RFR500 433MHz Mobile Reader

User Manual

Revision 00

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Revision	Date	Description
00	2010.5.20	Preliminary draft

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Introduction

RFR500 433MHz Mobile Reader is designed for portable requirement. It receives tag messages and then sends out to devices by Bluetooth connection. It is battery-powered and suitable for monitoring person and assets in short range. Users can easily use PDA or smart phone to monitor the status of RFID tags without compatibility of interface.

Features

- User configurable identification range (1m to 60m)
- Smart channel clear detection function
- Mobile shape with Bluetooth interface
- Rechargeable battery
- High throughput
- Advanced two-layer anti-collision technique

Specification

Bluetooth Communication Protocol	
Interface	Bluetooth 2.0 Class 2
Operation frequency	2.4GHz~2.483GHz ISM band
Signal Strength	Under 4dbm
Modulation	GFSK for 1Mbps; π /4-DQPSK for 2Mbps; 8-DPSK for 3Mbps
RF Communication	
Operation frequency	433.92MHz
Signal Strength	Default -30dbm
Range Control	Adjustable RSSI range (0 to -99dbm)
Modulation	GFSK
Receiving Range	60m
Physical Characteristics	
Length	5”
Width	2.6”
Height	0.8”
Weight	110 g
Case	ABS
Environmental	
Operation Temperature	-30℃ to 70℃
Storage Temperature	-40℃ to 80℃
LED Indicators	
Power LED	Power on indicator
TX/RX LED	TX/RX indicator
Charge LED	Charge indicator
Bluetooth Link LED	BT Link indicator
Electrical	
Power	3050mAh Li Battery
Connectors	
USB	Mini USB type
Antenna	SMA

Mechanicals

TOP View

Power LED – On when reader is powered.
TX/RX LED – On while reader is transmitting or receiving a packet.
Charge LED – On while reader is charged by USB.
Bluetooth Link LED– On while reader is connecting or searching device.
Antenna – SMA connector
Power Button – Switch on the Reader
Reset Button – Hardware Reset the Reader

Command Description

RFR500 can be setup and configured by simple ASCII code command. Each command must be followed with 0x0d 0x0a as the end code. If the command was failed, reader will response :ERROR. All the responses of the reader also follow with 0x0d 0x0a as the end code.

Command	Description	Reader Response
:ID XXXXXX	Set Reader ID	:OK :ERROR
:ID?	Inquire Reader ID	:IP XXXXXX (000000~999999) :ERROR
:START	Start Reader	:OK :ERROR
:STOP	Stop Reader	:OK :ERROR
:FW?	Inquire Reader FW version.	:FW XX.XX :ERROR
:CK?	Check Reader Status	:OK :ERROR
:RSSI:RANG XX	Set up the receiving range of Reader	:OK :ERROR
:RSSI:RANG?	Inquire the receiving range of Reader	:RANG XX (00~99) (0dbm ~ -99dbm) :ERROR
:RSSI:START	Continuously inquire the channel RSSI value	:OK :STAT XX (00~99) (0dbm ~ -99dbm) :ERROR
:RSSI:STOP	Stop inquiring the channel RSSI value	:OK :ERROR

- Except the :CK? Command, all the other commands will push reader into command mode and terminate the data receiving of the reader. To receive data, must send :START command again.
- Example in VB.net:
  To start the reader

```
writestring = Chr(58) + "START" + Chr(13) + Chr(10)
Dim myBytes() As Byte = Encoding.ASCII.GetBytes(writestring)
/* Transform string to ASCII code */
myNetworkStream = myTcpClient.GetStream()
myNetworkStream.Write(myBytes, 0, myBytes.Length)
/* Send into the NetworkStream*/
```

Packet Format

Head	Reader ID	Group	Tag ID	Status	RSSI	Data	End Code
$	000000~999999	00~63	000000~999999	*	00~99	**	0x0d 0x0a

* "Status" indicates the tag's condition such as moving, still, etc.
** The content of "Data" depends on different groups of tag.

Implementation Notice

- Before use , It should be charged up 8 hours .