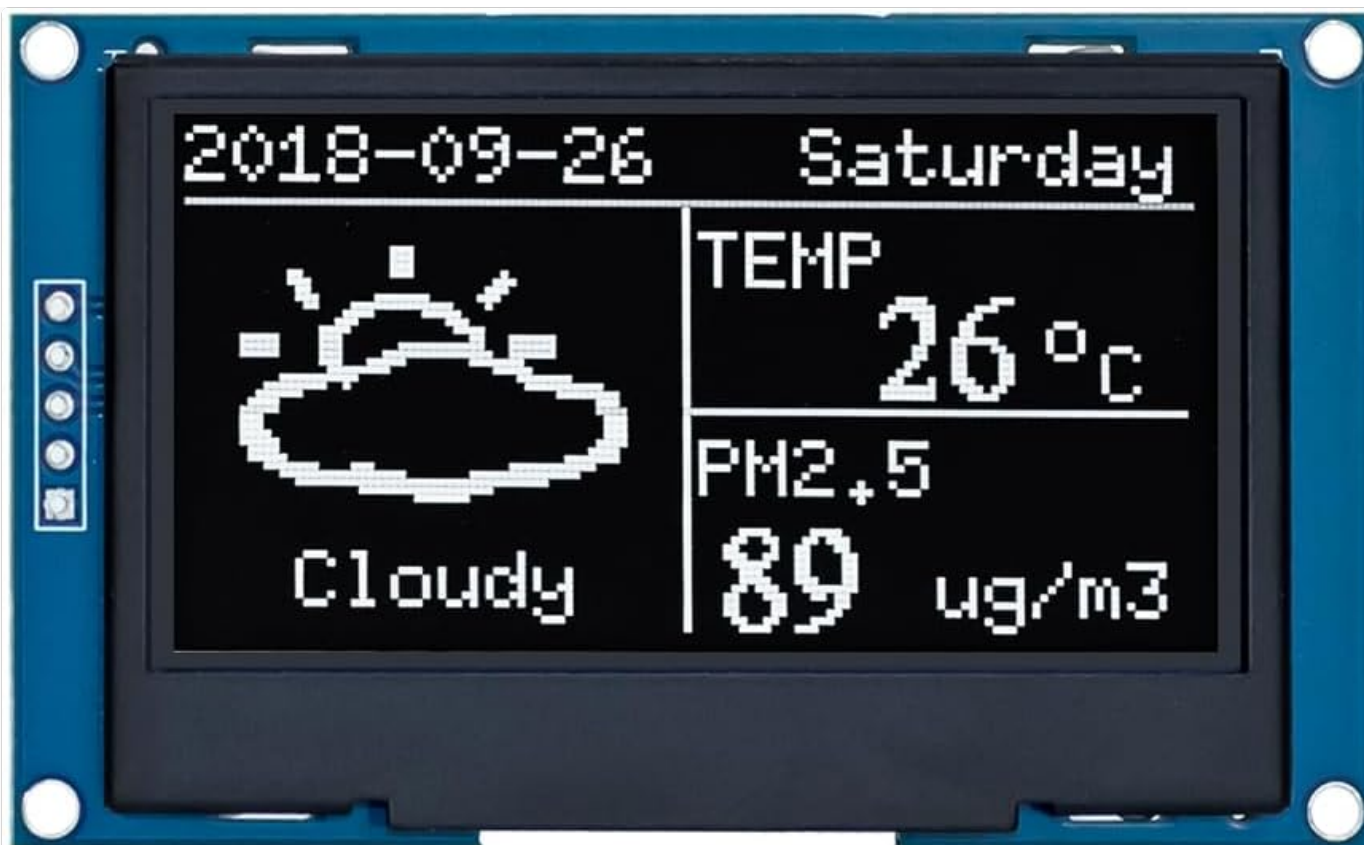
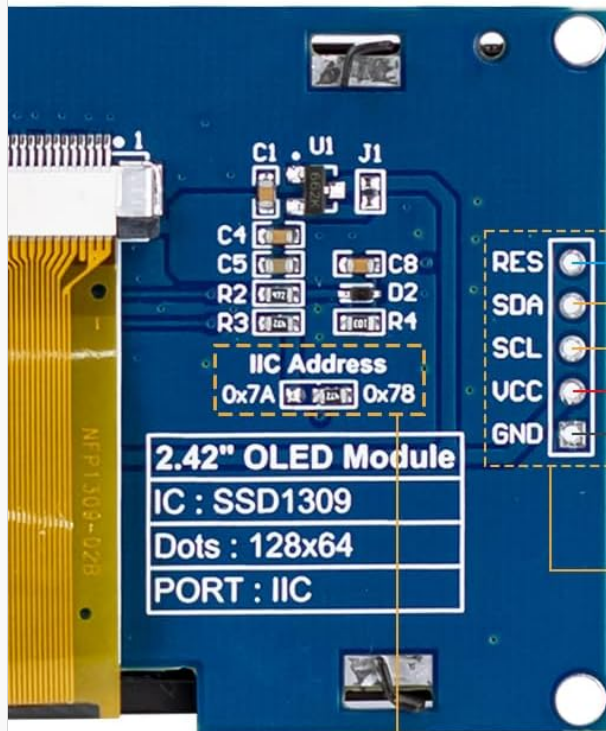


Figure 2.1: Front and back view of the Hosityond 2.42-inch OLED display module. The front shows the active display area, while the back reveals the PCB with connection pins and the SSD1309 driver IC.

Interface Function Description



Reset: The pin arrangement is not soldered by default. If the reset function needs to be controlled in the program, it needs to be soldered

SDA: IIC bus data signal

SCL: IIC bus clock signal

VCC: power supply positive pole (5V/3.3V)

GND: OLED screen power supply ground

5 Pin Header:

2.54mm spacing row pins, module signal input pins (RES defaults to not welding)

IIC switches resistance from device address

Solder to 0x78: using 0x78 slave device address

Soldered to 0x7A: using 0x7A from device address

Figure 2.2: Detailed interface function description. This image highlights the RES, SDA, SCL, VCC, and GND pins, along with their functions and the default IIC address options (0x78 or 0x7A).

Your browser does not support the video tag.

Video 2.1: Demonstration of the Honyond 2.42-inch OLED screen connected to an Arduino, showcasing various display patterns and information such as heart rate and weather data. This video illustrates the module's dynamic display capabilities.

3. SPECIFICATIONS

The following table details the technical specifications and electrical parameters of the Honyond 2.42-inch OLED Display Module.

About 2.42inch IIC OLED Module

Display Screen Parameters	
Screen Size	2.42 inch
Screen Type	OLED
Resolution	128x64 (pixels)
Active Area (AA area)	55.01 (W)x27.49(H)(mm)
Display Color	White
Driver IC	SSD1309
Display Interface	IIC
Pixel Size	0.43(H)x0.43(V)(mm)
View Angle	ALL O'CLOCK
Brightness(TYP)	110(cd/m3)
Operation Temperature	-40~70(°C)
Storage Temperature	-40~85(°C)
Electrical Parameters	
Working Voltage	5.0/3.3V
Working Current	52 mA(Max)
Power	0.26W(Max)

Figure 3.1: Visual representation of the display screen and electrical parameters.

Product Parameters

Parameter	Value
Screen Size	2.42 inch
Screen Type	OLED
Resolution	128x64 pixels
Active Area (AA)	55.01(W)x27.49(H) mm

Parameter	Value
Display Color	White
Driver IC	SSD1309
Display Interface	IIC
View Angle	ALL O'CLOCK (160°+)
Brightness (TYP)	110 cd/m ²
Operation Temperature	-40~70 °C
Storage Temperature	-40~85 °C
Working Voltage	5.0/3.3V
Working Current	52 mA (Max)
Power	0.26W (Max)
Interface	5Pin 2.54mm Header (RES defaults to not welding)

4. SETUP AND CONNECTION

This section guides you through connecting the OLED display module to common development boards like Arduino and Raspberry Pi.

4.1 Pin Description

- **RES:** Reset pin. By default, this pin is not soldered. If a reset function is required in your program, this pin needs to be connected.
- **SDA:** IIC bus data signal.
- **SCL:** IIC bus clock signal.
- **VCC:** Power supply positive pole (supports 5V/3.3V).
- **GND:** OLED screen power supply ground.

4.2 Connecting to Development Boards

The module supports common development boards such as ESP32, Arduino Mega, Nano, R3, R4, and Raspberry Pi. Below are typical connection diagrams.

Supports Development Boards

Supports common development boards such as ESP32, Mega, Nano, R3, R4, etc.

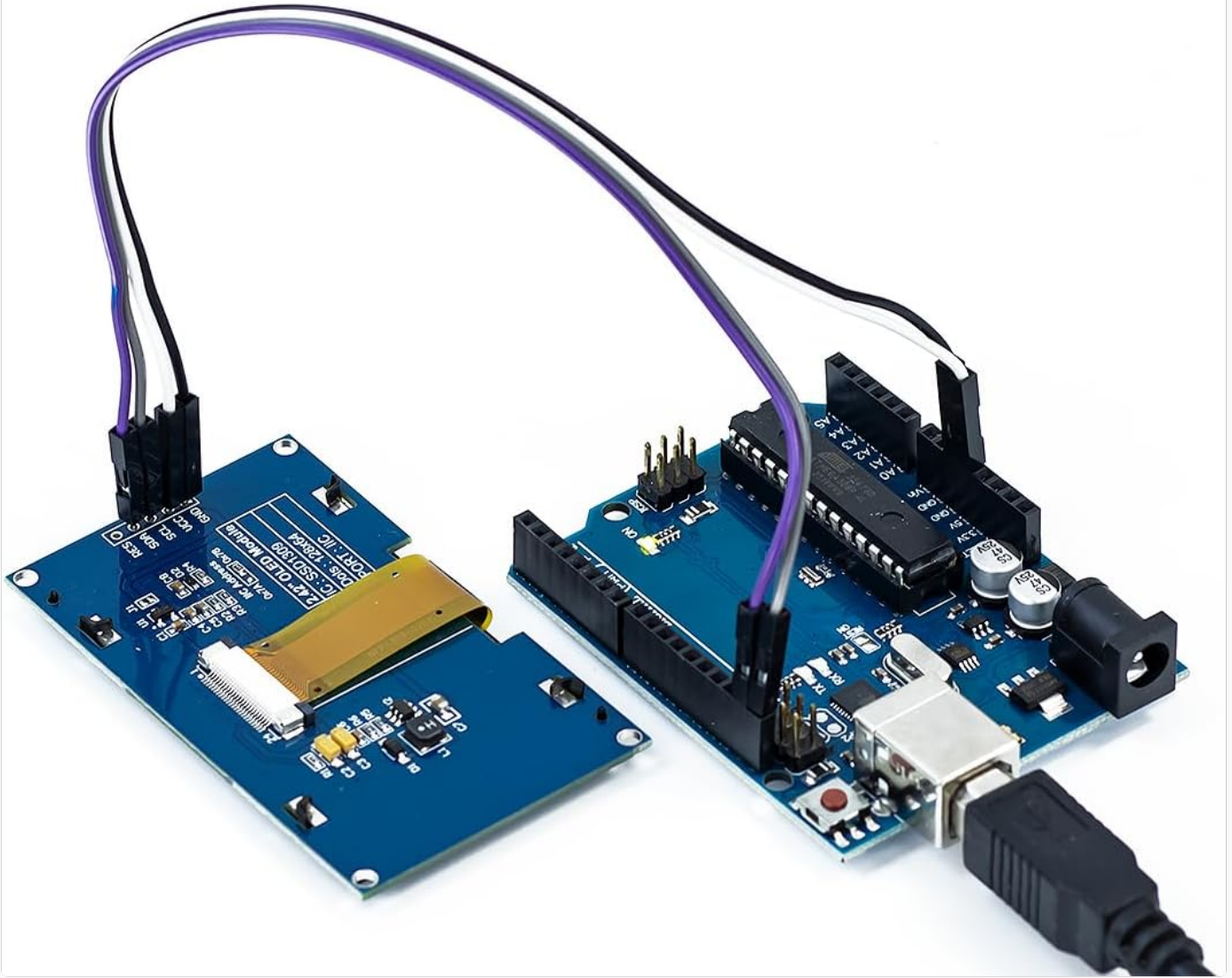


Figure 4.1: The OLED module connected to an Arduino development board, demonstrating its compatibility.

How to connect to a development board

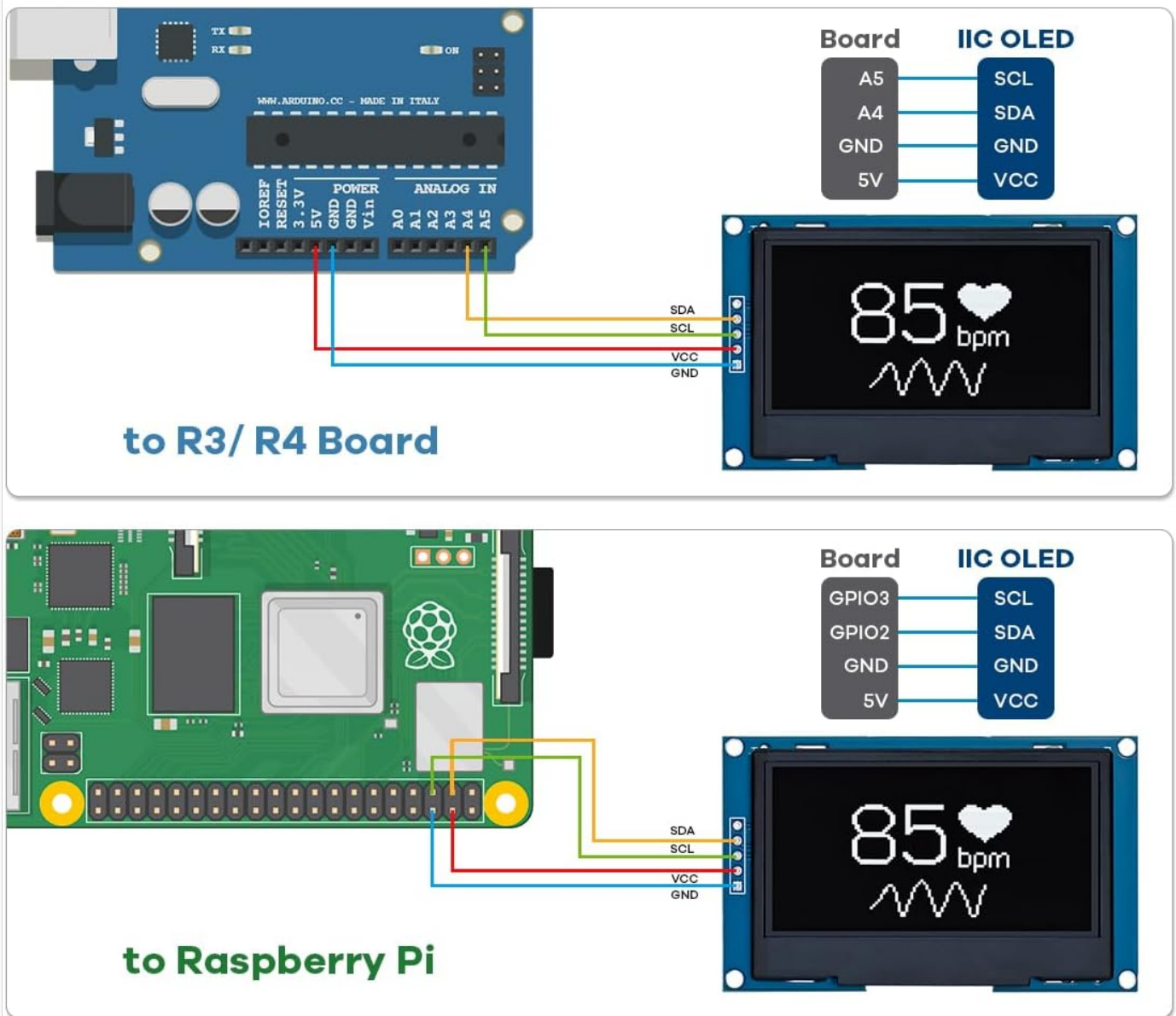


Figure 4.2: Detailed wiring diagrams for connecting the IIC OLED module to an Arduino R3/R4 board and a Raspberry Pi. Ensure correct pin connections for SDA, SCL, VCC, and GND.

Typical Wiring for Arduino R3/R4:

- OLED SDA to Arduino A4
- OLED SCL to Arduino A5
- OLED VCC to Arduino 5V
- OLED GND to Arduino GND

Typical Wiring for Raspberry Pi:

- OLED SDA to Raspberry Pi GPIO2 (SDA)
- OLED SCL to Raspberry Pi GPIO3 (SCL)
- OLED VCC to Raspberry Pi 5V
- OLED GND to Raspberry Pi GND

IIC Address Configuration: The IIC address can be switched between 0x78 and 0x7A by soldering a resistance. Refer

to Figure 2.2 for details.

5. OPERATING THE DISPLAY MODULE

Once connected, the OLED module can be programmed using appropriate libraries for your development environment. For Arduino, libraries like U8g2 or Adafruit_SSD1306 are commonly used. For Raspberry Pi, luma.oled in Python or the ssd1306fb framebuffer driver are effective.

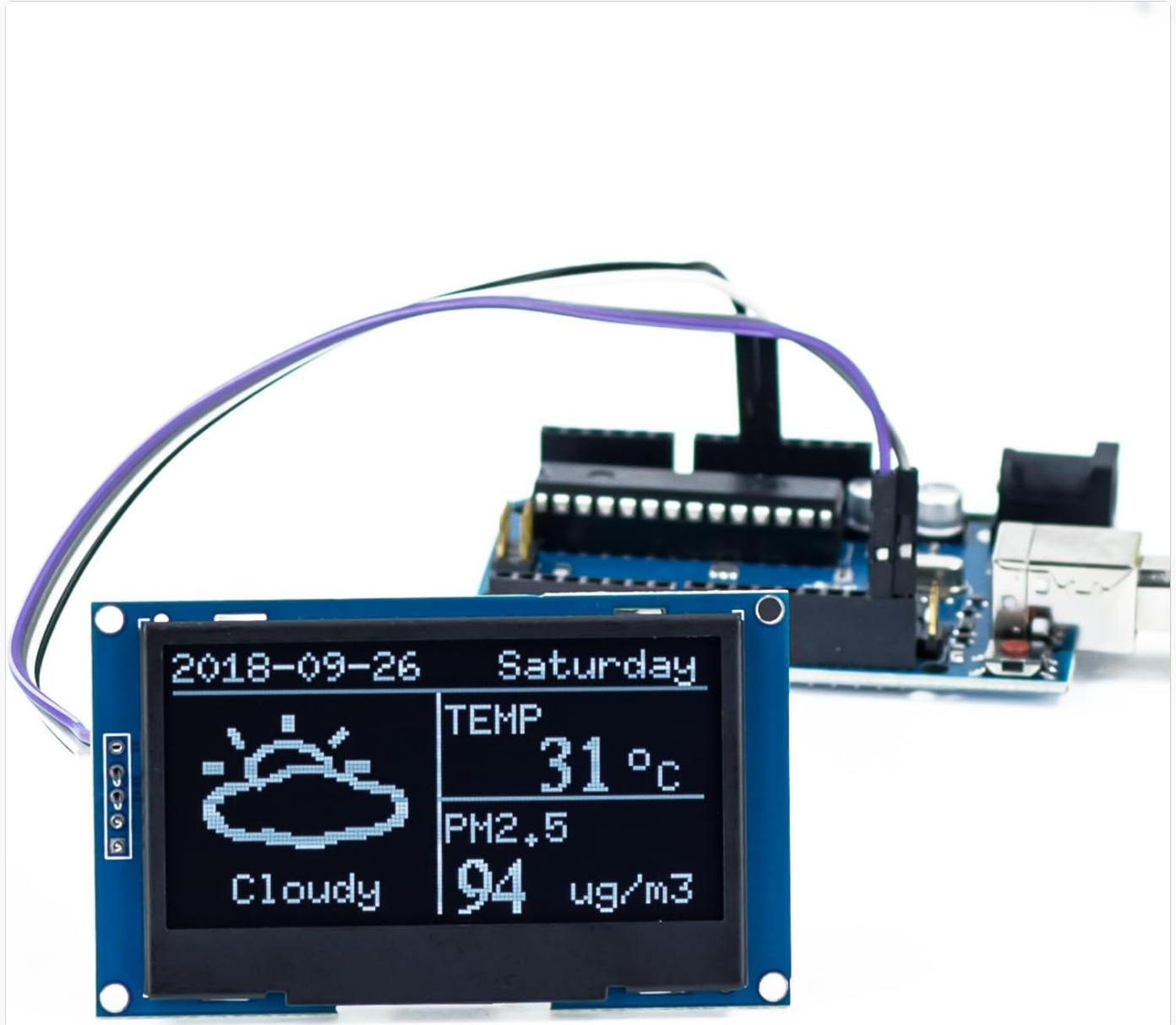


Figure 5.1: The OLED module displaying real-time weather information (date, day, temperature, PM2.5, and cloud conditions) while connected to an Arduino board.

The 128x64 resolution allows for displaying text, simple graphics, and numerical data. The high contrast of OLED technology ensures clear readability across its wide viewing angle.

Example applications include:

- Sensor data visualization (temperature, humidity, air quality).
- Small user interfaces for embedded systems.
- Status indicators for IoT devices.
- Simple game displays.

6. MAINTENANCE

To ensure the longevity and optimal performance of your Hosityond OLED display module, follow these general maintenance guidelines:

- **Handling:** Always handle the module by its edges to avoid touching the display surface or electronic components.
- **Cleaning:** If necessary, gently wipe the display surface with a soft, dry, lint-free cloth. Avoid using harsh chemicals or abrasive materials.
- **Storage:** Store the module in a dry, cool environment, away from direct sunlight and extreme temperatures. The operating temperature range is -40°C to 70°C , and storage temperature is -40°C to 85°C .
- **Power Supply:** Ensure the power supply voltage is within the specified 3.3V-5V range to prevent damage.
- **Static Electricity:** Take precautions against electrostatic discharge (ESD) when handling the module, as electronic components can be sensitive to static.

7. TROUBLESHOOTING

If you encounter issues with your OLED display module, refer to the following common problems and solutions:

Problem: Display does not light up or shows garbled characters.

Possible Solutions:

- **Check Wiring:** Verify that VCC, GND, SDA, and SCL connections are correct and secure.
- **Power Supply:** Ensure the development board is powered on and providing the correct voltage (3.3V or 5V) to the OLED module.
- **IIC Address:** The default IIC address is often 0x3C or 0x3D. Use an I2C scanner sketch (for Arduino) or equivalent tool to confirm the correct address of your module. Some modules might have 0x78 or 0x7A.
- **Reset Pin (RES):** If your application requires a hardware reset, ensure the RES pin is connected and properly initialized in your code. If it's left floating and causing issues, try connecting it to VCC or GND as per the driver IC's datasheet or your library's requirements.
- **Library Compatibility:** Ensure you are using a compatible library (e.g., U8g2, Adafruit_SSD1306) and that it is correctly configured for the SSD1309 driver and 128x64 resolution.

Problem: Display is dim or inconsistent.

Possible Solutions:

- **Power Stability:** Check for stable power delivery to the module. Fluctuations can affect display brightness.
- **Brightness Setting:** Some libraries allow programmatic adjustment of brightness. Ensure it's not set too low.
- **Environmental Conditions:** Extreme temperatures can affect OLED performance. Ensure the module is operating within its specified temperature range.

8. WARRANTY INFORMATION

This product is typically sold without an explicit manufacturer's warranty. However, standard return policies apply for products purchased through retailers. Please refer to the retailer's return policy for details regarding refunds or replacements.

For purchases made on Amazon, a 30-day return policy for refunds or replacements is generally available. Please check your specific purchase details for the most accurate information.

9. TECHNICAL SUPPORT AND RESOURCES

Hosyond is committed to providing support for its products. We offer low-level driver technical support and online information resources to assist with your projects.

- For additional information, code examples, and technical assistance, please visit the [Hosyond Store on Amazon](#).
- Refer to the documentation and examples provided by popular microcontroller communities (e.g., Arduino, ESP32) for SSD1309 OLED displays.

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