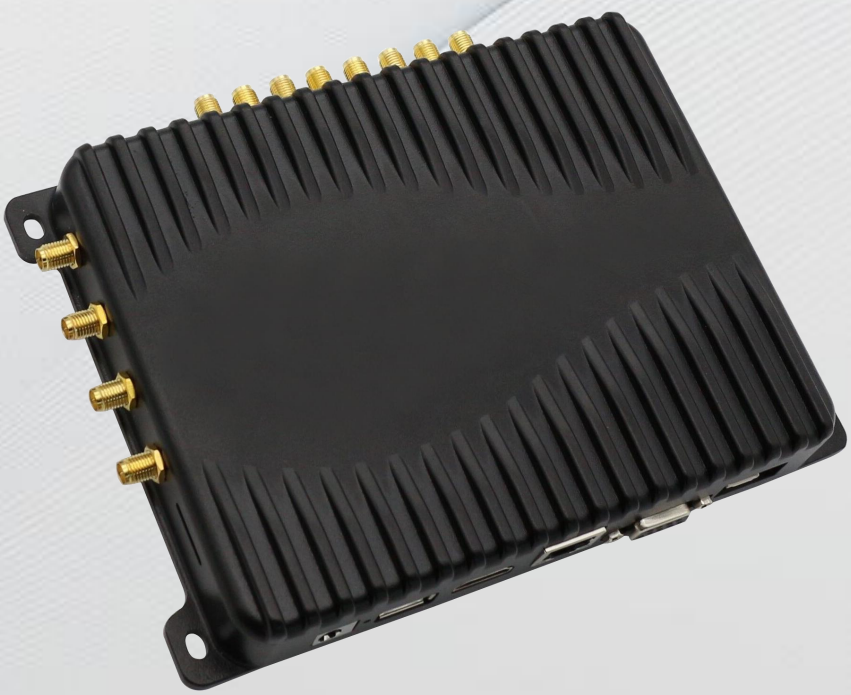
# Mobile Computer

# FR1000

# User Guide



Urovo Technology Co., Ltd.

*Note:*

* This Guide introduced general functions of FR1000. Your PDA device may have different functions wherein or description.

* There may be differences between the illustrations in this Guide and the actual product. And the actual product shall prevail.



20230522 v1.0

*Terms of usage*

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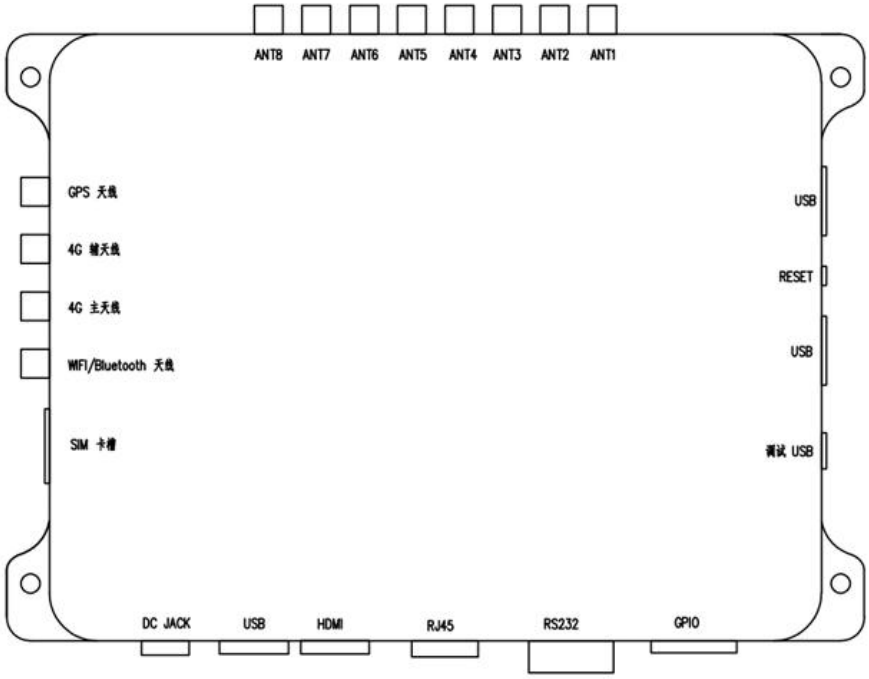
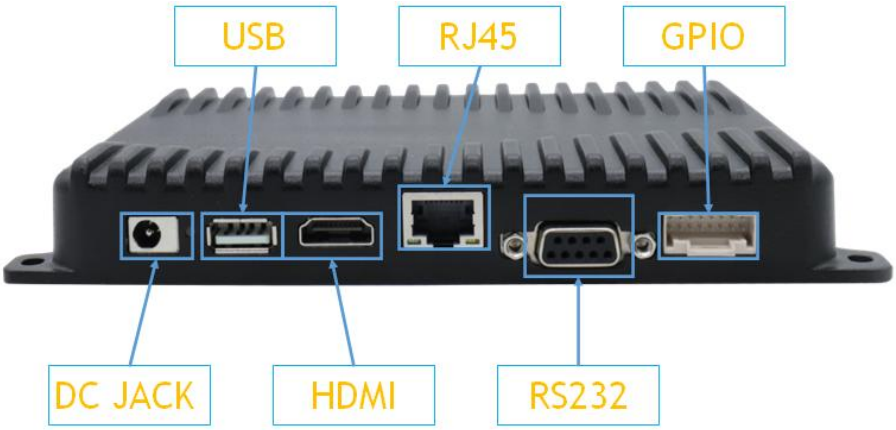
# 1.Introduction

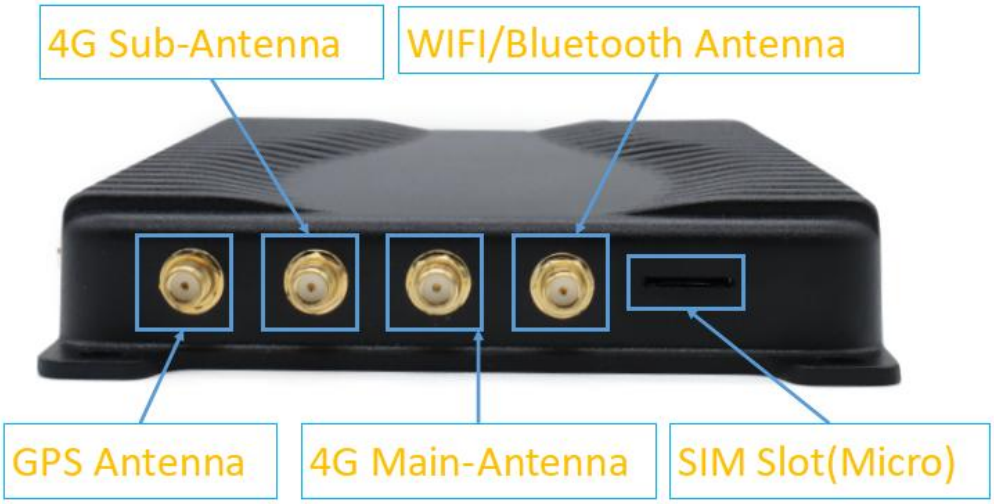
## 1.1 Product Overview

This manual provides information and instructions for operating the RFID Reader/Writer. The device is Android, with no built-in screen, if you need to demonstrate, you can connect external devices such as monitors, keyboards and mice to operate.

The RFID Reader/Writer features eight read/write antenna interfaces, four network antenna interfaces, one SIM card slot, one DC interface, three USB interfaces, one RJ45 interface, one RS232 interface, one GPIO interface, one HDMI interface, one MicroUSB interface for debugging, and a reset button.

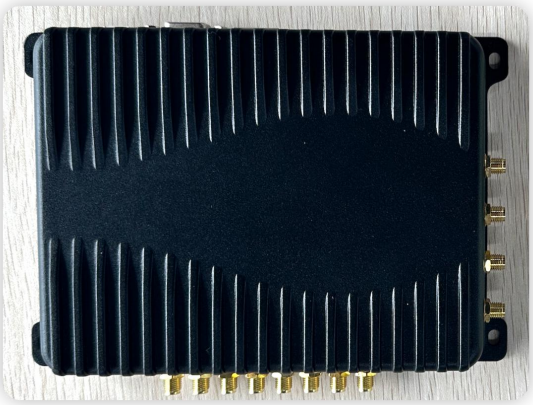

ANT8
ANT7
ANT6
ANT5
ANT4
ANT3
ANT2
ANT1
GPS 天线
4G 辅天线
4G 主天线
WIFI/Bluetooth 天线
SIM 卡槽
USB
RESET
USB
调试 USB
DC JACK
USB
HDMI
RJ45
RS232
GPIO


USB
RJ45
GPIO
DC JACK
HDMI
RS232

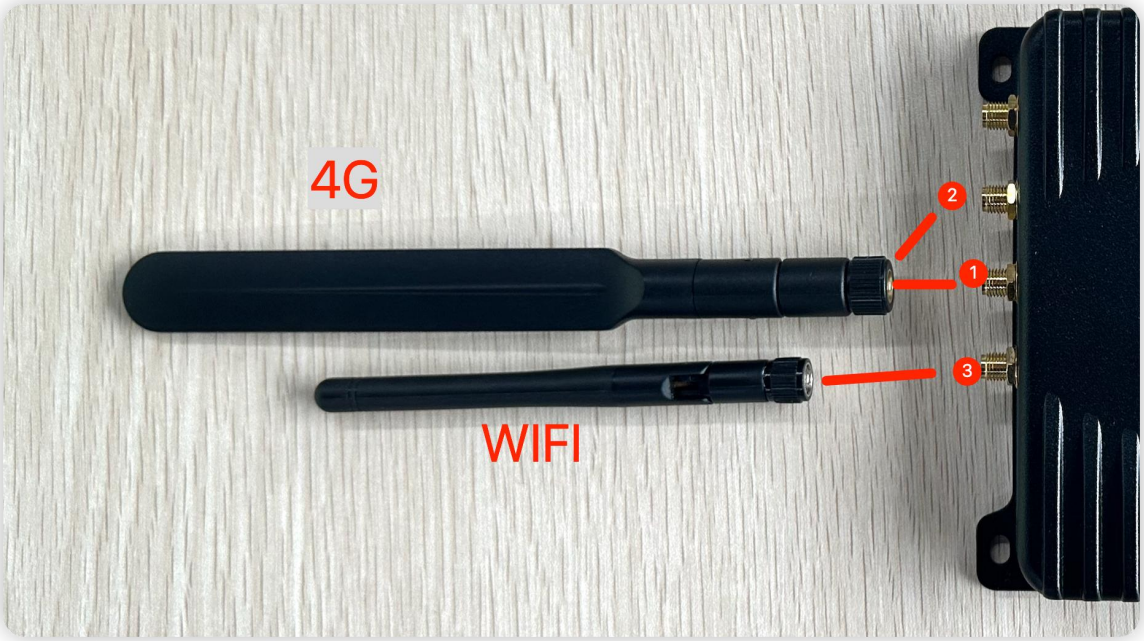

4G Sub-Antenna
WIFI/Bluetooth Antenna
GPS Antenna
4G Main-Antenna
SIM Slot(Micro)

## 1.1.1 Unpack

a. device



b. 4G & WLAN Antenna




c. Power supply


d. GPIO Cable

e. GPS Antenna


f. RFID Antenna(optional)

g. RF cable(optional)

## 1.2 Key Features

- Octa-core 1.6GHz
- Android 10.0
- 2GB+16GB
- Supports POE+ power supply

- Supports manual change of IPV6 address
- Supports 1920x1200P HD video output
- Supports GPS + GLONASS or GPS + BeiDou
- Designed based on Impinj E710 RFID engine, fully supporting electronic tags that comply with EPC CLASS1 G2 standards
- Protocol standards: EPC Global Class1 Gen2/ISO 18000-6C
- Frequency band: U.S. 902-928MHz, European 865-868MHz
- Operates on either wideband frequency hopping spread spectrum (FHSS) or fixed frequency transmission mode, supports RSSI function, and peak tag inspection speed is greater than 1000 tags/second
- Output power up to 33dBm (adjustable)
- Supports 8 external SMA antenna interfaces and antenna detection
- Supports 4G full network, with primary and secondary 4G antenna interfaces
- Supports 2.4G/5G dual-band Wi-Fi
- Supports Bluetooth 5.0
- HDMI D Type interface, supporting transmission speeds of up to 5GB/s and 1920x1080P high-definition video output
- Supports USB 2.0 * 3
- Supports 100M/10M adaptive network interface
- Supports RS232 interface
- Low power consumption design, powered by a single +9V~24V power supply

- Supports multi-channel optocoupler-isolated GPIO, with 4 inputs and 4 outputs, and isolation voltage VRMS>3kV
- Supports secondary development and remote online upgrade
- Compact and exquisite design, suitable for various application scenarios.
- Features: If connect with 9dBi Antenna, Long-range(9dBi, 30 meter) and large-scale identification and reading of tags, subject to actual packaging specifications.

**Application scenarios:**

Applications in various industries such as warehousing, archive management, library management, banking, footwear, jewelry, laundry, production line management, and unmanned retail.

# 2.Specifications

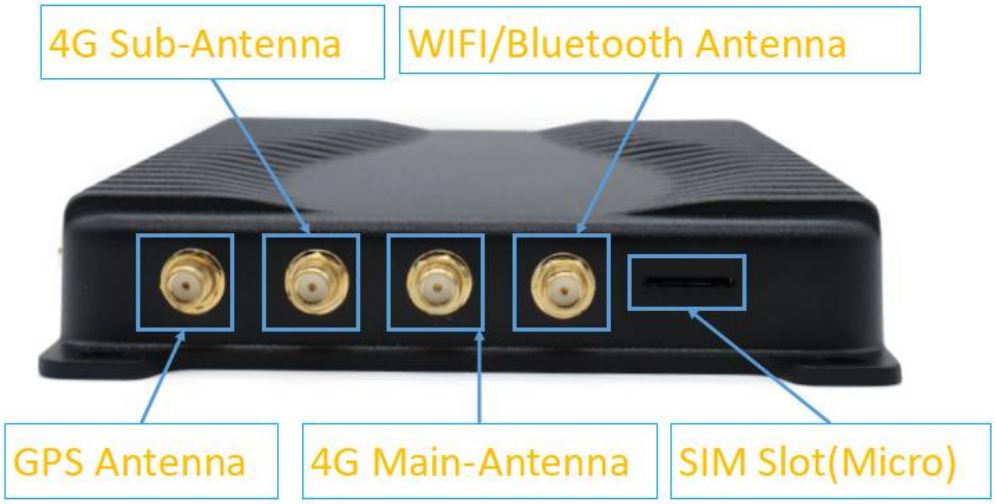
## 2.1 General Specifications

The RFID Reader/Writer has the following specifications:

- Operating system: Android 10.0
- Input power: DC 13.6V
- Power consumption:
- Operating temperature: -30°C to 70°C
- Storage temperature: -40°C to 85°C
- Relative humidity: 5% to 95% non-condensing(+25℃)
- Dimensions: 180 x 128 x 28 mm

## 2.2 Network Antenna Interface

- The RFID Reader/Writer features eight read/write antenna interfaces and four network antenna interfaces.




## 2.3 Specification Sheet

| | | |
|---|---|---|
| Performance | Model | UROVO FR1000 |
| | O.S. | Android 10.0 |
| | Processor | Octa-core 1.6GHz |
| | Memory | RAM：2GB ROM： 16GB |
| Basic specifications | Dimensions | 180*128*28mm |
| | Display output | HDMI D Type interface; support 1920x1080P HD video output |
| | Slot | SIM x 1 |
| | Interface | GPS antenna, main and auxiliary antenna for 4G communication, Wi-Fi/ Bluetooth antenna, 4G communication SIM card slot, power interface DC JACK, USB interface, HDMI interface, TCPIP network interface RJ45(PoE supply mode), serial communication interface RS232 (DB9 Female), GPIO interface, debugging/ download USB interface, USB interface * 2, system RESET button, SMA antenna interface ANT1～ANT8 |
| Network | WWAN | Support 4G full network, with main and auxiliary 4G antenna interface |
| | Positioning | GPS + GLONASS or GPS + BeiDou |
| | Wi-Fi | Support 2.4G/5G dual-band Wi-Fi<br>Wi-Fi network protocol: 802.11 a/b/g/n/ac<br>Support WAPI & SMS4 encryption<br>Support manual change of IPv6 addresses |

| | | |
|---|---|---|
| Connections | Bluetooth | Support BT5.0 |
| Environment | Operating Temp. | -30 ~ +70℃ |
| | Storage Temp. | -40 ~ +85℃ |
| | Humidity | <95% (no condensation) |
| | Sealing | IP43 |
| | Supply voltage | 9 ~ 24V, typical value: 13.6V |
| | Working current | 3A |

**Data Capture Specifications**

RFID(UHF)

| RFID | Read-write (UHF) |
|---|---|
| Frequency | 840 ~ 960MHz (adjustable based on the requirements of different countries or regions) |
| Protocol | Support ISO18000-6C |
| RF output | Maximum: 33dBm |
| Receiving sensitivity | Minimum: -85dBm |

**Network Connections**

**GPS**

| Positioning | Positioning parameters |
|---|---|
| Support mode | GPS + GLONASS or GPS + BeiDou |
| Frequency | GPS 1575.42 ± 1.023MHZ; GLONASS 1597.5~1605.8 MHZ; BDS 1561.098 ± 2.046MHZ; |
| Sensitivity | -163dBm |

**WLAN**

| Wi-Fi | WLAN |
|---|---|
| Protocol | IEEE 802.11 b/g/n/a (2.4G/5G dual-band Wi-Fi) |
| Frequency | 2.4G and 5G |
| Security and Encryption | Support WAPI & SMS4 encryption |
| Transmitting power | Pmax <20dBm |

**WAN**

| WWAN | WWAN parameters |
|---|---|
| Frequency band | EGSM900 |
| | DCS1800 |
| | WCDMA B1, B8 |
| | LTE-FDD B1, B3, B5, B8 |
| | LTE-TDD B34, B38, B39, B40, B41 (140 MHz) |
| Transmitting power | EGSM900: 5 dBm ± 5 dB~33 dBm ± 2 dB<br>DCS1800 : 0 dBm ± 5 dB~30 dBm ± 2 dB<br>WCDMA B1, B8 : Minimum< -49 dBm , Maximum 23 dBm ± 2 dB<br>LTE-FDD B1, B3, B5, B8 : Minimum< -39 dBm , Maximum 23 dBm ± 2 dB<br>LTE-TDD B34, B38, B39, B40, B41 (140 MHz) : Minimum< -39 dBm , Maximum 23 dBm ±2 dB |

**Bluetooth**

| Standard | Bluetooth parameters |
|---|---|
| Bluetooth features | BT5.0 |
| Receiving sensitivity | DH5 -92dBm, 2-DH5 -91dBm, 3-DH5 -85dBm |

**Accessories**

| | Type |
|---|---|
| Optional Antenna | 4dBi-12dBi Antenna |

# 3.Assembly

## 3.1 Connecting Antennas

To connect the antennas, follow these steps:

1. Connect one end of the RF cable to the main antenna interface of the RFID Reader/Writer.
2. Connect the other end of the transmission cable to the read/write antenna.

**Note: For installation instructions, please copy the link and open it in your browser to watch the unboxing video:**

https://youtu.be/SeOwQd6nRF8

## 3.2 Connecting Peripheral Devices

To connect peripheral devices, follow these steps:

1. Connect the monitor, keyboard, and mouse to the RFID Reader/Writer via the HDMI interface and USB interfaces.
2. Connect the Ethernet cable to the RJ45 interface to establish a network connection, or use 4G/ Wi-Fi for communication.

# 4.Operation

## 4.1 Starting Up the System

To start up the system, follow these steps:

1. Connect the power supply to the DC interface of the device, the device will automatically boot up.
2. Connect the peripheral devices, such as a keyboard, mouse, and monitor, to the appropriate interfaces on the device.
3. Wait for the device to boot up and the operating system to load.

## 4.2 RFID Demo Application

The application is designed to showcase the device's capabilities and provide a basic understanding of RFID technology.

#RFID demo.

## 4.2.1 Installing the Application

You can use the Micro-USB port to install the demo, or you can develope the sepecific app for you business/work flow.

a. use adb command like: adb install...apk

b. copy the apk file into the folder of device and find it to install.

## 4.2.2 Setting Up the System

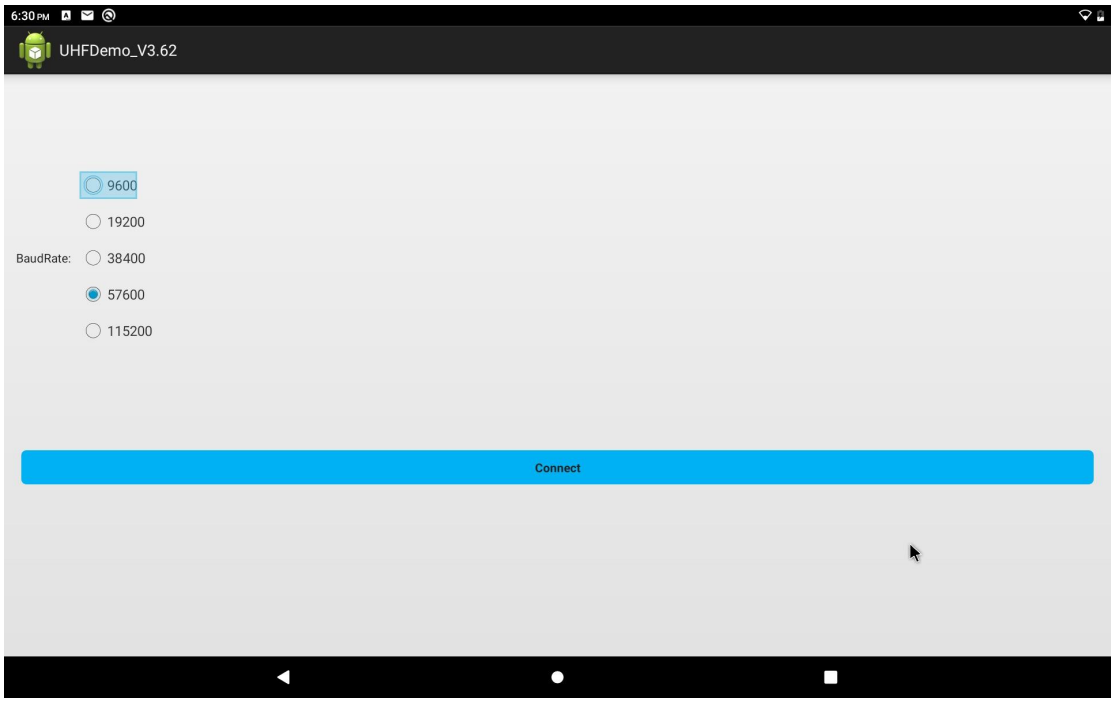
Before using the RFID demo application, you need to set up the system by following these steps:

1. Connect the antennas to the appropriate interfaces on the device.
2. Connect the peripheral devices, such as a keyboard, mouse, and display, to the appropriate interfaces on the device.
3. Insert a SIM card into the SIM card slot on the device.
4. Connect the device to a network using one of the available interfaces (e.g., Ethernet, Wi-Fi, or 4G).

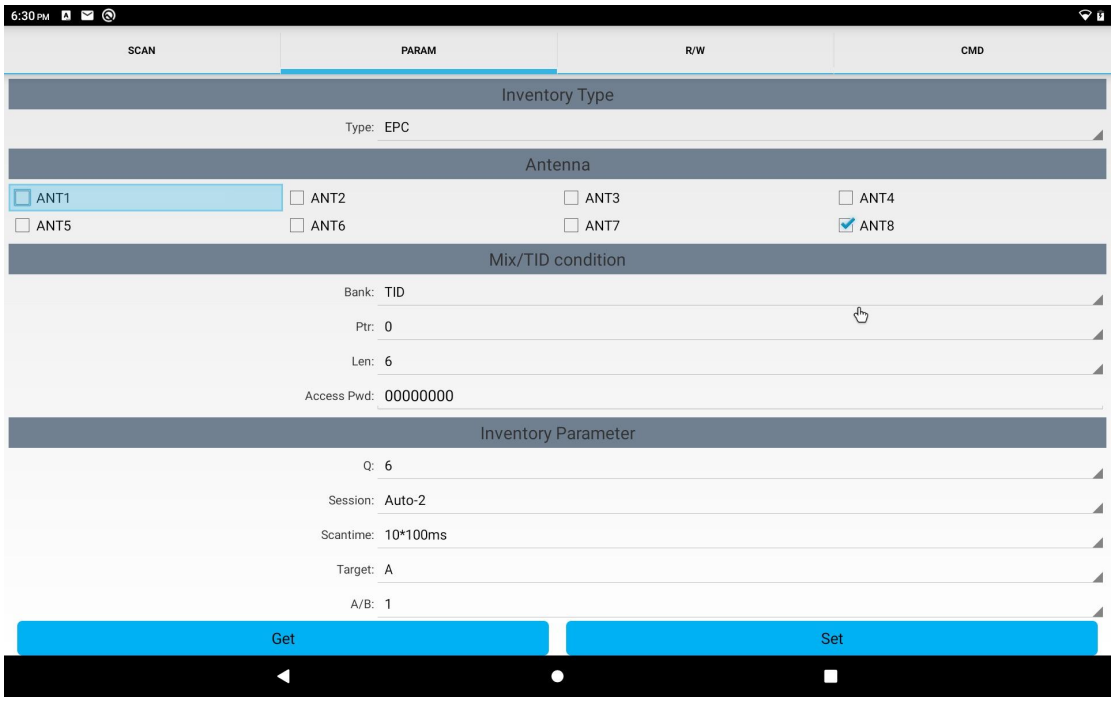
## 4.2.3 Using the Application

To use the RFID demo application, follow these steps:

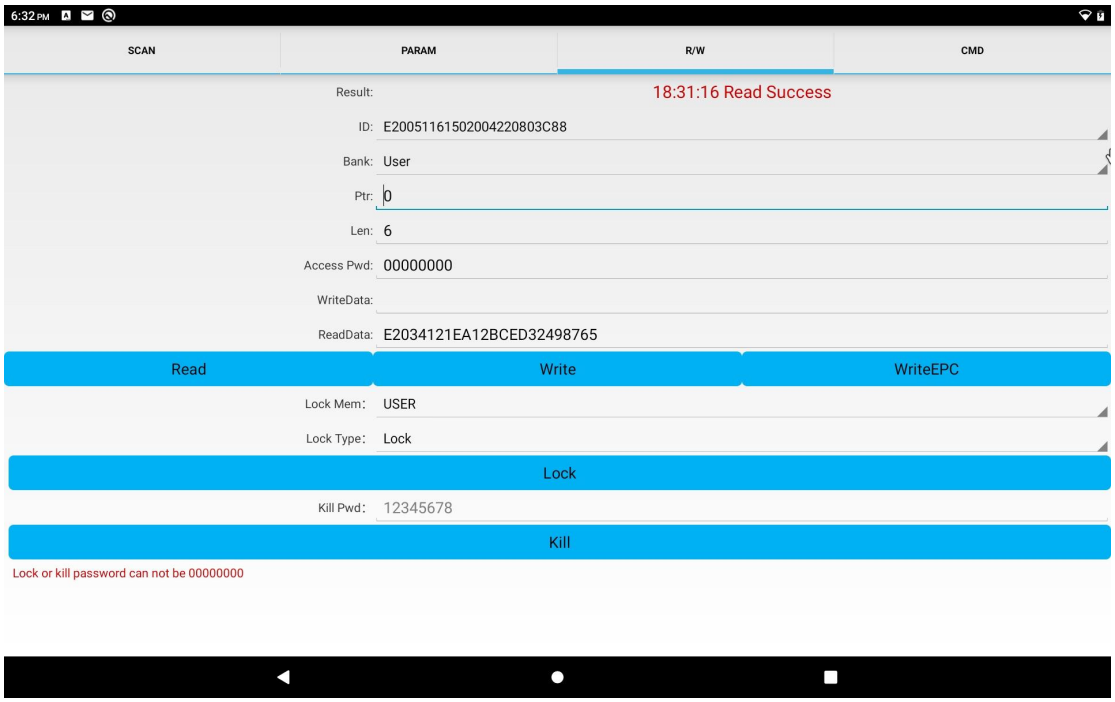
1. Launch the RFID demo application from the device's main menu.
2. Set the Baud Rate




3. Select the Antenna port you connected and set it




4. Go back to first page and test scan, or go to R/W page for the detail reading and writting.


6:32 PM
SCAN
PARAM
R/W
CMD
Result:
18:31:16 Read Success
ID:
E200511615020042208 03C88
Bank:
User
Ptr:
0
Len:
6
Access Pwd:
00000000
WriteData:
ReadData:
E2034121EA12BCED32498765
Read
Write
WriteEPC
Lock Mem:
USER
Lock Type:
Lock
Lock
Kill Pwd:
12345678
Kill
Lock or kill password can not be 00000000

# 5.Troubleshooting

In case of any issues or errors during operation, refer to the following troubleshooting steps to resolve the problem:

- Verify that all cables and connections are properly connected and secured.
- Ensure that the power source is sufficient and that the device is properly powered on.
- Check that the peripheral devices, such as the display screen and keyboard, are properly connected and functioning.
- Verify that the RFID demo application is properly installed and configured. If necessary, reinstall the application and follow the setup instructions.
- If the issue persists, refer to the user manual or contact technical support for further assistance.