F951-Access Control Card Reader User Manual

Newcapec

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Declaration

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1. Product Introduction

1.1. Purpose and Introduction

The F951 Access Control Card Reader features a 2.8-inch high-resolution LCD screen (320 × 240) with touch-sensitive keys for easy operation. It provides voice prompts throughout standby and card-reading operations. With a built-in PSAM card for secure encryption, it supports high-security CPU card authentication and QR code scanning from both the front and back of a mobile phone for door access, making it suitable for a wide range of smart access control applications.

1.2. Product Appearance

Model: F951. The product dimensions are shown in Figure 1.



Figure 1: F951

1.3. Technical Specifications

Specification	Details
Power Supply	DC 9 – 15 V / 5 W Max.
Processor	ARM Cortex-A7 Processor
Memory	128 Mbit
Card Reading Frequency	13.56 MHz

Supported Card Types	M1, CPU, NFC, HCE
QR Code Scanning	Supports phone-to-reader and reader-to-phone scanning; supports QR codes
Keypad	12-key capacitive touch keypad
Audio	Human Voice Prompts
Display	2.8-inch IPS display; can display QR codes for mobile phone scanning to unlock the door. LED breathing indicator for card reading.
Camera	Wide-angle HD camera for QR code scanning
Communication Interface	Wiegand
External Expansion	Supports PSAM card and optional MicroSD card
Mounting	Wall-mounted; supports rear cable routing and top cable routing
Dimensions	132 × 82 × 18 mm
Operating Environment	−10° C to +50° C; avoid exposure to rain and direct sunlight.

2. Installation Instructions

2.1. Wiring Terminals

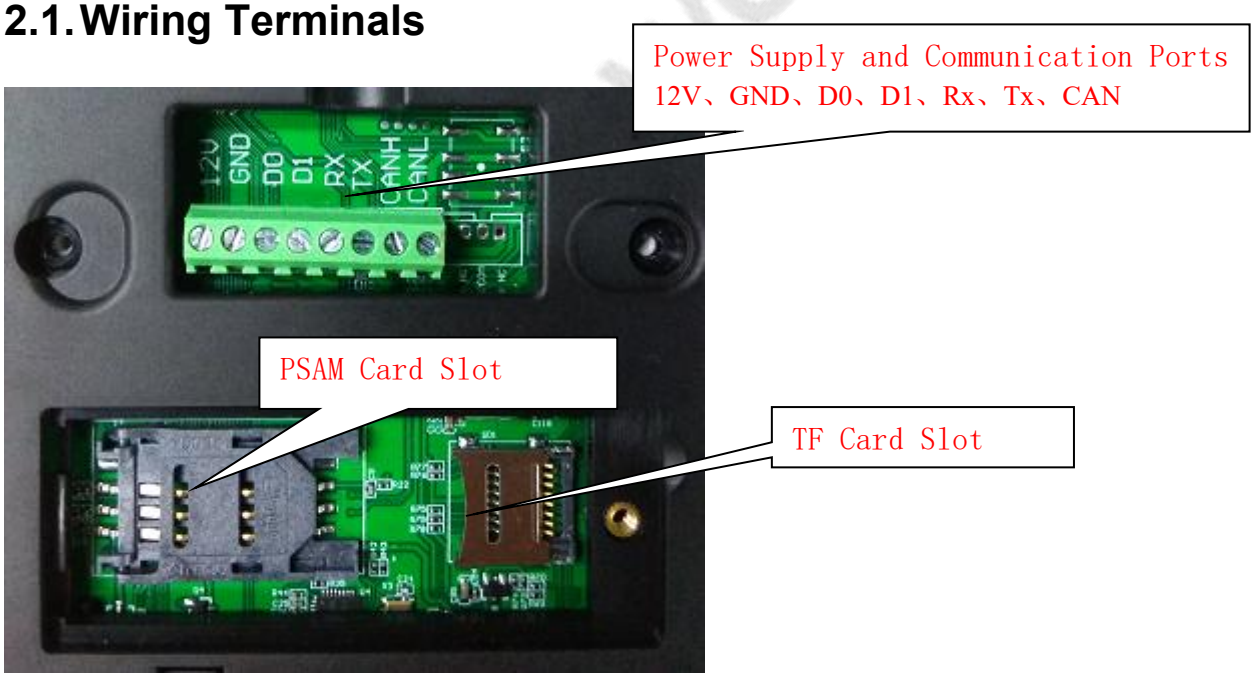


Table 2.1 – Wiring Terminal Signal Definitions

Pin Order (Left to Right)	PIN1	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7	PIN8
F951 Series	12V	GND	D0	D1	RX	TX	CANH	CANL

The wiring standards for connecting the access control card reader to the access control controller are shown in Table 2.2.

Table 2.2

Access Control Controller Terminal	Access Control Card Reader Terminal	Remarks
+12V or DC	12V	Power supply
GND	GND	Power supply
D0	D0	Wiegand signal
D1	D1	Wiegand signal
LED	RX	Command reception line for the access control card reader

Notes:

- The terminals of the access control card reader must correspond one-to-one with those of the access control controller. Take particular care to avoid reversing the power connections or connecting power wires to data terminals. All wiring must be performed with the power off. Only power on the system for commissioning after all connections have been completed and verified. Failure to follow these instructions may damage the access control card reader.
- Do not connect the 12V and GND power lines using single wires. Excessive voltage drop may prevent the access control system from operating reliably over extended periods.
- Five wires must be connected: 12V, GND, D0, D1, and RX. The RX connection is mandatory; otherwise, the card reader cannot synchronize its clock or display door access results.
- When connecting the access control card reader to controllers of other models or from other manufacturers, refer to the corresponding controller's user manual for wiring instructions.

2.2. Installation Procedure

First, determine the installation location and cable routing based on the site conditions and user preferences. Then follow the steps below to install the access control card reader.

2.2.1. Wall Mounting

Use the three mounting holes on the wall-mounting bracket to mark the drilling positions on the wall. Drill the holes using an electric drill, then insert the supplied wall plugs into

the holes. Secure the wall-mounting bracket to the wall using the supplied self-tapping screws.

2.2.2. Installation on an 86-Type Junction Box

Use M4 × 40 mm countersunk machine screws (not included) to secure the wall-mounting bracket to the pre-installed 86-type junction box.

Remove the wiring terminal from the access control card reader. Connect the wires to the terminal according to the wiring terminal signal definitions, ensuring that all connections are correct, then reinsert the terminal.

Tilt the upper part of the card reader slightly toward the mounting bracket. Slowly slide the reader upward from the bottom until it fits snugly against the bracket. Finally, tighten the M2.5 × 5 mm pan-head machine screw (supplied) at the bottom of the reader to complete the installation.

3. Product Functions and Operation

3.1. Powering On the Device

After completing the device installation as described in Section 2.3, connect the device to the power supply. The device will power on and start up automatically.

3.2. Display Screen

- Standby Mode: The screen displays the time and QR code.
- Screen Saver Mode: After a period of inactivity in standby mode, the device switches to a slideshow of landscape images.
- Sleep Mode: The LCD screen is completely turned off.
- The time intervals for entering Screen Saver Mode and Sleep Mode can be configured under the System tab.

Note:

The screen saver images and standby background image can be customized.Screen Saver Images: Images must be in .jpg format, with a resolution of 320 × 240 pixels and a file size of no more than 200 KB. Save the images to the TF card using the filenames pb1.jpg through pb7.jpg. Include only the files you wish to update.Standby Background Image: Updating this image is not recommended because it affects the layout, including

QR code positioning. If an update is required, please contact us for customization. The background image must be in .png format, with a resolution of 320 × 240 pixels and a file size of no more than 200 KB.

3.3. Device Authentication Methods

3.3.1. Card Authentication for Door Access

In standby mode, present a card directly to the reader. After a successful read, the access control card reader transmits the card's unique physical serial number to the access control controller via Wiegand 34. The controller verifies the received data and determines whether to unlock the door.

To use this function, configure the corresponding card reading level to Card Serial Number Only or Card Data Reading.

3.3.2. PIN Authentication for Door Access

In standby mode, enter the door access PIN directly. The access control card reader transmits the data to the access control controller via Wiegand 34. The controller verifies the received data and determines whether to unlock the door.

3.3.3. Reverse QR Code Scanning for Door Access

In standby mode, hold the QR code displayed on the mobile device 5–30 cm from the reader's camera. After successful scanning, the access control card reader transmits the virtual card number to the access control controller via Wiegand. The controller verifies the received data and determines whether to unlock the door.

3.3.4. Forward QR Code Scanning for Door Access

In standby mode, the F951 Access Control Card Reader displays a dynamic QR code that changes at configured time intervals. Users can scan this QR code with a mobile device to unlock the door.

After a successful scan, the platform sends authentication information directly to the access control controller. The controller verifies the information and determines whether to unlock the door.

3.4. System Settings

3.4.1. Setting the Administrator PIN

After installing the access control card reader for the first time, set an administrator PIN to prevent unauthorized operation of the device.

1) Setup Procedure: In standby mode, press Confirm to enter the System Menu, then press 1 to enter the Administrator Menu. Press 2 to scroll up or 8 to scroll down through the submenus. Locate User Management and press Confirm to enter. Select Set Operation PIN to configure the PIN.
2) The operation PIN can contain up to 10 digits (0–9). Pressing Confirm without entering any digits will clear the PIN.
3) The administrator should memorize this PIN and avoid disclosing it to others.
4) If the administrator PIN is forgotten, present a parameter card to access the settings menu and reset the PIN.

3.4.2. Card Reading Level Settings

1) The card reading level determines which information the access control card reader reads from a user card and defines the security level applied during card reading. Two levels are supported: Card Serial Number Only and Card Data Reading.
2) The factory default is Card Serial Number Only. This level supports cards compliant with the ISO/IEC 14443 Type A protocol, including S50, S70, CPU, UM-PASS, and non-standard-shaped cards. After a successful read, the card serial number is displayed and transmitted to the access control controller via Wiegand 34.
3) Card Data Reading retrieves cardholder information, primarily the cardholder's name. To enable this level, present the system card and parameter card separately. Either card can be read directly while the reader is in standby mode. After a successful read, the cardholder's name is displayed, and the card serial number is transmitted to the access control controller via Wiegand 34.
4) Setup Procedure: Go to Administrator Menu → Parameters → Card Reading Level, then select the required level.

3.4.3. Time Settings

The time can be configured under the System tab. However, manual adjustment is generally not recommended because once connected to an access control controller, the reader automatically requests the time from the controller and synchronizes it every hour thereafter.

3.4.4. Volume Settings

Volume settings are available under the System tab. Keypad sounds can only be switched On or Off, while voice prompt volume can be adjusted across seven levels.

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