NFC_V3

User Guide

1. Abstract

RFID antenna board through the GD32F130 master controller, control NXP663 13.56M NFC antenna controller for NFC electronic tag reading and writing. The antenna board senses that the drawer is closed (the magnet enters the sensing range of hall sensor), and the main controller reads NFC antenna controller NXP663 before and after opening in turn, and transfers the read data to the LCD display through the 485 bus, and the display controller displays it and transfers it to the server through the WIFI wireless network.

When the RFID antenna board receives the positioning instruction through the 485 bus, the RFID antenna board parses the content according to the instruction, and the LED before or after the opening is used for positioning guidance.

1.1. Keywords

1. 485 bus communication: directly installed in the metal frame, through the 485 communication line bus, 485 control board and display screen for communication control.
2. Reading distance: in the case of shielding metal interference, the reading distance is less than or equal to 10cm;
3. Waterproof technology: the antenna box is equipped with waterproof rubber ring, and the RFID antenna board is sealed in the box, which can protect the operating environment of the antenna board and prevent the condensed water from affecting the stability of the antenna;
4. Hall induction: RFID antenna front end is connected with hall sensor, when there is a magnet drawer closed, hall sensor trigger, can be induced to close the drawer. When the drawer is pulled out and the hall induction disappeared, the antenna board judges the drawer is open.

1.2. Appearance and interface diagram

Main technology parameters		
Name	Technology parameter	Note
Antenna board assembly	Input voltage 5V, output voltage 5V, working current <200mA, static current <60mA	Composed of antenna board, antenna data control board and hall induction control board.
Antenna board	Size:461mm(length)*116mm(width) *1.60mm(thickness); The transmission frequency is 13.56M	Antenna coil substrate
Antenna data control board	Dimension:461mm(length) *106mm(width 1)*20mm(width 2) 1.6mm(thickness); Power supply 5V input, 3.3v output; CPU_3V3 supplies power to MCU, and VCC_5V supplies power to RFID card reader chip and external extension interface	Includes the main CPU and antenna control CPU
Hall induction board	Size: 128mm(length) *16.3mm(width) *1.6mm(thickness); Input PP_3V3 to power the hall switch and its LED	Induction magnet, used to detect whether the drawer is closed
Hall induction wiring	12pinFPC connector, pull up connection, spacing 0.5mm, FPC thickness 0.2mm	Connect hall board to antenna control board.

The main interface：

485 communication interface, and the communication baud rate is 57600

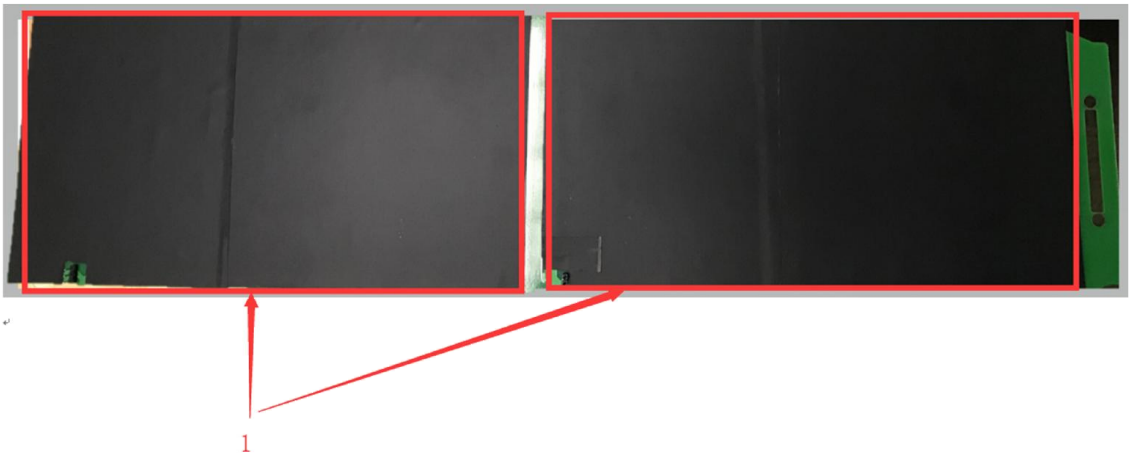
The work environment：

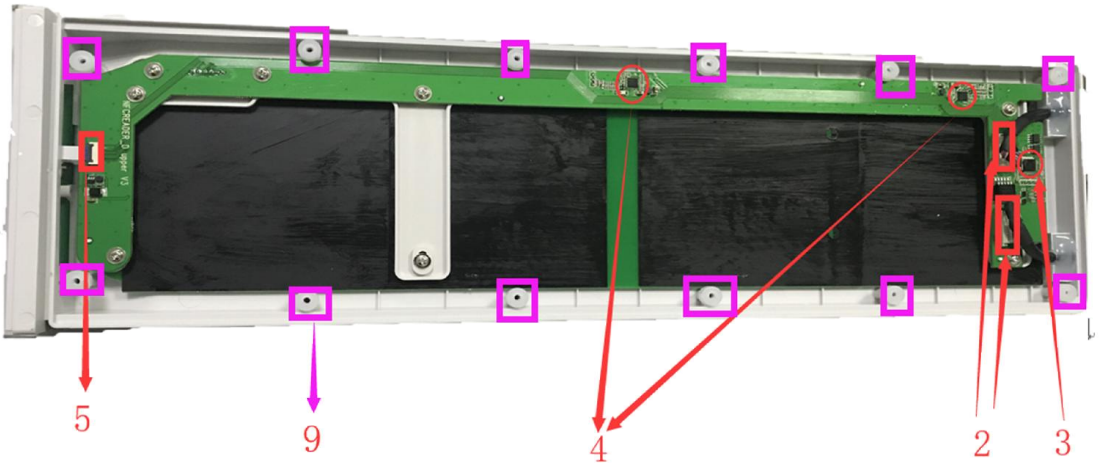
Temperature (20 ℃ ~ 85 ℃), moisture (5% ~ 95% without condensation)

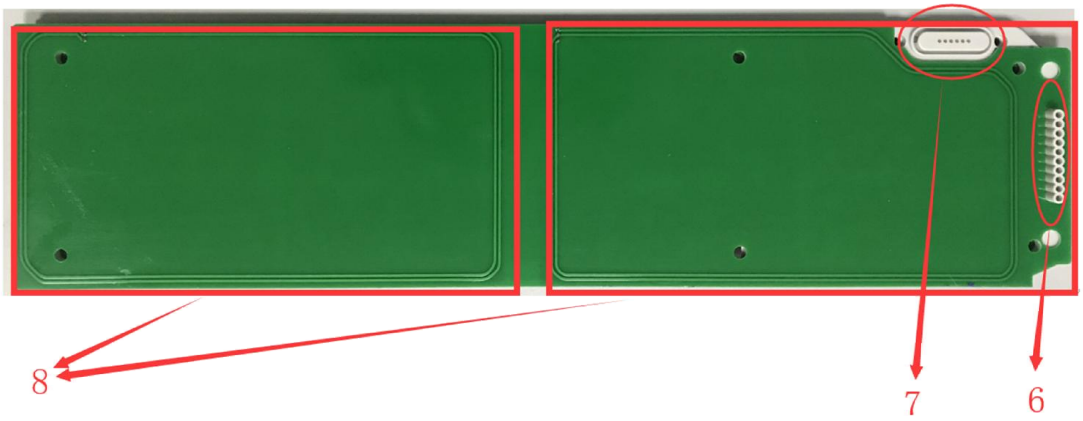
Antenna identification range：

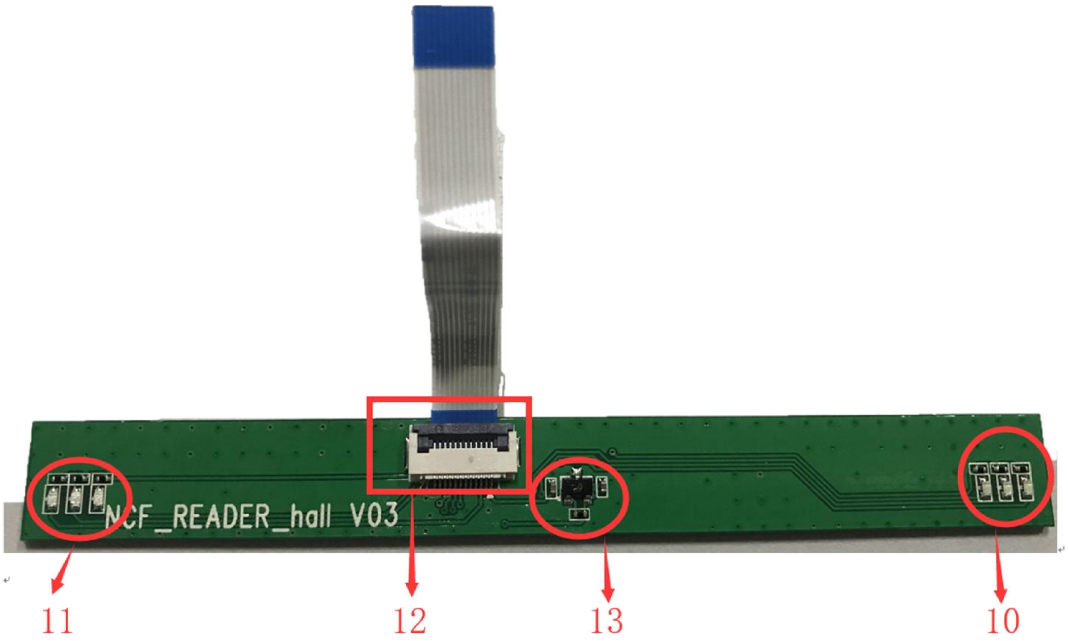
<=10cm

The main component of the antenna board：



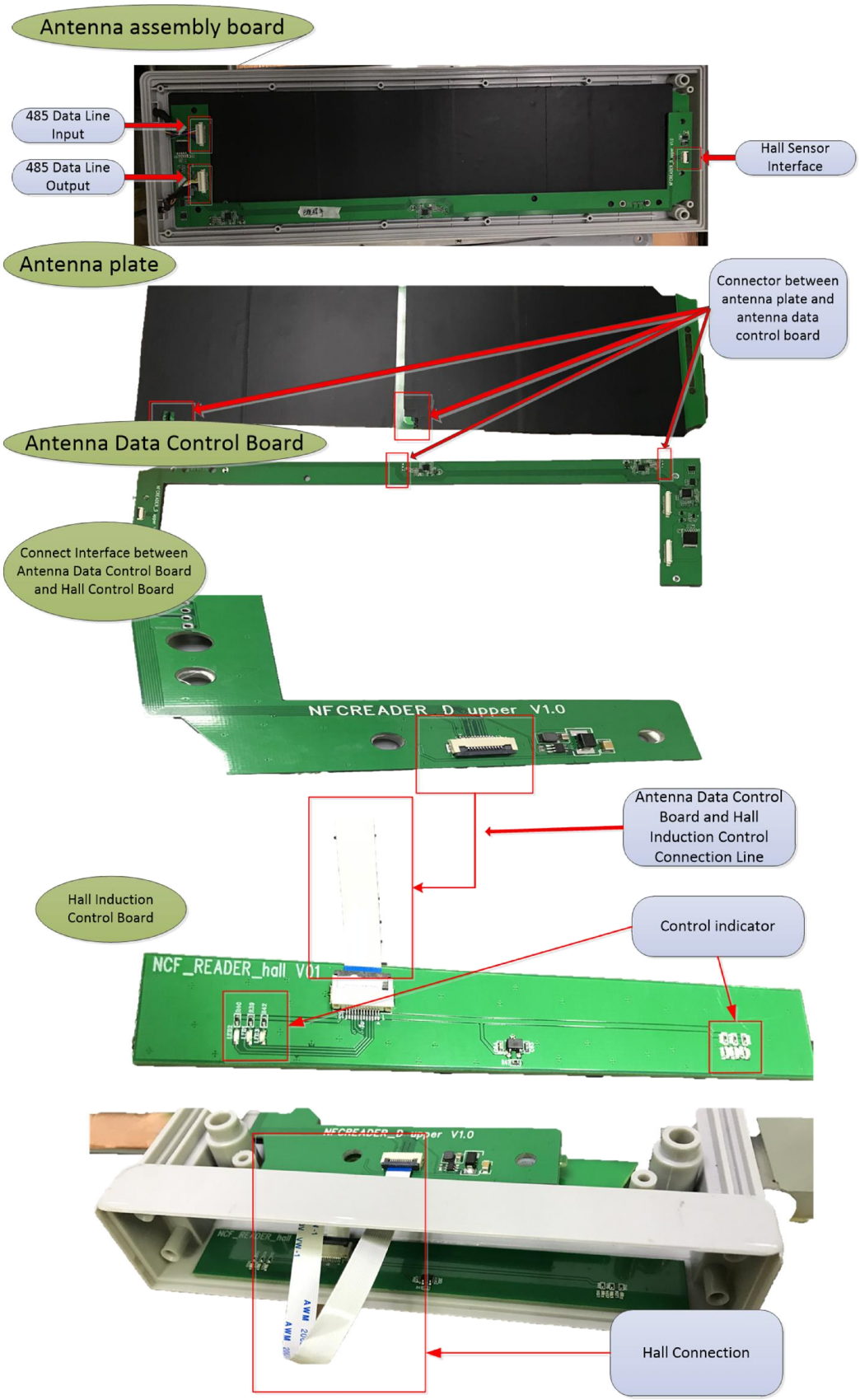






NO.	Name	Function	Specifications
1	NFC ferrite	Anti-interference, improve the antenna receiving sensitivity	115mm * 266mm
2	485 connector	Connect 485 bus and transfer data	8mm * 12
3	Main controller CPU	Antenna board master control	GD32F130C8T6
4	NFC Antenna controller	Read and write NFC antenna	NXP66301
5	Interface with hall board	Connect the hall control board	
6	Antenna panel lighting LED	lighting	
7	Main controller upgrades port	Upgrade the main control program	10mm * 6
8	Antenna coil	Read and write NFC tags	110mm*258mm
9	Waterproof rubber ring	Waterproof	
10	Rear antenna induction indication LED	Indicates that the rear antenna is being read	
11	Front antenna induction indication LED	Indicates that the front antenna is being read	
12	Interface with antenna control	Connect the antenna control board	
13	Hall sensor	Induction magnet	

1.3. Antenna board wiring diagram：



1.4. Host Information

Product Name:	**Host Device**
Model Name:	**H-P01**
Manufacturer:	**Qingdao Haier Biomedical Co Ltd**

Federal Communications Commission (FCC) Interference Statement

The limited modular transmitter is only FCC authorized for the specific rule part (FCC Part15.225) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

For additional hosts other than the specific host originally granted with a limited module, a Class II permissive change is required on the module grant to register the additional host as a specific host also approved with the module.
OEM/Host integrator is responsible for complying with the instructions and requirements for each transmitter they choose to integrate into a host product.

RF exposure warning
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This product may not be collocated or operated in conjunction with any other antenna or transmitter. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Additional text needed for the host product manufacturer to provide to end users in their end-product manuals.

OEM Integration Instructions：

This device is intended only for OEM integrators under the following conditions：
The module can be used to installation in other host. And the transmitter module may not be co-located with any other transmit or antenna. The module shall be only used with the integral antenna(s) that has been originally tested and certified with this module. As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirement with this module installed (for example, digital device emission, PC peripheral requirements, etc.)

IMPORTANT NOTE：
In the event that these conditions cannot be met (for example certain laptop configuration or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these and circumstance, the OEM integrator will be responsible for re-evaluating. The end product (including the transmitter) and obtaining a separate FCC authorization. The final end product must be labeled in a visible area with the following:
“**Contains Transmitter Module FCC ID: 2ASR8NFCV3** or
Contains FCC ID: 2ASR8NFCV3”.