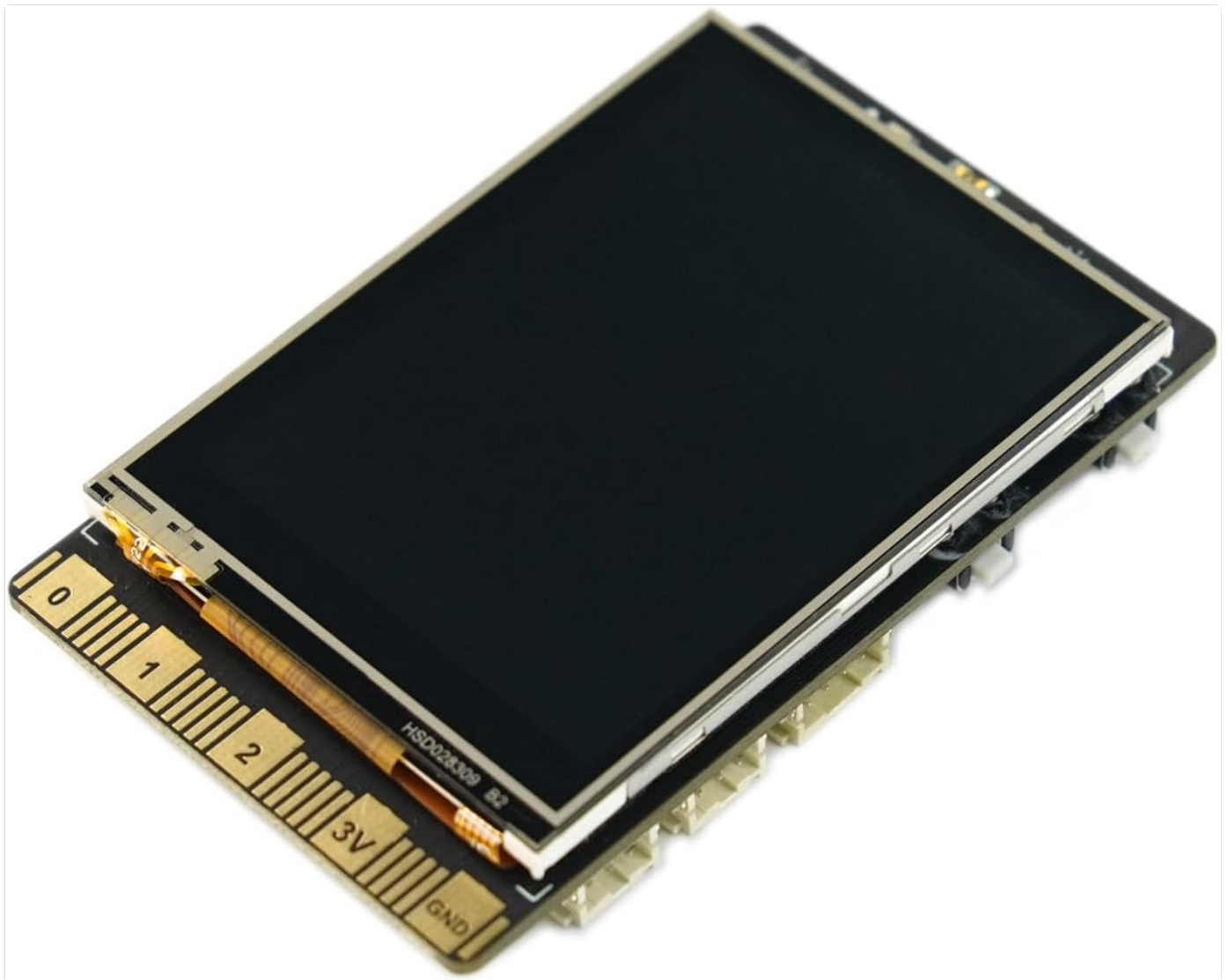## DFROBOT UNIHIKER M10

DFROBOT UNIHIKER M10 AI Development Board User Manual

Brand: DFROBOT | **Model:** UNIHIKER M10

1. INTRODUCTION

The DFROBOT UNIHIKER M10 is a versatile single-board computer designed for AI and IoT development. It features a 2.8-inch color LCD touchscreen, integrated WiFi and Bluetooth connectivity, and a rich set of expansion interfaces. This device supports Python and visual programming, making it accessible for a wide range of projects from data visualization to smart home automation and robotics.

Image 1: Front view of the UNIHIKER M10 AI Development Board.

2. WHAT'S IN THE BOX

The UNIHIKER M10 package includes the following components:

- UNIHIKER Single Board Computer x1
- Type-C USB cable x1
- Double Sided PH2.0-3P white 20cm silicone wire x4
- Double Sided PH2.0-4P white 20cm silicone wire x2

Image 2: Contents of the UNIHIKER M10 package.

3. SETUP AND FIRST USE

The UNIHIKER M10 is designed for a fast start, coming with pre-installed software and an integrated Jupyter Notebook. This allows for programming directly via a web browser on a smartphone, tablet, or computer.

3.1 Initial Connection

1. Connect the UNIHIKER M10 to your computer using the provided Type-C USB cable.

2. The device will power on and display connection information, including an IP address.

3. Open a web browser on your computer, smartphone, or tablet and enter the displayed IP address to access the integrated Jupyter Notebook environment.

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Video 1: Overview of UNIHIKER M10 features and initial connection process.

3.2 Touchscreen Interaction

The 2.8-inch touchscreen allows for direct interaction with the device, visualizing sensor data, and navigating menus. It supports touch input for various controls and displays.
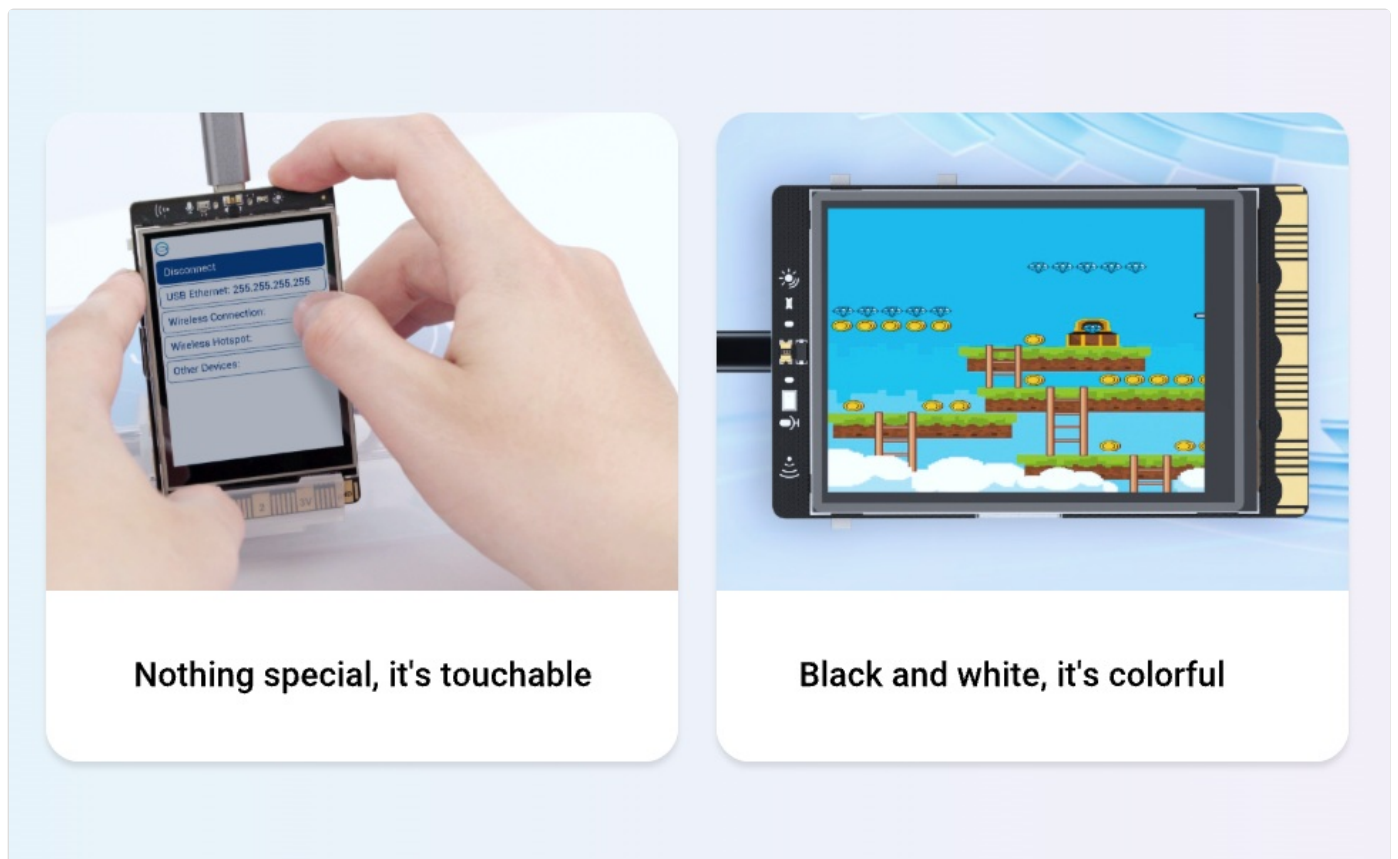
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Video 2: Demonstration of touchscreen functionality and user interface on a 2.8-inch display.

4. OPERATING INSTRUCTIONS

4.1 Programming Environment

The UNIHIKER M10 runs on a Debian-based Linux operating system, offering flexibility for various programming methods. It comes with pre-installed tools and supports popular coding software.

- **Python Programming:** Utilize the built-in PinPong library to manage connected sensors and actuators directly using Python.
- **Jupyter Notebook:** Access the integrated Jupyter Notebook for web-based programming, allowing you to write and execute Python code from any device with a browser.
- **Visual Programming:** Mind+ is supported for drag-and-drop visual programming, simplifying project development.
- **Other Software:** Compatible with popular development environments like Visual Studio Code, VIM, and Thonny.

Image 3: Connecting UNIHIKER M10 to a computer for programming via Jupyter Notebook.

4.2 IoT Service and Data Management

The integrated SIoT service facilitates data storage via the MQTT protocol and provides real-time web data access. A key advantage is on-device data storage, ensuring data security and privacy.
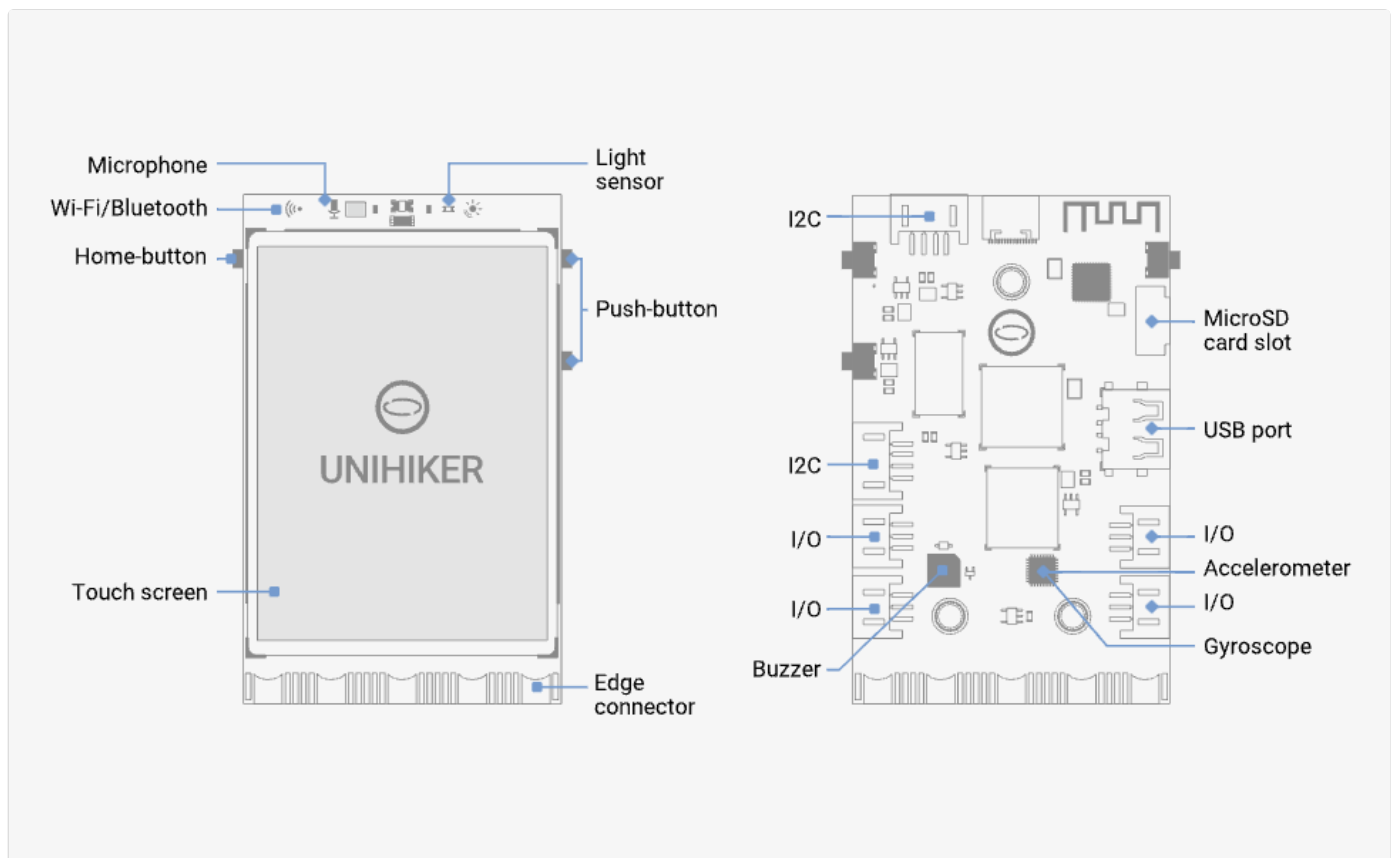
Image 4: UNIHIKER M10's built-in IoT service for data storage and access.

4.3 Sensor and Actuator Control

The versatile coprocessor supports communication with a wide range of analog, digital, I2C, UART, and SPI sensors and actuators, enabling complex interactions with the physical world.
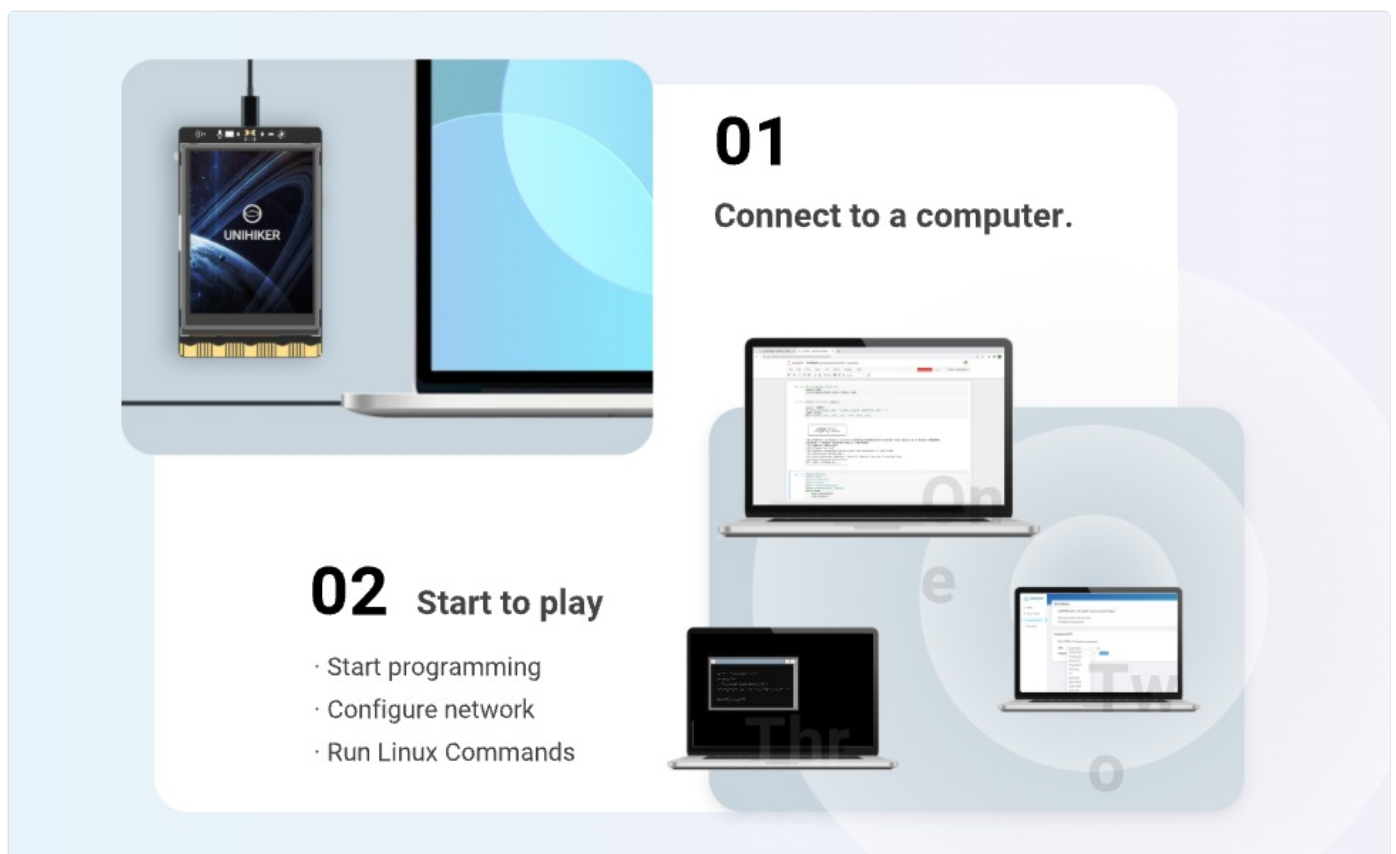

01

Connect to a computer.

02 Start to play

· Start programming
· Configure network
· Run Linux Commands

Image 5: Detailed layout of UNIHIKER M10 interfaces and onboard components.

5. EXAMPLE APPLICATIONS

The UNIHIKER M10's rich interfaces and high expandability make it a powerful tool for various projects:

- **Smart Home Systems:** Create smart speakers or central control hubs for managing smart home devices.
- **Robotics:** Integrate the UNIHIKER M10 as the AI brain for robots, enabling advanced functionalities like face detection and motion tracking.
- **Data Exploration:** Transform it into a portable instrument for collecting and visualizing data from various sensors.

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Video 3: Demonstrating AI vision models including face, cat/dog, and QR code detection on a UNIHIKER board.

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Video 4: Examples of projects that can be built with a DFRobot starter kit, showcasing various electronic components and their applications.

6. MAINTENANCE

To ensure the longevity and optimal performance of your UNIHIKER M10 AI Development Board, follow these general maintenance guidelines:

- **Keep Clean:** Regularly clean the board and screen with a soft, dry cloth. Avoid using liquids or abrasive cleaners.
- **Handle with Care:** Avoid dropping the device or exposing it to excessive force, which can damage internal components or the screen.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures. Use the provided case for protection when not in use.
- **Power Supply:** Always use a compatible power supply (Type-C USB) to prevent electrical damage.
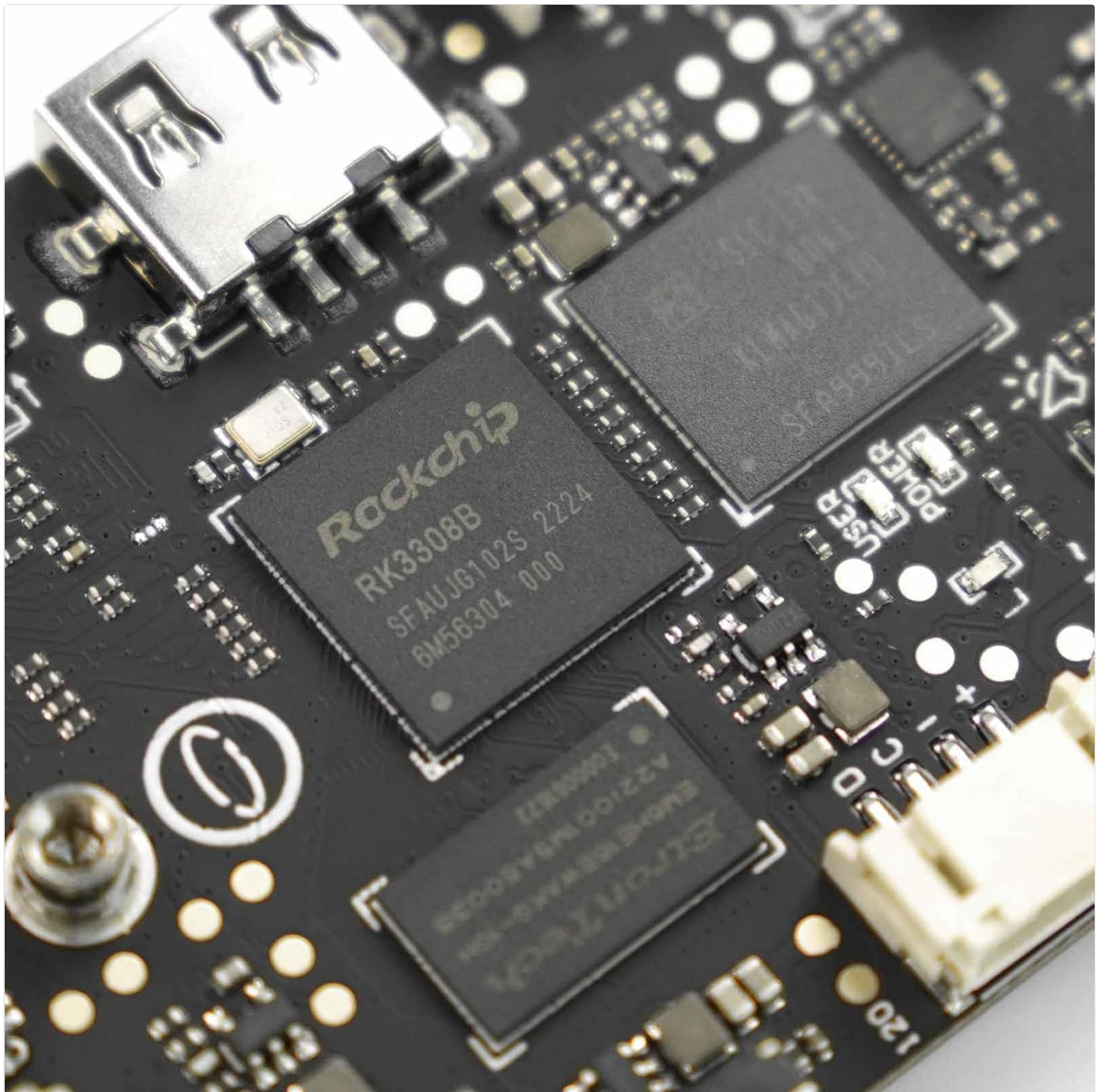
Image 6: The UNIHIKER M10 in its protective case, highlighting proper storage.

7. TROUBLESHOOTING

If you encounter issues with your UNIHIKER M10, consider the following common troubleshooting steps:

- **Device Not Powering On:** Ensure the Type-C USB cable is securely connected to both the UNIHIKER and a power source. Try a different cable or power adapter.
- **No Display:** Check the power connection. If the device powers on but the screen remains blank, try restarting the device.
- **Connection Issues (WiFi/Bluetooth):** Verify that the WiFi network is active and the password is correct. For Bluetooth, ensure the device you are trying to connect to is in pairing mode.
- **Programming Errors:** Double-check your code for syntax errors, indentation issues, or incorrect library calls. Refer to the official DFROBOT documentation or online communities for specific library usage.
- **Sensor Malfunction:** Ensure sensors are correctly wired to the appropriate pins. Check sensor documentation for proper initialization and data reading procedures.

8. TECHNICAL SPECIFICATIONS

Feature	Specification
Processor	1.2 GHz ARMv7 (4 cores)
RAM	512 MB DDR SDRAM
Memory Storage Capacity	16 GB
Display	2.8-inch Color LCD Touchscreen
Wireless Type	802.11bgn (WiFi), Bluetooth
Operating System	Debian
Item Weight	6.7 ounces
Product Dimensions	3.27 x 2.03 x 0.51 inches
Color	Black
Manufacturer	DFROBOT

9. WARRANTY AND SUPPORT

For warranty information, technical support, and additional resources, please visit the official DFROBOT website or contact their customer service. Keep your purchase receipt for warranty claims.

DFROBOT Store: Visit the DFROBOT Store on Amazon