FSC-RD01LI integrated reader

User Manual

V1.1

Content

Statement

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Chapter 1. Product introduction

Fig.1 FSC-RD01LI Front Side

Fig.2 FSC-RD01LI Back Side

1.1 Introduction

FSC-RD01LI is a UHF RFID reader with integrated 9dBic antenna. It is full compatible with ISO18000-6C protocol. The working frequency band covers CHN 920MHz～925MHz, FCC 902MHz ~ 928MHz and ETSI 865MHz ~ 868MHz. For the output power 0dBm ~ 33dBm is optional. It has the advantages of high portability, long recognition distance, fast reading speed, high accuracy, strong anti-interference ability, excellent protection performance and easy to installation.

Compared with the traditional fixed reader, this reader device has obvious advantages in terms of convenience and integration efficiency, so that customers do not need to consider the coordination of the reader and the antenna. It can be widely used in many fields such as warehouse management, personnel management, asset management, commercial retail and automatic vehicle identification.

1.2 Features

- Impinj E710 inside
- Built-in embedded operating system, customizable and scalable, convenient for customized development
- supports multiple communication interfaces such as RJ-45/RS-232/RS-485
- Built-in 9dBi circular polarized antenna

- Industrial, easy-to-install I/O port connectors
- Special application project custom interface / data transmission can be extended

1.3 Applications

- Intelligent Vehicle Management such as vehicle access control management, parking lots, and automatic vehicle weighing industry.
- Production automation, visualization management.
- Logistics industry such as container management, pallet management.
- Electronic tickets and personnel access control.
- Asset access management.

1.4 Main Technical Performance Indicators

Model	FSC-RD01LI
Hardware and Firmware Management	
Processor	ARM Cortex-M3　108MHz
Firmware upgrade	Demo software/Remote upgrade
SDK	Windows platform–.Net / .Net core / C++ / Java SDK
Physical Parameters	
Sizes	258mm(L)*258mm(W)*36mm(H)
Weights	1.2KG
Housing material	Aluminum+ABS
RFID	
Chip	Impinj Indy E710
Air protocol	ISO/IEC 18000-6B, 6C/EPC C1Gen2
Frequency	CHN: 920MHz～925MHz, 840MHz～845MHz
	FCC: 902MHz～928MHz
	ETSI: 865MHz～868MHz
Built-in antenna	Circular polarization 9dBi, VSWR≤1.3: 1
Output power	33dBm±1 dBm
Channel bandwidth	＜200KHz
Frequency stability	≤±10ppm
Reading range	0m～30m (related to factors such as transmit power, antenna type, tag type and

	application environment)
Write distance	0m～15m (related to factors such as transmit power, antenna type, tag type and application environment)
Label recognition speed	＞800times/second
Features	Support RSSI/support multiple tags/intensive reading and writing/online upgrade/tag data filtering
Operating mode	Fixed frequency/frequency hopping selectable
Connection	
Communication interface	RJ45, RS-232
I/O interface	1 input, 1 output, 12V
Power supply	DC 12V/3.33A
Environmental Parameters	
Operating temperature	-20℃～+70℃
Storage temperature	-40℃～+85℃
Operating humidity	5%RH～95%RH (non-condensing)
Protection class	IP65

1.5 Interface Signal Definition

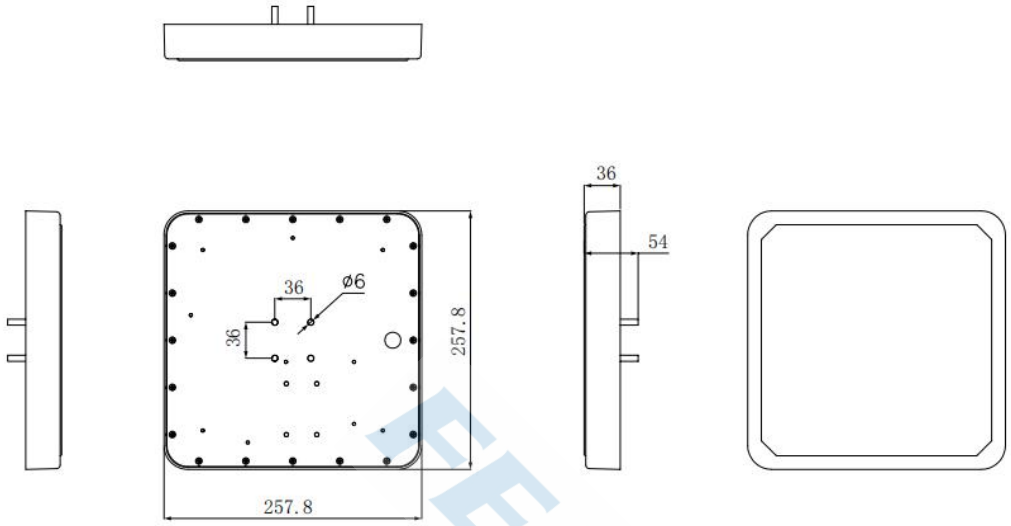
1. Black 4pin terminal

Terminal No.	Signal Name	Signal Definition	Diagram
1	IN	External Input（5-24V）	
2	B	RS-485 Negative	
3	A	RS-485 Positive	
4	GND	Ground	

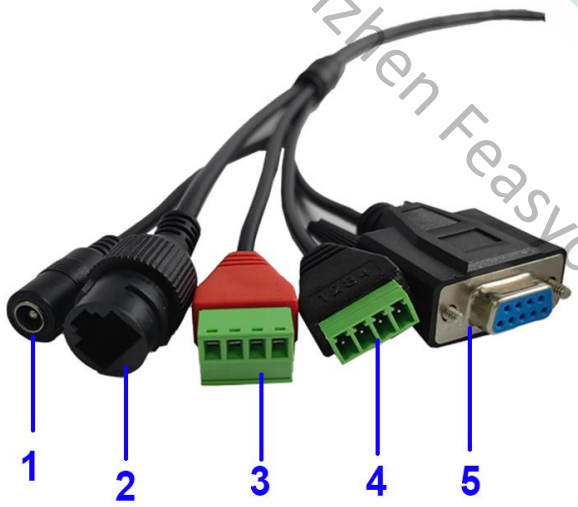
2.Red 4pin terminal

Terminal No.	Signal Name	Signal Definition	Diagram
1	D1	Wiegand 1	
2	D0	Wiegand 0	
3	OUT	Output（12V）	
4	GND	Ground	

1.6 Dimensions



1.7 Physical interface definition



1	12V power input port
2	Network port
3	Wiegand interface
4	RS485 interface
5	RS232 interface

Chapter 2. Installation instructions

2.1 Application notice

In order to ensure the normal and stable operation of the device and the safety of your personal and property, please read the following precautions carefully before installing the reading and writing equipment:

1.Firstly, check that the power outlet ground is connected to ground and see if the local power supply voltage matches the power adapter voltage range;

2.Check that the device is tightly connected to the outside;

3.Pay attention to the type selection and length limit of network cable and serial port cable:

- Direct serial port cable is need, and the length is not more than 5 meters.
- The length of the network cable connection shall not exceed 80 meters.

4.When installing multiple readers, the antenna placement and antenna spacing should be appropriate to avoid mutual interference.

2.2 Installation conditions

Before installing the reader, please carefully check whether the product is in good condition, whether the accessories are complete, if there is any damage or shortage, please contact the supplier in time.

2.3 Device connection

2.3.1 Connect to power adapter

Plug one end of the power cord into the power input port of the adapter, then insert the output port of the adapter into the power port of the reader and tighten it, and finally plug the other end of the power cord into the AC power supply outlet.

2.3.2 Connect to PC

☆ The RS232 interface is used for short-distance serial communication (the recommended

distance is not more than 5m), and can be connected to the serial port of the PC through the DB9 connector to realize the communication between the PC and the device；

☆ The network port is used for long-distance communication (no more than 80m).

2.3.3 Installation method

1. Installation diagram

2. Installation steps

The FSC-RD01LI integrated reader can be mounted on the steel frame structure or pillar through its own bracket or user-supplied bracket, and connected to the reader through the coaxial line.

The integrated reader can be mounted horizontally or vertically, depending on the mounting orientation of the bracket and the angle of the integrated reader can be adjusted according to the actual situation after installation.

The integrated reader bracket is optional parts, customers can choose according to their needs.

Step 1: Fix the L plate on the integrated reader with M6 nuts and flat gaskets and spring gaskets.

Step 2: Fix the integrated reader on the transverse or vertical steel frame structure or pillar with "M 6 U-bolts, nut spring washers and flat washers" and "dog teeth".

Chapter 3. Demo software operation

3.1 Demo software function description

The demonstration software mainly performs system control, communication mode selection, parameter setting and querying, tag reading and writing, and data display functions on the reader and writer.

3.2 Demo software environment requirements

- Software environment

Windows 2000 Service Pack 3、 Windows Server 2003、Windows XP Service Pack 2、Windows 10/11 OS

- Hardware environment

PC with P4/1.7GHz or above, 512M or above memory, 40GB or above hard disk

3.3 Demo software version

- Demo V1.1.13.36362

3.4 Demo software operation

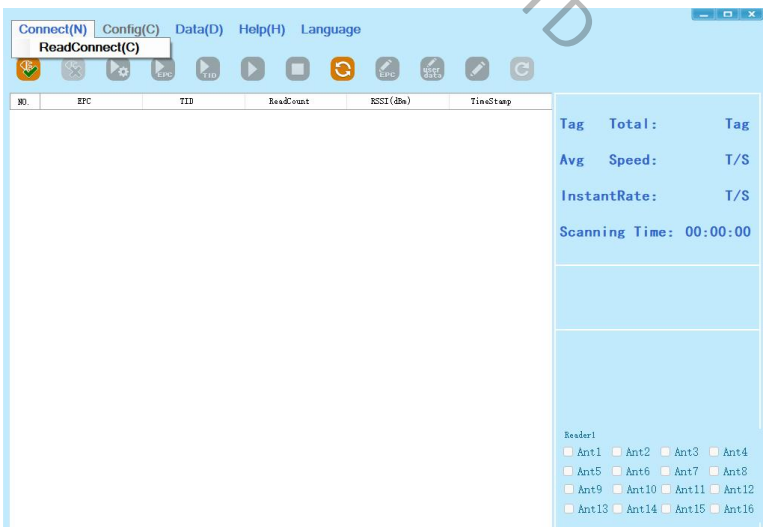
3.4.1 Language selection

Double click the exe file of ”读写器管理工具” to enter the demo software as below:

Click the drop-down menu of “Language” and select English as below:

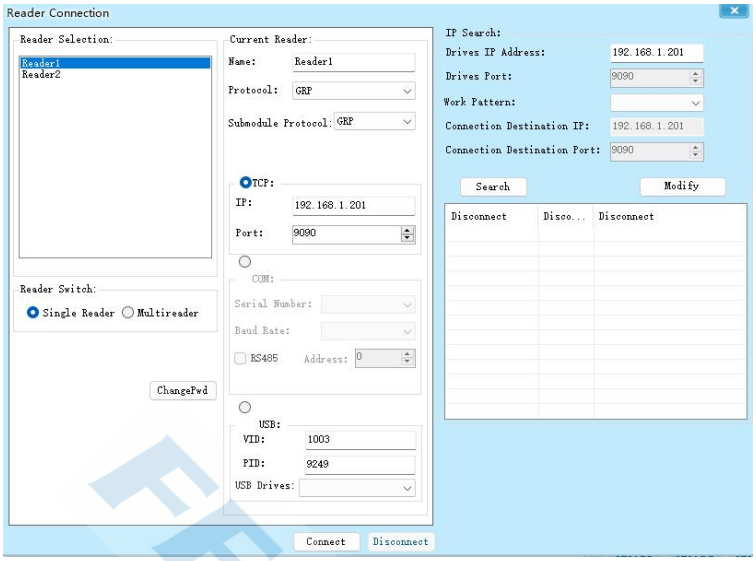
3.4.2 Reader connection

All functions can only be operated after a successful connection.



Click the drop-down menu of “Connect” and select ”ReaderConnect” and then enter Connect

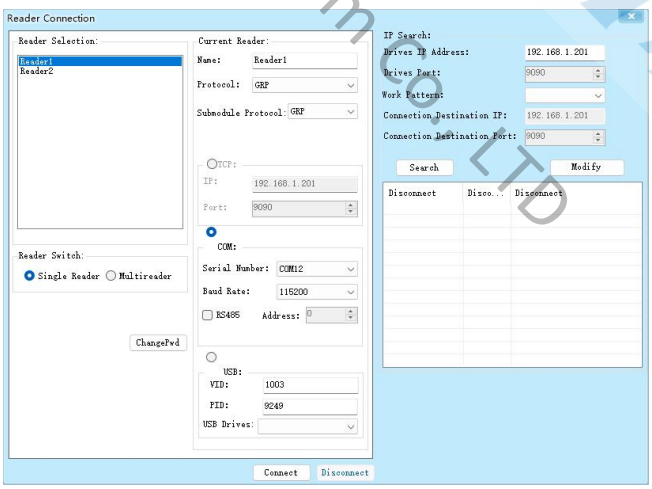
Type window as below:



For FSC-RD01LI reader, just serial connection and TCP connection are supported.

For TCP connection, click the radiobox of ”TCP”, click the radiobox of ”Single Reader” and then select Reader1, Input the IP address of the reader (default IP:192.168.1.201) and port(default 9090), then click the button ”connect” to finish the connection.

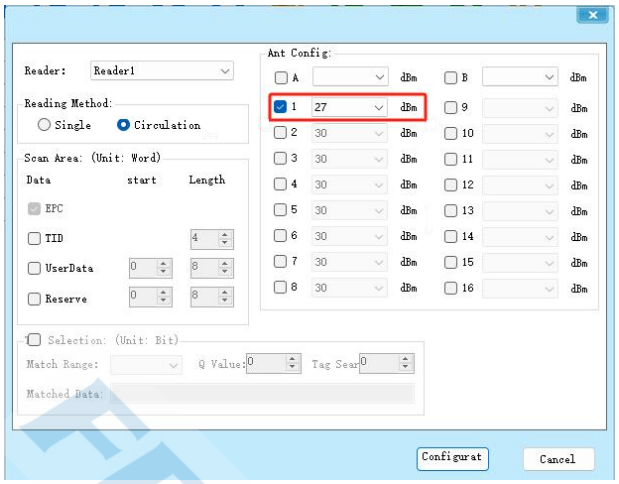
As shown above, click the radiobox of ”COM”, select the serial port which reader connect, select the baud rate to 115200, then click the button ”connect” to finish the connection.



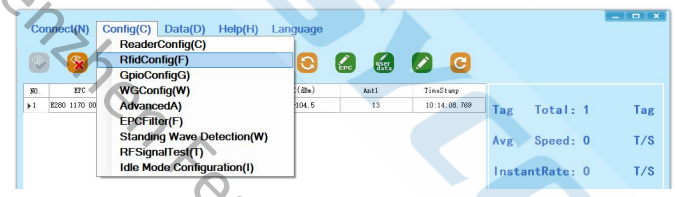
If connected successfully， the status bar in the lower-left corner displays the following information:

3.4.3 Scan settings

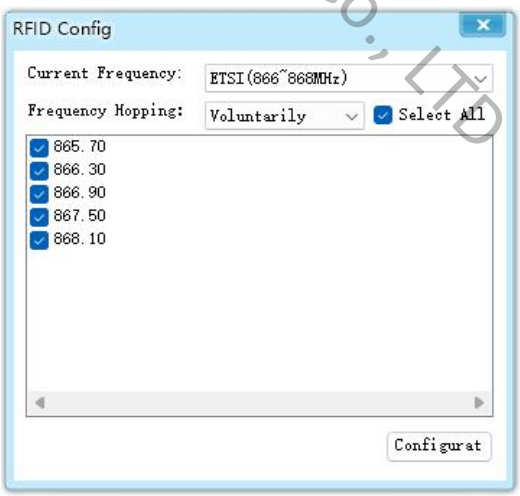
Click  button, The following dialog box will pop up:



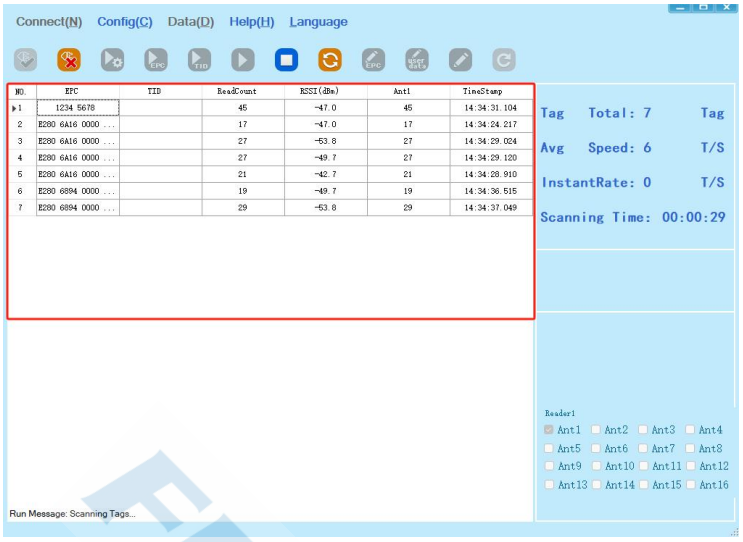
Select the checkbox of“Reader1”. For reading method, select the radio box of“Circulation”, Tick the antenna port you need and set the RF power you want; then click the button of “Set”.



Click the drop-down menu of “Config” and select “RfidConfig(F)”. and then enter RFID Config window as below. Select the frequency band you need as well as the frequency, then click the button of Configure



3.4.4 Data display area



EPC: EPC data of tag,

TID: TID data of tag, read only

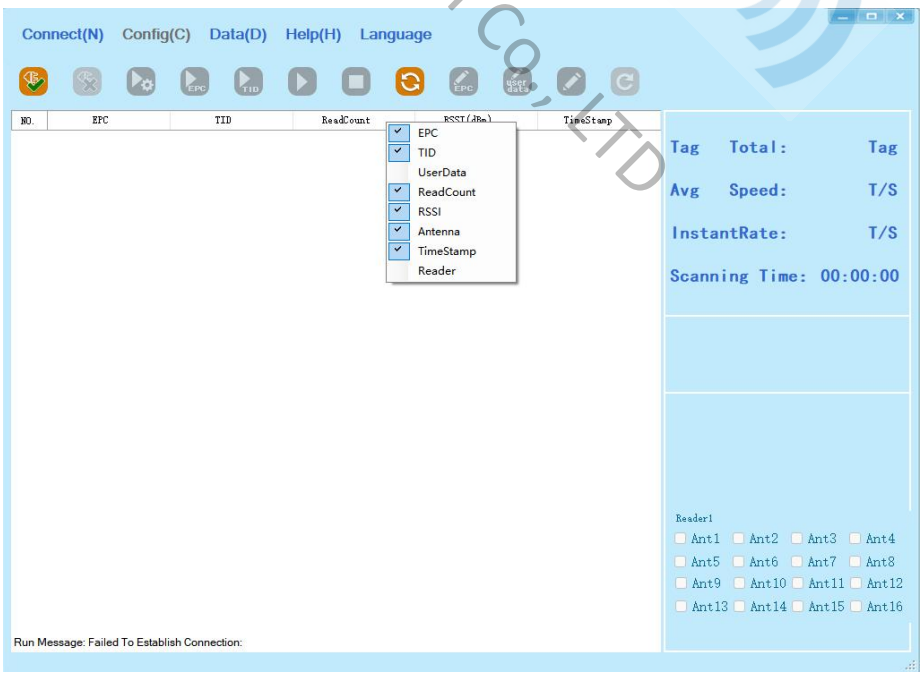
UserData: User data of tag,

ReadCount: the number of times the tag was read

ANT1: the number of times read through ANT1

RSSI: Signal strength

TimeStamp: the time when it was last read



After right-clicking in the data display area, a dialog box as above will pop up. You can choose what data you want to display.

3.4.5 Data reading

3.4.5.1 EPC reading

Click 

button to start EPC read, EPC data currently read will display in the data display area.The maximum EPC code length supported is 240 bits.

3.4.5.2 TID reading

Click 

button to start TID read, TID data read will display in the data display area. TID is displayed as hexadecimal strings and is expressed in words (1 word = 2 bytes = 4 hexadecimal characters)

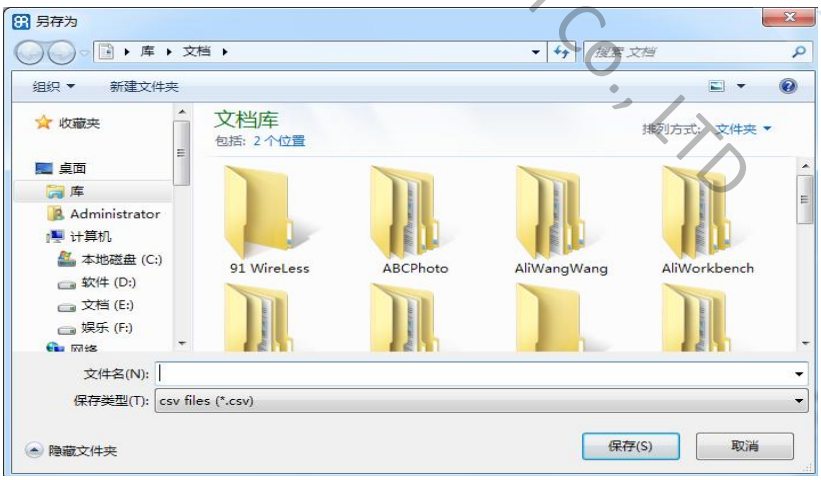
The default length of TID is 6 words

3.4.6 Stop

Click  button to stop all current read and write operations.

3.4.7 Data export

On the main page, select “Data”-> Export, a dialog box as below will pop up.



The read tag data can be exported in .csv format

Chapter 4. Common troubleshooting

4.1 Power supply failure:

Check whether the power supply of the power adapter is normal and whether the AC power supply voltage meets the requirements of 100V~240V.

4.2 Serial port communication failure:

The serial cable is not connected or is not securely connected, make sure it is a direct serial cable.

Check whether the selected COM port is correct

Check whether the baud rate is 115200

4.3 Network communication failure:

The default IP address of the reader is 192.168.1.201, make sure that PC's IP and Reader's IP are in the same network segment. For example, "192.168.1.XXX" can be connected to the reader.

For problems that users cannot solve by themselves, please contact after-sales.

Chapter 5. Accessories

5.1 Accessories

Accessories list form

Item	Description	Material code	Unit	QTY	Note
1	Power adapter(12V5A)	20108000000106	1	pcs	Standard
2	Network Cable	20350000000188	1	pcs	Standard
3	Installation bracket		1	pcs	Standard

5.2 Storage requirements

The read-write module should have the following conditions for long-term storage:

☆ Storage temperature: -40℃~+85℃

☆ Storage humidity: 5%RH~95%RH (non-condensing)

Chapter 6. After-sales service

Notice

Our aim is to continuously update our products, and if there are differences between the characteristics, composition and design of the product, this instruction manual and the equipment actually provided, we will provide a corrected sheet in a timely manner. If you fail to provide the corrected attachment in time, please consult the after-sales service.

Shenzhen Feasycom Co.,Ltd