F901/F921-Access Control Card Reader User Manual

Newcapec

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Declaration

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1. Product Introduction

1.1. Purpose and Introduction

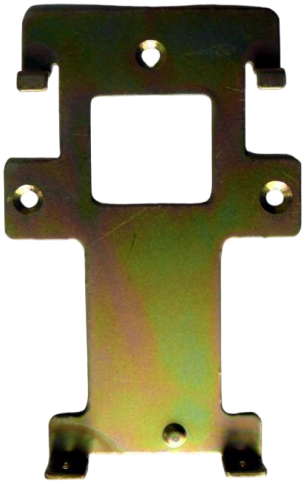
The F901 and F921 series feature a 128 × 64 OLED display and LED indicators for standby and card-reading status. They support audible buzzer prompts and keypad input for PIN verification in access control applications. The devices support 13.56 MHz card authentication compliant with the ISO/IEC 14443 standard, as well as higher-security CPU card authentication using a PSAM card.

1.2. Product Appearance

Model: F901. The product dimensions are shown in Figure 1.



F901 Series Access Control Card Reader Appearance (Front and Rear Housings)



F901 Series Access Control Card Reader Wall-Mounting Bracket

Figure 1: F901

Model: F921. The product dimensions are shown in Figure 1.



F921 Series Access Control Card Reader Appearance (Front and Rear Housings)



F921 Series Access Control Card Reader Wall-Mounting Bracket

1.3. Technical Specifications

Specification	F902	F921
Power Supply	DC 9 – 15 V	DC 9 – 15 V
Processor	Quad-Core Processor	Quad-Core Processor
Power Consumption	< 2 W	< 2 W
Card Reading Frequency	13.56 MHz	13.56 MHz
Card Reading Distance	1 – 5 cm	1 – 5 cm

Display	OLED Graphic Display + LED Indicators	OLED Graphic Display + LED Indicators
Keypad	Supported	Supported
Audio	Buzzer Prompts	Buzzer Prompts
Communication Interface	Wiegand	Wiegand
Dimensions	136 × 82 × 25 mm	136 × 82 × 23 mm
Operating Temperature	−10° C to +50° C	−10° C to +50° C
Storage Temperature	−20° C to +60° C	−20° C to +60° C

2. Installation Instructions

2.1. Wiring Terminals

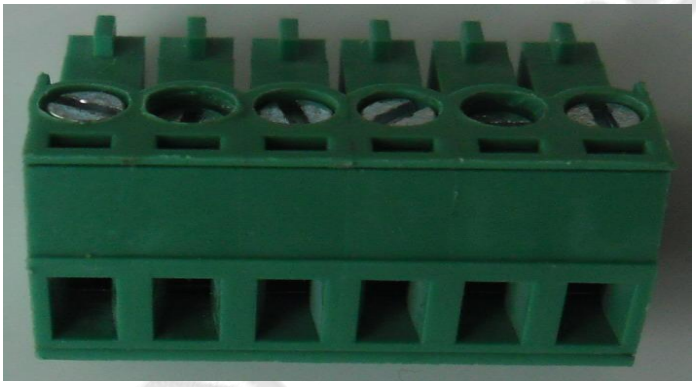


Table 2.1 – Wiring Terminal Signal Definitions

Pin Order (Left to Right)	PIN1	PIN2	PIN3	PIN4	PIN5	PIN6
F901 and F921 Series	12V	GND	D0	D1	RX	Reserved

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.
- For the F901 and F921 series, five wires must be connected: 12V, GND, D0, D1, and RX.
- 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. Operating Instructions

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

- Startup Screen: Displayed during startup. It shows information such as the software version and product serial number.
- Standby Screen 1: Displayed after a period of inactivity with no card scans or keypad input. It shows the welcome message, clock, and other information.
- Standby Screen 2: Displayed after an extended period of inactivity. This is the power-saving mode, in which the screen is turned off.
- System Menu: Press the Confirm key while Standby Screen 1 is displayed to enter this screen.
- Administrator Menu: Press the 1 key in the System Menu to enter the graphical administrator interface. Press 2 or 8 to switch between submenus.
- Card Reading Screen: Displayed after a card is successfully read. It shows “Card Read Successfully,” the card serial number (or cardholder name, depending on the reader's access level), the time, and other information.
- Registration Number Input Screen: Press any numeric key while Standby Screen 1 is displayed to enter this screen.

3.3. LED Indicator Status

- Successful Card Read: The LED flashes rapidly several times.
- Normal Operation: The LED pulses smoothly, gradually brightening and dimming in a breathing pattern.

3.4. Audio

Beep Pattern	Meaning
One beep	Startup prompt and successful card read
Two beeps	Invalid keypress (F901/F921 series)
Four beeps	Failed card read (F901/F921 series)

3.5. Keypad

Key	Function
Confirm	Press in standby mode to enter the system parameter settings menu. Press to confirm when entering a PIN or registration number.
Cancel	When entering a PIN or registration number, press to delete the last digit entered. In other screens, press to return to the previous screen.
Numeric Keys 0 – 9	Enter numeric information such as PINs or registration numbers. In the System Menu, press the corresponding number to access the associated menu.
Secondary Functions of Keys 2, 4, 6, and 8	In the Administrator Menu, press 2 to move up, 8 to move down, 4 to return to the previous menu, and 6 to enter a submenu or execute the current operation.

3.6. Product Functions and Operation

3.6.1. Card Authentication for Door Access

In standby mode, present a card directly to the reader. Once the card is read successfully, 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.

3.6.2. PIN Authentication for Door Access

In standby mode, enter the door access PIN. 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.

3.6.3. 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 must memorize this PIN and should not disclose it to others unnecessarily.
4) If the administrator PIN is forgotten, present a parameter card to access the settings menu and reset the PIN.

3.6.4. Card Reading Level Settings

The card reading level determines which information the access control card reader reads from a user card and defines the security restrictions applied during card reading. Three levels are supported : Level 0, Level 1, and Level 2. The factory default is Level 0.

1) Level 0 – Card Serial Number Only: This is the lowest security level. The reader reads only the card serial number. It 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.
2) Level 1 – Card Data Reading: This level reads card data, primarily the cardholder's name and other information. To enable this level, present the system card and parameter card separately. In standby mode, the reader can read either card directly. After a successful read, the screen displays the card type and a prompt to save the parameters. Press Confirm to save the settings. When a user card is read successfully, the cardholder's name is displayed, and the card serial number is transmitted to the access control controller via Wiegand 34.
3) Level 2 – Card Data Reading with PIN Verification: This level reads card data and requires PIN verification. To enable it, present the system card and parameter card separately. When presenting a user card, the user must enter the identity verification PIN stored on the card for authentication to succeed. After successful verification,

the reader displays the cardholder's name and transmits the card serial number to the access control controller via Wiegand 34.

4) Procedure for Setting the Card Reading Level: Open Administrator Menu → System Settings → Card Reading Level. Follow the on-screen prompts, then press Confirm to save the settings.

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