M5Stack ATOMS3

M5Stack ATOMS3 Dev Kit with 0.85-inch Screen User Manual

Model: ATOMS3

1. Product Overview

The M5Stack ATOMS3 Dev Kit is a compact and powerful programmable controller designed for IoT devices and embedded systems. It integrates an ESP32-S3FN8 chip, a 0.85-inch IPS screen, programmable buttons, and a 6-axis gyro sensor (MPU6886) to provide versatile functionality for various applications.
Its small form factor and integrated features make it suitable for rapid prototyping and development in areas such as IIoT, home automation, smart retail, and STEM education.

Image 1.1: M5Stack ATOMS3 Dev Kit with key components labeled, including the 0.85-inch IPS LCD, ESP32-S3, MPU6886, IR LED, USB-C port, and Port.A (HY2.0-4P).

2. Package Contents

The M5Stack ATOMS3 Dev Kit package includes the following items:

- 1x AtomS3 unit

Shipping List

Image 2.1: Visual representation of the AtomS3 unit included in the package.

3. Initial Setup

3.1 Powering On and Connectivity

The ATOMS3 Dev Kit is powered and programmed via its USB-C port. Connect the device to a computer or a 5V power adapter using a compatible USB-C cable.

- **USB-C Port:** Used for both power supply and data communication (programming).
- **Port.A (HY2.0-4P):** Provides I2C, GPIO, ADC, and UART interfaces for connecting external modules and sensors.

Image 3.1: Close-up view of the ATOMS3 showing the USB-C port for power and programming, and the HY2.0-4P Port.A for expansion.

4. Basic Operation

4.1 Display and User Interface

The ATOMS3 features a 0.85-inch IPS screen (128x128 resolution) for visual feedback and programmable buttons for user interaction. The screen can display various information, while the buttons allow for custom controls within your programmed applications.

- **0.85-inch IPS Screen:** Provides clear visual output for data, status, or simple graphics.
- **Programmable Buttons:** Located below the screen, these buttons can be assigned functions within your code.
- **Reset Button:** A dedicated reset button is available for restarting the device. Pressing it initiates a reset. Holding it for 2 seconds will put the device into GO->LOW mode.

Image 4.1: The ATOMS3 unit, illustrating its compact size and highlighting the programmable button and 0.85-inch LCD screen.

4.2 Integrated Sensors

The device includes a 6-axis gyro sensor (MPU6886) for motion detection and orientation tracking, expanding its capabilities for interactive projects.

5. Technical Specifications

Specification	Parameter
SoC	ESP32-S3FN8
Flash	8MB
DC-DC	SY8089
IMU	MPU6886 (I2C Address: 0x68)

Specification	Parameter
TFT Driver IC	GC9107
Resolution	128 x 128
Operating Temp	0 ~ 40°C
Power Supply	5V
Dimensions	24 x 24 x 13 mm (0.94 x 0.94 x 0.51 inches)
Weight	0.187 ounces
Wireless Type	Infrared, WiFi
Operating System	Arduino, UIFLOW2.0, MicroPython

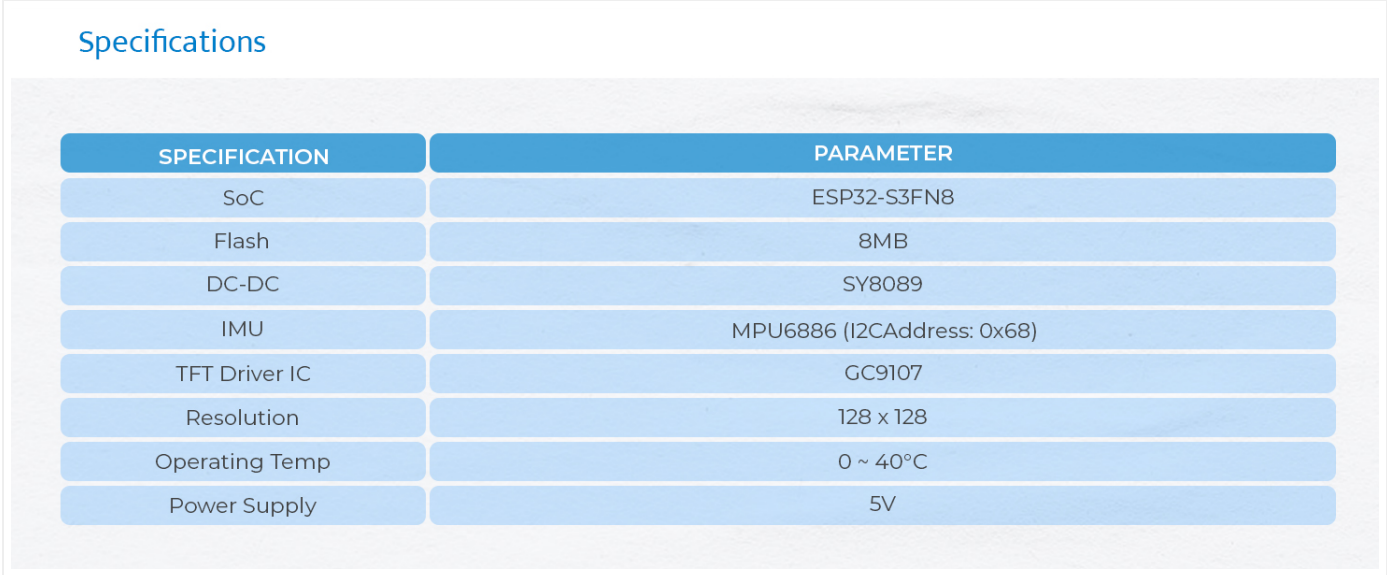

Image 5.1: Detailed technical specifications for the M5Stack ATOMS3 Dev Kit.

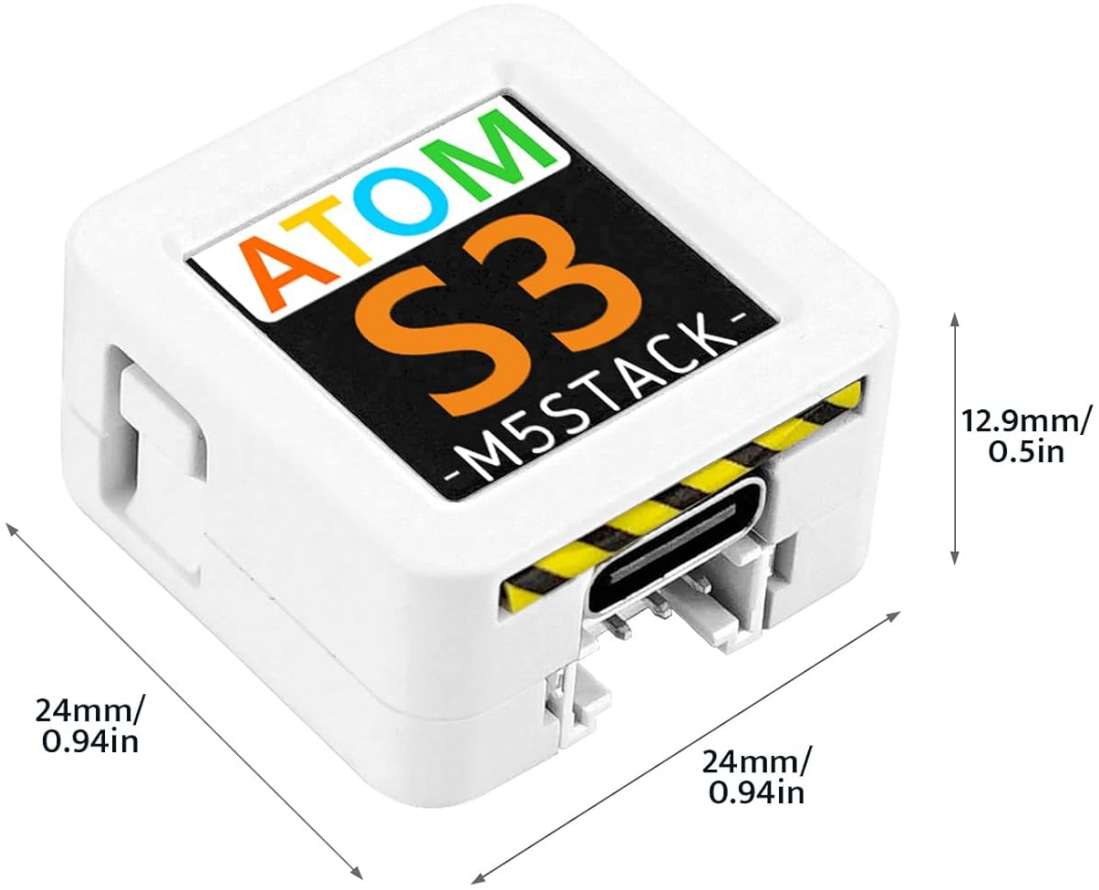

Image 5.2: Physical dimensions of the M5Stack ATOMS3 Dev Kit (24mm x 24mm x 12.9mm).

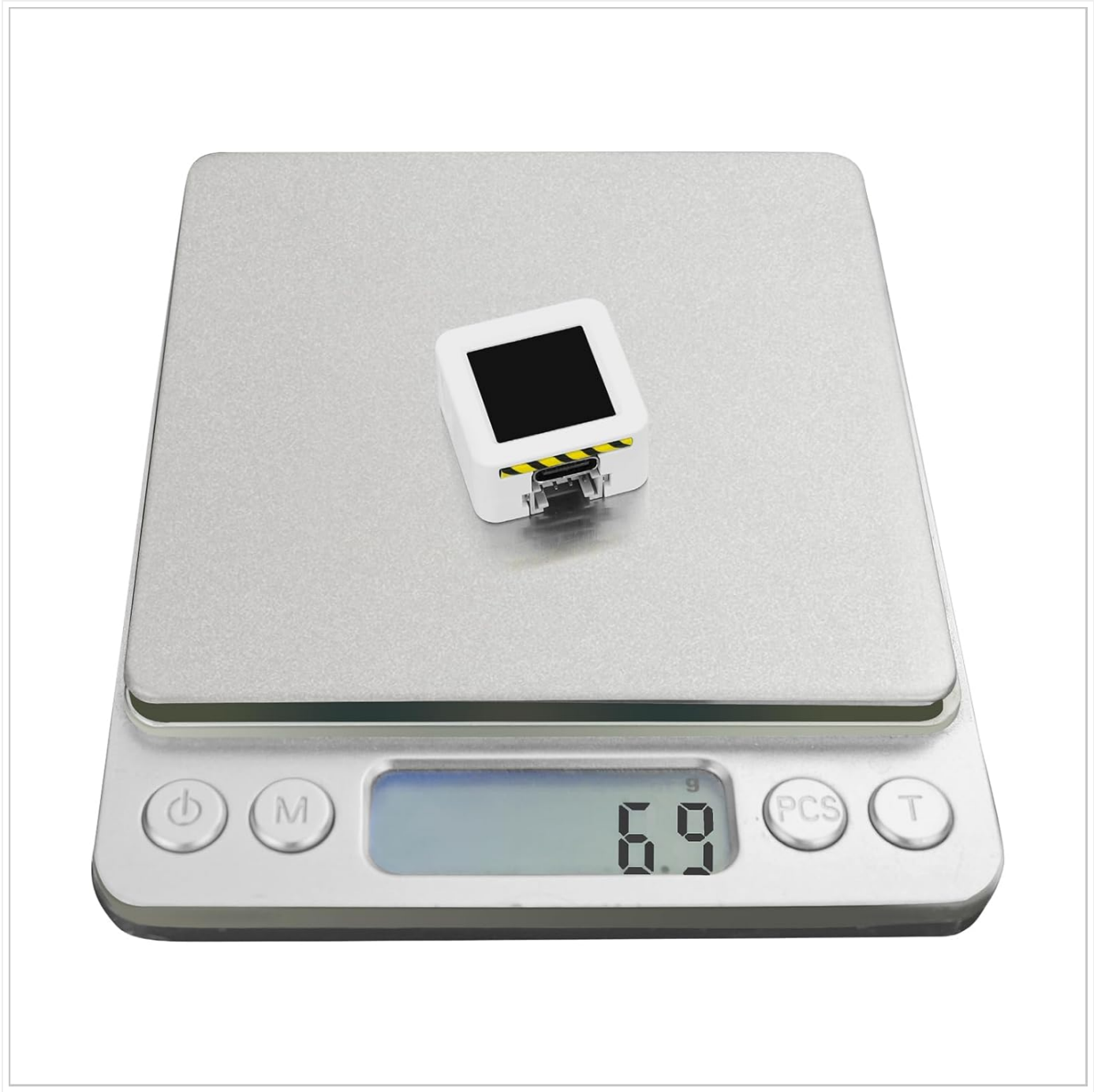

Image 5.3: The M5Stack ATOMS3 Dev Kit on a digital scale, indicating its light weight of 6.9 grams.

6. Maintenance

To ensure the longevity and optimal performance of your M5Stack ATOMS3 Dev Kit, follow these maintenance guidelines:

- Keep the device clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Avoid exposing the device to extreme temperatures, humidity, or direct sunlight.
- Handle the device with care to prevent physical damage.
- Ensure proper ventilation when operating for extended periods.

7. Troubleshooting

If you encounter issues with your ATOMS3 Dev Kit, consider the following common troubleshooting steps:

- **Device not powering on:** Ensure the USB-C cable is securely connected to a reliable 5V power source or computer.
- **Programming errors:** Verify that the correct drivers are installed on your computer and that your development

environment (e.g., Arduino IDE) is configured for the ESP32-S3 chip. Check cable integrity.

- **Screen not displaying:** Confirm the device is powered on. If using custom code, ensure the display initialization is correct.
- **Sensor issues:** Check your code for correct sensor initialization and data reading. Ensure no physical obstructions are affecting the sensor.
- **Connectivity problems (WiFi):** Verify network credentials in your code. Ensure the device is within range of the WiFi network.

For more detailed troubleshooting and specific error codes, refer to the official M5Stack documentation and community forums.

8. Support and Resources

M5Stack provides extensive resources for developers and users. For tutorials, documentation, and community support, please visit the official M5Stack website.

8.1 Accessing Tutorials

To find tutorials and detailed documentation for your ATOMS3 Dev Kit:

1. Visit the official M5Stack website: m5stack.com
2. Click on the "DOCUMENT" section.
3. Search for your product (ATOMS3).
4. Scroll down to find the "Tutorial" section for guides and examples.

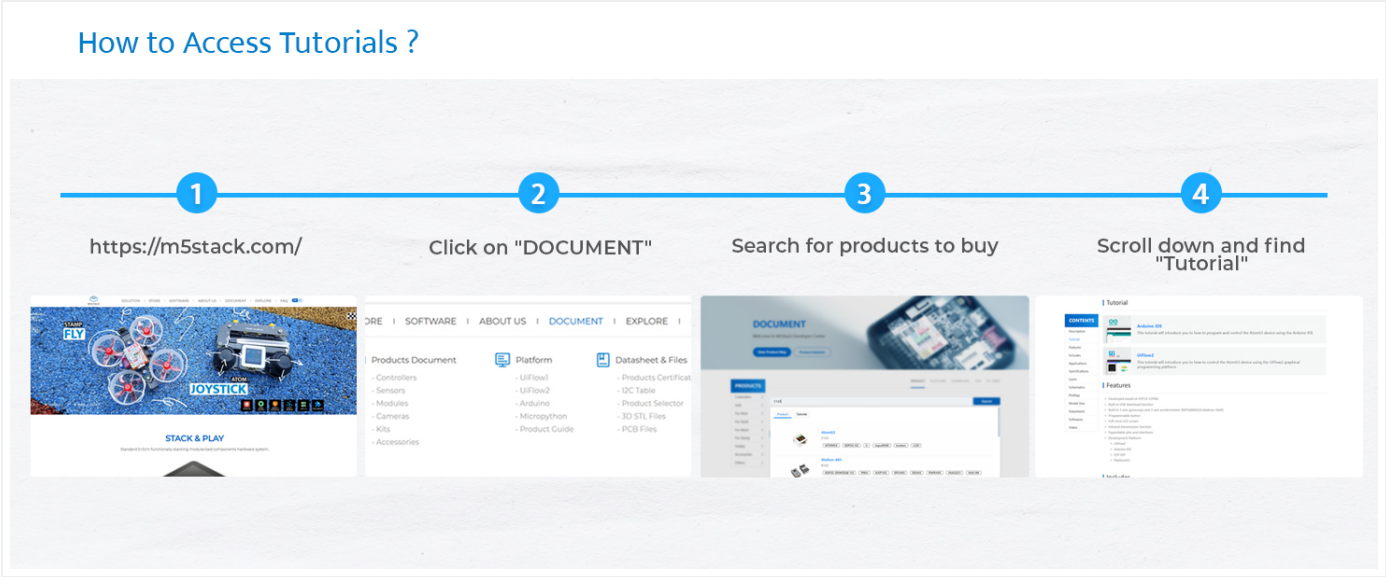

Image 8.1: Step-by-step guide to finding product tutorials on the M5Stack website.

8.2 Warranty Information

For information regarding product warranty and return policies, please refer to the purchase platform or contact M5Stack Official Store directly. Standard return policies typically allow for returns within 30 days of purchase.