Shenzhen Landshr Technology Co.,Ltd.

Product Specification

Contactless IC card read and write module
(LSD1U)
Version： V1.0

Establishment	Wang Hecheng	**Establishment Department**	**R & D Center**
Review	Jiangyuming	**Date**	2025-01-17
Approve	Yupengfei	**Date**	2025-01-17

No.	Summary of revisions	Revised version	Revised Person	Revision date	Remark
1	Original Issue	V1.0	Huang Jiaxin	2025-01-17	
2	English version	V1.0	Huang Jiaxin	2025-01-17	
3					
4					

Please confirm and sign back!

Client Confirmation

Approved	Confirmed

Product Features

Color picture of product

Panel Mount Dimensions

- The communication protocol can be customized, and the default protocol is LBD's protocol;
- Support the reading and writing of Type A and Mifare one (MF1) cards which compliant with ISO14443 standard;
- The product is small and light, and can be easy to install.
- Antenna

  54.00*34.50*1.60mm(module size)

Model definition description

LS	D	1U	-	4	R	5	C
Manufacturer	Product code	Series		Pins	Communication mode	Power	Baud rate
LS: Landshr	D:Contactless IC card read and write module (RFID)	1U: 1U Series (US)		4: 4P	R: RS232 T: TTL	5: DC5V	1-9600 2-19200 … 6-57600 C-115200

Interface definition description:

This product adopts serial port (TTL) line communication, and shares a CH1 interface with the power supply.

Voltage: DC 5V

CH1 interface socket specification: 4P-pitch 2.54mm straight pin socket, as shown below:

Pin Number	Pin name	Output/ Input	Explain
1	VCC	P	Digital power（DC 5V）
2	RX	I	Serial port receiving(RS232/TTL)
3	TX	O	Serial sending(RS232/TTL)
4	GND	G	Digital power ground(GND)

Remarks: The input (I) and output (O) shown in the above table are relative to the module.

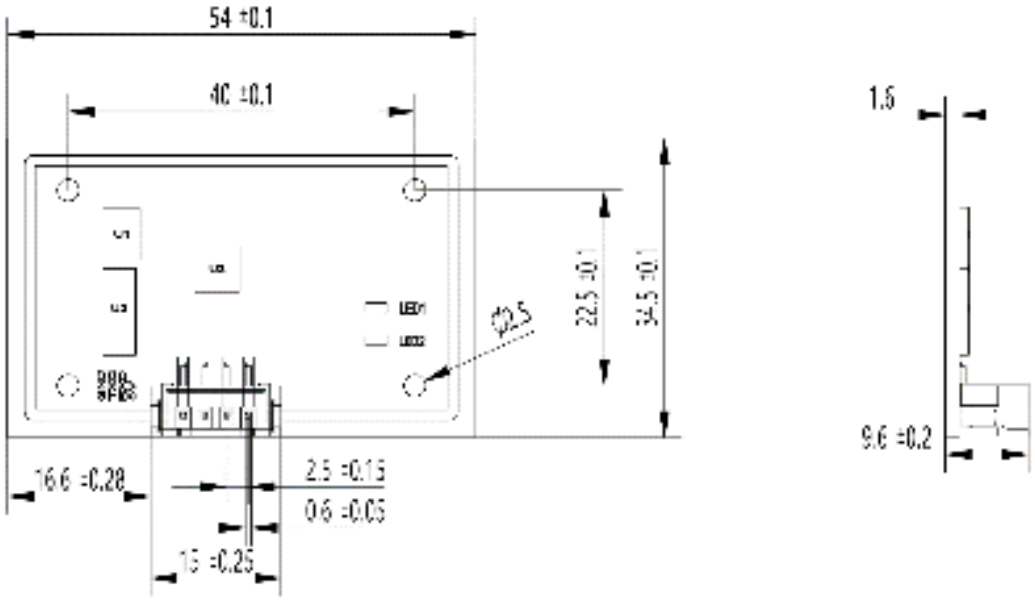
Technical specification：

Computer interface	
Communication interface	serial port(RS232/TTL)
Baud rate	115200bps (Available on demand)
Operation voltage	5V/100MA
Contactless card interface	
Standard	ISO/IEC 14443 Type A & T=CL
Operation frequency	13.56MHZ +/-0.5
Communication rate	106kbit/s 212kbit/s 424bit/s Rate High-speed access RFID
CPU card command length	
Operation distance	About 50mm（related to the use of environment, card and power）

Enclosure notation

Indicator light	If the indicator is red, the power supply indicator is displayed. If the indicator is blinking green, the reader is communicating.
Motherboard size	54.00mm (length) x34.50 mm (width)
Plate thickness	1.60mm
Working temperature	-40 ~ +85℃（no condensation）
Storage temperature	-40 ~ +85℃（no condensation）

Visual dimensions and installation dimensions



Remrks:

- LSD1Usocket model: ZX-XH2.54-4PLT, vertical; Recommended supporting rubber.
- shell model: ZX-XH2.54-4PJK, recommended supporting terminal model: ZX-XH2.54-DZ.

Support card type

MIFARE S50, S70

M1 series

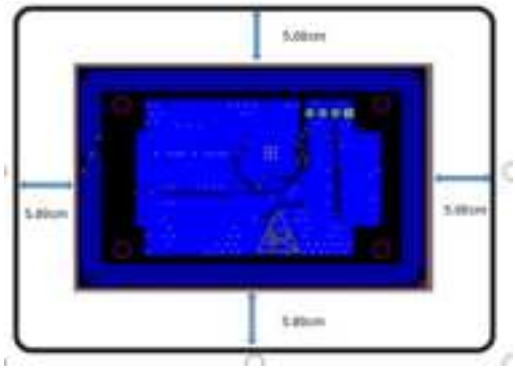
Contactless CPU card in accordance with ISO14443 TypeA;

Typical application

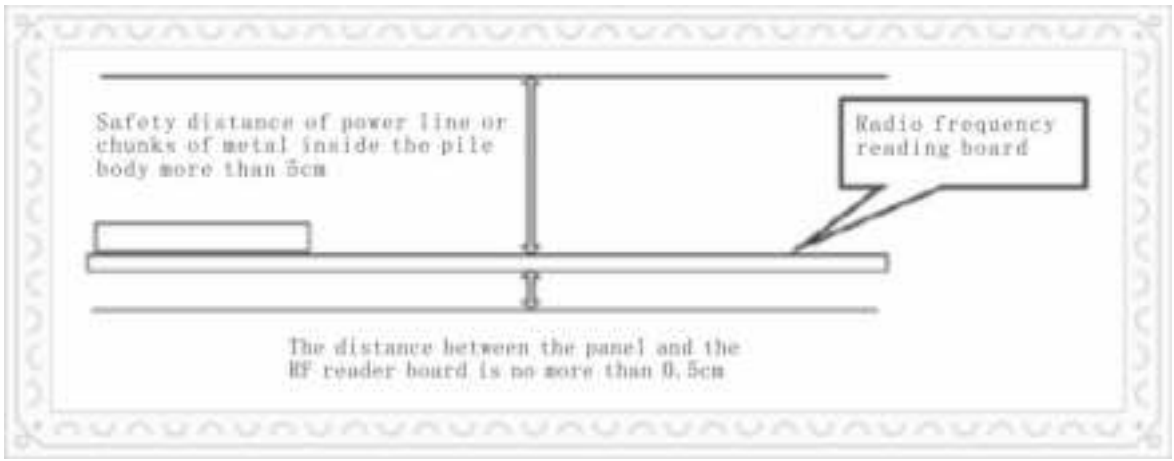
- Electric power, telecommunication, transportation, petrochemical and other industrial terminal equipment.
- Equipment outside the prepaid system of water and electricity meters
- Door lock, access control system equipment
- Tablet embedded NFC feature extension
- Mobile terminal equipment
- Other small NFC equipment

Installation environment requirements:

The RF card reader board is sensitive to the environment. Metals have the effect of reflecting and shielding electromagnetic waves, that means the metal has an impact on the reader and tags. The reading rate of the tags will be reduced if there is metal nearby. Therefore, there are certain requirements for the installation of the card reader board. As shown in the figure below, the coil of the card reading board should be kept away from metal during installation, and there should be no structural parts such as metal iron plates or large electronic coils (such as motors or transformers) in the shaded parts. The distance between the four sides of the coil and the metal is recommended to be greater than 5CM.



greater than 5cm safe spacing



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.

RF Exposure
The device has been evaluated to meet general RF exposure requirement.
The device can be used in portable exposure condition without restriction.
when installed in certain specific OEM configurations.

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 MODULE PROCEDURES:
The EUT is single module and the module compliance with FCC requirements based on module procedure as 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 equipped 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 LABELING AND USER INFORMATION REQUIREMENTS OF THE END PRODUCT:

The final end product must be labelled in a visible area with the following “Contains TX FCC ID: 2BFGT-LSD1U or “Contains Transmitter Module FCC ID: 2BFGT-LSD1U. 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.

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.

2.11 Note EMI Considerations
Note that a host manufacture is recommended to use D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties

For standalone mode, reference the guidance in D04 Module Integration Guide and for simultaneous mode[7]; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.

2.12 How to make changes
Since. only Grantees are permitted to make permissive changes, it is recommended that module manufactures provide contact information and some guidance to host providers in the integration instructions if they expect their module will be used differently than granted.

General Statements
The module is limited to OEM installation only.

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.