Contents

1. KR300 Profile

Profile:

Double frequency product KR300 card reader (125KHz and 13.56MHz Card Reader), introduction of foreign core technology update and new production processes, completely independent intellectual property rights, small power consumption, high sensitivity, far reading distance, high performance, low price, anti-interference, strong stability, mainly used in smart parking, access channel management, access control and so on industries, built-in receiving antenna, standard operate frequency 125KHz and 13.56MHz, the use of contactless radio frequency ID cards with EM format and IC series Mifare cards.

Features:

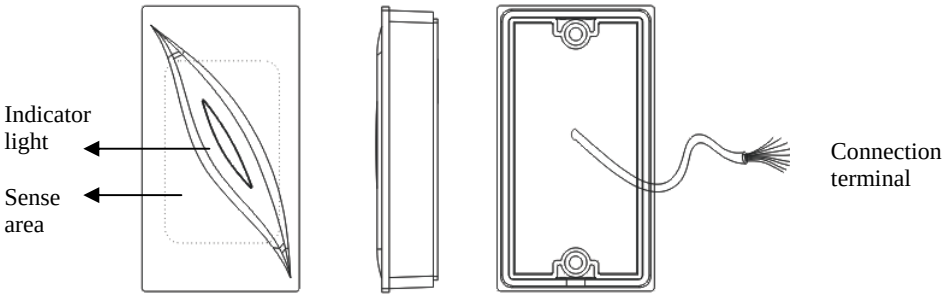
- Double frequency design, support ID cards and Mifare cards together
- A variety of communication interfaces, ID card has interfaces of Wiegand 26, Wiegand 34. Mifare card has interfaces of Wiegand 26, Wiegand 34, RS232. Wiegand 26 or Wiegand 34 can be set by the control system of Wiegand reader, and the default setting is Wiegand G26. The Wiegand data format of card reader can also be set by the control system of Wiegand reader.
- Support to output the serial number of card, at the same time also do read and write operations for Mifare cards.

- Small size, lightweight and compact appearance.
- Red light, green light, the buzzer with external control interfaces.
- Since using epoxy resins to seal completely, interferences of severe environment can be reduced to the minimum.

Technical parameters

- Operate frequency of built-in receiving antenna: ID as standard 125KHz and Mifare as standard 13.56MHz
- Read response speed: less than 0.2s
- Power supply specification: +DC12V
- Operate current: 100MA
- Appearance size: 77.5 *43.5* 16MM (L * W * H)
- Supported cards: ID cards and Mifare cards
- Read distance: greater than 3CM (The distance is varied with the card)
- Communication distance: RS232 is greater than 10 meters, and Wiegand is greater than 50 meters
- Operate temperature: -10℃～+75℃ (low temperature and high temperature may affect the product, if performance changed, it will restore naturally after temperature recovery)

2. Appearance



Front View Side View Back View

Indicator status: when power on, the buzzer will have a prompt sound of 'di', indicating the complete initialization, at the same time the red light will be lighted up; When brushing the card, the buzzer will have a prompt sound of 'di', at the same time the red light is off, later the green light will flash once; when in standby, the red light will be constant on.

Sense area: sense area of card.

Connection terminal definitions:

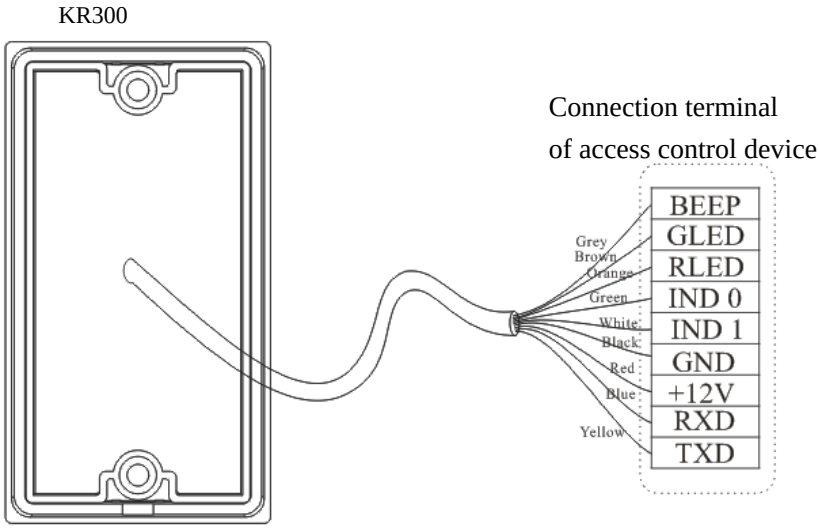
Type	**Cable color and definition**	**Function**
Power connection	Red（DC+12V）	DC+12V
	Black（GND）	Ground cable
Wiegand connection	Green（WD0）	Output Wiegand data 0 signal
	White（WD1）	Output Wiegand data 1 signal
	Black（GND）	Ground cable
	Yellow（TXD）	Send RS232, and receive the

RS232 connection		opponent's RXD
	Blue（RXD）	Receive RS232, and receive the opponent's TXD
	Black（GND）	Ground cable
Red light	Brown	The control cable of red light, which is off when low level and on when high level
Green light	Orange	The control cable of green light, which is on when low level and off when high level.
Buzzer	Grey	The control cable of buzzer, which will buzz when low level and stop buzzing when high level.

Note: The black Ground cable is in common in this table.

3. Connection with access controller

KR300 as a card reader, it can not work by itself, only can connect with the access controller or access control device to provide a front-end to identify cards. As below shown (when connection, please refer to connection terminal definitions):



3.1 RS232 Communication

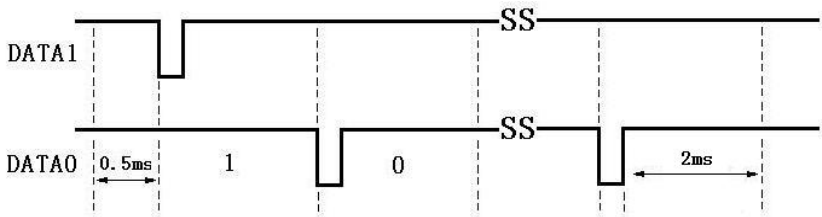
RS232 Communication can be used to connect the computer to set the parameters of card reader by the control system of Wiegand reader and can not be used to connect the access control software in PC to enroll cards etc. operations. The detailed operation about card enrollment, please refer to the corresponding document of access control device.

Note: When ID cards in card-reading area, the reader can output the ID card numbers through Wiegand; when Mifare card is in card-reading area, the reader can output the card number through Wiegand and can output four-byte card number through RS232 at the same time. And more, the card reader will enter into the bidirectional RS232 communication status automatically. In reverse, if no Mifare card is in card-reading area, the reader can not do RS232 communication which is only effective for Mifare cards

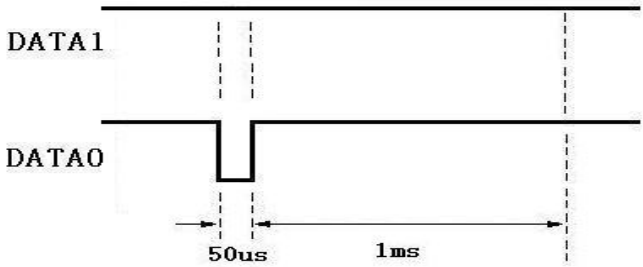
3.2 Wiegand communication

KR300 card reader can provide a standard or self-defined Wiegand signal for access controller. The connection method is the same as the other card readers.

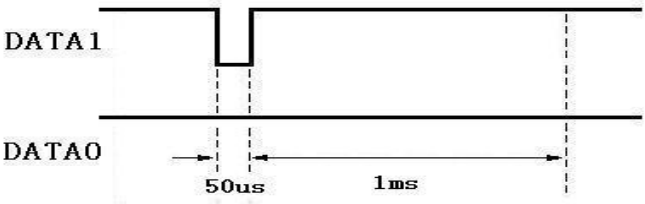
Time sequence diagram of Wiegand code



0 status wave



1 status wave



4. ID/Mifare card operations

The special card reader module of contactless RF ID card: the read distance is from 5cm to 8cm, and the supported cards are D cards of thin cards (0.88mm), thick and thin cards (1.05mm), thick cards (1.88mm) with the operate frequency as 125KHz.

The special card reader module of contactless RF Mifare card: the read distance is from 3cm to 5cm, and the supported cards are the contactless intelligent Mifare cards with the operate frequency as 13.56MHz.

Enroll cards through access control device, please refer to the relevant document about access control device.

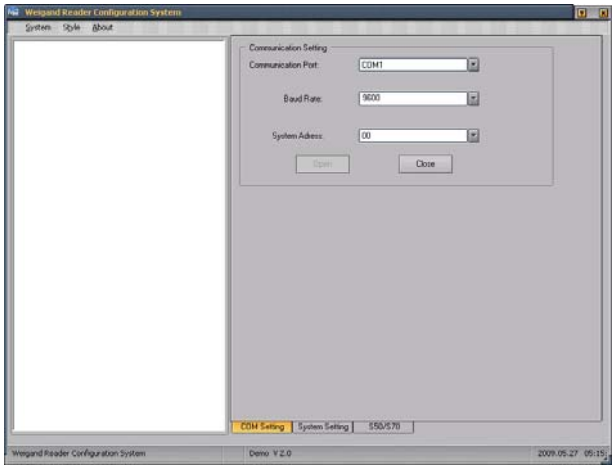
Note: The read distance is impact slightly by the installation environments such as a large area of mental, interferences of strong and low frequency signals, so it should be far away from the interference sources.

5. Parameter settings of card reader

The parameters of KR300 card reader can be read and set by the control system of Wiegand reader. The control system of Wiegand reader can set the baud rate of RS232 communication, Wiegand model, Wiegand control, as well as Settings about Mifare card. When setting for Mifare card, please place Mifare card on the effective sense area of card reader till the complete setting, otherwise the invalid operation.

The operations about the control system of Wiegand reader:

Open  EN KR300.exe directly, the following window is displayed:



The software window is divided into two parts: the left is to display read and write status, and the right is to display three operational windows of COM setting, System setting, and S50/S70. Three operational windows

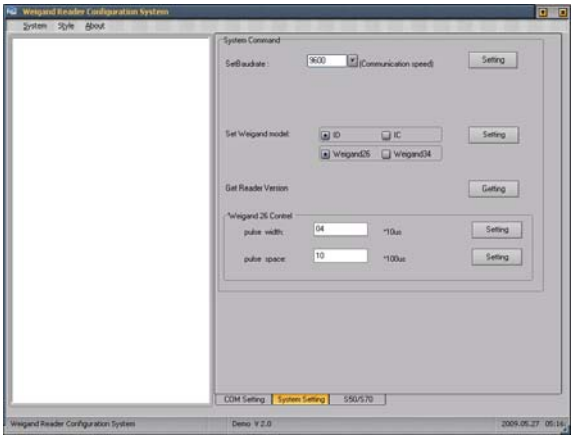
are switched by three corresponding buttons at the bottom.

COM debugging assistant

Before connecting the card reader, the parameters in this window should be set well, that is, the handshake protocol. As above shown, this window consists of three parameters: communication port, baud rate, system address. Select the corresponding data according to the actual situation. In general, it is as the default state, that is, the communication port to COM1 and the baud rate 115200 selected.

System command

This window is used to set baud rate, set Wiegand model, get reader version, and set Wiegand 26 control.



Set baud rate: set the baud rate of RS232 communication between card reader and host. This baud rate will be stored into EEPROM as newly default baud rate. After setting successfully, the card reader will use new baud rate immediately. There are five options of 9600, 19200, 38400, 57600, 115200 when clicking the drop-down list. The communication

speed is varied with the set value. Since high speed when high value, the default baud rate is as 115200. Press the setting button to apply, then the left window of read and write status will display the communication process.

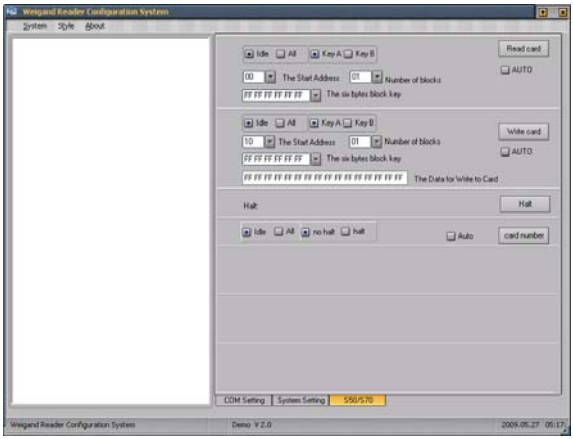
Wiegand model: set the Wiegand output format of card reader. It consists of ID, Mifare, Wiegand 26, Wiegand 34.

Wiegand26 control: set the falling edge's width of Wiegand data's each bit and the rising edge's width among bits. The default data setting of effective low level is as 50us and the data space is as 1MS.

Get reader version: get the version number of reader.

S50/S70

This window is used to do operations for the cards. It consists of read card, write card, and card number.



Read card: it includes the access model control (Idle and All, KeyA and KeyB), number of blocks (that is the number of blocks to be read, the range is 01-04), the start address of the blocks to be read (the range: hex

00-3F, that is, from 00 block to 63 blocks), the six bytes block key. This operation can be set as ‘Auto’.

Write card: it includes the access model control (Idle and All, KeyA and KeyB), number of blocks (that is the number of block to be written, the value range is 01-04), the start address of the blocks to be written (the range: hex 00-3F, that is, from 00 block to 63 blocks), the six bytes block key, the data for write to the card. This operation can be set as ‘Auto’.

Card number: the modes to search card includes the idle model (one time do operations for only a card) and the all mode (one time do operations for several cards). Halt is the sign to do operation for card. No Halt is the sign not to do operation for card. When the card is done by the Halt operation already, system can not finish searching card under Idle mode. While under All mode, Halt don’t affect the card operation and system can search card. The above operation, please make sure the card is always operated in the antenna range.

The left window of read and write status displays the card numbers and the communication process.