

Grove Reader Recognition Fingerprint Module R307

The Grove Reader Recognition Fingerprint Module R307 is a highly reliable and accurate biometric sensor designed for fingerprint recognition, identity verification, and security applications. Built with advanced optical sensing technology, this module ensures fast, stable, and secure fingerprint detection. It's ideal for access control systems, attendance management, smart locks, and embedded security projects.

With its user-friendly interface and robust performance, the R307 Fingerprint Module is perfect for both DIY electronics enthusiasts and professional developers seeking to integrate biometric authentication into their systems.



[caption id="attachment_108789" align="aligncenter" width="225"]



Grove reader Recognition Fingerprint Module

R307[/caption][caption id="attachment_108788" align="aligncenter" width="300"]

Grove reader Recognition Fingerprint Module

R307[/caption]

Advanced Optical Fingerprint Recognition

The R307 Fingerprint Sensor Module utilizes an optical fingerprint sensor that captures high-resolution images of the user's fingerprint for fast and accurate identification. It features advanced image processing algorithms that can identify unique fingerprint patterns even under varying lighting conditions or partial prints.

Key advantages include:

- **High Recognition Accuracy:** Up to 99.9% accuracy rate with anti-fake detection capability.
- **Fast Response Time:** Identifies fingerprints within milliseconds for quick access.
- **Self-Learning Function:** Automatically adjusts to different fingerprint types and skin conditions.
- **Low Error Rate:** Reduces false acceptance and rejection rates for reliable performance.

These features make the R307 module an ideal solution for secure, biometric-based control systems in industrial and personal applications.

Large Storage and Dual Mode Operation

The Grove R307 Fingerprint Module supports two primary operating modes:

1. **Fingerprint Enrollment Mode** – Used to record and store new fingerprints in the internal memory.

2. **Fingerprint Matching Mode** – Compares scanned fingerprints with stored templates to verify identity.

With a large onboard storage capacity, it can store up to 1000 individual fingerprint templates, making it suitable for multi-user environments like offices, schools, and smart access systems.

Easy Integration and Compatibility

Designed for easy integration, the R307 Fingerprint Module communicates via UART (serial interface), making it compatible with a wide range of microcontrollers and development boards such as Arduino, Raspberry Pi, ESP32, and STM32.

- **Operating Voltage:** 3.6V to 6V DC
- **Communication Interface:** UART (TTL)
- **Baud Rate:** Adjustable from 9600 to 115200bps
- **Compact Design:** Ideal for embedding into compact systems and enclosures

Thanks to its Grove interface compatibility, it offers plug-and-play functionality when used with Grove Base Shields, reducing wiring complexity and development time.

Security and Performance

The R307 Fingerprint Recognition Module includes a built-in DSP (Digital Signal Processor) that handles image acquisition, processing, and matching, ensuring stable and secure biometric data management.

Security features include:

- **Encrypted Data Transmission** between sensor and host microcontroller
- **Template-Based Verification** — No raw image storage, ensuring user privacy
- **Consistent Performance** in varying environmental conditions (humidity, temperature, lighting)

This ensures a safe and dependable fingerprint authentication experience for both embedded and standalone applications.

Wide Range of Applications

The R307 Fingerprint Module is suitable for numerous applications, including:

- **Access Control Systems:** Doors, gates, lockers, and safes
- **Attendance Systems:** Time tracking and employee verification

- **Smart Locks:** Home, office, or cabinet security solutions
- **IoT and Embedded Devices:** Secure authentication for connected devices
- **DIY and Educational Projects:** Great for learning about biometric technology

Its versatility and reliability make it a top choice for anyone building fingerprint-based security and control systems.

Benefits

- **High Recognition Speed and Accuracy**
- **Supports Up to 1000 Fingerprint Templates**
- **Compact and Easy to Integrate with Arduino or Raspberry Pi**
- **Low Power Consumption for Embedded Applications**
- **Durable Optical Sensor for Long-Term Use**

Conclusion

The Grove Reader Recognition Fingerprint Module R307 is a powerful, accurate, and user-friendly biometric sensor designed for applications that require secure and fast fingerprint recognition. With its high storage capacity, dual operation modes, and Grove compatibility, it offers an efficient solution for integrating biometric authentication into both small-scale and professional projects.

Whether you're building a smart door lock, attendance tracking system, or IoT security module, the R307 Fingerprint Module delivers high performance, reliability, and security in one compact package.

Invest in the Grove R307 Fingerprint Module today to add cutting-edge biometric identification technology to your next project — ensuring convenience, privacy, and peace of mind for users.