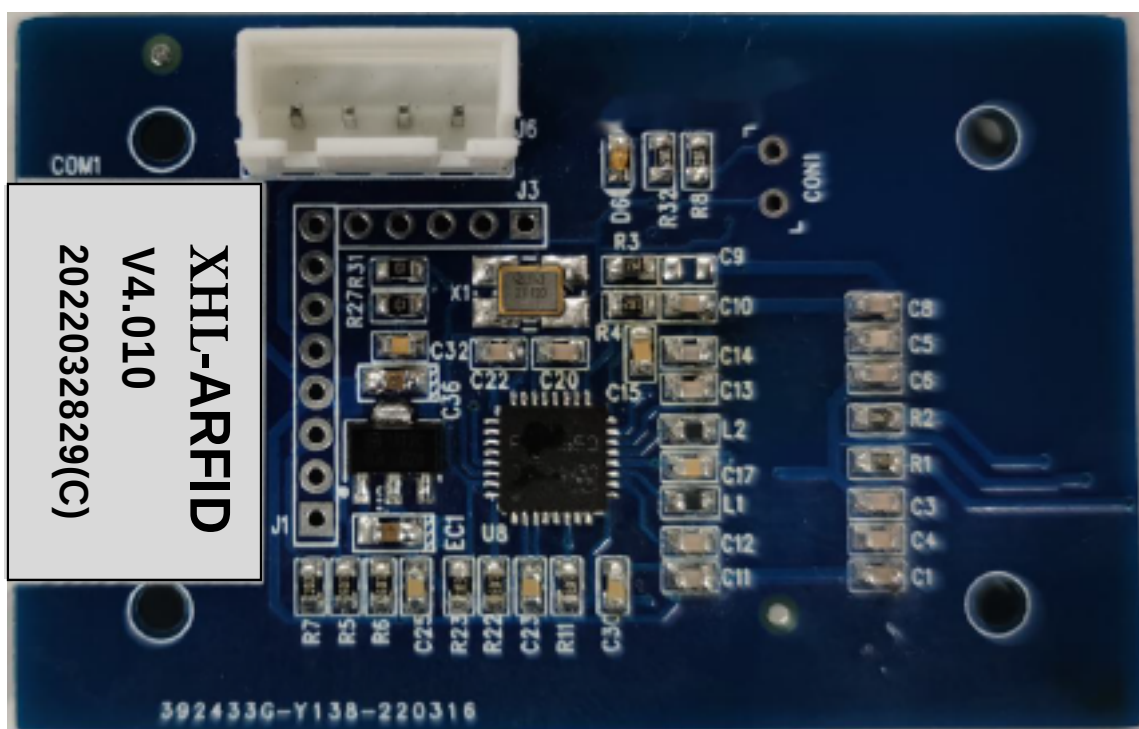


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Contactless Card Reader XHL-ARFID

Specification

RFID module



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1. Overview

The XHL-ARFID is card reader module of contactless Xinhailin card which based on 13.56MHz. It can be widely used in the terminal external devices of power, telecommunications, transportation, petrochemical and other industrial occasions.

Main features of product:

- ◆ Communication protocols can be customized, default Mingte custom protocol
- ◆ Support reading and writing of Mifare 1 (MF1) card (ISO14443)

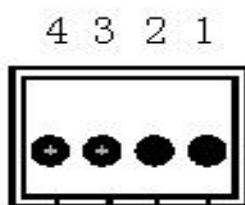
2. Interface definition and description

This product adopts RS232 three-wire serial port, sharing the same one J6 interface with power supply.

Communication setting: RS232 level, support baud rate 9600bps, 19200bps, 115200bps, default baud rate 115200bps, 1 start bit, 8 data bits, 1 end bit, no verification.

Power supply: DC 5V

J6 interface connector specification: 4P-2.54mm pitch vertical connector, as follows:



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Pin NO	Pin Name	Input/Output	Description
1	PW+	P	Digital power supply
2	RXD	I	Serial port receive (RS232 level)
3	TXD	O	Serial port send (RS232 level)
4	GND	G	Digital GND

Note: The Input (I) and output (O) above are relative to this module.

3. Product identification description

In order to facilitate management, the product identification is attached to card reader's PCB, the product identification format is described as follows:

Product model
Software version
Product serial No.

As shown below:

XHL-ARFID
V4.010
2022032829(C)

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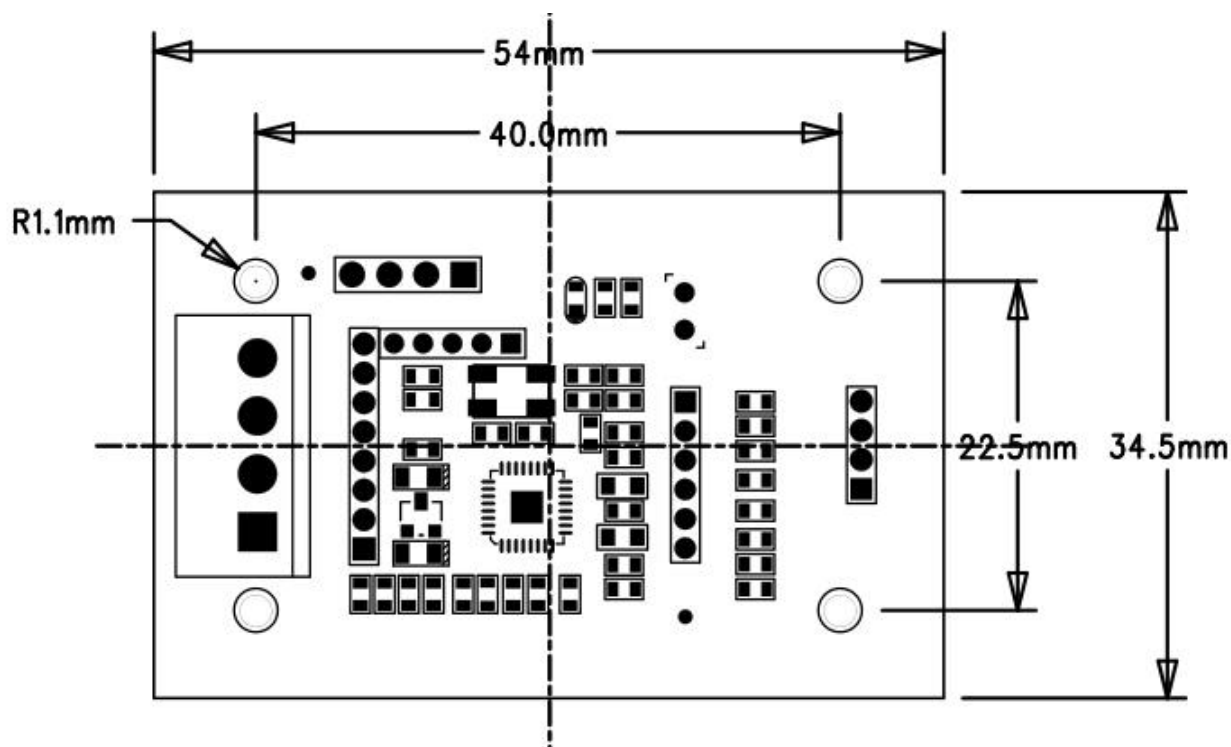
4. Performance indexes

Card Type	Description
RF card	ISO14443 mifare1 card
Read & write RF Card performances	
R&W distance	About 4cm (Relevant to environment, card and power supply)
Electrical characteristics	
Working power supply	5V±5%
Working current	≤150mA(DC 5V)
Quiescent current	≤30mA(DC 5V)
Working indicator	
Indicator light	D1 status indicator light D6 power supply indicator light
Environment conditions	
Storage temperature	-40 ~ +75℃(no condensation)
Working temperature	-20 ~ +50℃(no condensation)

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5. Installation dimensions

RF board installation dimensions are as follows:



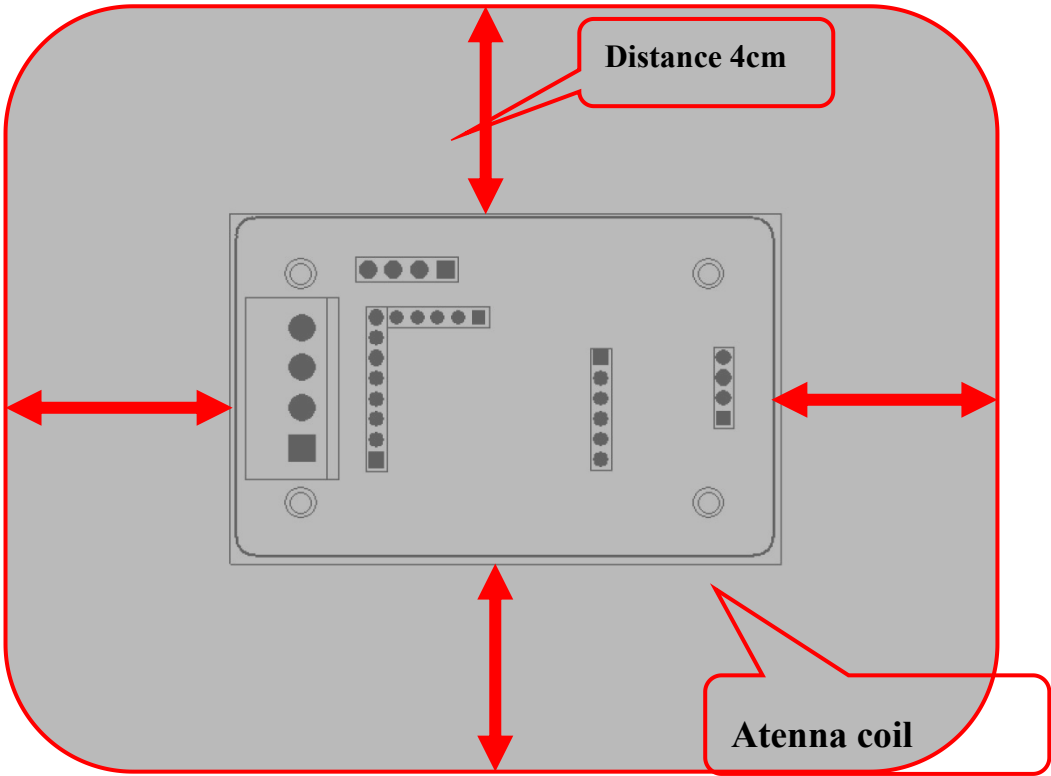
Unit: mm, R is the radius, Installation holes are symmetrical at the center of the plate

6. Installation environment requirement

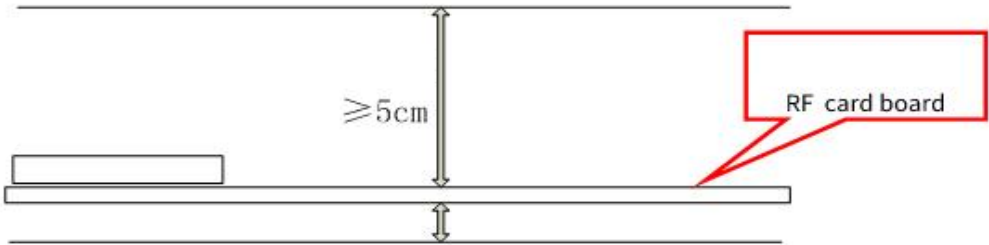
RF card reader board is sensitive to the environment, metal can reflect and shield electromagnetic waves, that is, metal has influence on card reader and tag. If there is

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metal nearby, it will reduce the reading rate of tag. So there are certain requirements for the installation of reading card board. As shown in follows, when installing, keep the coil part away from the metal, the shadow area not allow the metal iron plate or other structural parts or large electronic coil (such as motor or transformer, etc), the distance from the four sides of the coil to metal is recommended to be more than 4CM.



The safe distance of power line or bulk metal in charging pile is $\geq 5\text{cm}$



$\leq 0.5\text{cm}$

The distance from panel to RF card board is $\leq 0.5\text{cm}$

FCC Statements:

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.

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.

Warning: Changes or modifications to this unit not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

2.2 LIST OF APPLICABLE FCC RULES:

Compliance with § 15.225 regulation

2.3 SPECIFIC OPERATIONAL USE CONDITIONS:

The module is typically use in industrial, household and general office / ITE and audio & video, EV charging system end-products. The product must not be co-located or operating in conjunction with any other antenna or transmitters.

2.4 LIMIT MODULE PROCEDURES:

The module compliance with FCC requirements based on Limit module procedure as no shielding cover included. Any installation or operation that does not follow this manual will require further evaluation.

2.5 TRACE ANTENNA DESIGNS:

The module was designed with the fixed PCB print antenna, any changes or modifications by the OEM integrator will require additional testing and evaluation.

2.6 RF EXPOSURE CONSIDERATIONS:

The module has been evaluated and shown compliant with the FCC RF Exposure limits under portable exposure conditions. OEM integrator shall equip the antenna to compliance with antenna requirement part 15.203& 15.204 and must not be co-located or operating in conjunction with any other antenna or transmitters, otherwise, a Class II Permissive Change (C2PC) must be filed with the FCC and/or a new FCC authorization must be applied.

2.7 ANTENNAS:

The antenna of the module was designed as PCB printed on the PCBA board and the best gain is 0dBi. Modification the antenna design may need additional testing and evaluation.

2.8 LABEL AND COMPLIANCE INFORMATION:

The final end product must be labelled in a visible area with the following "Contains TX FCC ID: 2A9TCXHL-ARFID" or "Contains Transmitter Module FCC ID: 2A9TCXHL-ARFID". If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users' manual: 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.

A user's manual for the finished product should include one of the following statements:

For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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.

The User's Manual for The finished product should include the following statements:

Any changes or modifications to this equipment not expressly approved by the OEM/Integrator may cause harmful interference and void the user's authority to operate this equipment.

RF Exposure

This device has been evaluated and shown compliant with the FCC RF Exposure limits under portable fixed exposure conditions.

2.9 INFORMATION ON TEST MODES AND ADDITIONAL TESTING REQUIREMENTS:

Data transfer module demo board can control the EUT work in RF test mode at specified conditions. This radio module must not be installed to co-locate and operating simultaneously with other radios in the host system except in accordance with FCC multi-transmitter product procedures. Additional testing and equipment authorization may be required operate simultaneously with other radio.

2.10 ADDITIONAL TESTING, PART 15 SUBPART B DISCLAIMER:

The host product manufacturer is responsible for compliance with any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

General Statements

The module is intended only for OEM integrators.

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

The OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

OEM integrator shall not modify and change the fixed designed PCB print antenna, and must not be co-located or operating in conjunction with any other antenna or transmitters, otherwise, a Class II Permissive Change (C2PC) must be filed with the FCC and/or a new FCC authorization must be applied.

.The product is typically use in industrial, household and general office / ITE and audio & video, EV charging system end-products.