Instruction of NFC-2411

NFC-2411 is one of 2.4 GHz RFID series that we independently developed. With contactless, free from environment impact, long reading distance, excellent anti-collision etc., NFC-2411 reader is applied to various field. Currently, NFC-2411 has widely applied to logistics and warehouse intelligent management, transportation intelligent management, school management, luggage parcel management, docks container management ant personnel positioning system, wireless meter reading system, wireless remote control, voice transmission, data transmission and wireless dish ordering system etc.

1. Overview

NFC-2411 is 2.4 GHz RFID reader/data transmission module with integrity structure and full-function. It includes RF Module、central control unit, input/output ports, Ethernet module, serial communication interface, non-volatile memory modules and working status indication module etc.

NFC-2411 support NFC company protocol. To meet the requirement about protocol and function expanding, and protect user's investment, the reader can be upgraded with our upgrade software conveniently.

NFC-2411 can be used as the devices as below,

- RFID reader (NFC-2411E and NFC-2411R): As a RFID reader, it can be used to identify rfid tag. In addition, NFC-2411R has received signal strength indicator (RSSI).
- Data transmission module (NFC-2411M): As a data transmission module, it can be used to wireless data transmission, which is widely applied to wireless meter reading system, wireless remote control, voice and data transmission, wireless dish ordering system etc.

Figure 1 NFC-2411 reader face

2. Product feature

- Small in size and easy to install;
- Excellent anti-collision performance, up to 500 tags read simultaneously;
- Communication interface: There are 6 kinds of conventional communication interface, such as RS-232, RS-485, Wiegand26/34/42/50, USB, CAN and Ethernet.

- Led indicator and buzzer with esthetic intuition design;
- NFC company protocol, which also can be customized and extended other protocol for user's demand;
- More optional function can be customized to meet customers' requirement;
- Compatible with other tag protocol, and also enhance the price-quality ratio on system applications;
- Provide API software so that user can complete their development soon.

3. Function introduction

3.1. NFC-2411E and NFC-2411R RFID reader

- Support protocol: NFC-2411 adopts NFC company protocol for development, meanwhile, it also compatible with the communication protocol of other suppliers;
- Protocol specific optimization: NFC-2411 can be optimized for protocol of other manufacturer or for a specific protocol, making it possible to enhance the price-quality ratio on close-loop system applications;
- Off-line function: Reader is designed with nonvolatile memory for storage of tag data, when the communication is failed between reader and application system, the identified tag ID can be stored into reader to ensure the stable work;
- ID matching function: NFC-2411 reader has built-in nonvolatile memory. In a close-loop application system, user can store the required tag data in the nonvolatile memory in advance, when reader identify tags, it will compare the tag data with the stored tag, and then perform the action which predefined by reader or designed by user;
- Input/Output function: The reader is designed with 1 trigger input, it will identify tags in accordance with external trigger commands, so as to meet green energy requirements and reduces energy consumption. It's also designed with 2 relay outputs;
- Time function: Reader comes with a built-in real time clock, which can set up and read reader time. It also supports time-stamp function under off-line working mode to meet precisely user's application design for time;
- RSSI function: NFC-2411R supports RSSI function, it can detect signal strength so as to realize positioning function;
- Anti-interference function: Reader uses the channel isolation technology, so multiple devices can't be interfered with each other;
- Tag reading/writing function: Tag reading/writing function can be realized;
- Upgrade function: NFC-2411 reader supports the firmware online upgrade function to optimize the performance.

3.2. NFC-2411M Data transmission module

- Transparent transmission: It adopts data transparent transmission mode, and also data format can be customized according to customer's requirement. The max communication speed can reach up to 115000bps;
- TX/RX switch: Data intelligent control. The reader is no need to be controlled by user during communication, it can complete operation automatically, such as air RX/TX switch or control etc.;
- Auto-response function: It will resend data when the reader module is not receiving response, ensuring the reliability of data communication;
- Anti-interference: High anti-interference capability and bit error ratio. It adopts efficient FEC channel coding technology, which enhances anti-interference and random disturbance capability.

- Multichannel transmission: To meet with user's multiple communication combination, the reader module support 16 channel transmission.
- Upgrade function: NFC-2411M reader supports the firmware online upgrade function to optimize the performance.

4. Technology parameter

Table 1: NFC-2411 technology parameter

NFC- 2411 Technology parameter	
Technology parameter	**Specifications**
RF parameter	
Operating frequency	2.401GHz~2.481GHz
Antenna	Reverse Polarity (RP-SMA) Antenna
Receiving sensitivity	-90.0dBm
Modulation	GFSK
Communication speed	2Mbps
Optional function, physical and environmental parameter	
Communication interface	RS-232, RS-485, USB, Wiegand26/34/42/50, RJ45
Input and output	1 triggering input
Optional function	2 relay output, CAN, RSSI, ID match, off line function and time function
Power supply	AC input: 100~240V, 50/60Hz 1.2A DC output: 5V/1A
Product size	134mm*99mm*34mm
Packing size	284mm*275mm*85mm
Gross weight	0.79kg
Net weight	0.25kg
Working temperature	-20℃~+70℃
Storage temperature	-40℃~+85℃
Accessories	Power adapter, Power cable, RS-232 cable, USB cable
Working status indication	Buzzer, LED indicator

5. Packing and interface instruction

5.1. Packing list

Please confirm all items are present upon receiving the package. If any question, please contact our sales representative directly.

Please check the packing list of NFC-2411 as table 2.

Table 2: NFC-2411 packing list

NFC-2411 Packing list			
Serial number	**Item description**	**Quantity**	**Unit**
1	NFC-2411	1	Set
2	RP-SMA Antenna	1	Piece
3	RS-232 cable	1	Piece
4	USB cable	1	Piece
5	Ethernet cable	1	Piece
6	5V/1A power adaptor	1	Piece
7	Packing list	1	Piece

5.2. Appearance

NFC-2411 is cuboid and medium grey color designed, it could be installed on wood, concrete, desk or brick surfaces, and also be put on the desk etc. NFC-2411 is designed with four holes, which can be fixed by screw.

5.3. Interface instruction

- DB9 Socket

DB9 socket is RS-232 serial port sockets, which can be compatible with other communication interface.

Table 3: DB9 pin assignment

DB9 Pin definition		
Pin number	**Signal name**	**Signal function**
1	T1/K1	Trigger/relay 1(optional)
2	RXD	RS-232 RXD
3	TXD	RS -232TXD
4	K1	Relay 1
5	GND	Ground
6	DATA0/K2	Wiegand data 0/relay 2（optional）
7	DATA1/K2	Wiegand data 1/relay 2（optional）
8	B-/CAN	RS-485 B-/CAN
9	A+/CAN	RS-485 A+/ CAN

- RJ45-USB single-layer interface

RJ45-USB is combined interface both USB and TCP/IP, NFC-2411can transmit data by RJ45 and USB. Before using RJ45-USB, please install USB driver in advance.

- Led indicator

There are 4 LED indicators for NFC-2411, which can add more aesthetic perception and understand promptly the working status of reader/transmission module, when illuminated their functions are:

Table 4: LED indicator

LED indicator(from top to bottom)			
Serial number	**Color**	**Function**	**Instruction**
1	Yellow	RF indicator	Blink when transmitting power
2	Green	READ indicator/ data transmitted indicator	Blink when successfully identify tag and transmitting data
3	Green	COM indicator	Blink when communication normal with pc
4	Red	Power indicator	Light when power is normal

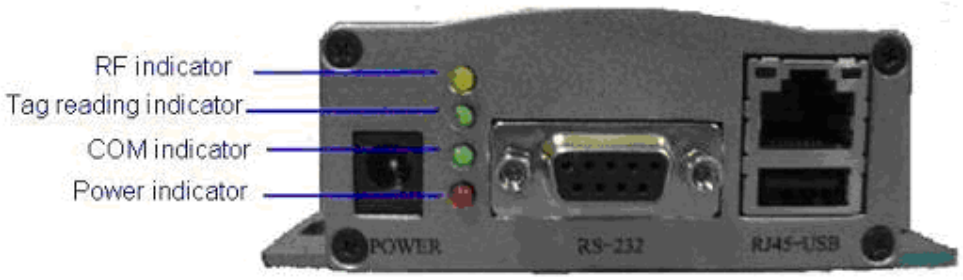

Figure 2 Working status indication

6. Caution

- When installing NFC-2411, please avoid being shield fully by metal or liquid.
- Please pay attention to the waterproofness of NFC-2411 reader, you can cover reader by non-metallic shield case.

7. Typical application

- Intelligent transportation management;
- Asset automatically identify, tracking, flow and inventory management;
- Guard patrolling intelligent management;
- Coal well management for personnel positioning, tracking and query;
- Monitoring and positioning management for infant, prisoner, older and psychopaths etc.;
- E-ticket, access control, meeting attendance, electronic record and school management;
- Intelligent management for house and hotel;
- Medical waste/drug and equipment management;
- Intelligent management for channel boat and airport pavement;
- Wireless meter reading system, wireless remote control, voice transmission, data transmission and wireless dish ordering system etc.

8. After-sale service

We have one year guarantee and any repair is free of charge within this guarantee time (Based on products model No. and manufacture date). However, the damage in the event of mechanical impact, over-high voltage, improper operating, dismantling the reader personally etc. shall be excluded from the guarantee.

Welcome your feedback to us while using the products, we would be dedicated to serve you. If you have any query, please free to contact sales representatives.

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Hot line: 400--602--0005
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FCC STATEMENT
1.This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received,
including interference that may cause undesired operation.
2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a 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.