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User Manual

TW102 RS485

Contents

Chapter 1 Overview

The card reader is a kind of high-performance product, with a 32 bit high-speed processor. It communicates with access controller via either RS-485 protocol or Wiegand protocol. And a built-in tamper-proof module helps to protect card reader from malicious damage. As to the physical appearance, the PC+ABS material makes water proof and dust proof possible in poor environment.

Chapter 2 Appearance

2.1 Front View

The front view of the card reader is shown below:

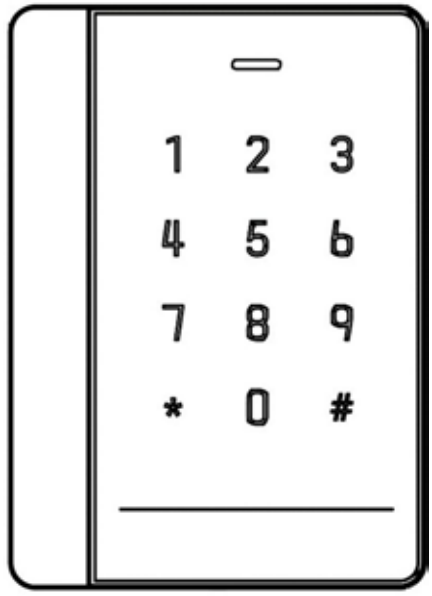

Figure 2-1 Front View

2.2 Side View

The side view of card reader is shown below:

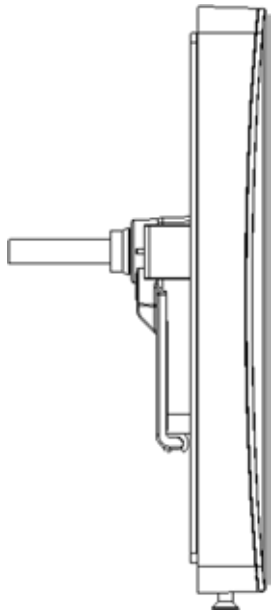

Figure 2-2 Side View

2.3 Rear View

The rear view of card reader is shown below:

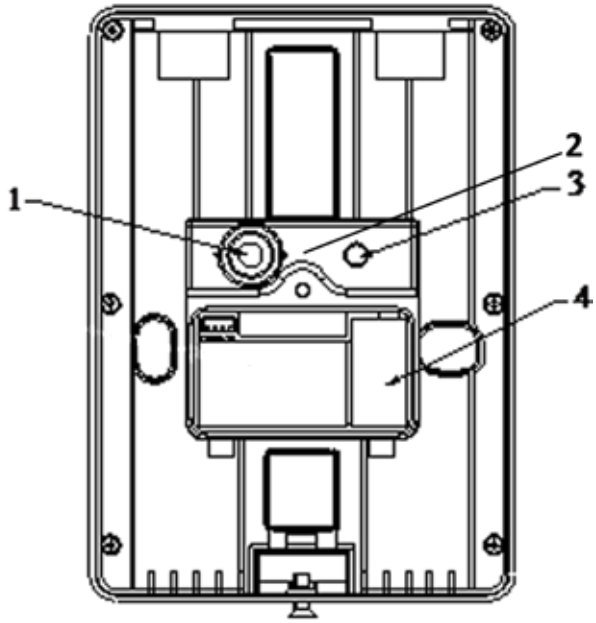

Figure 2-3 Rear View

Table 2-1 Description of Rear View

No.	Name
1	Cable Interface of RS-485, Power, LED Control, etc.
2	Buzzer
3	Tamper-proof Module
4	DIP Switch

Chapter 3 Installation

3.1 DIP Switch Description

The DIP switch module is shown below. The No. of DIP switch from left to right is 1 to 8.

When the switch is towards ON, it means the switch is enabled, otherwise, the switch is off. If you set the DIP switch like the figure displayed below, its binary value is 00001100, and its decimal value is 12.

Table 3-1 Description of DIP Switch

No.	Description	DIP Switch Status
1 to 4	Address of RS-485	1: 1 0: 0
5	Card Security	1: Enable M1 card encryption function, and disable door open via NFC card. 0: Disable M1 card encryption function, and enable door open via NFC card.
6	Wiegand protocol or RS-485 protocol.	1: Wiegand protocol 0: RS-485 protocol
7	Wiegand Protocol (available when No. 6 is 1)	1: Wiegand protocol of 26-bit 0: Wiegand protocol of 34-bit
8	Matched Resistance (available for RS-485 protocol)	1: Enable 0: Disable

3.2 Wiring Cables

Wire the cables between controller and card reader, thus to establish the communication between them.

3.2.1 Description of Cable

The description of 10 cables is shown below.

Table 3-2 Description of Cable

Color	Description
Yellow	RS-485+
Brown	Blue LED Control (available for Wiegand Protocol)
Blue	RS-485-
Purple	Beep Control (available for Wiegand Protocol)
Gray	Case Sensor (available for Wiegand Protocol)
Green	Wiegand W0 (available for Wiegand Protocol)
White	Wiegand W1 (available for Wiegand Protocol)
Black	GND
Orange	Red LED Control (available for Wiegand Protocol)
Red	PWR (DC +12V)

3.2.2 Set RS-485 Communication Mode

Steps

1. Set the DIP switch of No. 6 as 0.
2. Set the DIP switch of No. 1 ~ 5 for RS-485 address and reading card mode. For details, refers to ***DIP Switch Description*** .
3. Wire the cable between controller and card reader as shown below.

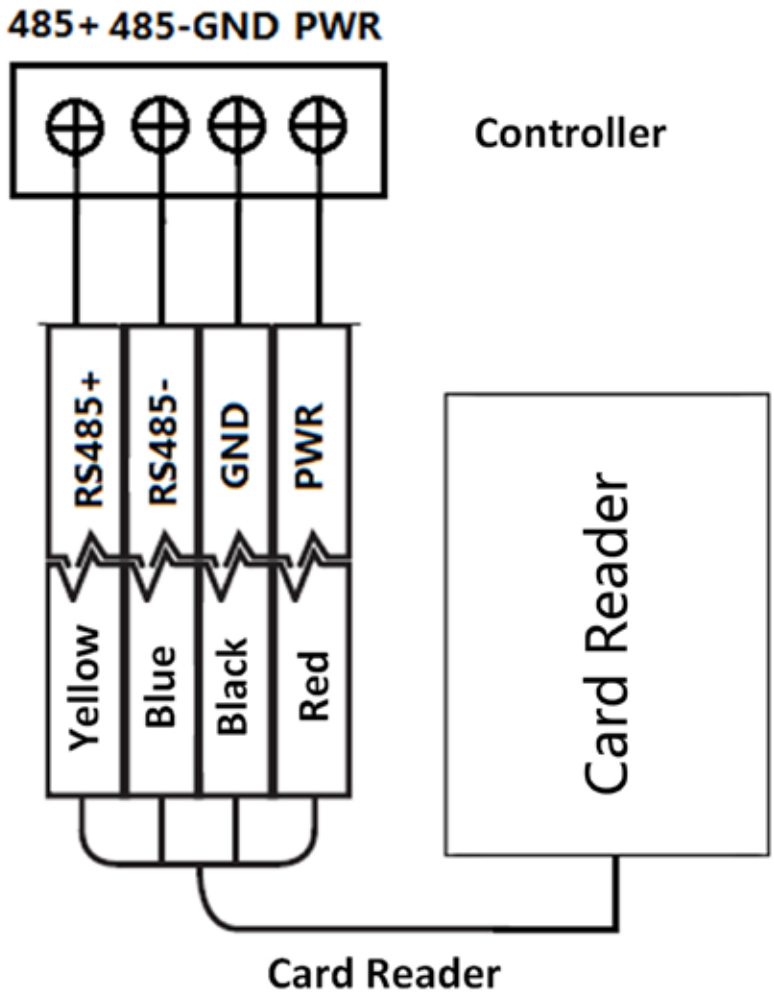

Figure 3-1 Wiring for RS-485 Communication Mode

3.2.3 Set Wiegand Communication Mode

Steps

1. Set the DIP switch of No. 6 as 1.
2. Set the DIP switch of No. 5 and 7 for reading card mode and Wiegand protocol. For details, refers to ***DIP Switch Description*** .
3. Wiring the cable between controller and card reader as shown below.

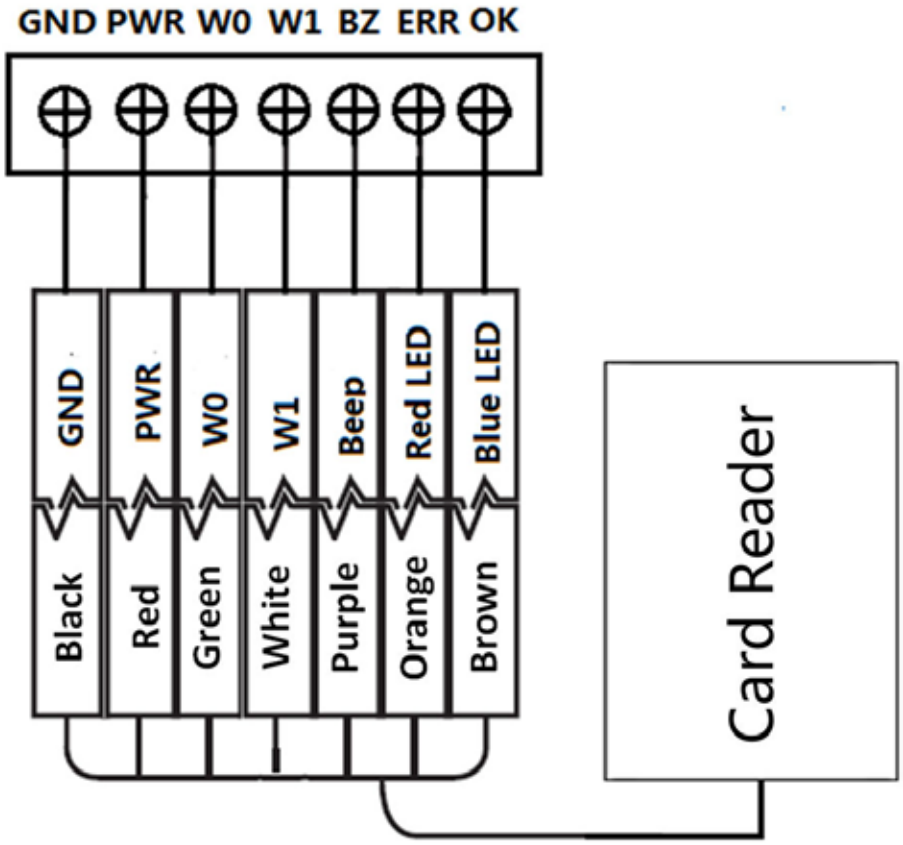

Figure 3-2 Wiring for Wiegand Communication Mode

3.3 Install Card Reader

Before You Start

Set the DIP switch. For details, refer to ***DIP Switch Description*** .

Steps

1. Fix the plate on the wall or other place.

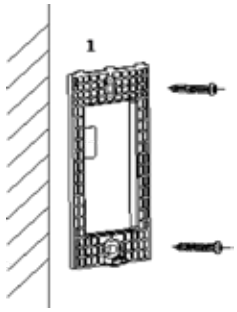

Figure 3-3 Install Mounting Plate

2. Connect the cables between controller and card reader. For details, refer to ***Wiring Cables*** .

3. Push the card reader to match the fixed plate.
4. Fasten the screw to keep the components together.

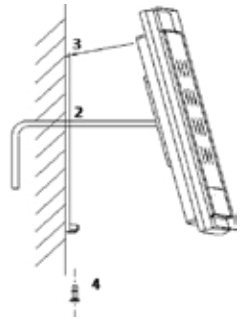

Figure 3-4 Install Device

Chapter 4 Sound Prompt and Indicator

After the card reader is powered on, LED status indicator will turn blue and blink for 1 time. Then it will turn red and flash for 3 times. At last the buzzer will send out a beep sound indicating the starting up process is completed.

When using the card reader, it will send out different sounds prompt and the LED indicator on it will have different statuses. You can refer to tables below for detailed information.

Table 4-1 Description of Prompt Sound

Sound Prompt	Description
One Beep	RS-485 protocol: Pressing keys prompt; Swiping card prompt; Time out prompt for pressing keys or swiping card. Wiegand protocol: Pressing keys prompt; Swiping card prompt.
Two Rapid Beeps	The operation of pressing keys or presenting card is valid.
Three Slow Beeps	The operation of pressing keys or presenting card is invalid.
Rapidly Continuous Beeps	Alarm of tamper-proof.
Slowly Continuous Beeps	The card reader is unencrypted.

Table 4-2 Description of LED Switch

LED Indicator Status	Description
Flashing Green	Card Reader is working normally.
Solid Green	The operation of pressing keys or presenting card is valid.
Solid Red	The operation of pressing keys or presenting card is invalid.
Flashing Red	For RS-485 protocol: Registering failed or card reader is offline. Failed to get key files of PSAM card; Failed to detect the PSAM card.
Rapid Flashing Red	Available for reading file mode of CPU card: PSAM is not inserted or undetected.

Appendix A. Preventive and Cautionary Tips

To guarantee the card reader works properly, please read and obey the notes below.

- If the card reader is powered by the controller, the power supply distance is recommended to be no longer than 100m. If the distance is longer than 100 m, you are advised to power the card reader by external 12 V (range: -%10 to +%10) DC power supply, which is non-switched and linear.
- To guarantee the communication between the controller and the card reader, you must use RVVP cable above 0.5 to connect them.
- If the card reader is installed outside or in environment easy to permeable, it is advisable to install a waterproof shield.
- If you need to install several card readers, the distance among them must over 30 cm.
- To reduce the noise in long distance transmission, the shield of cable should connect to the GND of both controller and card reader terminal.
- Please take care of your card and report card loss in time when card is lost.
- If you require a higher security level, use multiple authentication modes.
- Multiple card types are supported. Please select an appropriate card type according to the card performance and the usage scenarios.