Instruction of NFC-9601 Middle Range Reader

NFC-9601 reader is one of UHF RFID products we independently developed. With contactless, free from environment impact, long reading distance, the ability of reading multiple tags moving at high speed, excellent anti-collision etc., NFC-9601 is suitable for many different projects. At present, NFC-9601 has widely applied to highway no-parking fee management, car license anti-counterfeiting identify management, vehicle marshalling and scheduling management, intelligent parking management, border access control, and asset management, luggage parcel identification and logistic etc.

1. Overview

NFC-9601 is a UHF RFID reader with integrity structure and full function. It includes RF module, digital signal managing, input/output port and serial communication port, synchronization function.

NFC-9601 is multi-protocol UHF reader, which supports ISO18000-6B and EPC international standard protocol. It can read and write UCODE, TI, Alien and other label. In addition, it can optimize the chips of main application labels. To meet the requirements of protocol and function expanding and protect user investment, the reader can be upgraded with our update software conveniently.

NFC-9601 reader is an integrative design with built-in 7 dBi circular polarization antenna, its effective reading range is very wide and fast moving tags can be identified. Integrated, ultra-thin and water proof structure design makes the installation very simple in engineering applications.

2. Key feature

- Integrative design, nice appearance, easy to install
- Built-in 7dBi high gain circular polarization antenna, long distance identification
- Support both ISO-18000-6B and ISO 18000-6C(EPC C1G2)
- FHSS operating method with super anti-interference ability
- Multi-reader synchronization
- Software supports various program languages
- Multiple communication interfaces, also can be customized
- Water and sun proof

3. Function introduction

- Support multi-protocol: NFC-9601 reader supports ISO18000-6B, EPC Class 1, EPC Class 1 GEN 2 standards, Container standard and Railway standard, and can also be programmed to support other protocols and features through reader's software upgrade.
- Protocol specific optimization: NFC-9601 reader can be optimized for a specific protocol, making it possible to enhance the price-quality ratio on close-loop system applications.
- Synchronization function: In practice, NFC-9601 reader has designed with synchronization function, ensuring the reliability and reading performance when multiple readers installed in the near area.
- Off-line function: The reader is designed with nonvolatile memory for storage of tag data, to ensure un-interruptible data flow even in the event of power interruption or in case of communication interruption and/or failure.

l Input/Output function: The reader is designed with 1-way trigger input, it will identify tags in accordance with external trigger commands, so as to meet green energy requirements and reduces energy consumption. It has widely applied to car parking solution and production line management. It's also designed with 4 relays output, which can be used for external control, saving the cost and complexity of additional external components.

l ID matching function: NFC-9601 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.

l Clock function: NFC- 9601 reader comes with a built-in real time clock, and it can be configured to synchronize its clock with the system clock. If and when the reader is working in an off-line mode, the internal time-stamp allows for a smooth and uninterrupted integration of the data collected.

l Feature matching function: The reader with tag feature matching function, when feature matching function enabled, it will compare the tag with the predefined characteristic value, and then perform the action which predefined by reader or designed by user.

4. Technology parameter

Reader NFC-9601's technology parameter as table 1,

Table 1：

Technology parameter	Specifications
Operating frequency	840MHz~960MHz (Adjustable for local regulation)
RF protocol	ISO18000-6B, EPC Class 1 GEN 2, ISO10374 Container Standard, TB/T3070-2002 Railway Standard
Operating method	FHSS or fixed frequency(set by software)
Antenna	Built-in 7dBi circular polarization antenna
Power smoothness	＜0.5 DB
RF power range	20.0~30.0dBm(set by software)
Working mode	Identify tag mode can be set as: 1) Auto-reading tag in fixed time (Timing mode) 2) Reading tag by external trigger (Trigger mode) 3) Software command(Master-slave mode)
Identify tag time	＜8ms (Identify single tag)
Reading/Writing tag time	No more than 5 ms every 8 bytes when reading, 25ms every 4 bytes when writing
Reading/Writing tag distance	Reading distance: >4m Writing distance: >2.8m(depends on tag and environment)
Communication interface	Type A: RS-232, RS-485, Wiegand26/34/42/50 Type E: RS-232, Ethernet, Wiegand26/34/42/50
Input/output	1triggering input
Optional function	4 relays output, ID match function, Offline function, Time function
Power supply	AC input: 100~240V, 50/60Hz 0.55A DC output: 9V/2.6A
Power consumption	≤5W
Product size	260mm*260mm*90mm

Packing size	450mm*300mm*140mm
Gross weight	3.6kg
Net weight	1.91kg
Working temperature	-20℃~+70℃(-4℉~+158℉)
Storage temperature	-40℃~+85℃(-40℉~+185℉)
Accessories	Power adapter, Power cable, RS-232 cable, Mounting bracket
Work status indication	Buzzer

5. Packing and interface instruction

Please check to confirm all items are present upon receiving the reader package. If any question, please contact our dealer or the relevant sales representative directly.

Table 2: NFC-9601 Packing list

NFC-9601 Packing list			
No.	Product name	Quantity	Unit
1	NFC-9601 Reader	1	set
2	RS-232 cable	1	pc
3	9V2.6A Power adaptor	1	set
4	Mounting bracket	1	set
5	Packing list	1	pc

5.1. Appearance

NFC-9601 is square shape, body main color is milky white. It could be installed on wood, concrete, desk or brick surfaces. There is mounting bracket in package box, which is clasped and specially designed for NFC-9601 reader. It could be installed in horizontal or vertical and also be circumrotating to 360 degree for user's different application requirements. (pls see figure 1)

Figure 1 NFC-9601 reader face
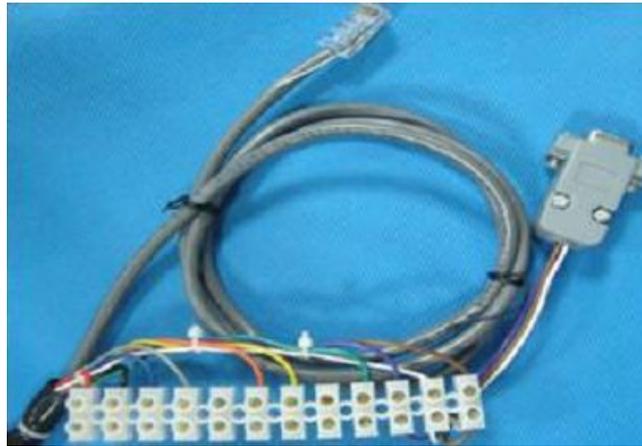
Figure 2 NFC-9601A reader wiring

Figure 3 NFC-9601E reader wiring

Figure 4 Mounting bracket

5.2. Interface instruction

The reader communication port socket as picture2, and pin assignment as table 3

Table 3: NFC-9601 reader wiring diagram

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NFC-9601 reader flat cable instruction				
Reference colors	Color	Signal Name	Function	Note
	Brown	232TX	RS-232 Output	
	White	232RX	RS-232 Input	
	Purple	GND	GND	
	Green	T+	Triggering	

Green	Green	T-	Triggering	
yellow	yellow	DATA1	Wiegand Data 1	
Orange	Orange	DATA0	Wiegand Data 0	
Purple	Purple	GND	GND	
Gray	Gray	485B-	RS-485 Data B-	
Blue	Blue	485A+	RS-485 Data A+	
Black	Black	GND	GND	
Red	Red	DC+9V	9V Power input	
Blue	Blue	K1	Relay output 1	
Blue	Blue	K1	Relay output 1	
Gray	Gray	K2	Relay output 2	
Gray	Gray	K2	Relay output 2	
		RJ45 Crystal Head	RJ45 interface	Only for NFC-9601E

6. Installation

The reader could be installed on woody, concrete or brick wall by using fastening piece in shipping package. Pls see figure 5 as below,

Figure 5 Reader of mounting

7. Reader interface specification

l Wiegand

If use Wiegand communicate with the controller, it's necessary to connect the three terminals ports (DATA0, DATA1, and GND) with the corresponding three signal lines of controller.

l RS-485

If use RS-485 communicate with the controller, it's necessary to connect the two terminals ports (A+ and B-) with the corresponding two signal lines of controller.

l RJ45

If use RJ45 communication with PC, please ensure your PC or route should be in the same network segmentation as our reader.

8. Caution

l According to the requirement of America FCC standard, user should stay at least 30cm away from the antenna when installing.

l Keep the reader away from strong magnetic field when it's working.

9. Typical applications

l Intelligent traffic such as ETC, customs border-crossing, parking lot, automatic weighing etc.

l Logistics such as container management, pallet management, asset tracking etc.

l Ticketing, time attendance& access control.

l Pharmaceuticals such as medical waste management, warehouse management, production line management

10. 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 will be dedicated to serve you. If you have any query, please free to contact our engineer or sales representatives.