

RFID Overhead reader

CER511

User Manual

Revision:

Version	Author	Data	Remarks
V1.0	Product department	2024-02-11	First draft

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1. Overviews

Century RFID Overhead Reader CER511 is an advanced UHF RFID device that seamlessly integrates narrow-beam antenna and reader. Equipped with a high-gain narrow-beam antenna, this device boasts features such as portability, extended read range, superior multi-label recognition capability, and enhanced interference resistance. It's versatile applications span across various sectors including apparel and fashion, supermarkets and hypermarkets, retail, library and archive management, access management, asset tracking, and intelligent warehouse management, etc.

1.1 Features

- ✧ Equipped with a built-in Linux system to streamline customer application development.
- ✧ Horizontally narrow-beam design for precise coverage, mounting heights 2.0~3.5m.
- ✧ Supports multi-channel GPIO input and output, enabling the integration of peripheral devices based on specific application scenarios.
- ✧ Compatible with both ceiling and wall-mounted installations, significantly reducing installation costs.

1.2 Specifications

- ✧ Built-in system: Linux
- ✧ Communication interface: RS-232(DB9)、RJ45
- ✧ Power supply: AC 220V+10%,47~63 Hz
- ✧ Operating Temperature: -10°C~+50°C
- ✧ Storage Temperature: -20°C~+55°C
- ✧ RFID Power: Maximum 33dBm

2. Installation

2.1 Input power requirement

- ✧ All devices using 220VAC must have the same circuit of electricity from the distribution box, and meet the safety grounding requirements
- ✧ The mains power cord is never allowed to be tied to the output DC line, nor is it allowed to wrap the output DC line around the adapter body.

2.2 Installation position

- ✧ Ensure that the antenna is installed in a well ventilated area.
- ✧ Ensure a clean and dry environment.
- ✧ Pay attention to the installation height of the antenna.
- ✧ Ensure that there are no labels stored around the antenna.
- ✧ Confirm that the power supply of the equipment is independent (not shared with other electromechanical equipment).
- ✧ Confirm that the power supply voltage of the host is normal.
- ✧ The labels must be kept 3 meters away from the antenna system.
- ✧ Check if there are metal frames, coiled cables, etc. around the device.

2.3 Installation steps

- ✧ Prepare construction and debugging tools.
- ✧ Check the power reserve and installation position, and try to keep the device adapter and cables as far away from other high-power devices as possible.
- ✧ Check if there are other equipment around the site, such as spotlights, LED screens, elevators, and other high-power equipment, and try to avoid installing such equipment as much as possible.
- ✧ Before fixing the antenna, connect the antenna power supply, conduct a test first, and then fix it after meeting the installation requirements.
- ✧ After installation is completed, test again to confirm if the equipment can meet customer needs.

2.4 Hardware

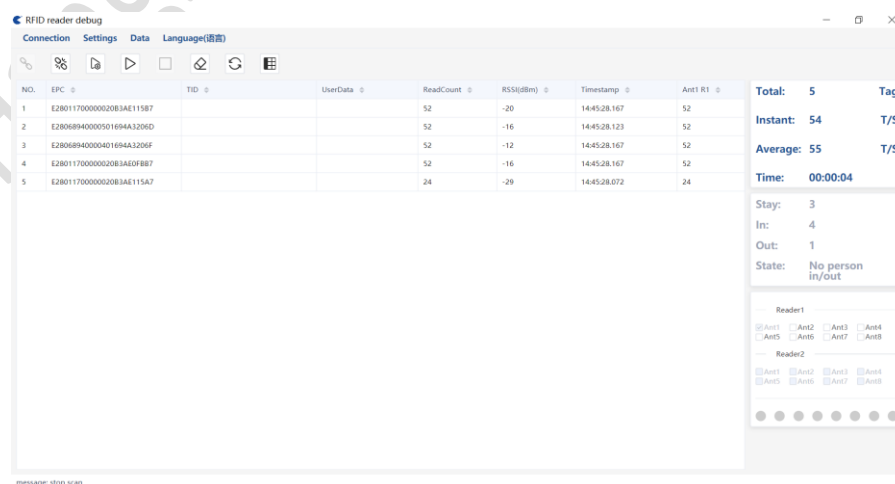


- (1) Front panel
- (2) Control module
- (3) External antenna interface
- (4) Network interface
- (5) RS232 interface
- (6) GPIO interface
- (7) Ceiling mounting interface*4
- (8) Side mount interface*2

3. Software

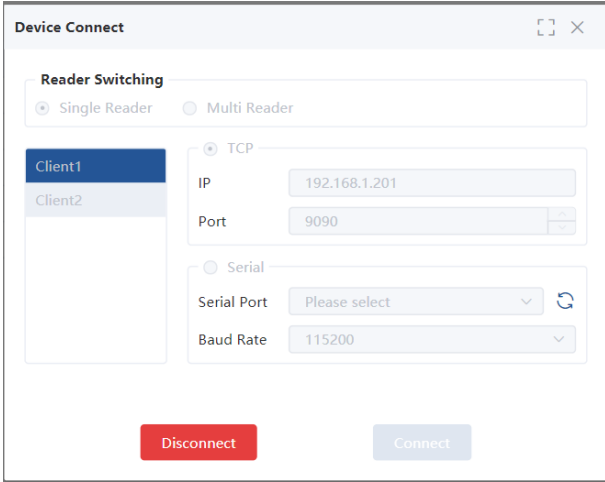
3.1 Test demo

3.1.1 Main interface



In the main interface, you can view the read data, the speed of reading, personnel in and out of the data, choose whether the antenna is working and so on

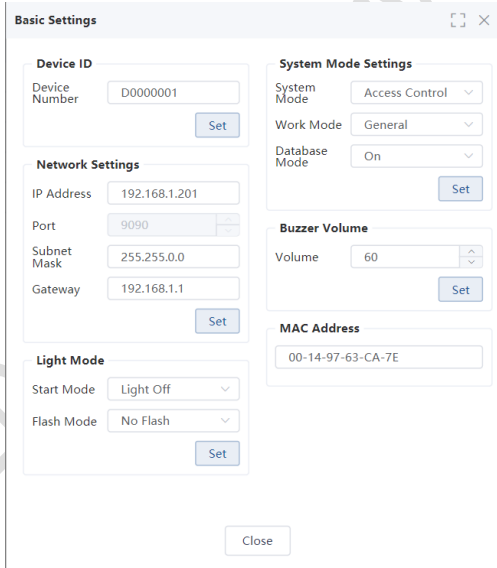
3.1.2 Device Connect



The Device Connect window is used to establish a connection with the device. It features a 'Reader Switching' section with radio buttons for 'Single Reader' (selected) and 'Multi Reader'. On the left, there is a list of clients, with 'Client1' selected. The main area shows connection settings: 'TCP' is selected, with an IP address of 192.168.1.201 and a Port of 9090. The 'Serial' section is also visible, showing a 'Serial Port' dropdown set to 'Please select' and a 'Baud Rate' dropdown set to 115200. At the bottom, there are 'Disconnect' and 'Connect' buttons.

The device supports two connection modes, TCP and Serial. The default TCP IP address is 192.168.1.201. The default serial port baud rate is 115200.

3.1.3 Basic Settings



The Basic Settings window contains several configuration sections:

- Device ID:** A text field for 'Device Number' containing 'D0000001' and a 'Set' button.
- Network Settings:** Fields for 'IP Address' (192.168.1.201), 'Port' (9090), 'Subnet Mask' (255.255.0.0), and 'Gateway' (192.168.1.1), each with a 'Set' button.
- Light Mode:** Dropdowns for 'Start Mode' (set to 'Light Off') and 'Flash Mode' (set to 'No Flash'), with a 'Set' button.
- System Mode Settings:** Dropdowns for 'System Mode' (set to 'Access Control'), 'Work Mode' (set to 'General'), and 'Database Mode' (set to 'On'), with a 'Set' button.
- Buzzer Volume:** A volume slider set to 60 and a 'Set' button.
- MAC Address:** A text field containing '00-14-97-63-CA-7E'.

 A 'Close' button is located at the bottom center.

The parameters will be automatically obtained, if you need to change, you can modify the click Set.

✧ Light Mode:

This parameter is available for CER510 but unavailable for CER511

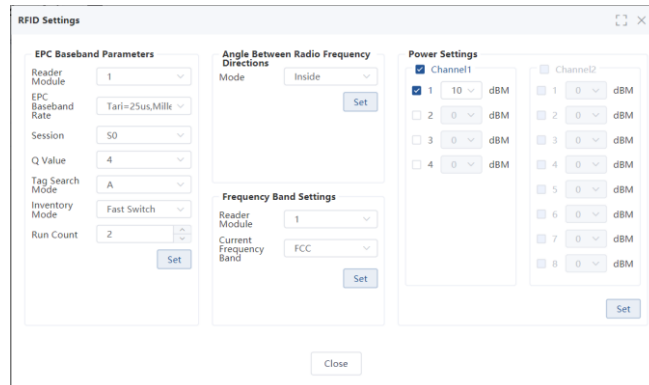
✧ System Mode Settings:

Access Control and General are selected by default and do not need to be changed. The database is used for one of the anti-theft detection schemes and can be set to turn on or off

✧ Buzzer Volume:

Buzzer volume Value is 0-255.

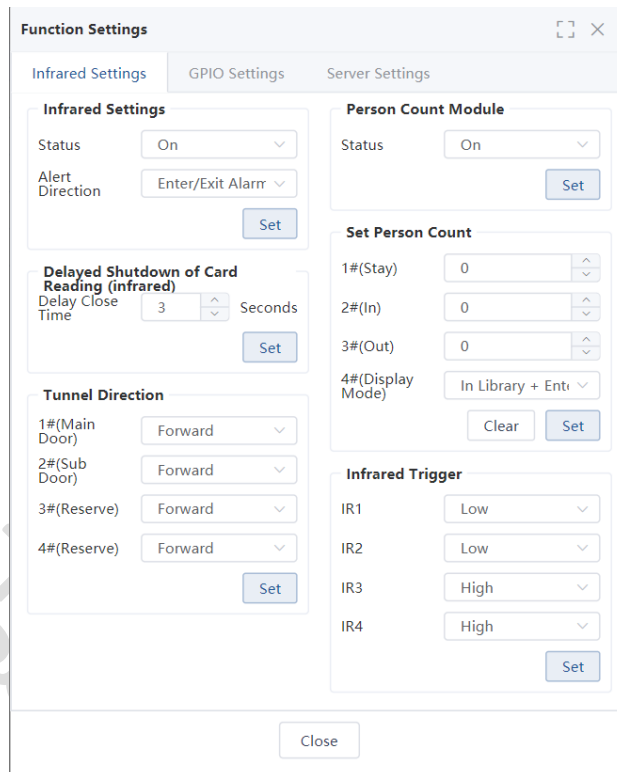
3.1.4 RFID Settings



The RFID Settings window is divided into three main sections: EPC Baseband Parameters, Angle Between Radio Frequency Directions, and Power Settings. The EPC Baseband Parameters section includes dropdowns for Reader Module (1), EPC Baseband Rate (Tari-25us,Mille), Session (S0), Q Value (4), Tag Search Mode (A), Inventory Mode (Fast Switch), and Run Count (2). The Angle Between Radio Frequency Directions section has a Mode dropdown (Inside) and a Set button. The Power Settings section includes a Channel1 checkbox (checked) and a list of power levels (1-8) in dBm, with a Set button at the bottom right. A Close button is located at the bottom center.

The parameters for RFID are set here.

3.1.5 Function Settings



The Function Settings window has three tabs: Infrared Settings, GPIO Settings, and Server Settings. The Infrared Settings tab is active and contains several sections: Infrared Settings (Status: On, Alert Direction: Enter/Exit Alarm, Set button), Delayed Shutdown of Card Reading (infrared) (Delay Close Time: 3 Seconds, Set button), Tunnel Direction (1#(Main Door): Forward, 2#(Sub Door): Forward, 3#(Reserve): Forward, 4#(Reserve): Forward, Set button), Person Count Module (Status: On, Set button), Set Person Count (1#(Stay): 0, 2#(In): 0, 3#(Out): 0, 4#(Display Mode): In Library + Entrance, Clear and Set buttons), and Infrared Trigger (IR1: Low, IR2: Low, IR3: High, IR4: High, Set button). A Close button is located at the bottom center.

The CER511 requires external infrared to use this feature.

✧ Infrared Settings:

When the infrared status is turned on, the infrared trigger automatically associates the tag reading.

The alarm direction can be set to go out the alarm or enter the alarm.

✧ Delayed shutdown of tag Reading (infrared):

The tag read execution time after infrared trigger. The default tag read time after infrared trigger is 3 seconds. You can change it.

✧ Tunnel Direction:

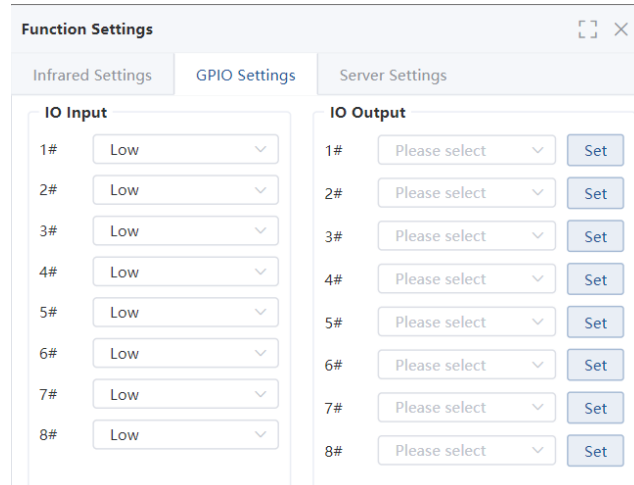
Change the statistical direction of access control.

✧ Set Person Count:

You can set and clear the number of people counted on the main screen.

✧ Infrared Trigger:

1 and 2 are two pairs of infrared states for the primary channel.



Function Settings

Infrared Settings | **GPIO Settings** | **Server Settings**

IO Input

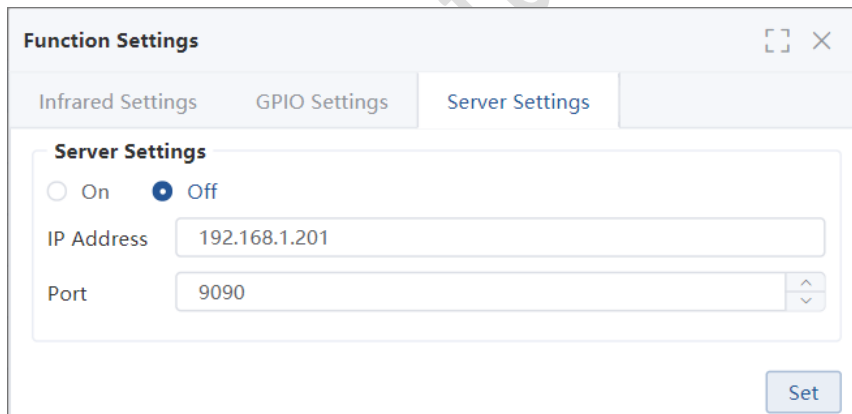
1#	Low
2#	Low
3#	Low
4#	Low
5#	Low
6#	Low
7#	Low
8#	Low

IO Output

1#	Please select	Set
2#	Please select	Set
3#	Please select	Set
4#	Please select	Set
5#	Please select	Set
6#	Please select	Set
7#	Please select	Set
8#	Please select	Set

✧ GPIO Settings:

1 buzzer output control for CER511.



Function Settings

Infrared Settings | **GPIO Settings** | **Server Settings**

Server Settings

☐ On ☒ Off

IP Address: 192.168.1.201

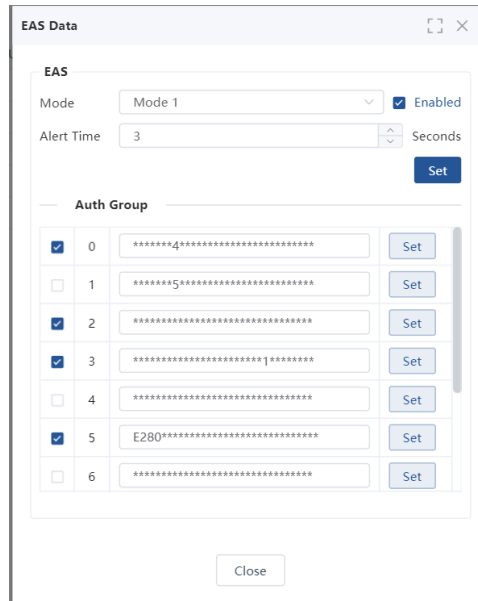
Port: 9090

Set

✧ Server Settings:

Simulated access control actively reports data to the server.

3.1.6 Eas data



EAS Data

EAS

Mode: Mode 1 ☒ Enabled

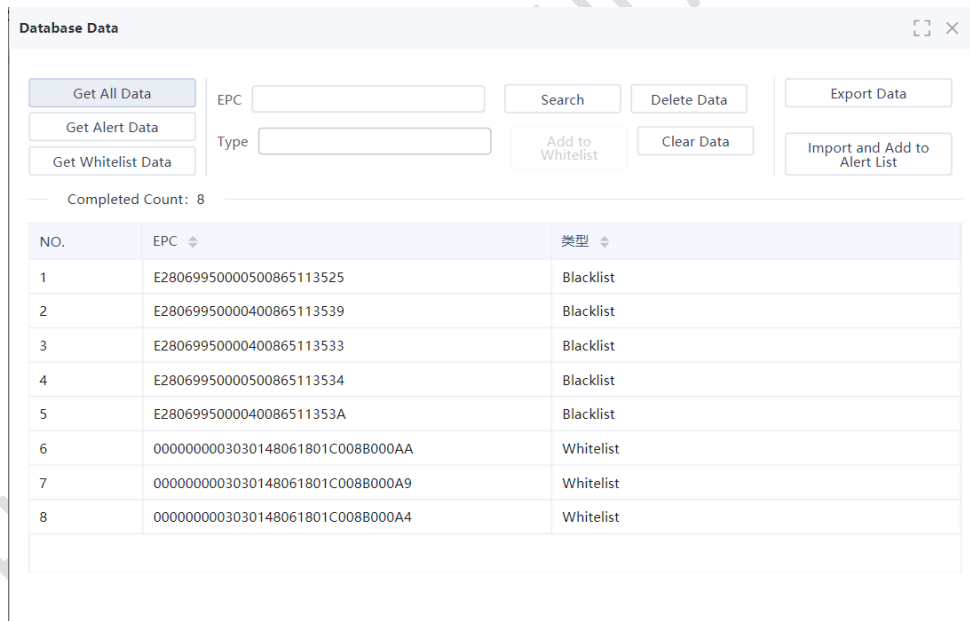
Alert Time: 3 Seconds

Auth Group

NO.	Auth Group	Set
<input checked="" type="checkbox"/> 0	*****4*****	<input type="button" value="Set"/>
<input type="checkbox"/> 1	*****5*****	<input type="button" value="Set"/>
<input checked="" type="checkbox"/> 2	*****	<input type="button" value="Set"/>
<input checked="" type="checkbox"/> 3	***** *****	<input type="button" value="Set"/>
<input type="checkbox"/> 4	*****	<input type="button" value="Set"/>
<input checked="" type="checkbox"/> 5	E280*****	<input type="button" value="Set"/>
<input type="checkbox"/> 6	*****	<input type="button" value="Set"/>

A variety of EPC data alarm rules can be configured. Only need to fill in some key alarm data, other bits default to *.

3.1.7 Database data



Database Data

Get All Data | EPC: | Search | Delete Data | Export Data

Get Alert Data | Type: | Add to Whitelist | Clear Data | Import and Add to Alert List

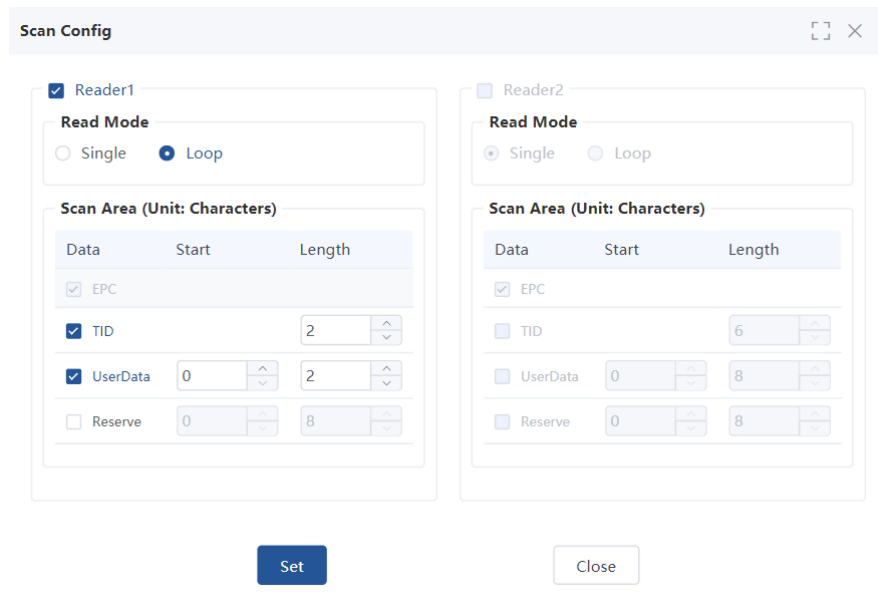
Get Whitelist Data

Completed Count: 8

NO.	EPC	类型
1	E28069950000500865113525	Blacklist
2	E28069950000400865113539	Blacklist
3	E28069950000400865113533	Blacklist
4	E28069950000500865113534	Blacklist
5	E2806995000040086511353A	Blacklist
6	000000003030148061801C008B000AA	Whitelist
7	000000003030148061801C008B000A9	Whitelist
8	000000003030148061801C008B000A4	Whitelist

You can configure the blacklist and whitelist. The blacklist data is used for alarm, and the whitelist data is not used for alarm.

3.1.8 Scan Config



The 'Scan Config' dialog box is used to configure scanning rules for two readers, Reader1 and Reader2. It includes settings for Read Mode, Scan Area (Unit: Characters), and specific data fields like EPC, TID, UserData, and Reserve.

Reader	Read Mode	Scan Area (Unit: Characters)	EPC	TID	UserData	Reserve
Reader1	Loop		<input checked="" type="checkbox"/>	2	0, 2	0, 8
Reader2	Single		<input checked="" type="checkbox"/>	6	0, 8	0, 8

Buttons: Set, Close

Set scanning rules, such as whether to read TID.

3.2 SDK API

Provides standard SDK apis for development. It can be developed based on business software.

Development SDK refer to " CER511 JAVA SDK Documentation ".

4. Q&A

Any technical questions, please contact with Century technical team, lizhenghao@century-cn.com