ELEGOO EU-EHJ-KIT-032

ELEGOO ESP-32 Starter Kit Instruction Manual

Model: EU-EHJ-KIT-032

1. Introduction

The ELEGOO ESP-32 Starter Kit is designed for enthusiasts and beginners to explore the world of electronics, programming, and the Internet of Things (IoT). This kit features a powerful ESP-32 microcontroller board with integrated Wi-Fi and Bluetooth 4.2, compatible with the Arduino IDE. It includes a wide array of electronic components and modules, enabling users to build various projects from basic circuits to advanced IoT applications.
This manual provides essential information for setting up, operating, and maintaining your ESP-32 Starter Kit. For detailed project tutorials and code examples, please refer to the comprehensive online tutorial provided by ELEGOO.

Figure 1: Overview of the ELEGOO ESP-32 Starter Kit components. The image displays various electronic modules, wires, and the ESP-32 board neatly arranged.

2. Kit Contents

The ELEGOO ESP-32 Starter Kit includes over 35 different electronic modules and components. Below is a general list of items you can expect to find in your kit. For a complete and detailed list, please refer to the packaging or the official online tutorial.

- ESP-32 Development Board (USB-C)
- Breadboards (2 pieces)
- Various sensors (e.g., ultrasonic, PIR motion, temperature and humidity)
- Output devices (e.g., LEDs, OLED display, servo motor, stepper motor, buzzer)
- Input devices (e.g., buttons, joystick, membrane keypad, IR receiver)
- Communication modules (e.g., RFID module)
- Power supply module

- Resistors, jumper wires, and other passive components
- Remote control
- 9V Battery with clip

Figure 2: The kit components are organized within a clear storage box, showcasing the variety of modules and parts included.

Figure 3: A detailed diagram illustrating the pinout of the ESP-32 development board, showing GPIO, power, and other functional pins.

3. Setup Instructions

3.1 Software Installation

1. **Download Arduino IDE:** Visit the official Arduino website (www.arduino.cc/en/software) and download the latest version of the Arduino IDE for your operating system.
2. **Install ESP-32 Board Support:** Follow the instructions provided in the ELEGOO online tutorial to add ESP-32 board support to your Arduino IDE. This typically involves adding a board manager URL and installing the ESP-32 package.
3. **Install Libraries:** For specific projects, you may need to install additional libraries. The online tutorial will guide you on which libraries are required and how to install them via the Arduino IDE's Library Manager.

3.2 Hardware Connection

1. **Connect ESP-32 Board:** Use the provided USB-C cable to connect your ESP-32 development board to your computer. Ensure the connection is secure.
2. **Breadboard Usage:** The kit includes two breadboards. These are used to connect components without soldering. Refer to project schematics for correct component placement and wiring.
3. **Power Supply:** For projects requiring external power, use the included 9V battery with its clip, or the power supply module as instructed in the project guides.

Figure 4: A close-up view of the ESP-32 development board, highlighting the USB-C port for power and data connection.

4. Operating Instructions

The ELEGOO ESP-32 Starter Kit is designed for hands-on learning and project development. The operation primarily involves writing and uploading code to the ESP-32 board using the Arduino IDE, and then observing the interaction with connected electronic components.

4.1 First Project: Blinking LED

1. **Connect an LED:** Connect an LED and a current-limiting resistor to a digital pin on the ESP-32 board and to ground, as shown in the online tutorial's first project.
2. **Open Arduino IDE:** Launch the Arduino IDE.
3. **Load Example Sketch:** Go to **File > Examples > 01.Basics > Blink**
4. **Select Board and Port:** In the Arduino IDE, go to **Tools > Board** and select "ESP32 Dev Module" (or similar, as per your ESP-32 board support installation). Then, go to **Tools > Port** and select the serial port corresponding to your connected ESP-32 board.
5. **Upload Code:** Click the "Upload" button (right arrow icon) to compile and upload the sketch to your ESP-32 board.
6. **Observe:** The LED should start blinking, indicating successful operation.

4.2 Advanced Projects

The kit supports a wide range of projects, leveraging the ESP-32's Wi-Fi and Bluetooth capabilities for IoT applications. Examples include:

- **Weather Station:** Utilize temperature, humidity, and other sensors to build a device that monitors environmental conditions and potentially sends data to the cloud.
- **Smart Home Controller:** Create systems for controlling lights, motors, or other devices remotely via Wi-Fi or Bluetooth.
- **Interactive Gadgets:** Develop games or interactive displays using the OLED screen, joystick, and various input modules.

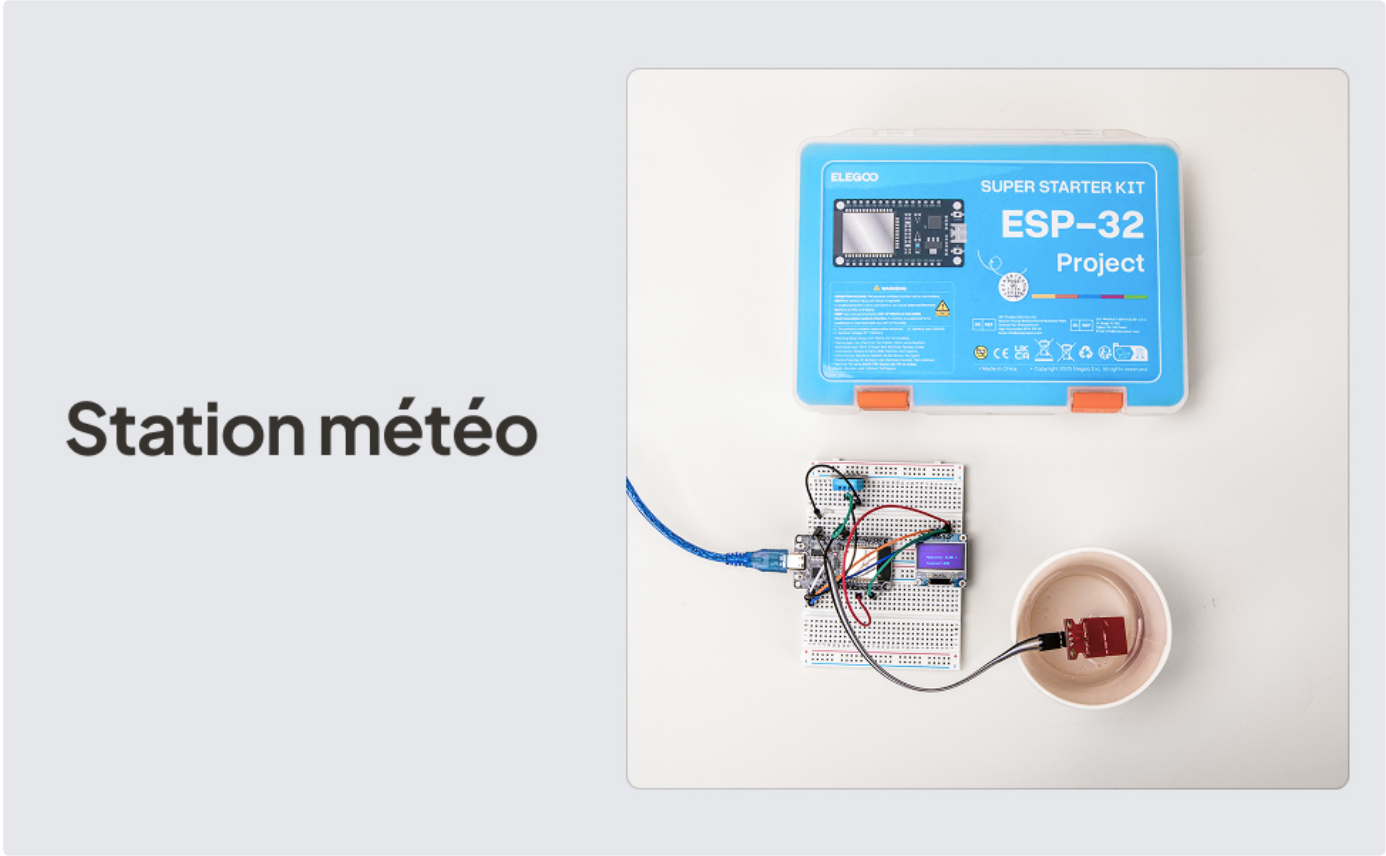

Figure 5: An ESP-32 board wired on breadboards, demonstrating a weather station project with sensors and an OLED display.

Figure 6: A prototype of a card access system, featuring a keypad, RFID reader, and a small door, constructed using the kit's components.

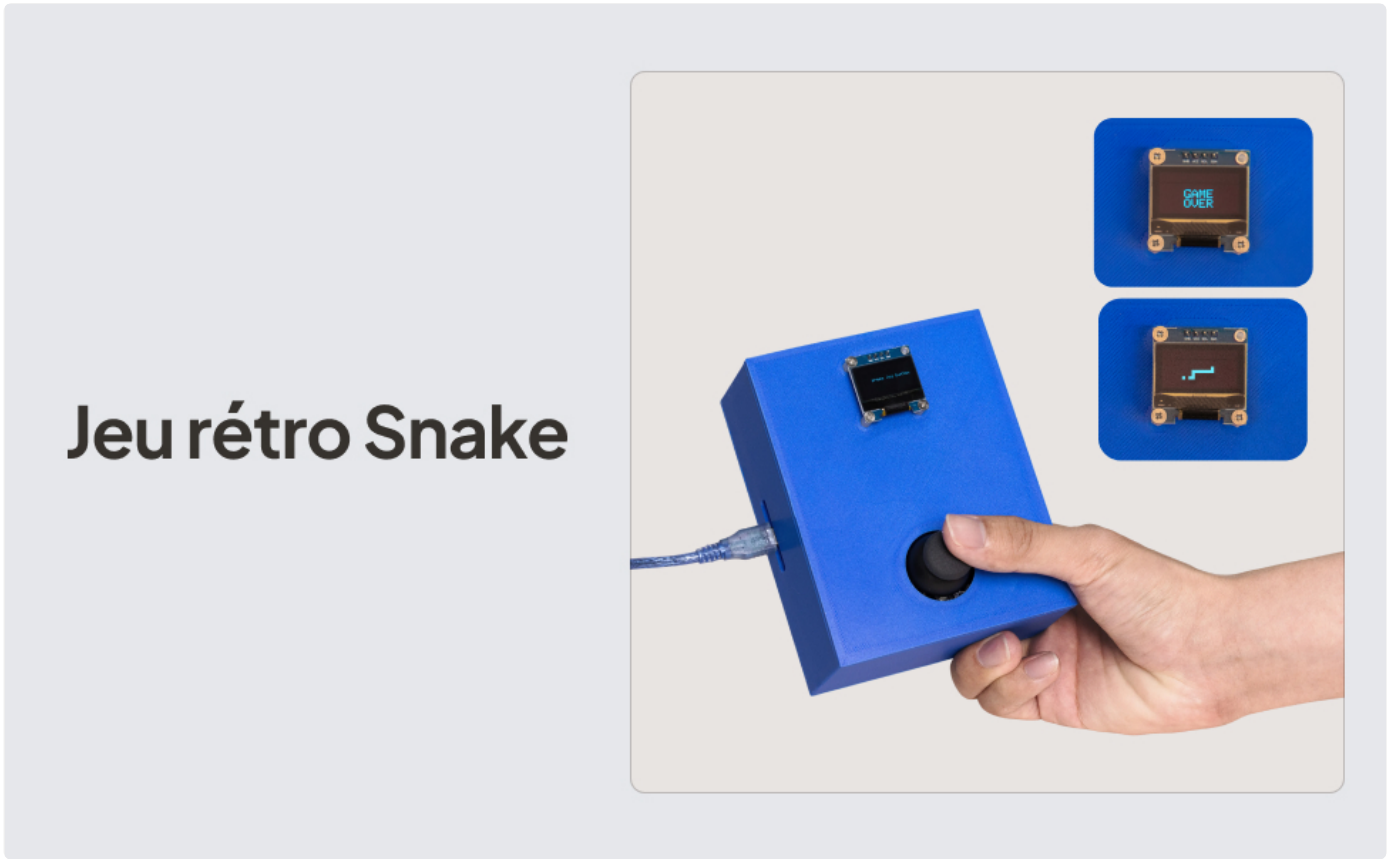

Figure 7: A handheld retro Snake game console, demonstrating an interactive project built with the ESP-32 board and an OLED display.

5. Maintenance

Proper care and maintenance will extend the lifespan of your ELEGOO ESP-32 Starter Kit components.

- **Storage:** Store all components in their original packaging or a dedicated storage box to prevent damage and loss. Keep them away from dust, moisture, and extreme temperatures.
- **Handling:** Handle electronic components with care. Avoid bending pins or applying excessive force. Static electricity can damage sensitive components, so consider using anti-static precautions if available.
- **Cleaning:** Use a soft, dry cloth to clean the boards and components. Avoid using liquids or abrasive cleaners. For stubborn dust, a soft brush or compressed air can be used.
- **Battery Care:** If using the 9V battery, remove it from the clip when not in use for extended periods to prevent leakage.

6. Troubleshooting

If you encounter issues while using your ELEGOO ESP-32 Starter Kit, consider the following troubleshooting steps:

- **Connection Issues:**
  - Ensure the USB-C cable is securely connected to both the ESP-32 board and your computer.
  - Verify that the correct serial port is selected in the Arduino IDE (**Tools > Port**).
  - Try a different USB port or cable.
- **Code Upload Failure:**
  - Check if the correct board is selected in the Arduino IDE (**Tools > Board**).
  - Ensure all necessary libraries are installed.
  - Sometimes, pressing the "BOOT" button on the ESP-32 board while uploading can help.
  - Review the error messages in the Arduino IDE console for clues.
- **Component Malfunction:**
  - Double-check all wiring against the project schematic. Incorrect wiring is a common cause of issues.
  - Ensure components are inserted correctly into the breadboard.
  - Test individual components if possible, or try substituting with a known working component if you have spares.
  - Refer to the online tutorial for specific component usage and common pitfalls.
- **General Issues:**
  - Restart the Arduino IDE and your computer.
  - Consult the ELEGOO online community or technical support for assistance with persistent problems.

7. Specifications

Key technical specifications for the ELEGOO ESP-32 Starter Kit (Model: EU-EHJ-KIT-032):

Feature	Detail
Model Number	EU-EHJ-KIT-032
Brand	ELEGOO
Microcontroller	ESP-32 (Dual-core processor)
CPU Manufacturer	Espressif
Clock Speed	Up to 240 MHz

Feature	Detail
Memory Storage Capacity	4 MB
Connectivity Technology	Wi-Fi, Bluetooth 4.2, USB-C
Wireless Communication Standard	Bluetooth
Operating System Compatibility	Linux (for development environment), Arduino IDE compatible
Compatible Devices	Personal Computer, Microcontroller
RAM Technology	DDR
Number of Processors	2
Total USB Ports	1 (USB-C)
Smart Home Compatibility	Not directly compatible with smart home platforms (requires custom programming)
Package Dimensions	20.9 x 18.5 x 5.4 cm
Item Weight	580 grams
Batteries Included	2 x 9V (for specific modules/projects)
Country of Origin	China

8. Warranty and Support

ELEGOO is committed to providing quality products and excellent customer support.

- **Online Tutorials:** Access detailed, beginner-friendly online tutorials with over 30 projects, complete code, clear circuit diagrams, and step-by-step instructions. These resources are invaluable for learning and project development.
- **Technical Support:** A dedicated technical support team is available to assist with any product-related inquiries or issues. Contact information can typically be found on the ELEGOO official website or through your purchase platform.
- **Online Community:** Join the active ELEGOO online community to share projects, ask questions, and get advice from other users and experts.
- **Warranty:** For specific warranty terms and conditions, please refer to the product packaging or the official ELEGOO website. Generally, ELEGOO strives to ensure the reliability and ease of use of all components.