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JMT FM225

FM225 Facial Recognition Module User Manual

Model: FM225

1. INTRODUCTION

The JMT FM225 Facial Recognition Module is an advanced 3D facial recognition camera designed for intelligent offline applications. Utilizing deep learning infrared facial recognition algorithms, this module provides highly accurate and reliable live detection capabilities, making it suitable for integration into smart homes, security monitoring systems, smart door locks, mobile vending machines, and various other fields requiring robust biometric authentication.

This manual provides comprehensive instructions for the setup, operation, maintenance, and troubleshooting of your FM225 module.

2. SAFETY INFORMATION

- Ensure the power supply meets the specified requirements (DC5.5V~9V@1A) to prevent damage to the module.
- Do not expose the module to extreme temperatures outside the working range (-20°C to +60°C) or storage range (-30°C to +70°C).
- Avoid environments with high humidity (above 93% without condensation) to prevent electrical short circuits.
- Handle the module with care to prevent physical damage. Avoid dropping or subjecting it to strong impacts.
- Do not attempt to disassemble or modify the module, as this will void the warranty and may cause malfunction.
- Keep the module away from water and other liquids.

3. PACKAGE CONTENTS (KIT A)

Upon opening the package, verify that all the following components are present:



Image: Contents of the FM225 Facial Recognition Module Kit A, including the module, a USB cable, and a set of connection wires.

- 1x FM225 Facial Recognition Module
- 1x USB Communication Cable
- 1x Set of Connection Wires (for UART/power)

4. PRODUCT OVERVIEW

The FM225 module is a compact and powerful facial recognition solution. It features dual infrared cameras for 3D depth sensing and a central infrared illuminator for reliable performance in various lighting conditions. The module supports both UART and USB communication interfaces for flexible integration.

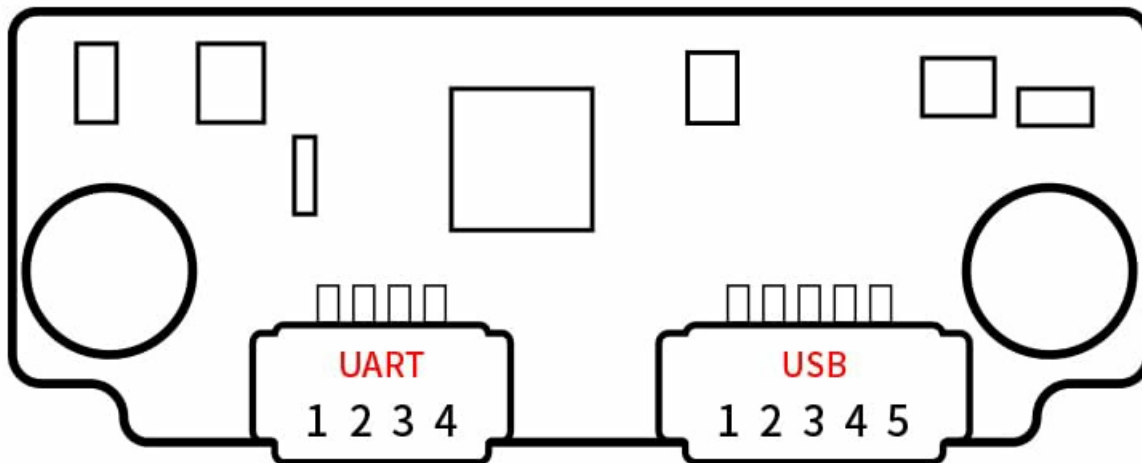


Image: Schematic diagram illustrating the UART (1-4) and USB (1-5) pin connections on the FM225 module's circuit board.

5.2 Connecting the Module

1. **Power Connection:** Connect the module to a stable DC power supply within the range of 5.5V to 9V at 1A. Ensure correct polarity.
2. **Communication Interface:**
 - **UART:** Use the provided connection wires to interface with your host system via UART. Refer to the pinout diagram for TX/RX and GND connections.
 - **USB:** Connect the module to your host system using the provided USB cable. This interface is typically used for data transfer and configuration.
3. **Mounting:** Securely mount the module in its intended location, ensuring the camera lenses have a clear, unobstructed view of the area where facial recognition will occur. Consider the optimal recognition distance (0.3m to 1.1m) and height (1.35m to 2.20m).

6. OPERATING INSTRUCTIONS

The FM225 module operates primarily through commands sent via its communication interfaces. Specific software or SDKs provided by the manufacturer are typically required for full functionality, including face enrollment and recognition.

6.1 Face Enrollment

To enroll a new face into the module's memory:

1. Ensure the module is powered on and connected to your host system.
2. Use the manufacturer's provided software or send the appropriate UART/USB commands to initiate the enrollment process.
3. Position the subject's face within the recognition distance (0.3m to 1.1m) and within the recognition angle (supports multi-angle input).
4. Follow the on-screen prompts or command responses to complete the enrollment. The module can store up to 100 facial features.

6.2 Facial Recognition

Once faces are enrolled, the module can perform recognition:

1. The module continuously scans for faces within its field of view.
2. When a face is detected, the module compares it against its stored facial features.
3. If a match is found with sufficient accuracy (98.85%), the module will output a recognition result via the chosen communication interface.
4. The module's live detection feature helps prevent recognition from photos or videos.

7. MAINTENANCE

The FM225 module requires minimal maintenance to ensure optimal performance.

- **Cleaning:** Gently wipe the camera lenses with a soft, lint-free cloth. Do not use abrasive cleaners or solvents.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Firmware Updates:** Periodically check the manufacturer's website for any available firmware updates to improve performance or add new features.

8. TROUBLESHOOTING

This section addresses common issues you might encounter with the FM225 module.

Problem	Possible Cause	Solution
Module not powering on.	Incorrect power supply voltage or current; reversed polarity; loose connection.	Verify power supply meets DC5.5V~9V@1A. Check power cable connections and polarity.
Facial recognition fails or is inaccurate.	Incorrect recognition distance/angle; poor lighting; dirty lenses; face not enrolled.	Ensure subject is within 0.3m-1.1m. Check lighting conditions. Clean camera lenses. Verify face is enrolled.
Communication issues (UART/USB).	Incorrect wiring; driver issues; incorrect baud rate/port settings.	Check pinout connections. Install necessary drivers on host system. Verify communication settings (baud rate, etc.).
Module becomes unresponsive.	Overheating; software error; power fluctuation.	Power cycle the module. Ensure adequate ventilation. Check power supply stability.

9. SPECIFICATIONS

Detailed technical specifications for the FM225 Facial Recognition Module:

Parameter	Value
Product Model	FM225
Communication Interface	UART & USB
Facial Algorithm	Deep learning infrared facial recognition algorithms
Recognition Accuracy	98.85%
Number of Faces	100 facial features
Misidentification Rate	<0.0001% (parts per million)
FAR/FRR	<1%
Recognition Distance	0.3 ~ 1.1m
Height Recognition	1.35 - 2.20m (@ 20°~23° tilt angle Left, right, up, down~20°)
Recognition Angle	Supports multi-angle facial input, expanding recognition range
Power Supply Requirement	DC5.5V ~ 9V@1A
Working Temperature	-20°C ~ +60°C
Storage Temperature	-30°C ~ +70°C
Environmental Humidity	10% ~ 93% (without condensation)
Main Board Size	40 * 15 * 10.65mm (non-integral size)
Applicable Scenarios	Smart homes, security monitoring, smart door locks, mobile vending machines, and other fields

10. WARRANTY AND SUPPORT

For warranty information, technical support, or further inquiries, please contact the manufacturer or your point of purchase. Keep your purchase receipt as proof of purchase for warranty claims.

Manufacturer: HI-LINK

Brand: JMT

For the latest documentation and software, please visit the official JMT store or HI-LINK support page.

