

α712

RFID UHF Reader
User Guide
Ver. 0.1

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Revision History

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Copyright

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1. About this guide

1.1 Introduction

The α712 (RFID UHF Reader) is a high performance UHF reader connecting to mobile device. Optional 2D barcode scanner engine from Zebra is available to capture 1D/2D barcode data. Users are able to experience highest working performance with α712.

This guide is designed for helping users to operate α712 effectively. Please read the guide carefully before using α712.

1.2 Configuration

- This guide provides information of the following configurations including optional features.

| Model | Operating System | Radios | Memory | Data Capture Options |
|-------|------------------|--------------------|--------------------------|---------------------------|
| α712 | Google Android | 860MHz – 960MHz | 2GB RAM, 8GB Internal | 2D Imager Barcode Scanner |

1.3 Related document and Software

α712 Quick Guide

Android SDK User Guide

Android SDK Developer's Guide

Android SDK Release Notes

Barcode Demo app

RFID Demo app

BarcodeRfidDemo app

Remote Manager app

1.4 Service information

If you have problem with the device, visit our web site to analyze the problem or contact our partner in region or HQ.

Contact information is available at our website <http://www.apulsetech.com>




When requesting support, please have following information;

- Serial number of the device (On manufacturing label)
- OS, Firmware version

1.5 Safety information

Symbols

This guide uses the following symbols to indicate hazards and additional information.

| Symbol | Name | Description |
|---|---------|---|
|  | Warning | Implies information that could result in serious injury to yourself or others. |
|  | Caution | Implies information that may result in minor or serious product damage. |
|  | Note | Implies information that can help you get more important than surrounding text, such as exceptions or additional information. |

Before you use the $\alpha 712$, please read this chapter of information and keep your child away from the product and aware of this information. For detailed information, please refer to the safety guidelines.

- Do not use $\alpha 712$ during driving for safety.
- In medical sites, please follow the relevant regulations by turning off your $\alpha 712$ when you are in medical sites.
- Please turn off your $\alpha 712$ or turn on planes mode when you are boarding, to avoid wireless signals jamming aircraft control signal.
- Please turn off your $\alpha 712$ near the use of high precision electronic equipment, otherwise it may lead to electronic equipment disability.
- Do not take apart your $\alpha 712$ or accessories without authorizing. Only authorized institutions can repair this $\alpha 712$.
- Please keep $\alpha 712$ away from magnetic equipment. The radiation of $\alpha 712$ will erase the information of the magnetic storage device.

- Please don't use α712 under high temperature or in flammable areas (example: gas station).
- Please keep your α712 and accessories away from children without supervising.
- Please obey the relevant laws and regulations when you use your α712, and respect others lawful rights and privacy.
- Please obey the relevant specification of this manual when you use USB cable. Otherwise it may damage your α712 or personal computer.
- Modifying the device's operating system or installing software from unknown sources may cause device malfunction or data loss. Improper or unauthorized use of the device voids your one-year limited warranty.

1.6 RF exposure precautions

During RFID normal operation, the back of the antenna and the user's fingers are used as 0mm.

If the distance of use is 0mm, pay attention to the human body as shown in the following table.

| Mode | Channel | Temp (°C) | Drift (%) | 1g SAR (W/Kg) | 10g SAR (W/Kg) | Test distances |
|------------------|---------|-----------|-----------|-----------------------------|----------------|-----------------|
| FHSS | 0 | 22.8 | -3.140 | 0.120 | 0.072 | Top [0.0 cm] |
| | 25 | | -4.090 | 0.176 | 0.092 | Top [0.0 cm] |
| | 49 | | 2.540 | 0.168 | 0.103 | Top [0.0 cm] |
| | 25 | | -3.580 | 0.125 | 0.077 | Front [0.0 cm] |
| | 25 | | 2.150 | 0.033 | 0.020 | Rear [0.0 cm] |
| | 25 | | -4.850 | 0.012 | 0.005 | Right [0.0 cm] |
| | 25 | | -3.690 | 0.005 | 0.004 | Left [0.0 cm] |
| | 25 | | -4.030 | 0.005 | 0.004 | Bottom [0.0 cm] |
| Limit : 4.0 W/kg | | | | Max report SAR : 0.103 W/kg | | |

2. Brief Description of a712

2.1 Packing Contents

Your a712 packing box includes the following items

- a712 Device
- Power adapter
- Quick guide
- Battery



The images may differ from your actual items.

To purchase additional accessories, contact your sales representative.

You can download latest version of User Manual from www.apulsetech.com.

2.2 a712 Review

2.2.1 Top side

| No. | Item | Description |
|-----|-----------|---|
| 1 | 2D Imager | Scans barcodes by emitting a red laser when you press the related button. |

2.2.2 Bottom side

| No. | Item | Description |
|-----|---------------|--|
| 1 | Battery cover | Holds battery with locker |
| 2 | USB connector | Allows the device to be connected to PC or other device. |

2.2.3 Front side

1. Description of LED Status

| No. | Item | Description |
|-----|-------|---|
| 1 | READY | In power saving mode, LED color is Red. |








2. Flourish LAMA

- Smartphone holder free stick

3. Antenna for RFID

- Sending and receiving tag data

2.2.4 Back view

| No. | Item | Description |
|-----|---|---|
| | Power key  | Press and hold to boot α712 when it's completely turn off. |
| | Reset Key  | When α712 is stuck and no physical buttons are not working, use small objects and press RESET button shortly, then device will force to shut down. Recommend not using the RESET key while α712 is working normally. It may damage the system and data loss. |
| 1 | Mode key  | Selection button for communication mode |
| | FNC Key  | RFID Single reading mode and Multi reading mode selection button. |
| | WPS Key  | Button to attempt to connect α712 to a WIFI AP |
| | UP  | Volume UP or RFID power level UP button Default is volume UP |
| | DOWN  | Volume DOWN or RFID power level DOWN button Default is volume DOWN |
| 2 | RFID Trigger | RFID reader |
| 3 | Speaker | For sound alert |

3. Getting Started

3.1 Installing and Replacing the Battery

α712 uses Lithium-ion rechargeable battery.



Before removing the battery, turn off the power. Failure to do so it may cause damage to the device.



When removing the battery cover, press the cover firmly and turn the latch unlock side, be careful not to damage your fingernail.

3.2 Charging the Battery

When charging only α712 body with DC Adapter



Using provided charging adapter (5V/3A) is highly recommended.



Before using the α712 for the first time, charge the battery until the green Charging/Notification light emitting diode (LED) remains lit.

3.2.1 When charging α712 and Mobile phone at the same time with DC Adapter

1. Connect the charging adapter to USB connector on α712.

3.3 Switching α712 on and off

- POWER ON

Press Power key for 2-3 seconds to power on.



It may turn off if pressing the key more than 5 seconds.


- POWER OFF

Press Power key more than 3 seconds.

Remove Battery or reset (rebooting)

3.4 Reset

- Press reset button to reset the device.
- Reset button is hardware key, it works while α712 powers on.

 It will shut down device and running application, you may lose data which made on the running application, please back-up important data frequently and use the reset function carefully.

4. Android Connections

4.1 Compatible Product Models

It is recommended to use of the mobile device with Android OS version 5.0 or later.

4.2 Demo Apps

- *Installing Demo Apps.*

Install the application on the PC and Mobile device to connect to α712 and refer to Android SDK User Guide.

α712 provides Demo Apps for function test and customer application development.

Demo Apps may update or change without any notice.

For latest demo apps or support, please contact your regional partner or visit our website.

www.apulsetech.com.

Or you can download and install the related apk from Google Play Store by searching Apulsetech. (Available by the early 2021)

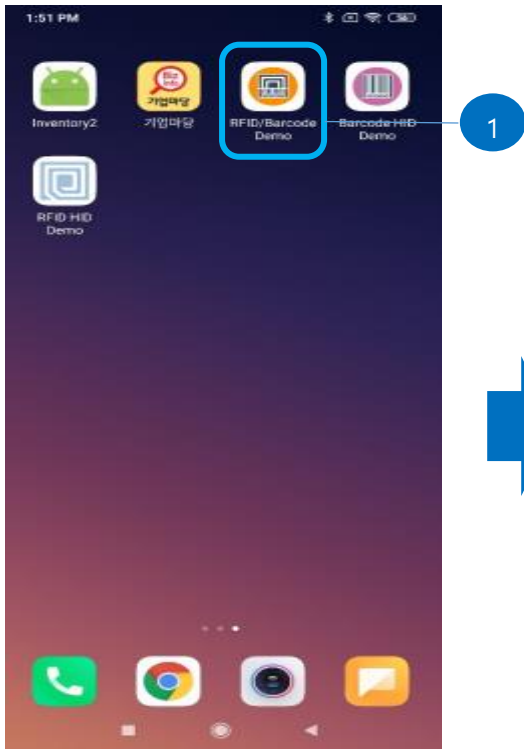
4.3 Connection

4.3.1 Setup

- α712 Turn on device.

4.3.2 Make a Connection

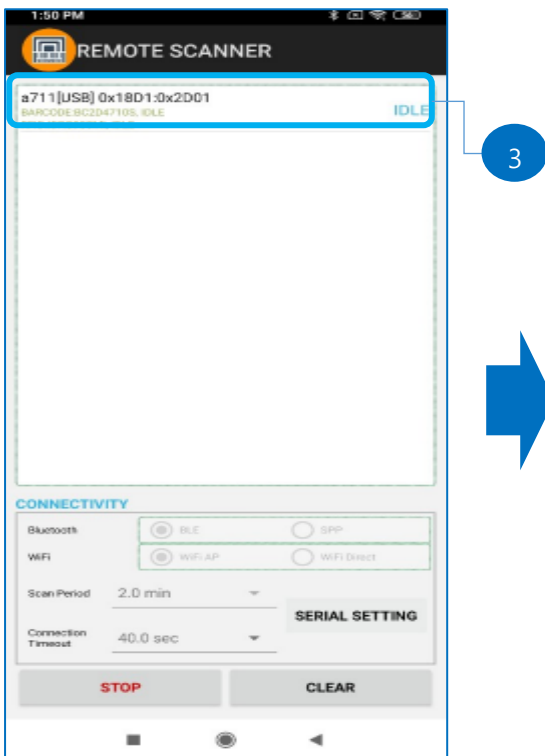
- Connect α712 with mobile device using USB cable on α712.
- Run “RFID/Barcode demo app” on your mobile device.



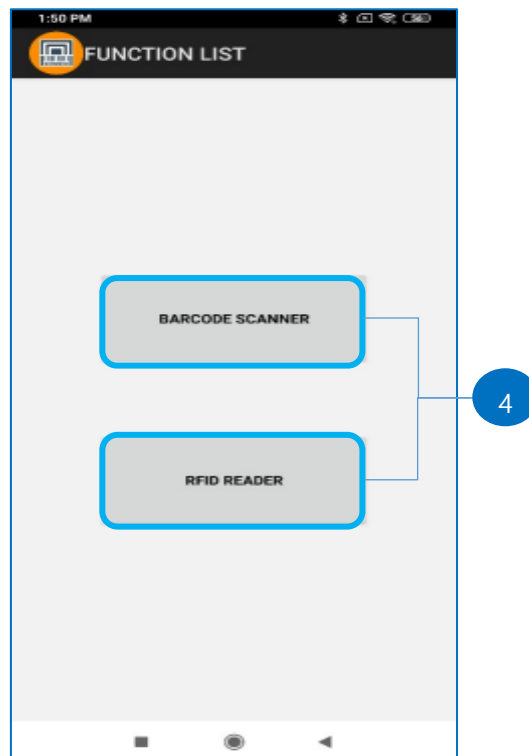
1. Run Demo app on the mobile device.



2. Press Scan button on the screen.



3. Select a searched device.



4. Control RFID or barcode scanner while USB in connected.

5. Windows Connections

5.1 Compatible Product Models

It is recommended to use of device with Windows10 or later version.

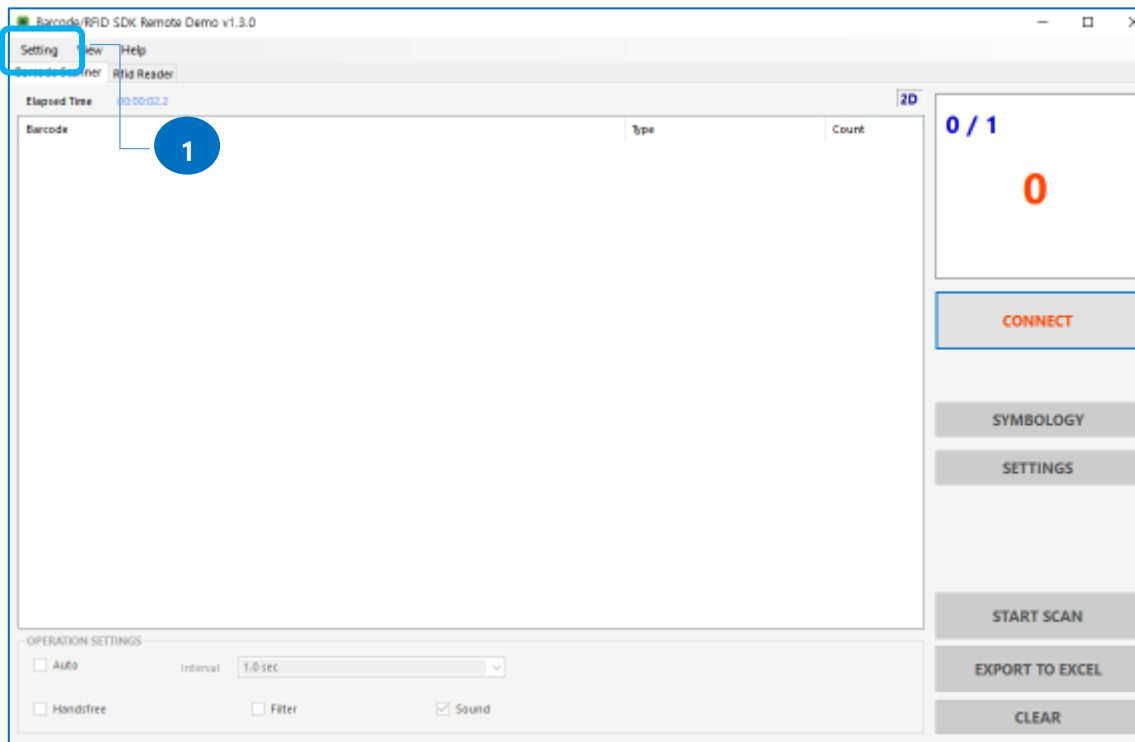
5.2 Connection

5.2.1 Setup

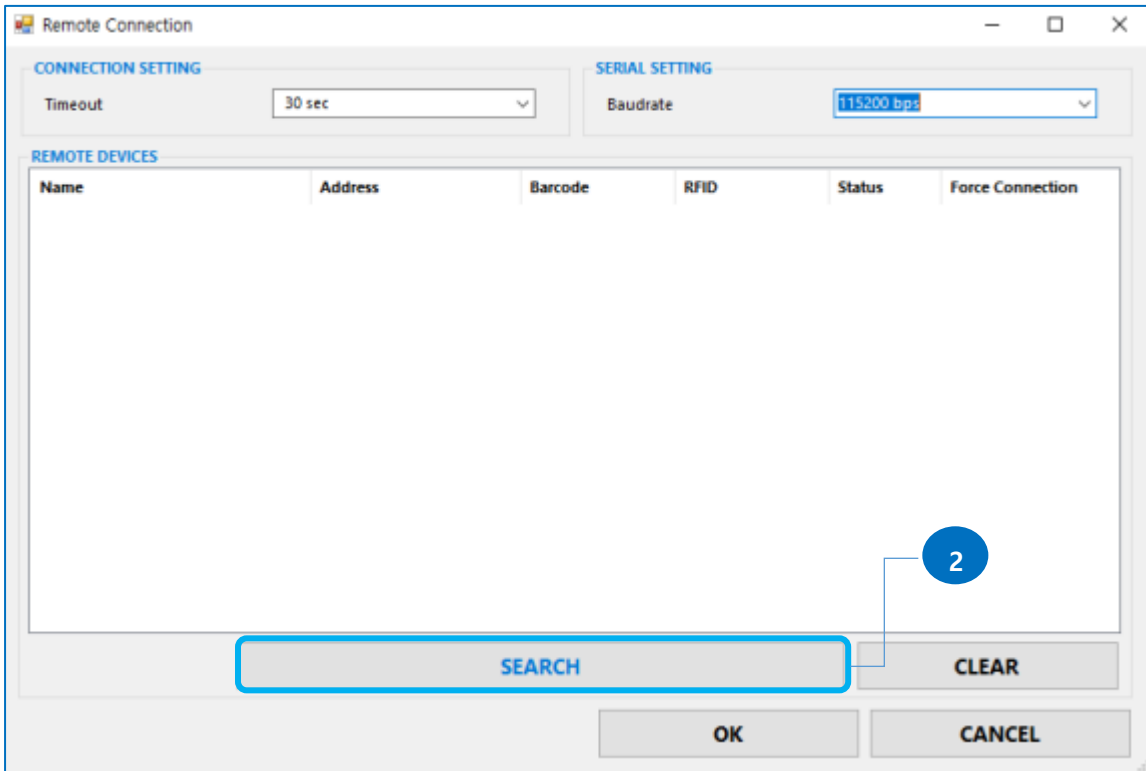
- α712 device turn on.

5.2.2 Make a Connection

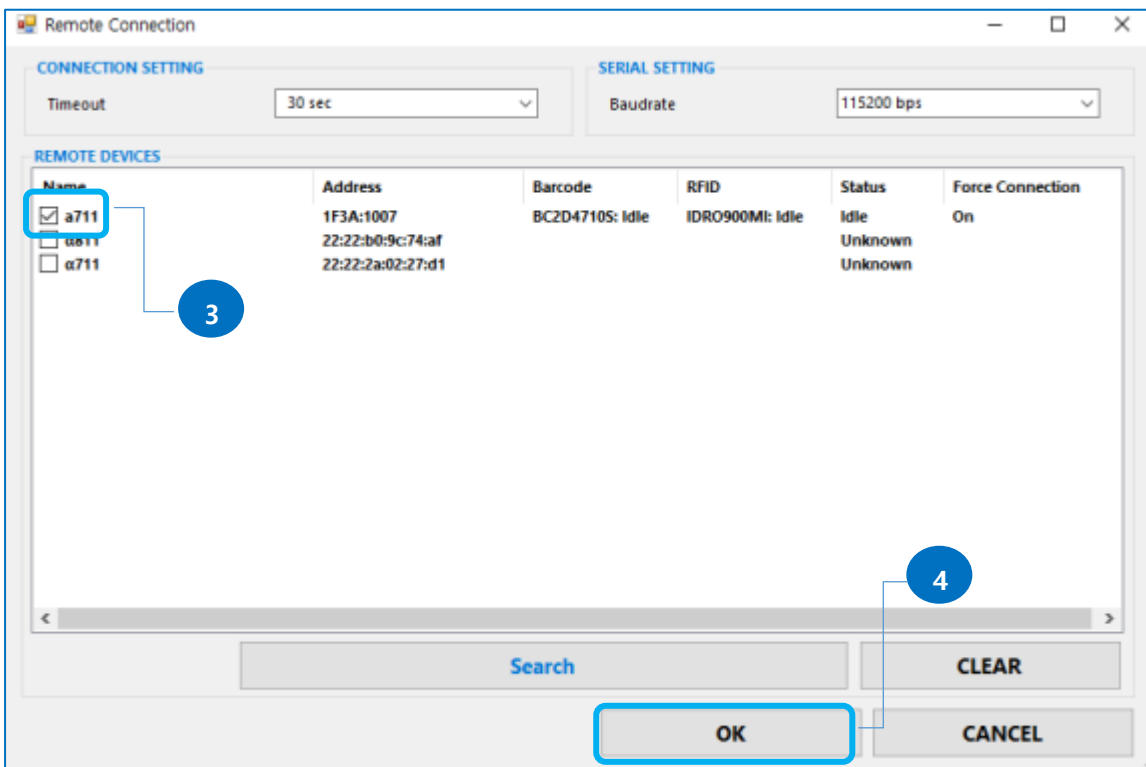
- Run “DemoWinForm.exe” program on PC.



1. Setting → Remote Connection.

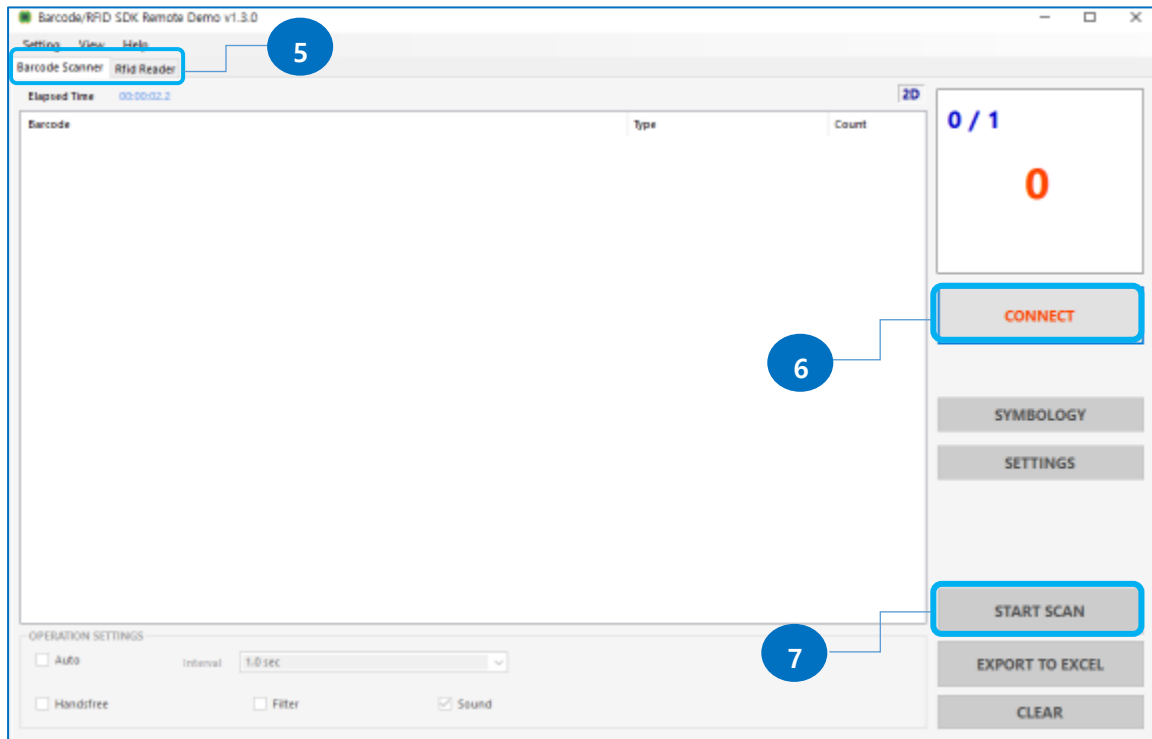


2. Press SEARCH button.



3. Select a712 you desire

4. Press OK button.



5. Select Barcode Scanner or RFID Reader.

6. Press CONNECT button.

7. Scan Barcodes or Read Tags by pressing START SCAN.

6. Follow Demo APK

This chapter provides information to use α712 for the first time. For more specific information about settings of Demo apk and details, please refer to Android SDK User guide.

6.1 UHF Reading

- Check the voice status when UHF Single reading and Multi reading.
- Button on the handle can be assign as UHF Tag Scanning button.
- Able to save read Tag information.
- α712 will be into SLEEP mode after no Tag for a time as setting.



Please contact with distributor or reseller you purchase if you have a problem on LED indicator.



LED status should be checked by pressing power button if it is necessary.

6.2 Barcode Scanning

- Button on the handle can be assign as Barcode Scanning button.
- Able to save read Barcode information.
- A712 will be into SLEEP mode after no Barcode scan for a time as setting.



Use UHF Reading and Barcode Scan button selectively on your needs.



LED status should be checked by pressing power button if it is necessary.

7. OS & Firmware Update

α712 is provided with most recently released firmware however if it's necessary to update the OS, please contact the local partner or let us know.



Backup all the data and information from your device before OS update. Your data may be erased during the update.



Check the battery fully charged or at least 90% charged before update, low battery may cause improper update or device malfunction.

7.1 OS Update

Please refer to OS update guide from our website.

7.2 RFID F/W Update

Please refer to Firmware update guide from our website.

8. Specifications

Performance Characteristics

| | |
|-------------------------|--|
| Processor | Octa core 2.0GHz |
| Operating System | Android 6.0.1 |
| Memory | LPDDR 2GB RAM, eMMC 8GB Internal |
| RFID Engine | Custom module with embedded Impinj R2000 |
| Operating Temp. | -20°C~+70°C |
| Storage Temp. | -30°C~+80°C |
| Humidity | 95% non-condensing |

Physical Characteristics

| | |
|---------------------------------|---|
| Audio | Speaker |
| Standard I/O Port | 1Port UART(RS-232) or 1Port USB Client |
| Expansion Slot | 10 EA LED Indicator, Vibrator |
| Notification | 14 EA LED Indicator, Vibrator |
| Key | Power Key, Reset Key, Function Key 7 EA |
| Weight | 525g |
| Dimensions (L x W x H) | 168mm x 84mm x 15mm |
| Max SAR(10g) | 1.701W/Kg |

Power Supply

| | |
|----------------------|--------------------------|
| Main Battery | 6800 mAh (Rechargeable) |
| Power Adapter | 5V/3A Type C USB Adapter |

Network Characteristics

| | |
|------------------|-------------------------|
| WLAN | IEEE 802.11 b |
| Bluetooth | Bluetooth V4.1+EDR |
| USB | USB to Mobile device |
| Serial | Serial to Mobile device |

Data Capture Device

| | |
|-----------------------|---|
| Barcode Engine | SE-4710 2D Imager Barcode Scanner from Zebra (Optional) |
|-----------------------|---|

UHF Reader/Writer

| | |
|-------------------------|---|
| Frequency | 860MHz – 960MHz |
| Reading Range | 0M ~ 40M (Depending on Tag & Environment) |
| Writing Range | 0M ~ 10M (Depending on Tag & Environment) |
| RF output | 1W ~ 4W EIRP |
| Protocol | Gen2, ISO/IEC 18000-6C |
| Special function | Anti-Collision |

Accessories

| | |
|---------------------|--|
| Cradle | USB Host, Ethernet, UART (RS-232 with 3.3V & 5V Power Supply) |
| Leather case | Yes (optional) |

9. *Troubleshooting*

Trouble shooting guide is available on separated document, you can refer to FAQ or download document from our website, **www.apulsetech.com**