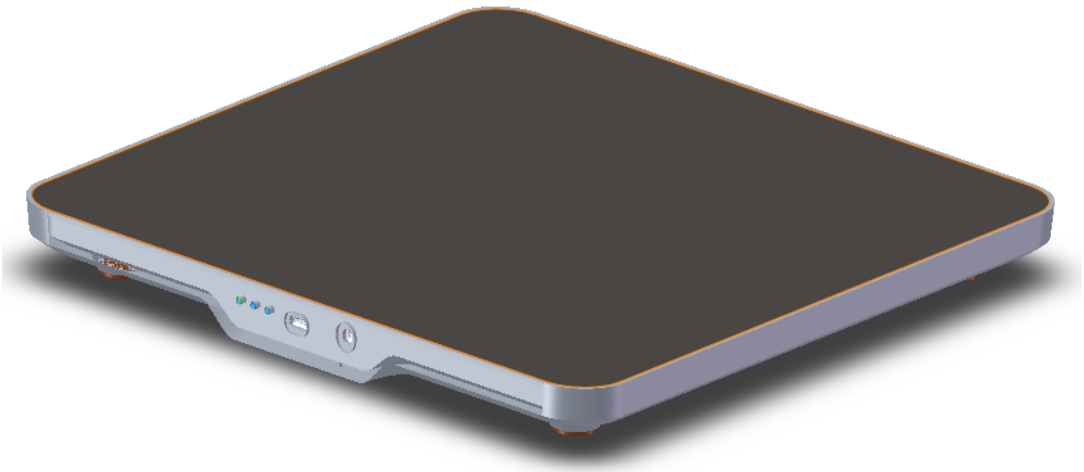
IDATA A500
Reader User Manual



preface

This manual is applicable to the following models of products:

IDATA A500 reader

This manual provides information on the installation, use, maintenance, and other features of the product, which can be read and used by installation personnel, users, and maintenance personnel.

The version number of this manual is: V1.0， The revision record is shown in the following table:

January 8, 2025	V1.0

The labels are all owned by Yingda Company.

All introductions and explanations about product features and functions, as well as other information in this manual, are the latest and valid information at that time, and all information is accurate and correct at the time of printing. Yingda Company reserves the right to correct or modify the information and explanations in this manual without prior notice or liability.

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1. Product Introduction

1.1 major function

The IDATA A500 desktop reader (V1.0) can perform read operations on electronic tags that comply with the EPC C1G2 (ISO 18000-6C) protocol.

1.2 performance parameter

1、Transmission power: 0-26dBm (USB power supply), step size 1dB, power optional.

0~31dBm (DC 12~24V or POE power supply)

2. Working frequency band: CN: 920-925MHz

FCC: 902-928 MHz

EU:865-868 MHz

860-960MHz (customizable).

3. Reading speed: up to 250 times/second (domestic module)

Up to 900 times per second (IMPINJ E710)

4. Reading label distance: 0-50 cm (related to the label)

5. Label distance: 0-20cm (related to the label)

6. Maximum operating current:0.95A@12V USB power supply: 0.5A@5VSupports POE power supply

7. Communication interface: USB、 Bluetooth TCP

1.3 External dimensions

Dimensions: 320 x 320 x 28 mm (L * W * H)

Bottom installation size: 58 * 58mm, M5 * 8 threaded hole

1.4 weight

Weight approximately: 1.0Kg

2. Reader Interface Description

2.1 Power interface

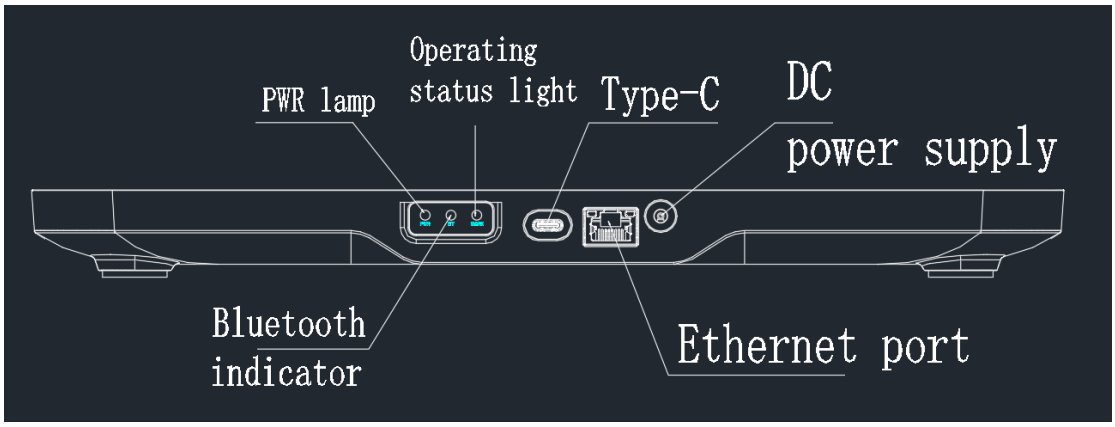
USB power supply, DC 12-24V or POE power supply comply with IEEE 802.3at/802.3at standards

2.2 communication interface

USB2.0、 Bluetooth 5.2, Ethernet port: 10M/100M

2.3 man-machine interface

Red light: power indicator light, default constant on
Blue light: Bluetooth status light, default off, always on after connection
Green light: running indicator light, flashing by default



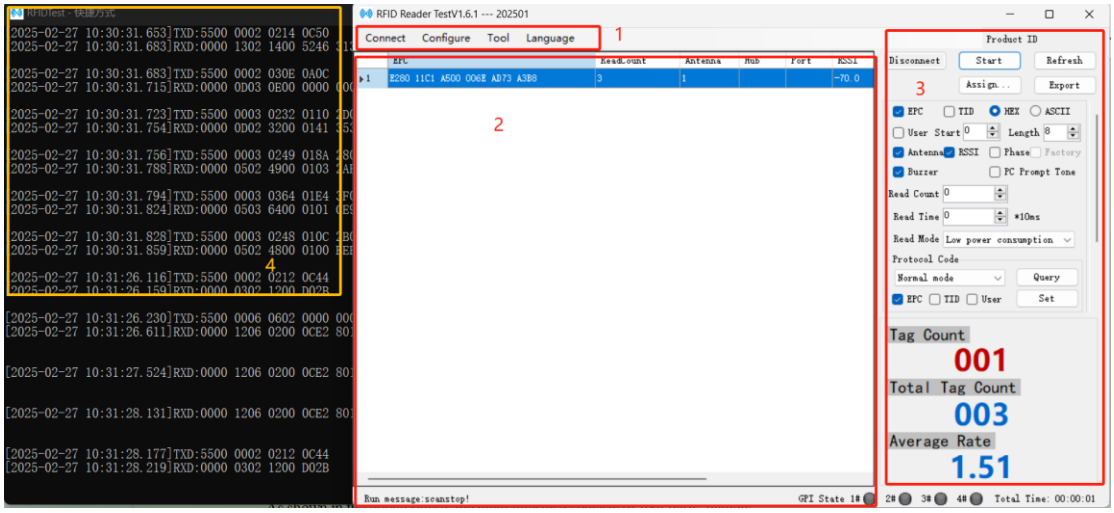
2.4 Auxiliary software

The IDATA A500 reader comes with accompanying demonstration software and API interface libraries.
Demo software:
UHF RFID DEMO (version: V1.6.1 and above)

API interface library:
API dynamic link libraries such as C #, C++, Java, etc.

3 Demo Software Operation Instructions

3.1 Software Interface Introduction



As shown in the above figure, the main interface consists of four parts, namely
1: Navigation bar
2: Data display area
3: Operation display area
4: Log display area
Data display area:

EPC： Product electronic code.

TID：Tag Identification, Tag recognition is an identification code.

UserData： User data segment, data stored in the tag user data area.

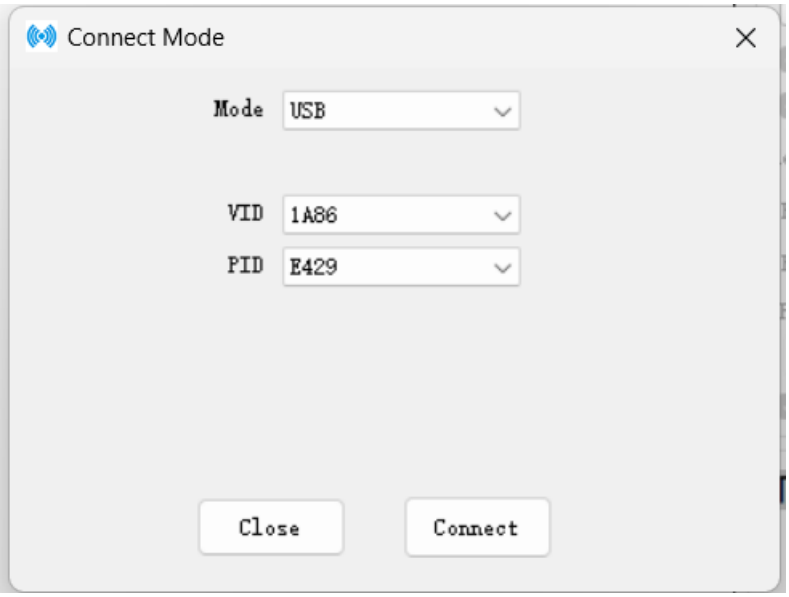
ReadCount： Statistics of the number of times a single tag has been read

RSSI： Label echo (signal) strength.

TimeStamp： Tag data reception time record, time format: hour minute second millisecond

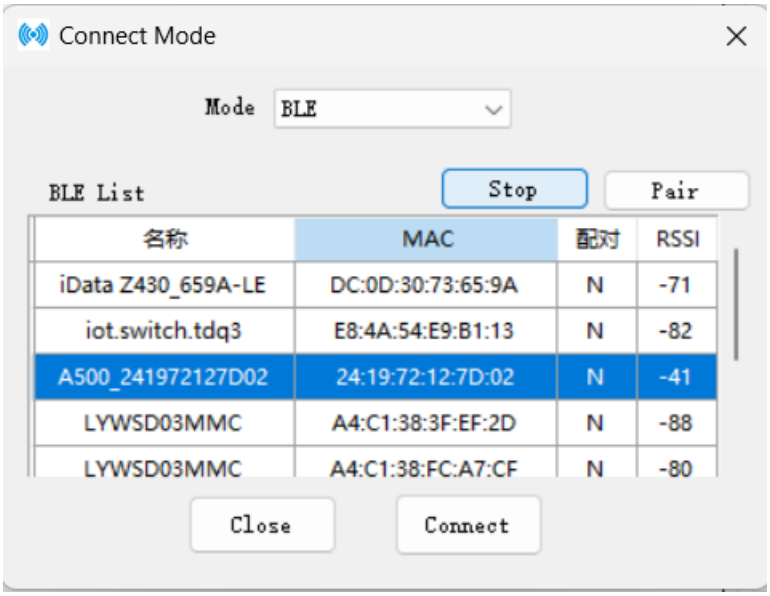
Log display area: Demo software corresponds to the communication protocol, please refer to the communication protocol information for details.

3.2 Connecting/Disconnecting Reader/Writer - USB



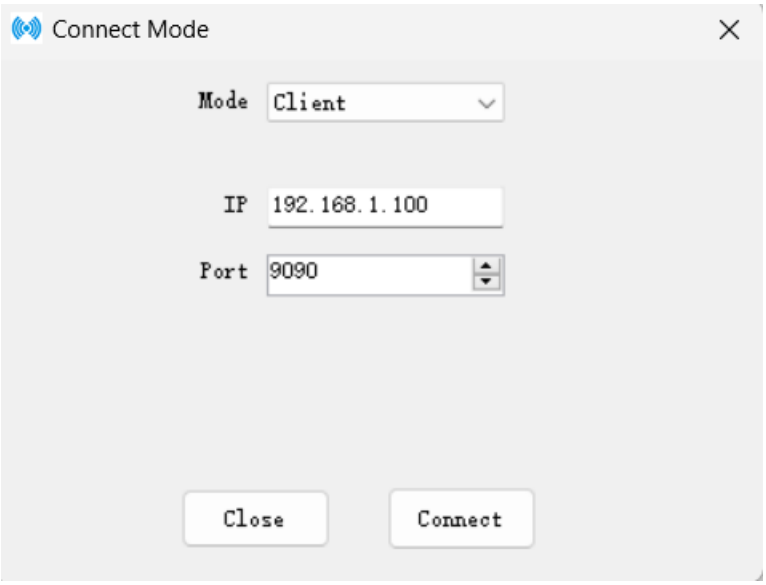
Step: Connect the computer to the reader using a USB-Type-C cable. In the navigation bar, select "Connect" - "Reader Connection", choose the USB connection method to successfully connect the reader and enter the main interface

3.3 Connect/Disconnect Reader/Writer - Bluetooth



Step: Connect the computer to the reader using a USB-Type-C cable. In the navigation bar, select "Connect" - "Reader Connection", choose the BLE connection method, scan for nearby Bluetooth names, select the corresponding Bluetooth device starting with IDATA A500, click "Connect" to successfully connect the reader and enter the main interface. The blue Bluetooth indicator light will light up, indicating that Bluetooth has been successfully connected

3.4 Connect/Disconnect Reader - TCP

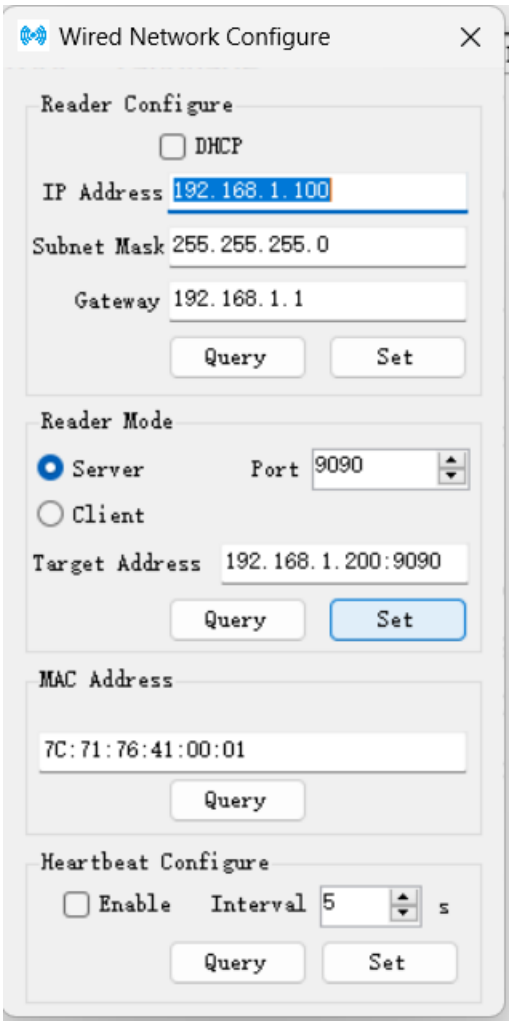


Step 1: In the navigation bar, select "Connect" - "Reader/Writer Connection", and then enter the connection method selection interface shown in the figure above;

Step 2: Select the connection method, which includes TCP_Clent (client)/TCP_Server (server) connection methods;

Step 3: When selecting the TCP_Client connection method, the default IP address of the reader is 192.168.1.100 and the port number is 9090. If the connection cannot be made, please check if the computer's IP address is 192.168.1.XX. After confirming that it is in the same network segment, click Connect to successfully connect the reader.

3.5 Network Query and Configuration



Click on "Configuration" - "Connection Configuration" - "Wired Network" in the navigation bar, and then open the wired network configuration,

As shown in the above figure, the window module in the wired network configuration can be subdivided according to functional requirements into: reader/writer IP settings DHCP、 Reader server/client mode, MAC address, heartbeat command configuration.

3.6 Introduction to the Function of Operation Selection Area

Read frequency: Set the number of times the reader/writer reads the label, ranging from 1-65535. 0: indicates no setting, unlimited reads.

Read time: Set the time for the reader to read the label, ranging from 0-65535 (unit: 10ms).

Reading mode: Set the reading mode of the reader/writer to read tags, including fast reading mode, multi tag mode, low-power mode, and dense reading mode

Fast reading mode: suitable for application scenarios where tags need to be read quickly, such as conveyor belts, vehicle entry and exit, etc., where the number of tags to be read at once is less than 50;

Multi label mode: suitable for scenarios where more than 50 labels are read during the movement process, such as inbound and outbound storage;

Low power mode: suitable for scenarios where UHF RFID handheld devices or UHF RFID

tablets are powered by batteries and require extended battery life;

Intensive reading mode: suitable for applications with multiple antennas and more than 200 tags. In a static environment, it is necessary to read all tags within a few seconds, such as RFID filing cabinets, RFID book cabinets, RFID consumables cabinets, etc;

Working mode: Set the working mode of the reader/writer, including normal mode, aging mode, and automatic card reading mode.

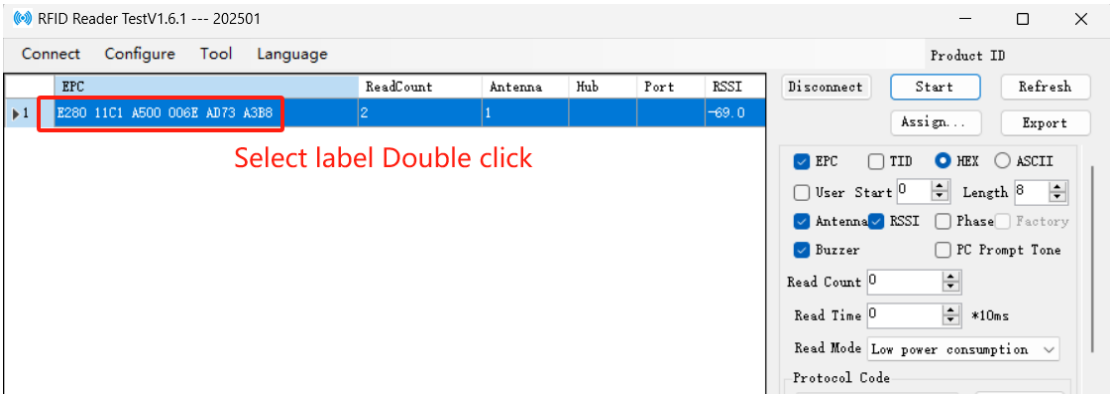
Normal mode: default mode, enters the waiting instruction state when powered on

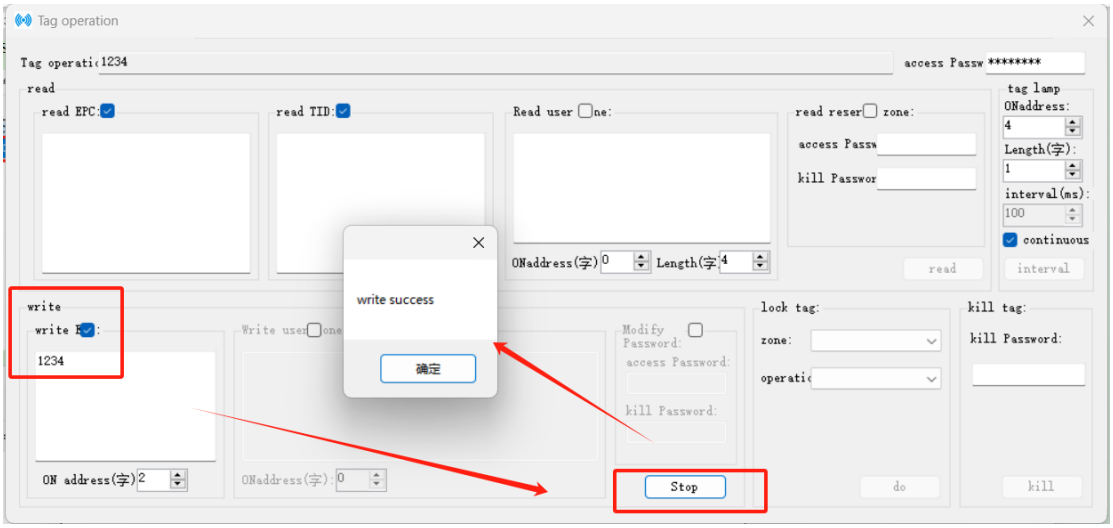
Automatic card reading mode: When powered on, it automatically reads the label status and can select to read EPC, TID, and USER;

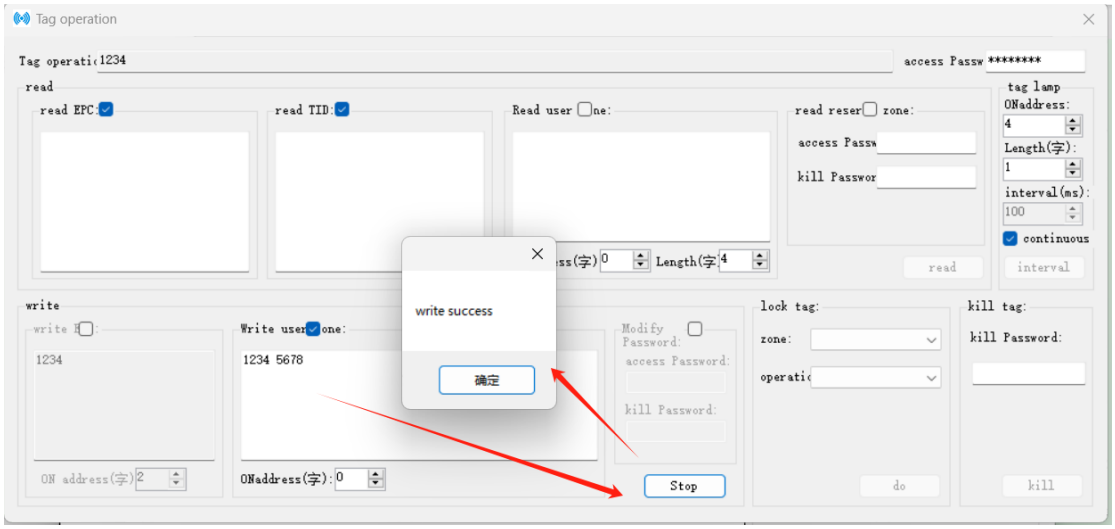
Aging mode: limited to production aging use only

3.7 Read Write EPC/User Area

1. First click "Start" to read the label, then click "Stop" to stop reading the label,
2. Find the tag that needs to be modified in the EPC/user area, double-click to enter, find "Write Operation", select "Write EPC"/"Write User Area", and write the content that needs to be modified in the box,
3. After clicking the "Write" button, a "Write Successful" dialog box will pop up, indicating successful writing



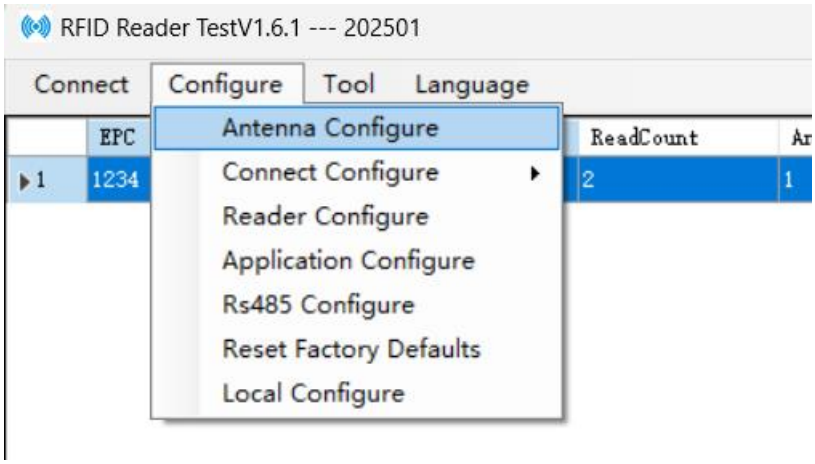


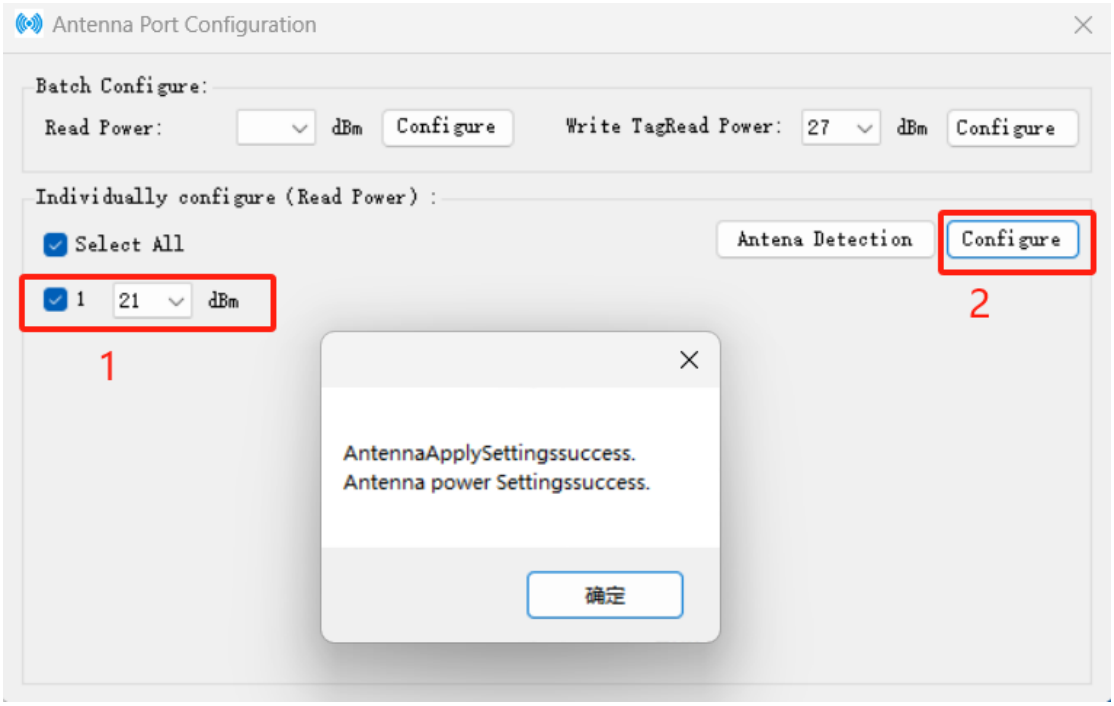


3.8 Antenna Port Power Configuration

Function: The function of configuring antenna ports is to change the strength value of wireless signals received and transmitted. The higher the power value, the greater the RF power and the wider the reading range.

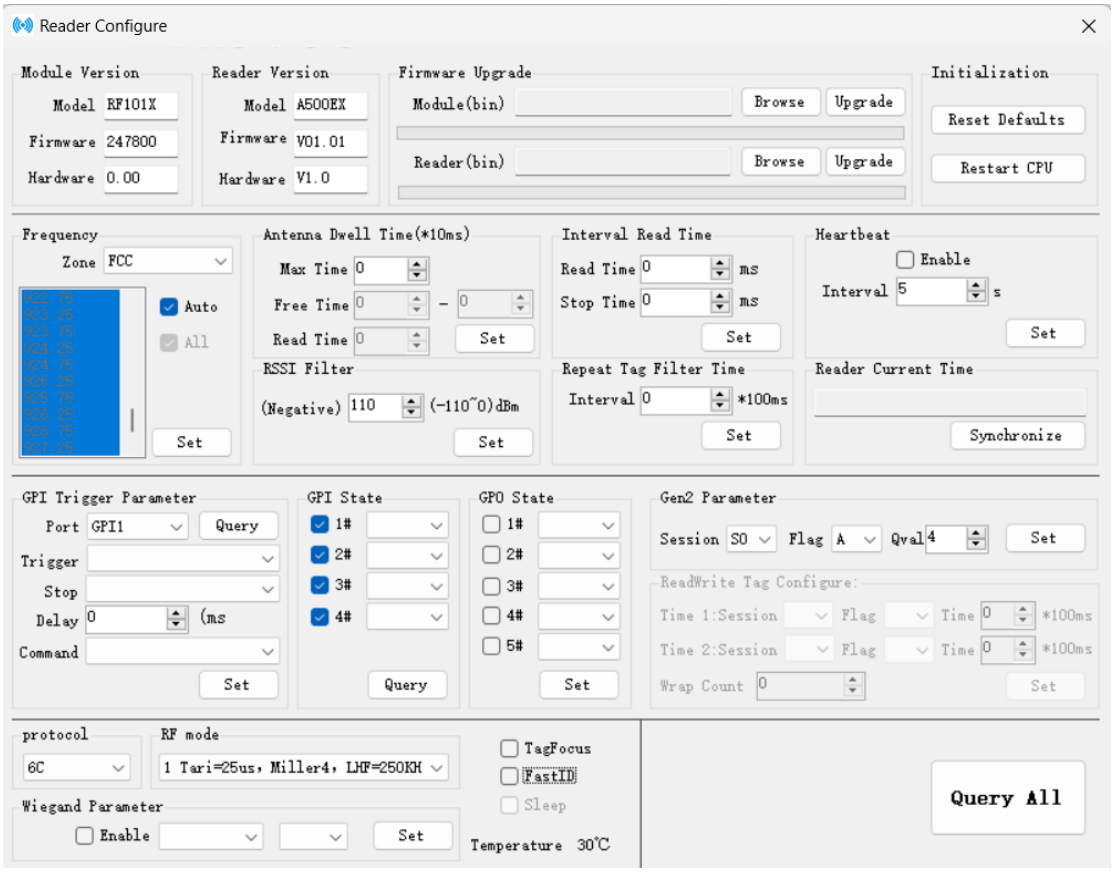
Step: Ensure that the PC end of the reader/writer is connected, click on "Configuration" - "Antenna Port Configuration" in the navigation bar, and enter the antenna port configuration window. Select the appropriate output power, click on configuration, and a successful prompt will appear. As shown in the following figure





3.9 Introduction to the configuration interface of the read-write module

Click on "Configuration" - "Read/Write Module Configuration" in the navigation bar, and then open the Read/Write Module Test form, as shown in the following figure.



As shown in the above figure, the window modules in the read-write module test form can be subdivided according to functional requirements: firmware upgrade, application firmware upgrade, query module product model and software/hardware version, query application processor software and hardware version, IO input, IO output, IO trigger, interval tag reading time, frequency band, air interface protocol, read parameter settings, duplicate tag filtering time, UTC time, factory reset, RSSI filtering threshold, antenna port dwell time configuration, communication mode, read-write tag configuration parameters.

3.10 Setting Frequency Bands

Function: Set the operating frequency band and specific frequency point of the reader/writer.

Step 1: Click on "Configuration" in the navigation bar - "Read/Write Module Configuration", enter the Read/Write Module Test Form, and then find the frequency band, as shown in the figure on the right;

Step 2: Select the frequency band. By default, FCC and automatic frequency selection are selected. At this time, in the automatic frequency selection state, the reader/writer automatically selects a frequency point within the RF frequency band, or can select "Select All".

Step 3: Remove the automatic selection option and manually select the frequency point that needs to be set.

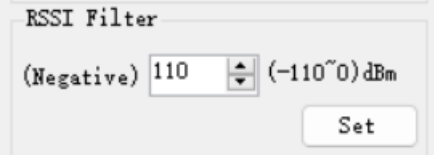
Step 4: Click and wait for the successful operation window to pop up to complete the setup.

National standard frequency band CN: 920MHz~925MHz

North American frequency band FCC: 902MHz~928MHz

EU frequency band: 865 MHz~868 MHz

3.11 Setting RSSI filtering threshold



Function: Set the filtering threshold for the signal strength of tag data;

Step 1: Click on "Configuration" in the navigation bar - "Read/Write Module Configuration", enter the Read/Write Module Test Form, and then find the RSSI filtering threshold,

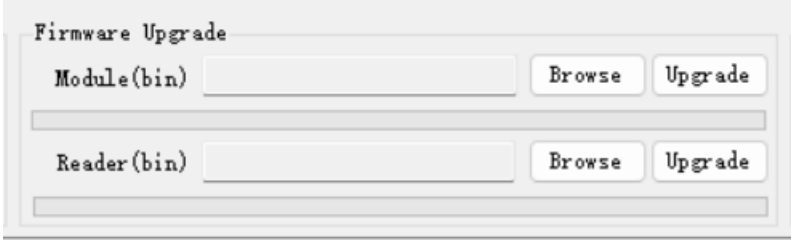
Step 2: Set the parameters for RSSI filtering threshold within the range of -110~0 dB;

Step 3: Click on Settings to complete the setup.

3.12 Factory reset

Function: The function of restoring factory settings is to change the RFID configuration parameters of the device to default parameters

3.13 Firmware Upgrade



Function: This feature is used to upgrade the underlying firmware of the product.

Note: The module upgrade corresponds to the target bin file starting with RFID

The upgrade file for the reader/writer corresponds to the target bin file starting with Reader

Step 1: Click Browse and select the target bin file that needs to be upgraded

Step 2: Click Upgrade to start the firmware upgrade. During this process, please keep the PC and reader connected until the upgrade success window pops up, indicating that the upgrade is successful. Reopen the reader module accessory interface to obtain the upgraded version number

Step 3: After upgrading, restore the factory settings

4. After sales service

When users encounter unresolved issues while using this reader/writer device, please contact our customer service center.

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If you have any questions about the device, you can send them via email to idata@idatachina.com

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website: www.idatachina.com

5.Warning language

FCC ID：2ADE3IDATAA500

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: The manufacturer is not responsible for any radio or TV interference caused by

unauthorized modifications or changes to this equipment. Such modifications or changes could void the user’s authority to operate the equipment.

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.

Federal Communication Commission (FCC) Radiation Exposure Statement

When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.

CE：

RF exposure information: The Maximum Permissible Exposure (MPE) level has been calculated based on a distance of d=20 cm between the device and the human body. To maintain compliance with RF exposure requirement, use product that maintain a 20cm distance between the device and human body.

This product can be used across EU member states.

Frequency bands and power

Bluetooth	2.4GHz	2402-2480 MHz	EIRP 9.98dBm
RFID	/	865.7MHz-867.5MHz	EIRP 12.70dBm

EU Regulatory Conformance

Hereby, Wuxi iData Technology Co., Ltd. declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU .

The full text of the EU declaration of conformity: