PRM-001

Palm Recognition Module Standard

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1. Overview

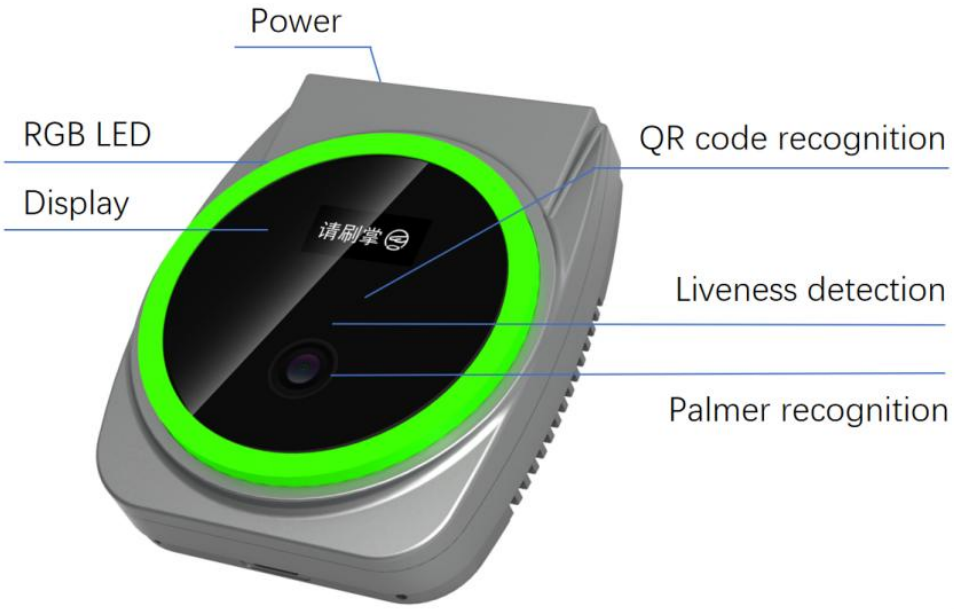
The PRM-001 Palm Recognition Module Standard completes personal biological identity authentication by comparing and identifying palm print and palm vein data with registration data, and also supports QR code recognition.

This module uses a high-performance ARM processing unit, with the characteristics of fast recognition speed, high accuracy, and anti-counterfeiting detection. It can be used in gates, access control, attendance, identity verification, highway toll stations, shops, and bus payment collection.

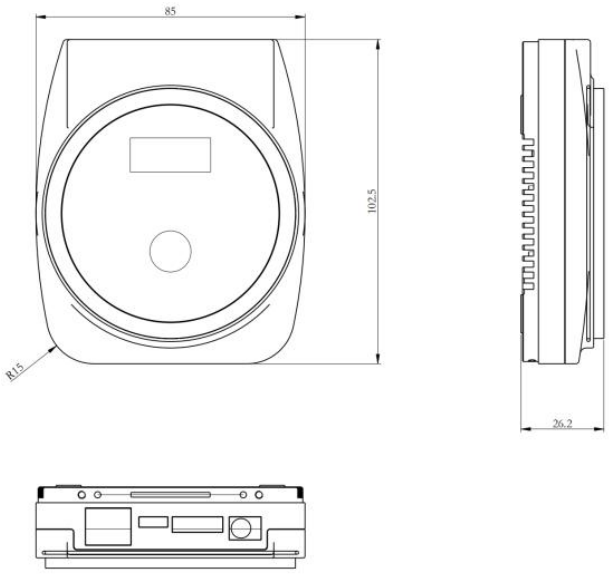
2. Appearance and composition

2.1 Overall appearance

2.2 Module composition



2.3 Dimensions



3. Module Features

- FAR (false recognition rate) is less than 1 in 100 million; FRR (rejection rate) is less than 1 in 10,000;
- Integrated quad-core GPU and high-performance NPU, palm recognition speed is less than 450ms;
- Supports up to 2GB LPDDR4 memory and 16GB EMMC storage;
- Low power consumption, non-porous design for passive heat dissipation, dust and water resistant IP54;
- High-performance palm recognition camera system, equipped with a high-performance ISP dedicated processor, has high imaging quality and high liveness detection accuracy;
- Support fast QR code scanning in 45ms (450-byte QR code), wide viewing angle image sensor scans the code;
- Support object self-sensing, object recognition, and automatic sensing fill light adjustment;
- The key chips are designed and manufactured domestically, and are independently developed and controlled;
- Security: non-contact collection; prevention of palm photo impersonation attacks; data encryption transmission, financial industry security encryption algorithm recognition;
- Simple and beautiful, the structural design is not restricted by the existing equipment structure, which greatly reduces the difficulty of equipment modification and maintenance;
- Wide range of applications: can be adapted to various types of gates and used in various scenarios.

4. Technical Parameters

4.1 Performance parameters

Item	Technical Parameters
Power supply	DC12V 30W(Max)
CPU	Quad-core 32-bit ARM Cortex-A7, RISC-V MCU, clocked up to 1.5GHz
GPU	ARM Mali-G610 MP4 quad-core
NPU	Computing performance up to 2.0TOPs
Memory & storage	Supports up to 2GB LPDDR4 memory and 16GB EMMC storage (Standard 1+8GB)
Camera	RGB+IR camera, supports fast AE exposure control
Palm recognition Function	Built-in distance detection sensor, 5cm~12cm distance range for palm swiping Supports scene recognition such as dark light and backlight, and supports 360-degree all-round recognition
Palm recognition capability	FAR (false recognition rate) is less than 1 in 100 million; FRR (rejection rate) is less than 1 in 10,000
Code reading	One-dimensional code, two-dimensional code QRCODE, DATAMATRIX, etc.
Average decoding time	35ms (300-byte QR code); 45ms (450-byte QR code)
Barcode accuracy	≥3.9 mil
Extension interface	NFC interface,4G module interface, Wifi (Optional)
Sound & light system	LED technology fill light and 3-color prompt light, support buzzer, speaker
Communication interface	RS232×1, Ethernet RJ45, USB-C multi-function interface×1, relay×1, RS485×1

Item	Technical Parameters
Firmware upgrade	Support OTA upgrade, support motherboard temperature, SOC temperature reporting
ESD Level	Contact discharge ±4KV, air discharge ±8KV
RE Level	Comply with GB 9254 CLASS B standard
Trust	MTBF: 100,000 hours, component life: more than 5 years
Work environment	Temperature: -20~50°C, humidity: 5%~90% (no condensation)
Environmental specifications	RoHS compliant
Installation	Support desktop, wall-mounted, and embedded installation
Applicable scenarios	Typical illumination range for indoor and outdoor scenes: 0-100000 lux (illuminance)

4.2 Electrical interface description