User Manual

Technical Specifications

1.1 Product Features

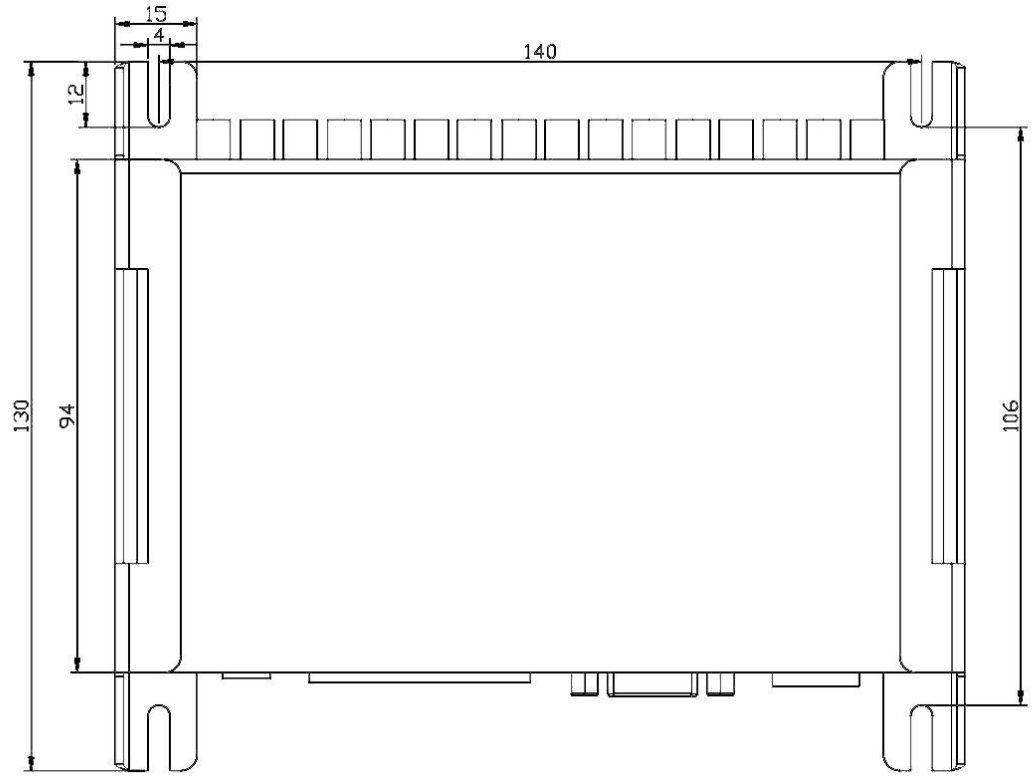
RTEC R3800-F is a high-performance all-in-one UHF RFID reading and writing equipment, support ISO18000-6C protocol, working frequency band contains the national standard: FCC: 902.75MHz ~ 927.25MHz with recognition distance, fast speed, high accuracy, strong anti-interference ability, excellent protection performance and easy to install and use characteristics.

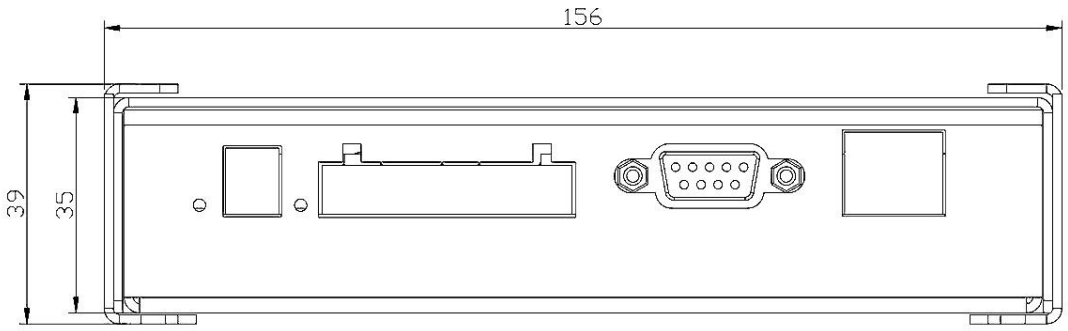
1.2 Main functions and technical performance parameters

Device size	156x130x39mm	Output Power	21.5dBm(max)
Package size	285x265x80mm	Receive	＜-85dBm
Total mass of equipment	500g	Reading Rate	＞tags/s
Total mass	1150g	Tag buffer	200tags@96bit EPC
Body material	Aluminum alloy	Tags RSSI	Support
Input voltage	DC 12~24V	Antenna connection protection	Support
Standby current	＜10mA	Antenna connection protection	Support
Max work current	1000mA ±5%@DC 12V Input	Host Communication	RS-232、TCP/IP
Operating Temp	-20℃~+65℃	GPI0	2 input optical coupling 2 output coupling
Storage Temp.	-40℃~+85℃	Band Rate	115200bps（by default）
Humidity	5%RH~95%RH(no condensation)	Cooling method	Air cooling
Air Protocol	EPC global UHF Cass 1 Gen 2	Accessories	12V/3APower cord: one; Serial port line: one; warranty card: one
RF Interface	SMA Female seat of external thread（16pcs）	Work frequency range	902~928MHz （Other frequency bands can be customized）

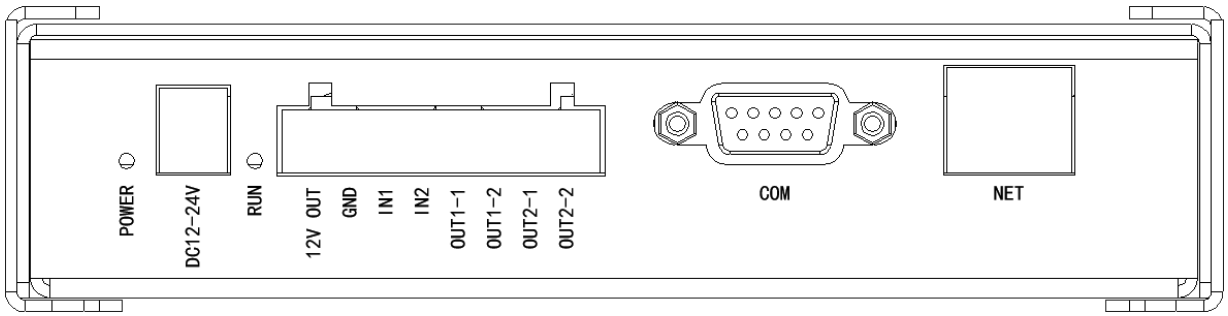
2、Schematic diagram

2.1 Structure size



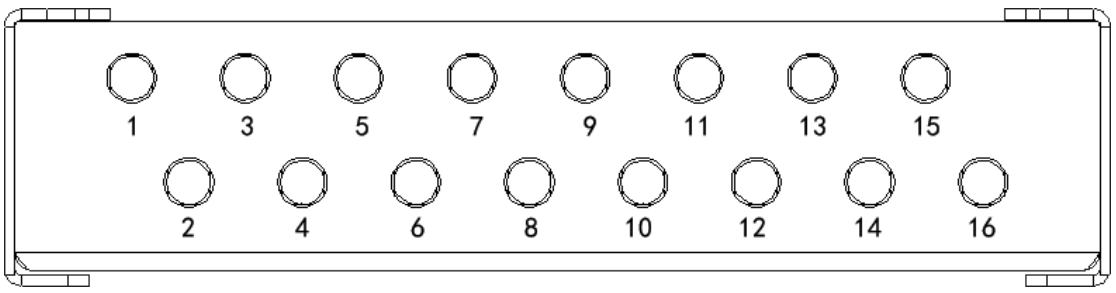


2.2 Interface diagram



Interface name (left to right)	Function description
POWER	Power indicator (blue, always on after power on)
DC12~24V	Power input port, input voltage range: 12~24V; (Default: 12V/3A)
RUN	Card reader indicator (blue, it will flash after reading the label)
12VOUT	DC12 Output
GND	Ground [can be used as a trigger signal]

IN1	Trigger input 1
IN2	Trigger input 2
OUT1-1	relay1-On
OUT1-2	relay1-COM
OUT2-1	relay2-On
OUT2-2	relay2-COM
COM	Serial port
NET	Network port (supports 10/100M Ethernet communication)



16 ways SMA external thread female head

2.3 Network application connection diagram

The network interface is used for long-distance high-speed connection (not more than 80 m), and can be connected to a switch or router through a network cable, or directly to a PC network interface, as shown in the following figure.

3. Installation Instruction

3.1 precautions

In order to ensure the normal and stable work of the equipment and the safety of your personal and property, please read the following precautions carefully before installing the RTEC R3800-F reading and writing equipment:

1.First check whether the ground terminal of the power socket is connected to the ground, and check whether the local power supply voltage meets the applicable voltage range of the reader;

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

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

- The network cable adopts direct connection, the length does not exceed 80 meters
- The Serial cable adopts direct connection, the length does not exceed 10 meters

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

3.2 Installation conditions

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

3.3 Device connection

3.3.1 Connect to power adapter

☆ Plug the power cord into the AC power supply socket, and then plug the other end of the power cord into the power interface of the reader and fasten it.

3.3.2 Connect to PC

☆ The RS232 interface is used for short-distance communication (not greater than 10m), and it can be connected to the PC serial port through the DB9 connector to realize the communication between the PC and the device;;

☆The RJ45 network port is used for long-distance communication (not greater than 80m), and an extended network cable can be used to connect to the PC。

3.4 Install device

According to the on-site application, install the reader in the cabinet or box for easy maintenance.

3.5 Acceptance

The acceptance criteria are given mainly from two aspects: structure and performance.

3.5.1 Structural acceptance

☆ Whether the reader is firmly fixed and not loose;

☆ Whether the cable is firmly connected；

☆ Whether the screw is tightened.

3.5.2 Performance acceptance

☆ whether reader working properly；

☆ Whether the read/write range is reasonable。

4. Operation Instruction

4.1 Demo Software Description

The demonstration software mainly carries out system control, communication mode selection, parameter setting and query, tag reading and writing and data display functions for the RTEC R3800-F reader.

Before using the demo software, please check whether the hardware connection of the reader is complete, focusing on ensuring the following points：

1、The reader is properly connected to the serial port (network or RS232) of the computer

4.2 Demo software application environment

◆ Software environment

Windows 2000 Service Pack 3、 Windows Server 2003、Windows XP Service Pack 2、Windows 7

◆ Hardware environment

P4/1.7GHz or above PC, 512M or above RAM, 40G hard drive

4.6 Demo software operation

All functions can be operated only after successful connection. Double click on the Demo application

Please refer to the documentation for all Demo procedures and processes：

4.7． Software

【SingleReaderTest_C#_Software operation instruction_20190822】

Instructions for use：

The demo software is only used for configuration parameters and debugging demonstration, not for other commercial purposes.

This software is not the final version and will be updated continuously in the future. If there is a bug, please give feedback. If it brings you bad experience, we are sorry.

Tip: before running the software, please check the following steps。

1、Whether the power supply of the equipment is normal (stable power supply 12V ~ 24V / 3a)

2、Whether the data cable connection is normal (serial port cable and network cable)

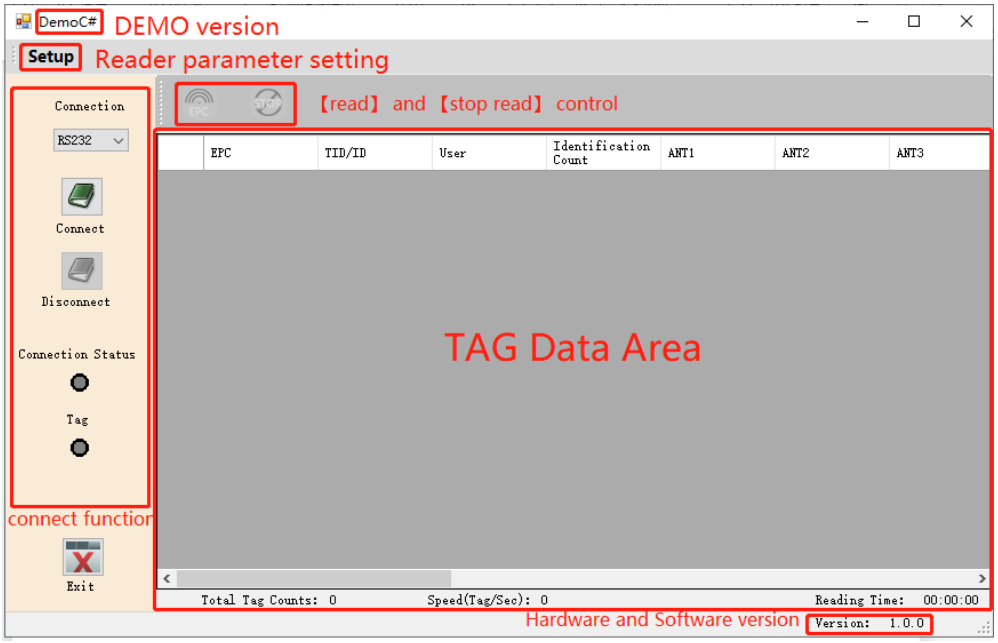
3、Whether the antenna connection is normal (feeder and antenna port)

4、Whether the working indicator of the device is normal (the four channel reader is in red when it is powered on; When the 16 channel reader / writer is powered on, the display is blue, and the card readers are all flashing blue.)

1． Function

This software does not need to install, after decompression can run

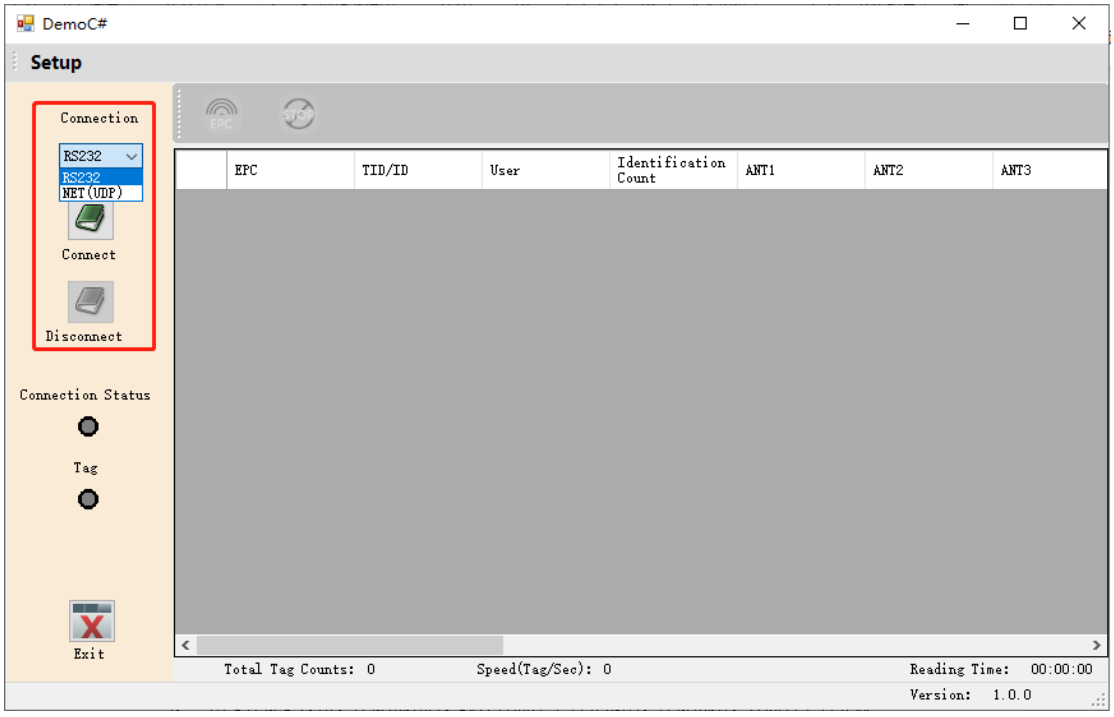
2. Interface description



3. Connection

This software provides two connection modes: serial port (RS232) and network port (RJ45)

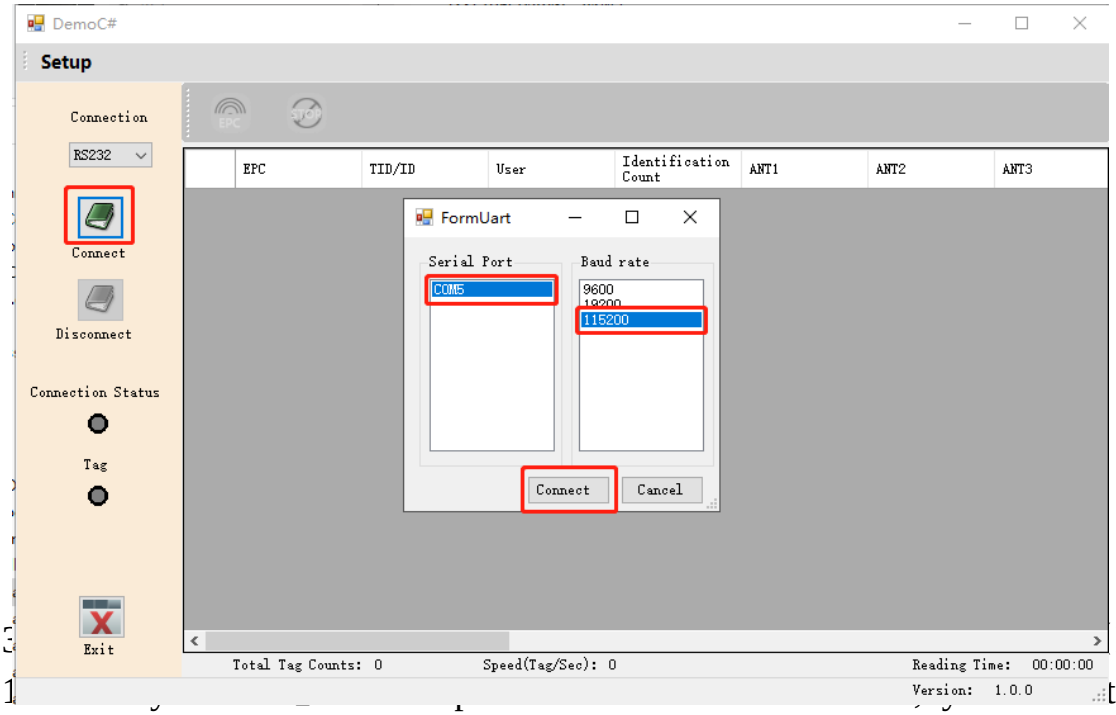
serial port (RS232):



The serial port connection only needs to configure the following parameters

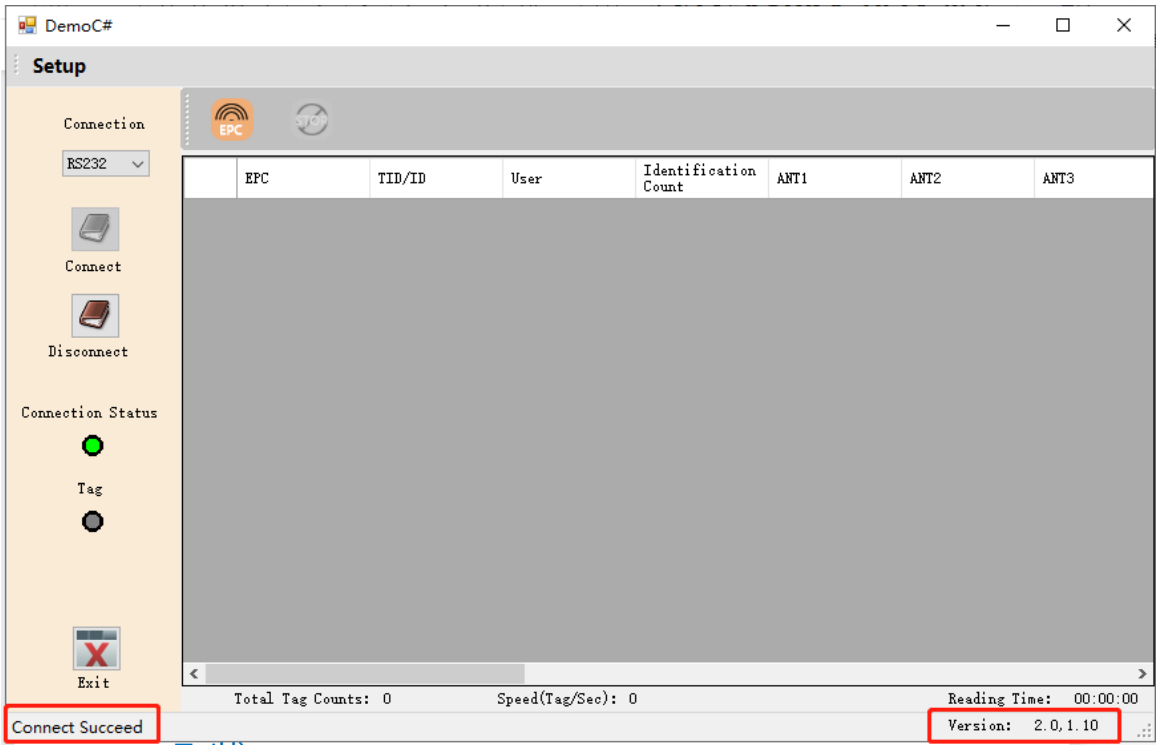
1. Select in communication【RS232】

2. click【Connect】, A small box will pop up as shown in the figure below



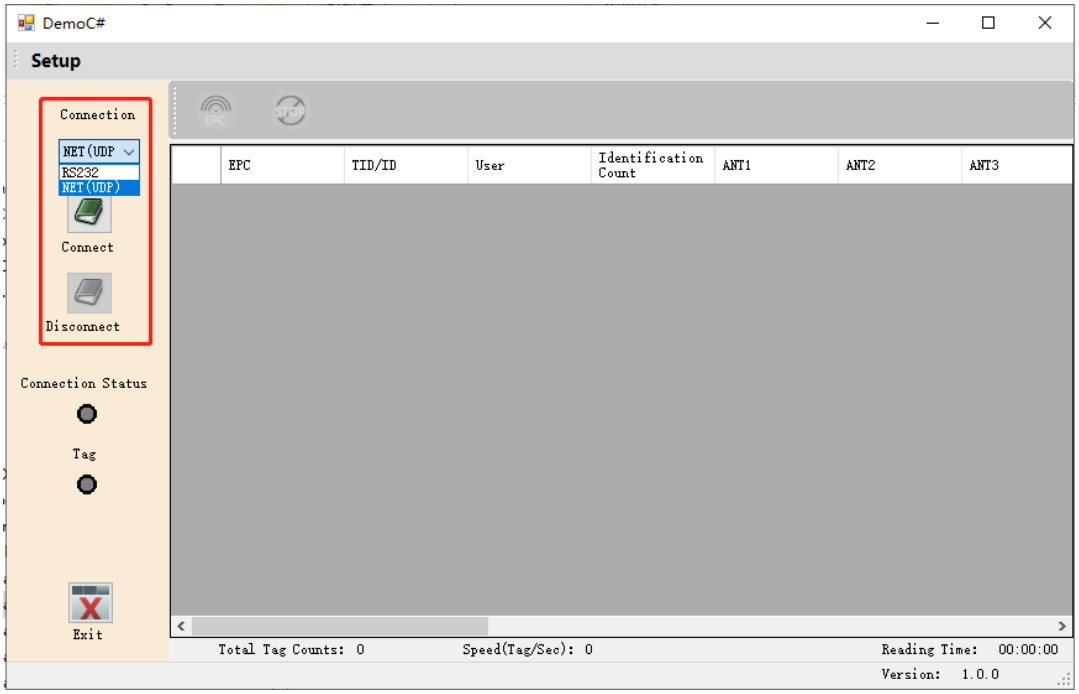
3. Baud rate is 1[illegible] to select the corresponding parameter, otherwise it cannot be connected）

4. click【Connect】, If the connection is successful, you will be prompted at the bottom left of the software interface：Connect succeed，The corresponding version number will be displayed at the bottom right of the interface，The current version number is：2.0；1.10（The version number will be updated at any time）As shown in the figure below：



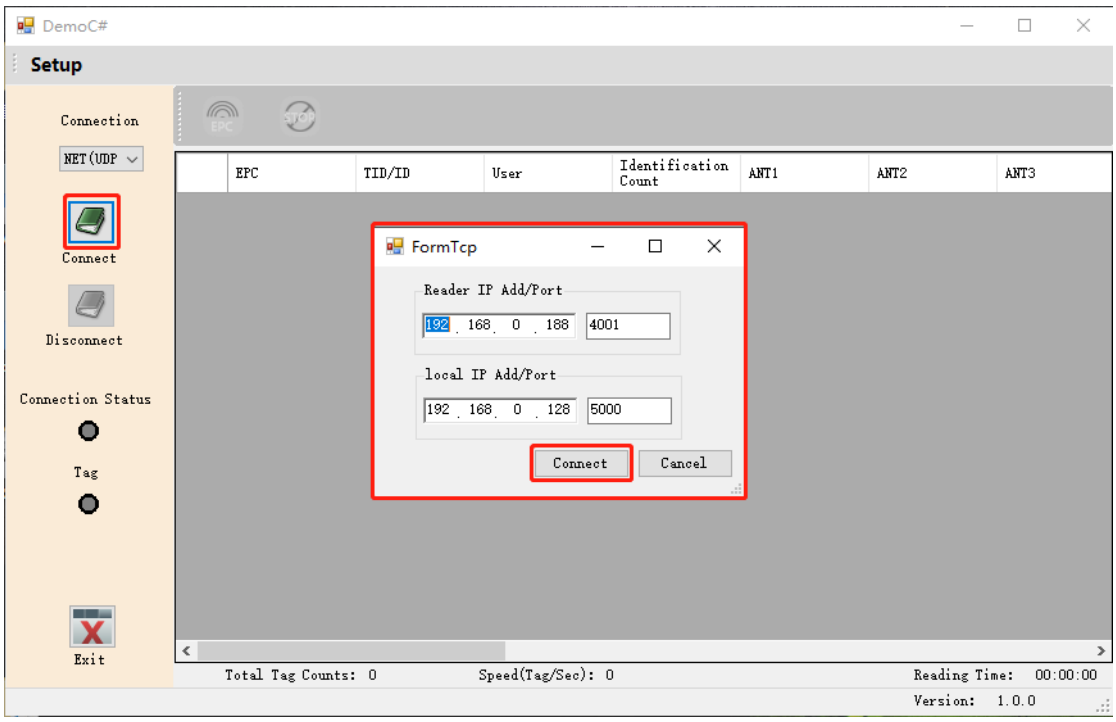
If the display version number is: 1.0.0, the connection fails；

Network port (RJ45)



The network port connection only needs to configure the following parameters

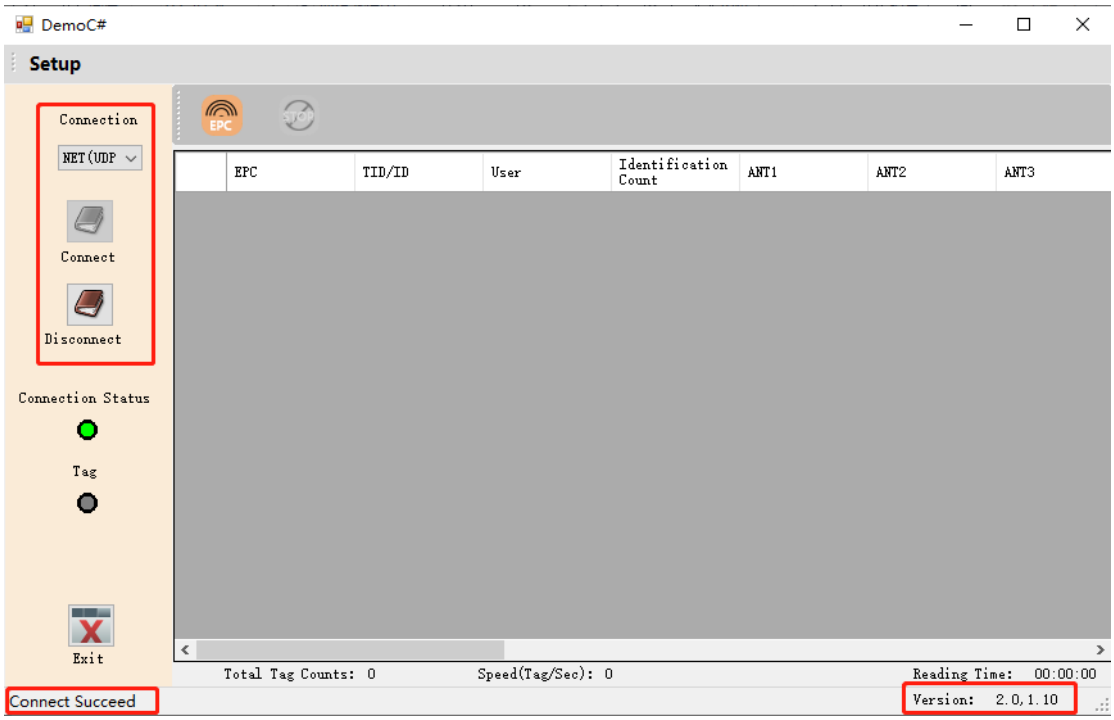
1. Select in communication【NET(UDP)】
2. click【Connect】，A small box will pop up as shown in the figure below



3. 【Reader IP Add/Port】 Enter the IP address of the reader, the default is 192.168.0.188, and the port is 4001；

4. 【local IP Add/Port】 Enter local IP address，**【Note: to connect to the network port, you need to change the local IP address to 192.168.0.xxx, the IP address of the same network segment as the device, XXX is between 1-255, and cannot be 188】**

5. click【Connect】, If the connection is successful, you will be prompted at the bottom left of the software interface：Connect succeed，The corresponding version number will be displayed at the bottom right of the interface，The current version number is：2.0；1.10（The version number will be updated at any time）As shown in the figure below：



If the display version number is: 1.0.0, the connection fails；

Tips:

Connection failure, please check ：

1、Are the connections normal

2、Whether the power supply is normal and the voltage is stable (12V ~ 24V / 3A)

3、Does demo open repeatedly；

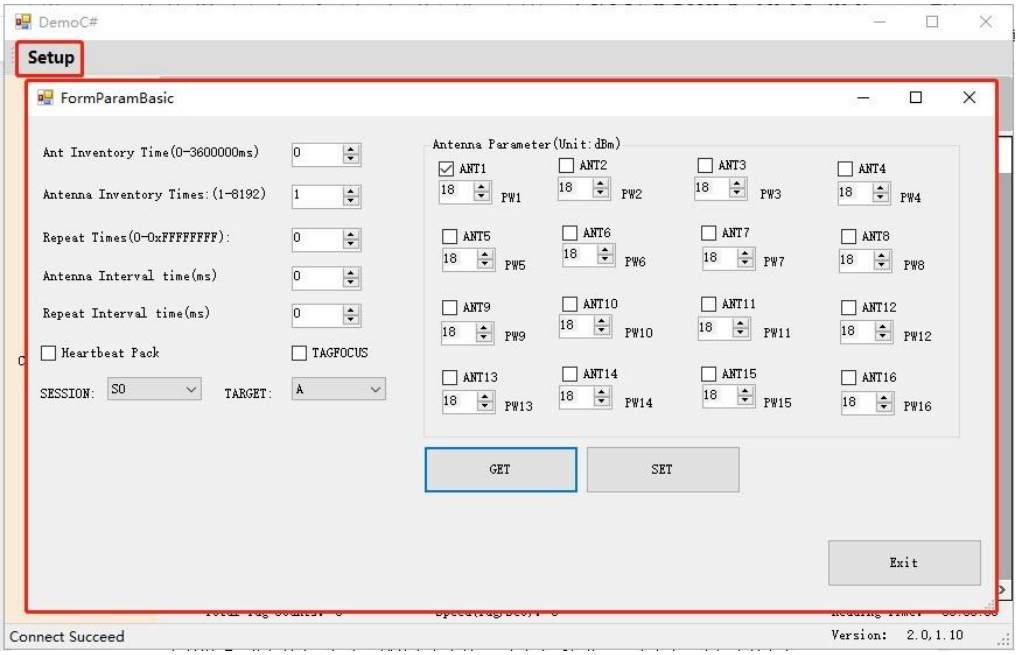
4、If you have opened demo before and are still occupying the process, you need to open the process first and close the demo；

If you still can't connect successfully, you can contact the corresponding salesman or after-sales technology in time

4. Parameter setting

Reader Setup

Without reading tag data，click【Setup】，and click【Reader Setup】，As shown in the figure below：



click 【GET】 to get the result. There is a corresponding prompt and the current function configuration of the device will be displayed

【ANT Inventory Time】: Default value：0ms，

（Parameter Description: this time represents the dwell time of each antenna. When the time arrives, the next antenna will be switched to start inventory. 0 means that the time limit is not enabled. If it needs to be enabled, it is recommended to set it to at least 50ms and increase it by 10ms）

【Antenna Inventory Times】: Default value：1，

（Parameter Description: this parameter indicates the inventory times of each antenna.

After one inventory, the next inventory will be switched. After all times of inventory, the next antenna inventory will be switched. By default, it must be at least once. Usually, it is enough to set only once. This parameter and【ANT Inventory Time】are double values, which will take effect at the same time, At the same time, switch to the next antenna according to the effective parameters）

【Repeat Times】: Default value：0，
（Parameter Description: all antennas will automatically enter the next cycle after polling for one cycle. The default value of 0 is invalid, which means infinite cycles）

【Antenna Interval time】: Default value：0ms,
（Parameter Description: after the inventory of each antenna is finished, the next antenna is switched to start inventory. This parameter indicates whether to wait for time before switching to the second antenna after the inventory of one antenna is finished. The default value of 0 means no waiting. If this parameter is enabled, it is recommended to set it to at least 10ms increment）

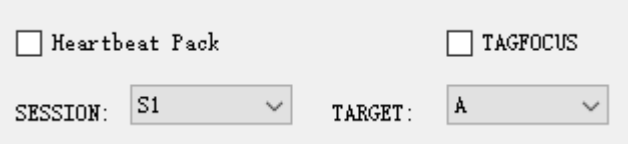
【Repeat Interval time】: Default value：0ms,
（Parameter Description: after the end of each cycle, it will enter the next cycle. This parameter indicates whether to wait for time to enter the next cycle after the end of one cycle. The default value is 0, which means no need to wait. If this parameter is enabled, it is recommended to set it to at least 10ms increment）

【Heartbeat Pack】: Default value：Not checked. Check if you need a heartbeat pack
（Parameter Description: the heartbeat packet can prompt whether the connection status of the device is healthy or not. Generally, it is not enabled and can be checked selectively,

【SESSION】Default value： S1；

【TARGET】Default value： A；

【TAGFOCUS】Default value： Not checked； As shown in the figure below：：

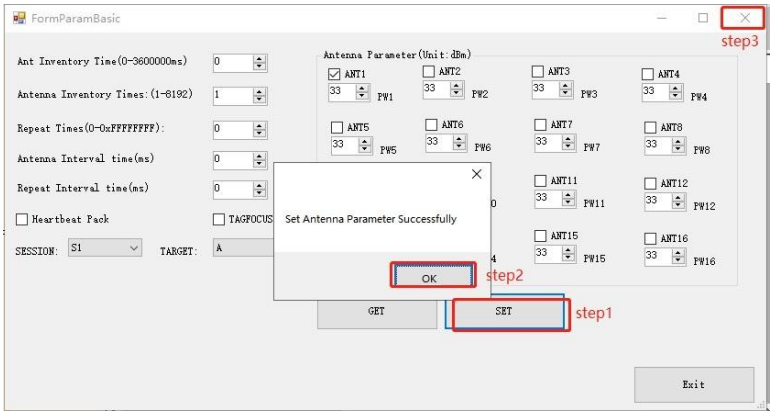


【Antenna Parameter】： Select the antenna number corresponding to the hardware, and set the power, power range： 21.5dBm MAX；

Note: after the parameters are configured, click 【SET】 to take effect

Reading demonstration

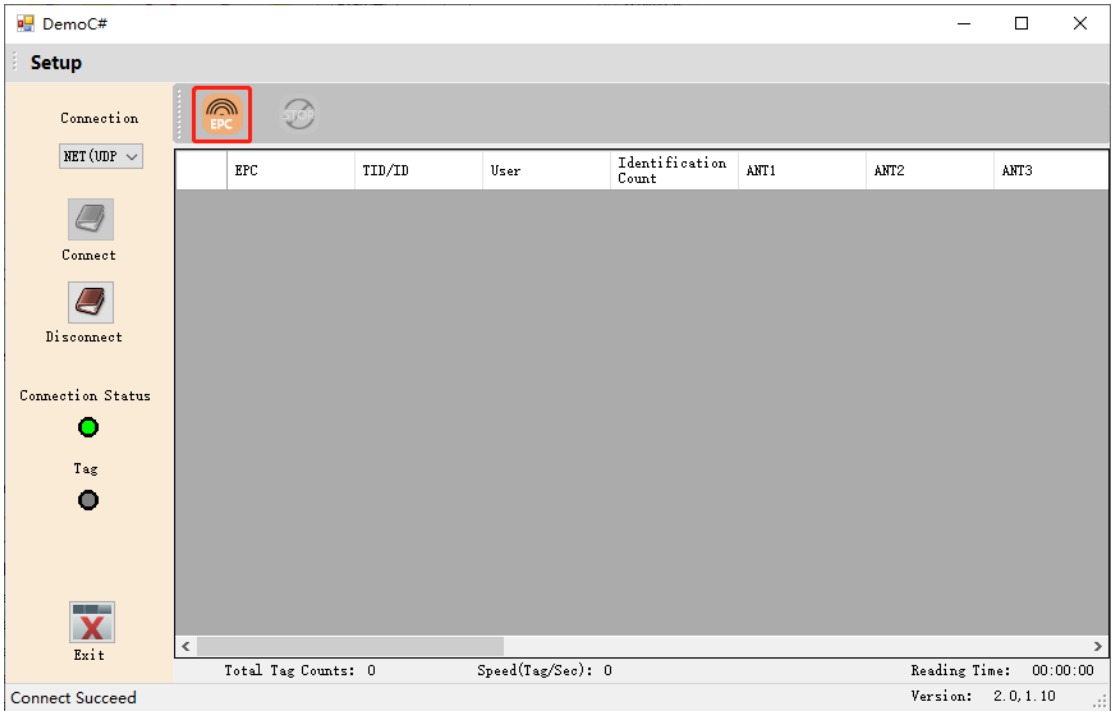
After setting【Reader Setup】， card reading demonstration, click【EPC】, taking the following parameters as an example：



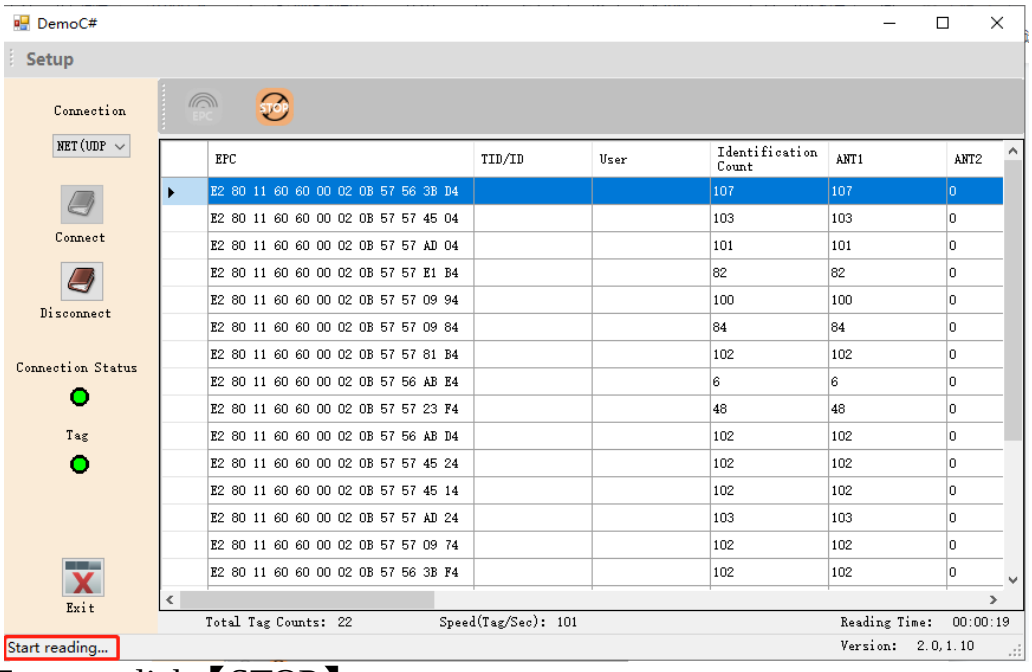
Click [SET], after setting successfully, click [OK]

again, and then close [reader function setting] interface

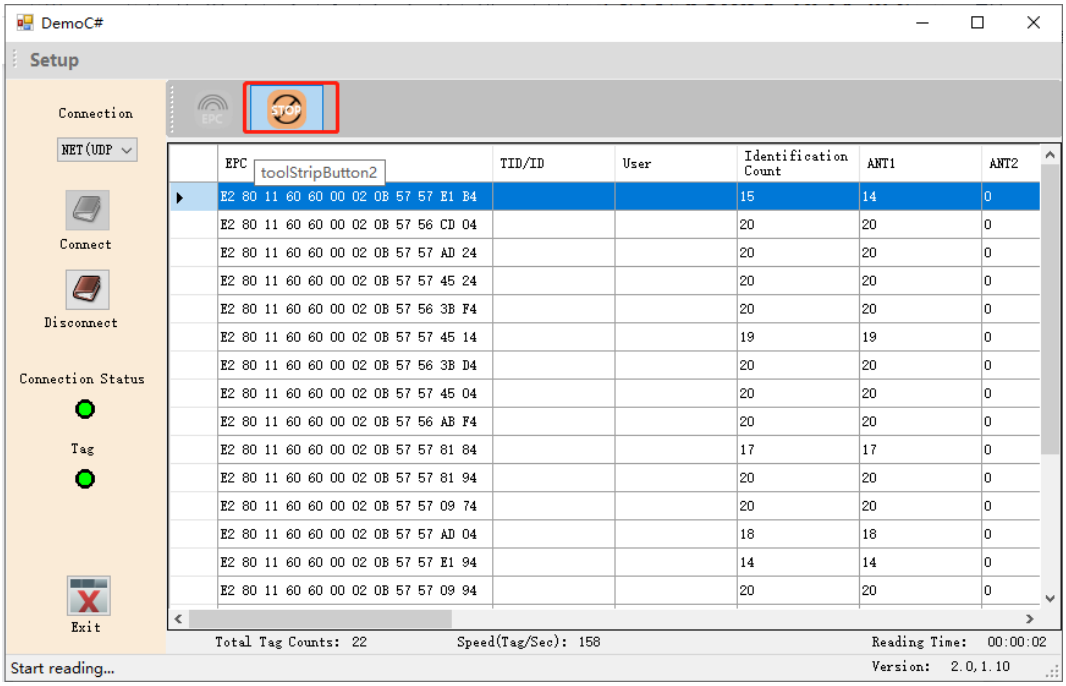
Then click【EPC】

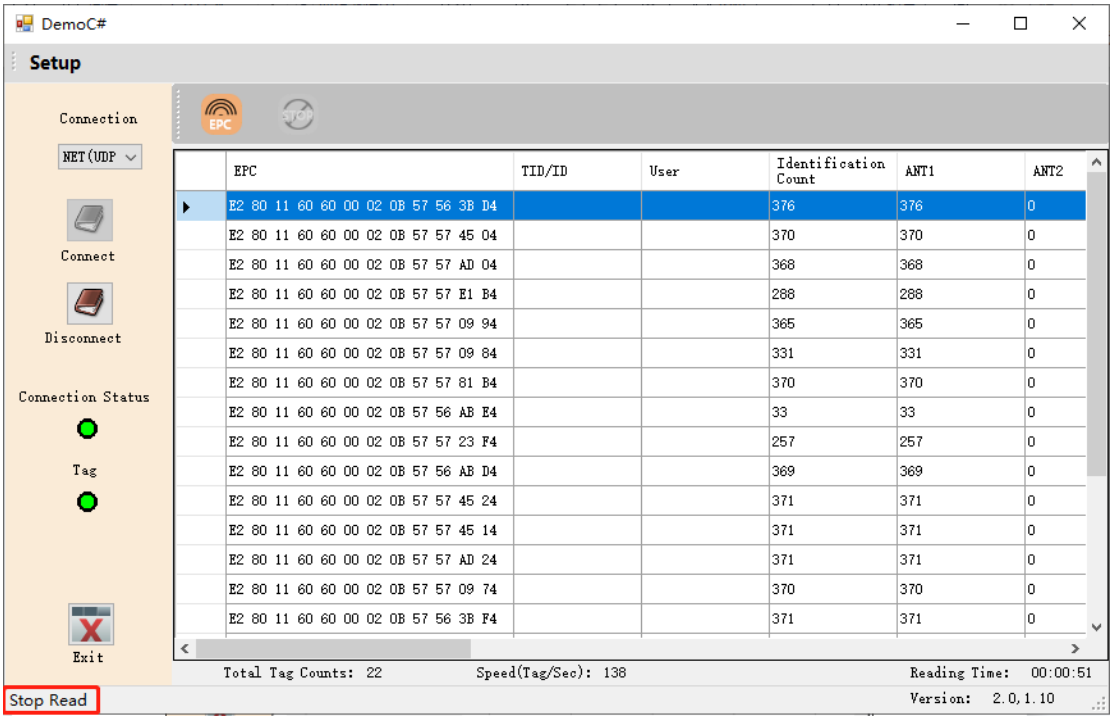


After reading the Tags, as shown in the figure below:



To stop, click【STOP】


DemoC#
Setup
Connection
NET(UDP
Connect
Disconnect
Connection Status
Tag
Exit
toolStripButton2
EPC
TID/ID
User
Identification Count
ANT1
ANT2
E2 80 11 60 60 00 02 0B 57 57 E1 B4 15 14 0
E2 80 11 60 60 00 02 0B 57 56 CD 04 20 20 0
E2 80 11 60 60 00 02 0B 57 57 AD 24 20 20 0
E2 80 11 60 60 00 02 0B 57 57 45 24 20 20 0
E2 80 11 60 60 00 02 0B 57 56 3B F4 20 20 0
E2 80 11 60 60 00 02 0B 57 57 45 14 19 19 0
E2 80 11 60 60 00 02 0B 57 56 3B D4 20 20 0
E2 80 11 60 60 00 02 0B 57 57 45 04 20 20 0
E2 80 11 60 60 00 02 0B 57 56 AB F4 20 20 0
E2 80 11 60 60 00 02 0B 57 57 81 84 17 17 0
E2 80 11 60 60 00 02 0B 57 57 81 94 20 20 0
E2 80 11 60 60 00 02 0B 57 57 09 74 20 20 0
E2 80 11 60 60 00 02 0B 57 57 AD 04 18 18 0
E2 80 11 60 60 00 02 0B 57 57 E1 94 14 14 0
E2 80 11 60 60 00 02 0B 57 57 09 94 20 20 0
Total Tag Counts: 22
Speed(Tag/Sec): 158
Reading Time: 00:00:02
Start reading...
Version: 2.0,1.10


DemoC#
Setup
Connection
NET(UDP
Connect
Disconnect
Connection Status
Tag
Exit
EPC
TID/ID
User
Identification Count
ANT1
ANT2
E2 80 11 60 60 00 02 0B 57 56 3B D4 376 376 0
E2 80 11 60 60 00 02 0B 57 57 45 04 370 370 0
E2 80 11 60 60 00 02 0B 57 57 AD 04 368 368 0
E2 80 11 60 60 00 02 0B 57 57 E1 B4 288 288 0
E2 80 11 60 60 00 02 0B 57 57 09 94 365 365 0
E2 80 11 60 60 00 02 0B 57 57 09 84 331 331 0
E2 80 11 60 60 00 02 0B 57 57 81 B4 370 370 0
E2 80 11 60 60 00 02 0B 57 56 AB E4 33 33 0
E2 80 11 60 60 00 02 0B 57 57 23 F4 257 257 0
E2 80 11 60 60 00 02 0B 57 56 AB D4 369 369 0
E2 80 11 60 60 00 02 0B 57 57 45 24 371 371 0
E2 80 11 60 60 00 02 0B 57 57 45 14 371 371 0
E2 80 11 60 60 00 02 0B 57 57 AD 24 371 371 0
E2 80 11 60 60 00 02 0B 57 57 09 74 370 370 0
E2 80 11 60 60 00 02 0B 57 56 3B F4 371 371 0
Total Tag Counts: 22
Speed(Tag/Sec): 138
Reading Time: 00:00:51
Stop Read
Version: 2.0,1.10

FCC Warning

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.

FCC Caution

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.

The user manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the

party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

RF Exposure Statement

This equipment must be installed and operated in accordance with provide instructions and the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operation in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.