HKRUR-3083

FRID long distance electronic tag reader

Instruction   Catalog

Catalogue

Federal Communications Commission (FCC) Statement

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment .

FCC- Class B
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Statement

To maintain compliance with FCC's RF exposre guidlines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body: Use only the supplied antenna

1. Brief instruction of HKRUR-3083 Reader

The products can be compatible with multi-protocol, small volume, quickly read and multi-tag identification.,the round- polar antenna is no limit of direction for tag, water proof, Meanwhile, it can be used widely in RFID systems, the mainly applying sites are

² Logistics and warehouse Management: goods flow, warehouse management, and the flowing management of mail, parcel, and luggage.
² Intelligent parking Management :Parking management and automatic charge
² Productive lines Management:Production process fixed identication
² Product counterfeit-proof inspection: Using memorizer's write-protect functions inside tags to identify true-false of products
² Other fields: widely used in club management,library,student'school,consumption management,time management,dinner management and pool management

1 1   The use of HKRUR-3083 Reader

It can be used for goods identification and data collection,,specially used widely in the following areas with its speciiality.
² Transportation management: road and ,railway transportation management and container transportation management and so on .
² Motor vehicles management: use it to police station and transport department supervise and manage the motor vehicles
² Road and bridge charge: as the product is able to read the tag data quickly in long distance, ,road rate and bridge can be charged without stopping. Vehicles.
² Customs management: the management for goods to pass and transit the customs and vehicles.
² Logistics and warehouse Management:Goods flow,warehouse management,and the flowing management of mail,parcel,luggage.
² Parking management:in order to make management and charge autoautomatic
² Doors control management:including vehicles and people to pass in and out management.
² Craftworkm anufacture flow::supervise parts in the whole manafacture flow.

1 2 The main function of HKRUR-3083 Reader

1) Awaken the tag. :only the tags that be awakend can communicate with the reader and prevent the disturb of those tags out of the system thereby confirm the credibility   and nicety of the exchange information between the reader and the tag of the system.
2) Read the tag data   not only can it read the ID NO.of the tag,but also the data of the appointed tag storage area; not only can it read the single tag data,but also multi-tag data of the antenna wave synchronously.
3) Real-in tag data:it can read-in data to the appointed tag storage area.
4) It can connect with the control equipment with standard W26 or W34 interface without

exploitation,, therefore convenient for use..

5) Connect the controller of PC machine through the communication interface to process the data communication and exchange, and to provide SDK exploitation bag,, so as to make customers exploit for use again.

1 3. technology parameter of the HKRUR-3083

1 Operation frequency: China standard 920~925MHz ,FCCstandard903~927MHz)or order other frequency band to work in jumping frequency appointed frequency..

2 Card-reading distance: identify distance and adjust range:1 6 meters.

3)Card-reading sense.twin pole mode technology

4)Card-reading time:single tag 64ID no. 6ms

5)Operation voltage:DC+9V

6)Operation temperature: 20 +80

7)Storage temperature: 40 +85

2 The confifuration and interface instruction of HKRUR-3083 Reader

2 1 Every part of reader instruction

derivation

Stationary barrier

Derivation line
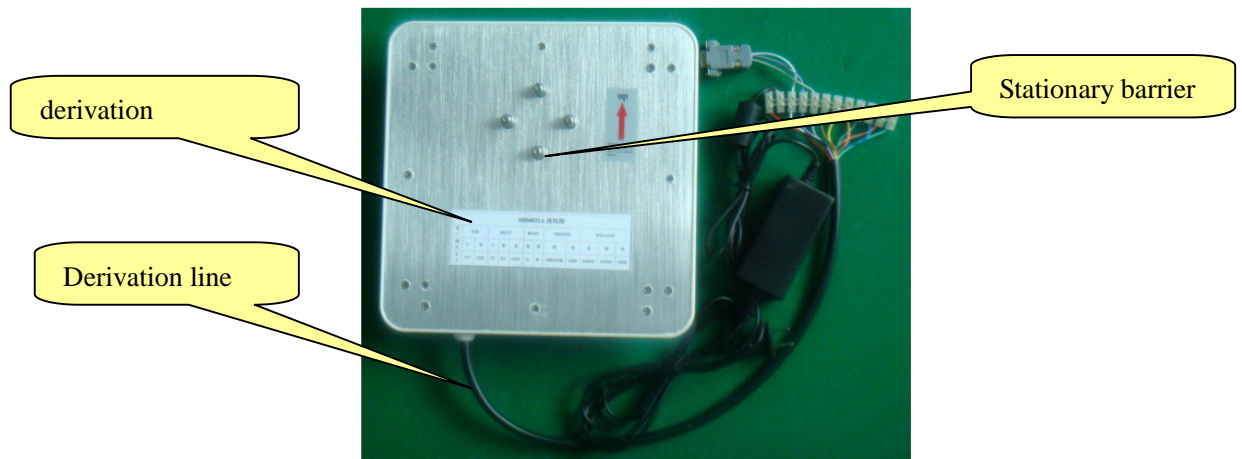
2 configuration instruction pf HKRUR-3083

The hookup of HKRUR-3083											
Interface	Power		RS232			RS485		TRIGGER		WIEGAND	
Colour	red	black	whihte	purple	gray	brown	yellow	orange	green	blue	pink	green

Define	+9V	GNE	TX	RX	GND	A+	B-	TRIGGER	GND	DATA0	DATA1	GND

2 2 Port explain

2.2.1 RS232

The reader provide RS232 communication interface for cooncting communication with control nainframe((commonly the PC machine),the data format of the RS232 interface is   8 data bits, a star bit and a stop bit, without parity bit; 9600   19200   38400   57600 and 115200 are the choices for data modulus..RS232 communication interface support   the fitting parameter ,demonstration program, all the second exploitation   bag function of the single communication of the reader.

2.2.2 RS485

MR series provide RS485 communication interface,, which can connect with interface of the PC machine, in the condition of using RS232,RS485 changer for changing,,RS485 interface supports all functions that KS232 supports,besides,KS485 a interface for tag data output, when using theRS485 to upload tag data,,it can choose three kins of modes for transmission.

Initiative uploading: Upload data immediately when reader reads the tag.

Passivity uploading: It doesn't upload data when treader reads the tag,but wait until the mainframe to fetch data.

Reaponsion transmission: After reader reads aon tag, it will upload data repeatedlyuntil receives the response velemen from the mainframe t

How RS485 uploads data format is like the following tables:

frame head	address	address	entenna	Tag data	frame stern	checkout
0x02	High byte	Low byte	One byte	octor ASCII	0x03	One byte

Thereinto,the method of checkout is for the difference checkoutt   of all the frontal bytes

The mainframe to get the orderframe format of data is like the following table showing:

Rame head	Identification	module	address	Order No.	framestern
0x09	0x5B	One byte	One byte	0x83	0x0D

The mainframe to get the response   frame is like the following table showing:

frame	identification	module	address	Oreer NO.	frame stern
0x09	0x5B	One byte	One byte	0x82	0x0D

2.2.3 Wiegand interface

Reader supply one Wiegand data interface,users can choose Wiegand26 or Wiegand34 communication agreement,the data format of these two kinds of agreement is like the following table showing:

Table one Wiegand26 format

P0	The formal 12 digits	The latter 12 digits	P1

Thereinto," P0"   is the even of the formal 12 digits," P1"   is the odd of the latter 12 digits

P0	The formal 16 digits	The latter 16 digits	P1

Thereinto," P0"   is the even of the formal 16digits," P1"   is the odd of the   latter 16 digits

Wiegand interface is composed of 3 lines, the negative pulse of the first line indicates

"0″,anothere line indicates" 1″,and the third one is "GND″. The typical format of every data is like the following picture showing., Of course, users can settle the data formal of the Wiegand interface according the special demand of the controller machine

In order to improve the of the reliability of data transmission ,the reader supply multi-transmission function, namely when reading one tag,the Wiegand interface will be multi-transmission in interval   in some time. T he transmission tomes can be 1 to 3, The transmission interval can be settled when display software.

2 3   Tag operation

2 3 1   ISO18000-6B tag

² Multi-tag identification   search all the tags in the rang of antenna radicalization and read their octet UID
² Multi-tag reading   search all the tagsin the rang of antenna radicalization and read the octet data from the beginning of the appointed address
² Single tag writing   write data of one tag at the appointed tag address
² Single tag locking   lockdown the data of the appointed tag address. After that , it won't be overwritted
² Inquire   about the Single tag locking :inquire about the locking state of the appointed address.

2 3 2 EPC GEN2   ISO18000-6C   tag

² Multi-tag   identification: search all the tags in the rang of antenna radicalization and read their EPC, the longest of   EPC of EPCGENZ can reach 256 digits, now support 96 digits.
² Single tag initialization   define the EPC longness of the tag, popularly 96 digits.
² Single tag writing   read-in the EPC of the tag, one piece(16 digits)one time.
² Single tag locking   lock down the EPC of the tag after that, the EPC of the tag can't be overwritted.
² Single tag destroying   destroy tag, after that ,the tag can't be used again

2 4   Reader Work mode

2 4 1 Command read: in this work mode, reader works under the control of PC or other controller Reader can controller can communicate through RS232,RS485or one of the big net interfaces This kind of working support all the function that the second exploitation bag supplies.
2 4 2 timing read : reader reads card in some cycle(can be settled),the data be read can be output

through appointed communication interface. This mode is only for reading to the tag operation.

2 4 3overwrite working((TRIGGER READ when the touching off port inputs low voltage, ,reader begins to read card in cycle ,and shut off in a period of time.

2 5 Interfacing identification:

Interfacing identification is designed for reducing the prolixity of the data that reader uploads. If choosing the function ,reader will only upload a set of data when reader reads the same card in multi-connection. Namely that if the interval time of interfacing reading two time exceeds the effective time,reader won't process interfacing identification. So users should choose it according special demand..

3 The fitting of HKRUR-3083 reader

Our company provide Config exe programs for the fitting of the working parameter of the reader ,the parameter fitting program is like the following picture
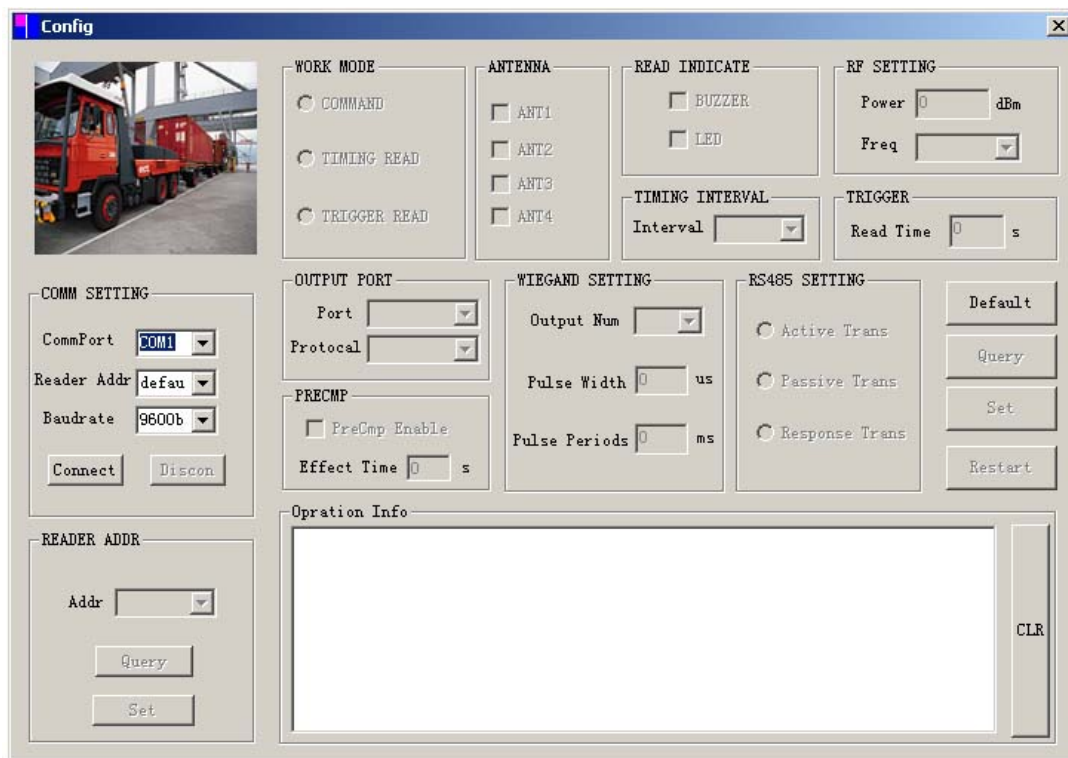

5 fitting software interface

3 1 COM setting

Interface setting includes interface choice, band rate setting and address choice of reader. The address of reader is from 1to 240.Only choosing the right address, can reader establishes communication. Besides,, you can choose ¡°defaut¡± which is fit for all reader, after clicking ¡°Connect¡±button ,PC and reader establish communication connecting.

After software and reader connecting, ,it reads the present working parameter of reader at once automatically .Interface after connecting is like the following picture indicated:
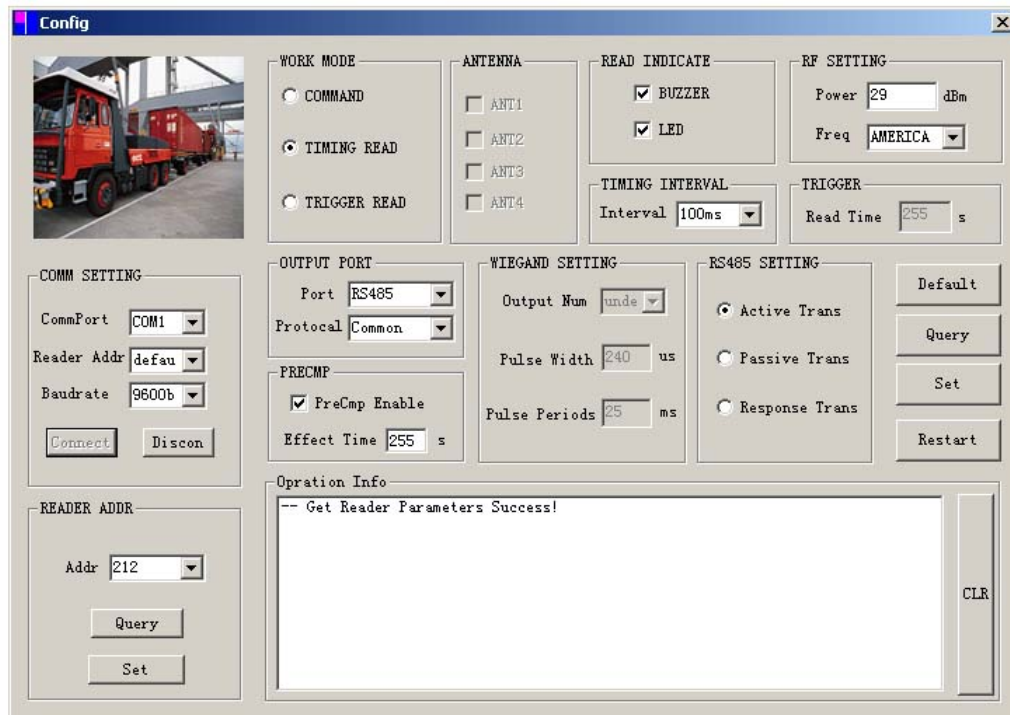
6　setting interface

Reader address rejigger

7　setting interface

If you want to amend the address of the reader, you can choose the new address under the frame of the amending address column of the reader ,then click the ¡°set¡± button. The new address will bu effective when reader reposition

work mode choice
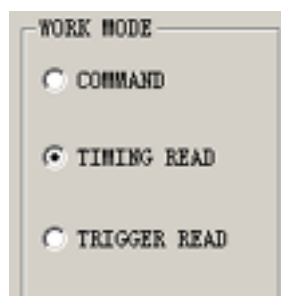
setting interface

Users can configure the work mode of the reader through single choosing frame.. when　choosing the command ,reader can set radio frequency parameter and antenna　(multicenter maching style)

at the same time, and other part become gray.. when choosing timing or touching off mode Reader can set the parameter of radio frequency timer and communication interface. If choosing touching off mode, ,it can set the parameter of the trigger. We will describe them one by on as the following.

setting interface

Users can set the power and frequency of the radio frequency according application need. The largest power parameter can be 30dBm.You can choose China standard(920MHZ~925MHZ) or FCC(902MHZ~928MHZ)as the frequency of radio frequency, other frequency bands need customize.

antenna setting

When using multicenter readers, you can choose antenna,, Choosing the corresponding antenna in the check box means antenna invocation.

Read indicate

Buzzer and LED are optinal, for reader to choose,users can choose them according to demand.

Timing interval

this frame includes setting the frequency of reading tag(namely setting time for cycle reading) and the interfacing identification. Setting time for cycle reading can be 10ms`1000ms.Users can choose interfacing identification and set the effective time for interfacing identification .If no need of setting effective time, fill in ¡0¡instead.

Communication out port parameter setting

Setting data out of communication pork and other agreement .When choosing RS485 communication agreement, Syns agreement and common transmission agreement are optional. The format of common transmission agreements are like the predescription.. Please make reference to the Syns controller information about Syns agreement.
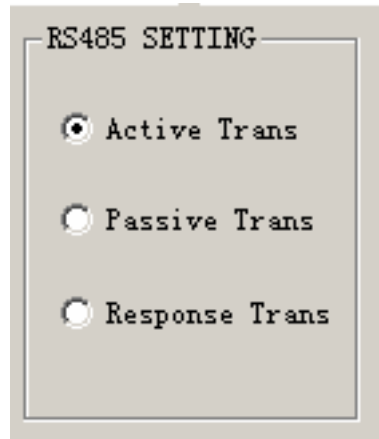
Wiegand setting:

When choosing Wiegand interface ,you can choose Wiegand26 or Wiegand34 agreement.
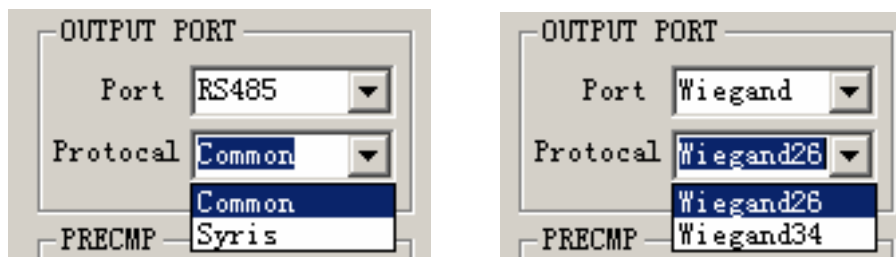
Picture 10 interface setting

RS485 setting

Interface setting

This frame is used for setting the Wiegand interface parameter, ,Include Wiegand output times and signal format. Wiegand signal format needs setting Wiegand pulse breath(means low impulse breath)and code element cycle(means the time of a bit data)

After every function choosing, click¡¢SET¡±button The successful setting parameter will be effective when reader repositions. Suers can click¡¢Restar¡±button to make reader reposition. Fourth The fitting of HKRUR-3083 Readerf

4.Fitting modes of the reader

4 1 Reader Fitting modes
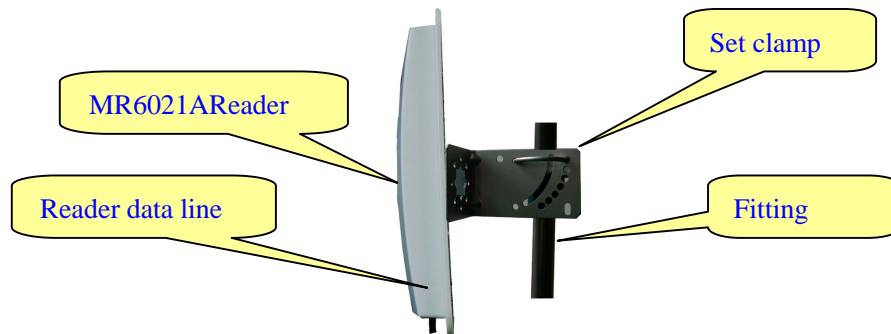
Skatch map of fitting effect

There are two kind of modes that HKRUR-3083 crutch fitting: ¡¢frank fitting that like the figure 1¡± and ¡¢crutch fitting like the shape of letter L¡±like the following picture indicatedThey can bo choosen according to the application nedd and locale practice..generally,The reading distance of frank fitting is nearer,but ffitted simply,while crutch fitting farrer but complex.

HKRUR-3083Reader   HKRUR-3083 Reader

Frank fitting like the figure 1   crutch fitting like the letterL

The fitting modes of the reader
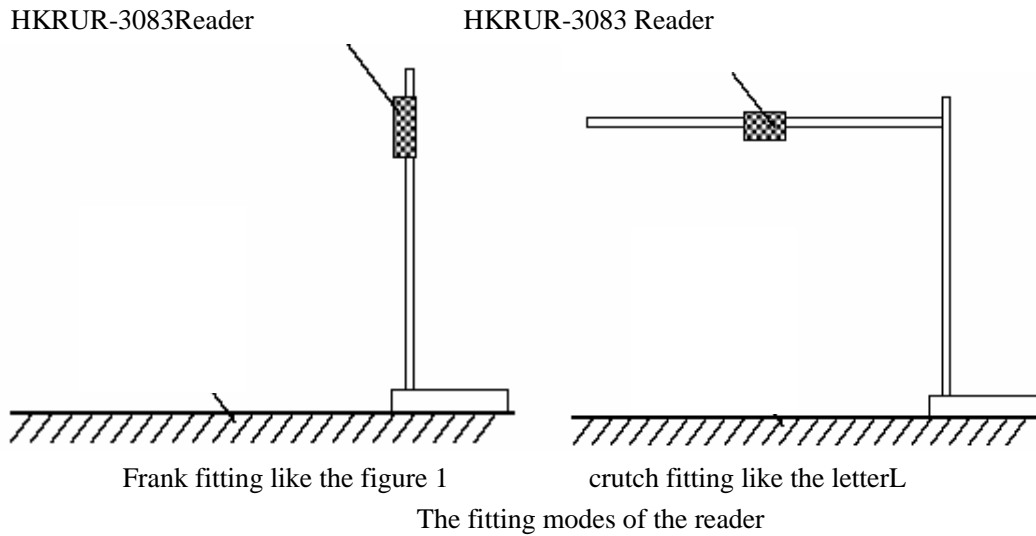
4 2 the fixation and height adjustment of the reader

When frank fitting ,it demands that the crutch dia.of the reader 50 to 60mm while length2.2m Using stain steel material that more than 1.3m thick is the best choice. Fix the reader to the top of the crutch with the self-provided fastening pin in the casing of HKRUR-3083 reader .Adjust the height from the center of HKRUR-3083 reader to the level of carriage way, according to the vehicle style(mainly indicates the oversize vehicle and landauter), generally about 2.0m(from 1.2m to 2.2m)

When crutch top fitting like the shape of letter L,it demands the dia. of L shape (or dragon-door shape) crutch is from 60 to 80mm,while rail dia.60 to 60mm.It is best to sue stain steel material that more than 12 to 20mm thick. Fix the HKRUR-3083 reader to the rail that near the middle carriage drive. The height that the rail to the ground is needed to adjust from 3.5m to 4.0m,according to the height of vehicle

the azimuth adjustment of the reader
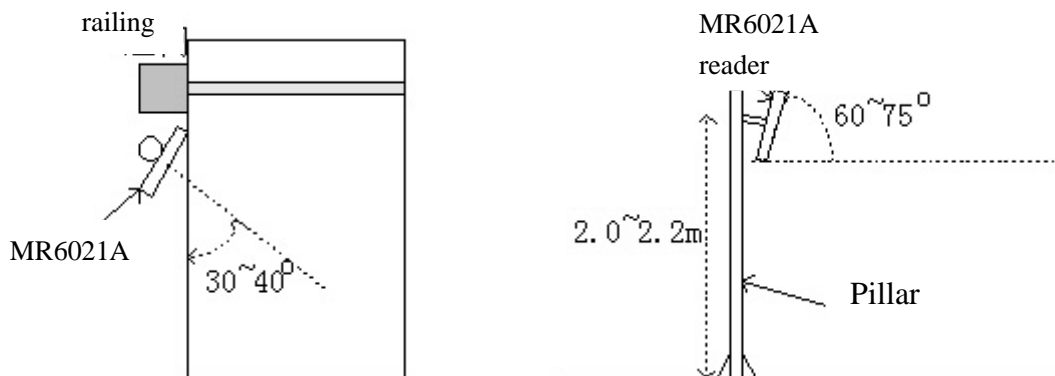
The sketch map of the azimuth angle adjustment of HKRUR-3083reader

Antenna angular:indicates the included angle between the antenna and level when the antenna inclines to the ground.

azimuth angle of antenna:indicates the deviation angle when antenna deflects to the direction of

carriage drive.

5. The demo program instruction pf HKRUR-3083

The demo program of the reader provides the contend of all kinds of operation to the tag and parameter setting of radio frequency Users can evaluate the function of the function of the reader through this demo program, of consider to make the second exploitation of the reader.

The demo program of the reader includes ¡ÐEMO exe¡±and ¡MR915ApiV10.dll¡Please put this two parts in the same file catalog ,then double click ,it will begin to circulate ,the interface is like the following picture indicated.
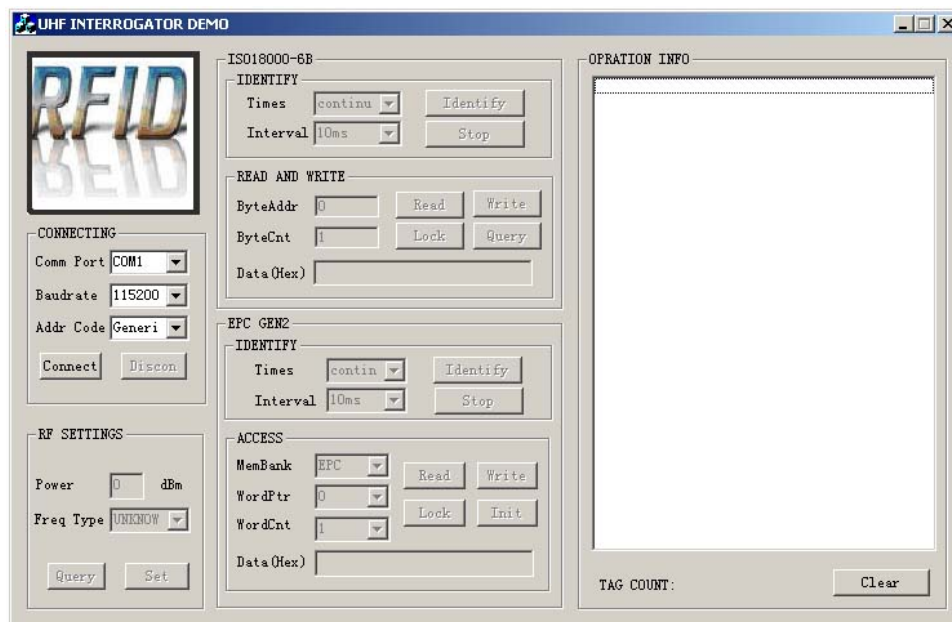
Demo software interface

Choose the COM communication port and baud rate you use, and choose the right reader address. Click ¡€onnect¡±to establish connection with the reader .After successful connection, the right and left information frames will indicate the successful connection and the edition NO. of the reader firmware. And you can operate all demos

Sixth :the second exploitation of HKRUR-3083

Users can make the second exploitation to the application software reader according to the need. .We provide the exploitation bag basis on the C language ,which supports the environment of   VC++,vb, Dephi and   C+Buider   and so on .Please make reference to the <<NRreader SDK instruction>>about the use of exploitation tag.

NOTES:

1. Frequency Range: 903MHz-927MHz.

2. The transmission and receiver is the same for the 20dB bandwidth.

3. The transmission of each channel of the transmitter is to send sync code. The receiver will recognize the sync code, confirm the channel and analyze the data.

4. Each frequency is used equally on the average by each transmitter.

5. The transmission channel is based on the Hop data as below:

Channel to Frequency Table (MHz)

0	1	2	3	4	5	6	7	8	9
903.00	903.48	903.96	904.44	904.92	905.40	905.88	906.36	906.84	907.32

10	11	12	13	14	15	16	17	18	19
907.80	908.28	908.76	909.24	909.72	910.20	910.68	911.16	911.64	912.12

20	21	22	23	24	25	26	27	28	29
912.60	913.08	913.56	914.04	914.52	915.00	915.48	915.96	916.44	916.92

30	31	32	33	34	35	36	37	38	39
917.40	917.88	918.36	918.84	919.32	919.80	920.28	920.76	921.04	921.72

40	41	42	43	44	45	46	47	48	49
922.20	922.68	923.16	923.64	924.12	924.60	925.08	925.56	926.04	926.52

50									
927.00									