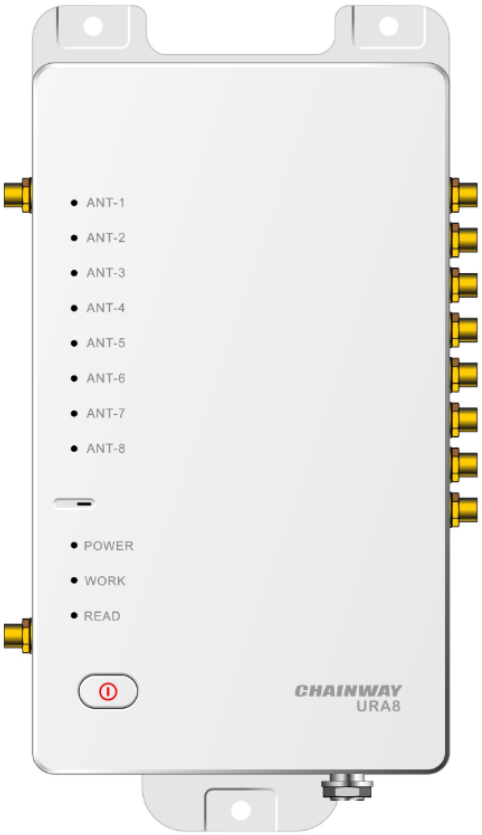
SHENZHEN CHAINWAY INFORMATION TECHNOLOGY CO., LTD

Fixed Android UHF Reader

URA8 User Manual
FCC ID:2AC6AURA8



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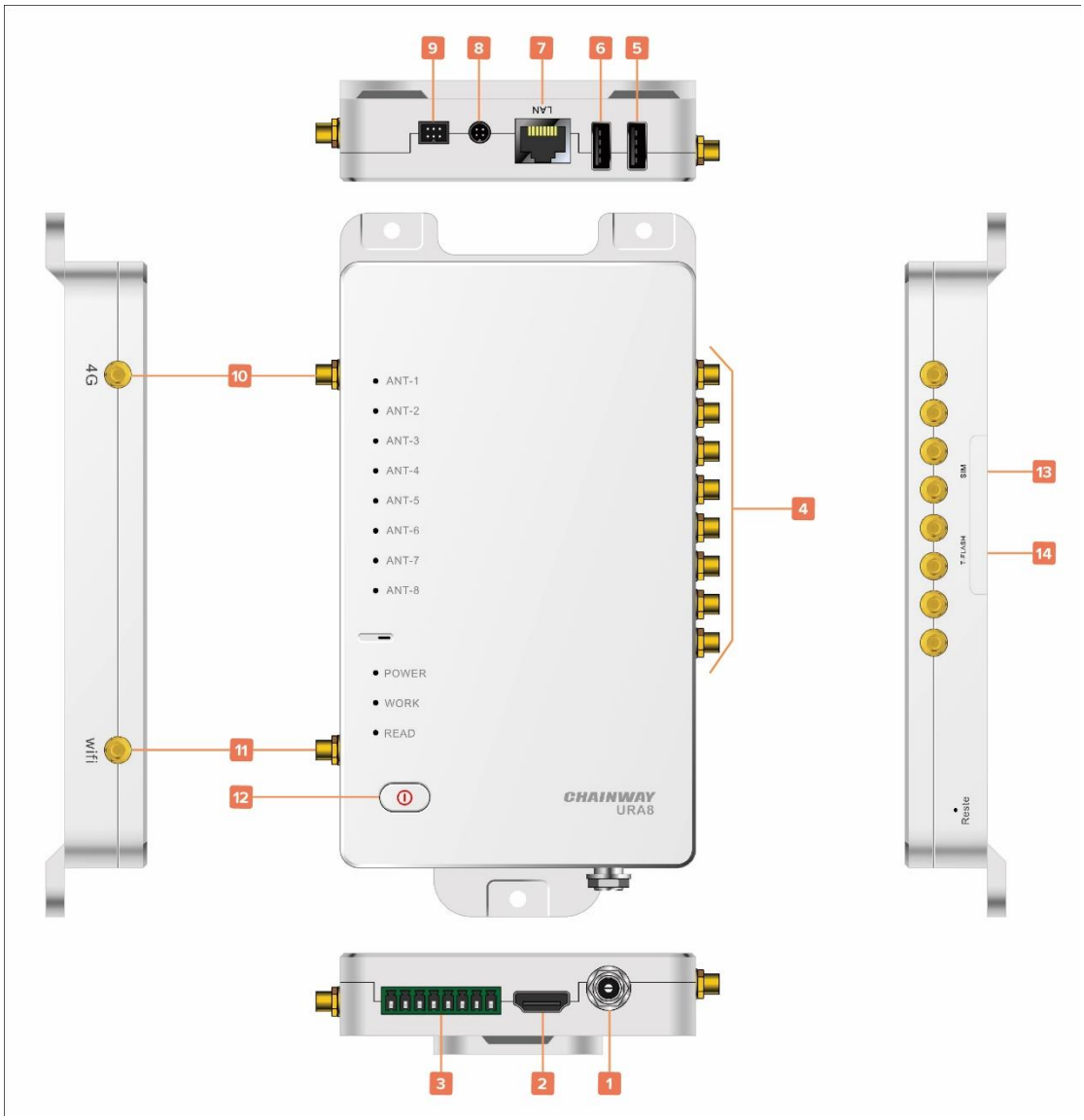
Chapter 1 Product Intro

1.1 Intro

Chainway URA8 is a high-performance eight-channel fixed UHF reader which adopted Android 5.1 operating system. The core chip adopts Impinj R2000 module with 8 channels and it supports RS232, RJ45 and HDMI ports. With stable and reliable capacity, excellent anti-electromagnetic interference capability and heat dissipation performance, it meets the requirements for installation and application of various indoor and outdoor environments and can be applied in multiple industries with strict RFID application standard such as warehouse management, archives and library management, bank, clothing and footwear retail, jewelry monitoring, watch industry, laundry, production line management, medical instrument cabinet and vending machines.

1.2 Interface



Pic.1-1

1	12V Power Supply
2	HDMI
3	GPIO (Support 2 path input photocoupler and 2 path output photocoupler with isolation.)
4	UHF antenna port, SMA female*8
5	USB port, used to connect mouse and others, touch-screen function supported. Dial *#*#555666#*#* to enter engineer mode.
6	USB port, used to connect mouse and others, touch-screen function supported.
7	RJ45 EtherCAT port, POE power supply supported
8	Serial port
9	Extended port
10	4G antenna port（shall be assembled with original antenna）,RP-SMA port
11	WIFI antenna port(shall be assembled with original antenna),RP-SMA port
12	Power button (Long-press 3 seconds to ON/OFF)
13	SIM card slot
14	TF card slot

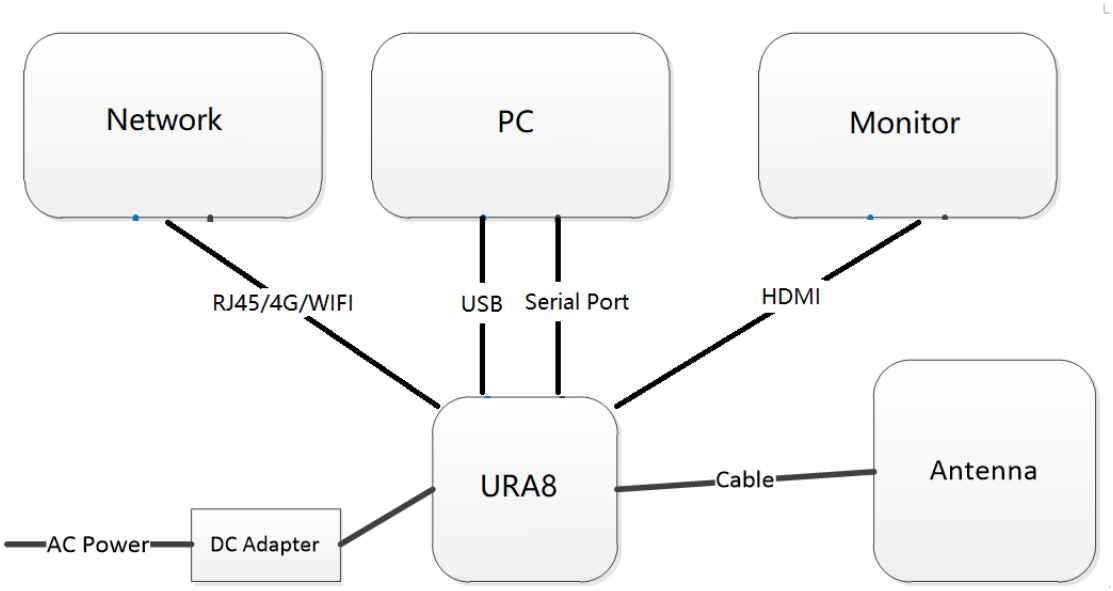
1.3 Device List

1	URA8 reader, 12V power adaptor
2	UHF antenna, 6dBi, 9dBi, 12dBi etc.
3	Feeder line, SMA male side connects with device, interface on other side needs match with antenna.
4	RJ45 Ethernet cable
5	HDMI cable
6	4G external antenna
7	WIFI external antenna

1.4 Device installation

URA8 reader adopts Android operating system, it can be connected with Internet through RJ45, WIFI and 4G etc. And connect with monitor through HDMI cable.

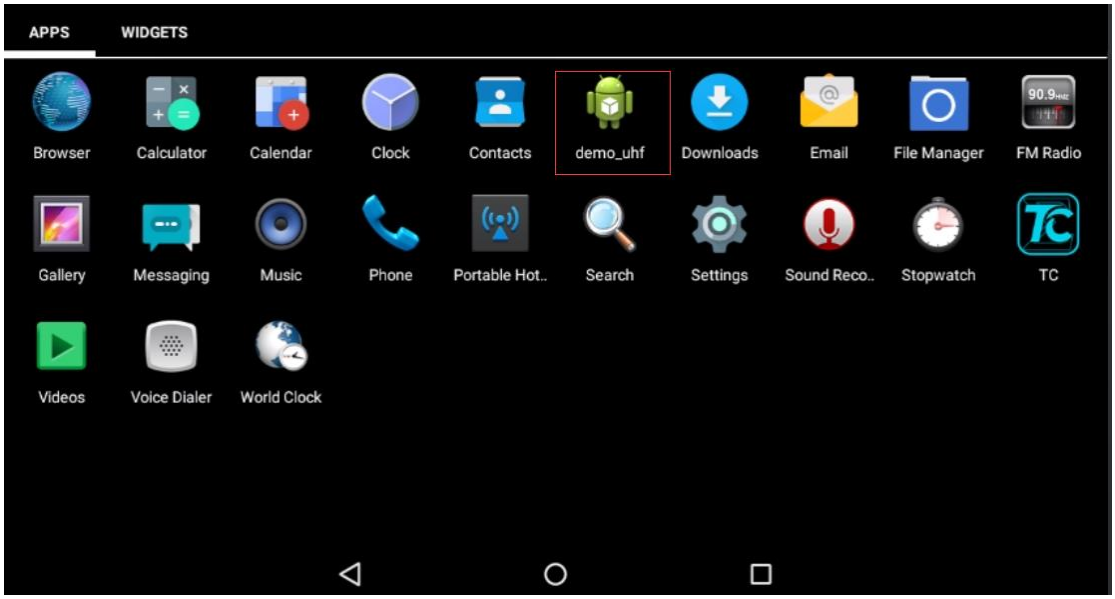
Developer could use USB cable to connect device with PC for developing application, device could also be connected with PC through serial port cable.



Pic.3-1

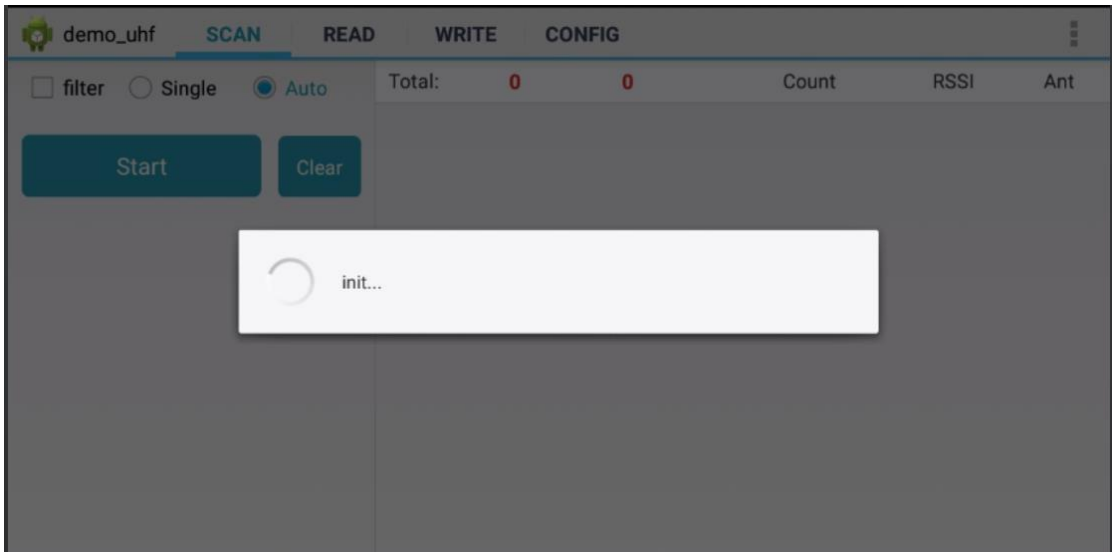
Chapter 2 UHF demo

2.1 Operating Interface



Pic.4-1

Connect monitor through HDMI cable and long-press power button for 3 seconds to switch on device. Click demo_uhf icon to enter demo as Pic.4-1, UHF module will initiate as Pic.4-2, if there is no error messages show up, then initiation process has been successfully finished. “init. fail” means UHF module failed to initiate, need to exit application and repeat operation. If initiation cannot successfully finished, need to contact tech support for further.



Pic.4-2

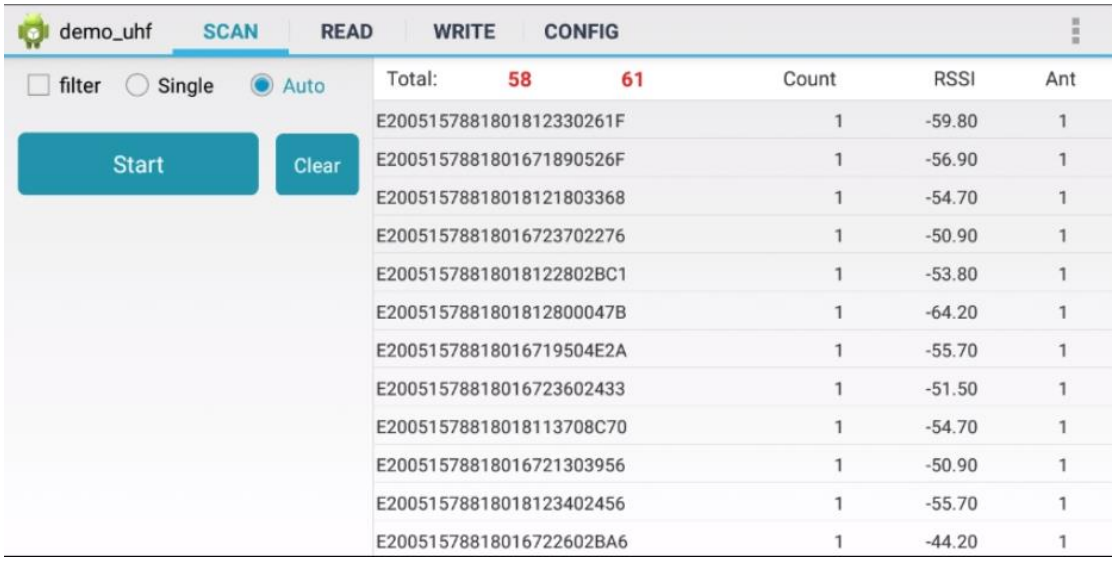
Chapter 3 UHF tag scanning

Click SCAN on top of navigation bar to enter tags reading page.

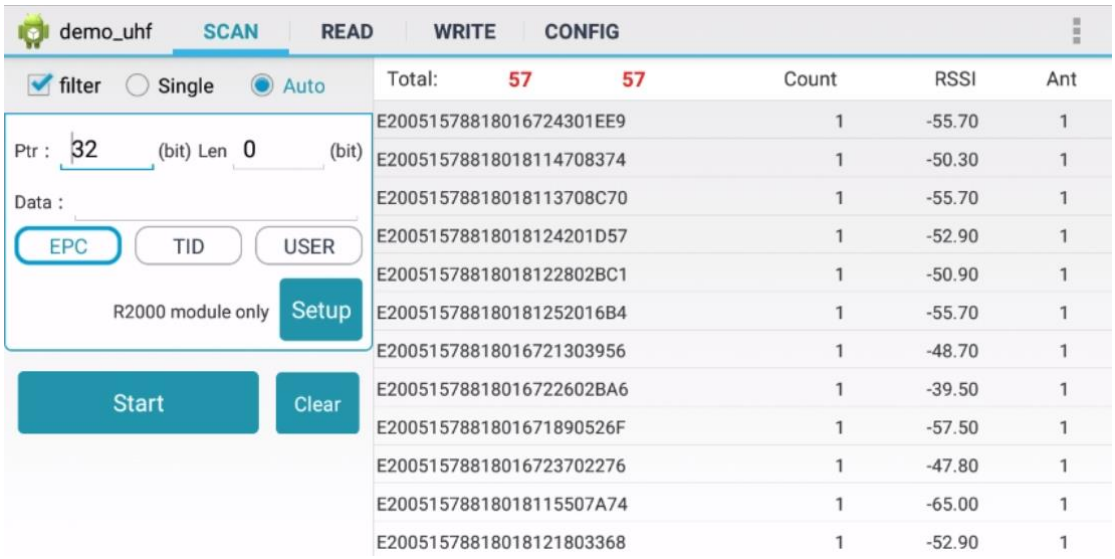
3.1 Auto Scanning

Select “Auto”, then click “Start” button to start tags scanning circularly, the information such as EPC or TID, Count, RSSI and Ant. number. As Pic.5-1.

“filter” button can be used to setup tag which has been filtered, user could setup address, data length to filter tags. EPC, TID and USER areas can be selected, setup data length to 0 and clear EPC list, then click “Setup” to confirm in Pic.5-2.



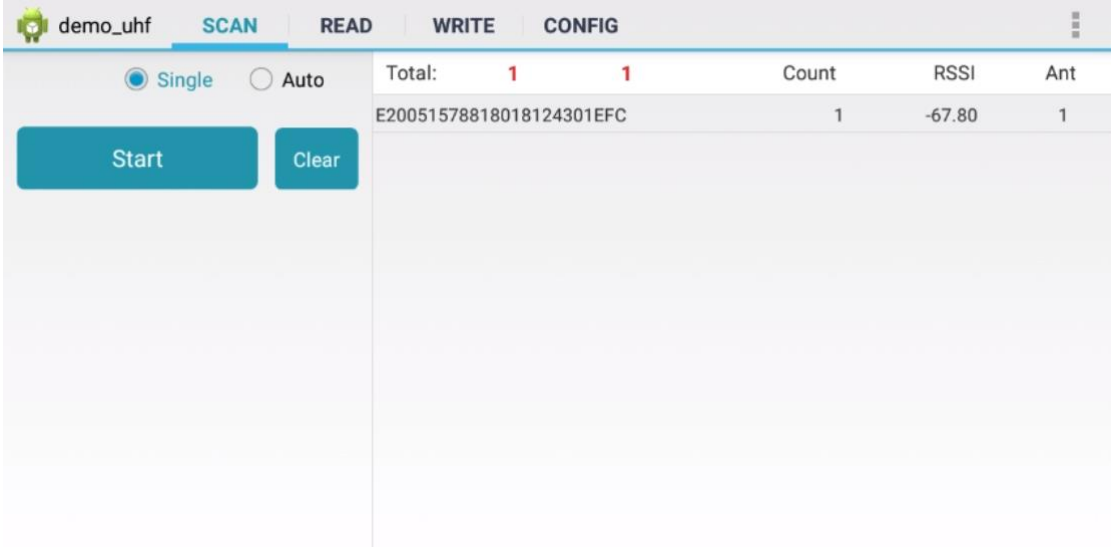
Pic.5-1


demo_uhf
SCAN
READ
WRITE
CONFIG
filter
Single
Auto
Ptr : 32 (bit) Len 0 (bit)
Data :
EPC
TID
USER
R2000 module only
Setup
Start
Clear
Total: 57 57
Count
RSSI
Ant
E2005157881801672430 1EE9 1 -55.70 1
E2005157881801811470 8374 1 -50.30 1
E2005157881801811370 8C70 1 -55.70 1
E2005157881801812420 1D57 1 -52.90 1
E2005157881801812280 2BC1 1 -50.90 1
E2005157881801812520 16B4 1 -55.70 1
E2005157881801672130 3956 1 -48.70 1
E2005157881801672260 2BA6 1 -39.50 1
E2005157881801671890 526F 1 -57.50 1
E2005157881801672370 2276 1 -47.80 1
E2005157881801811550 7A74 1 -65.00 1
E2005157881801812180 3368 1 -52.90 1

Pic.5-2

3.2 Single Scanning

Select “Single” button and click “Start” to start scanning tag, EPC or TID, Count, RSSI and Ant.number will display on right side, as Pic.5-3.

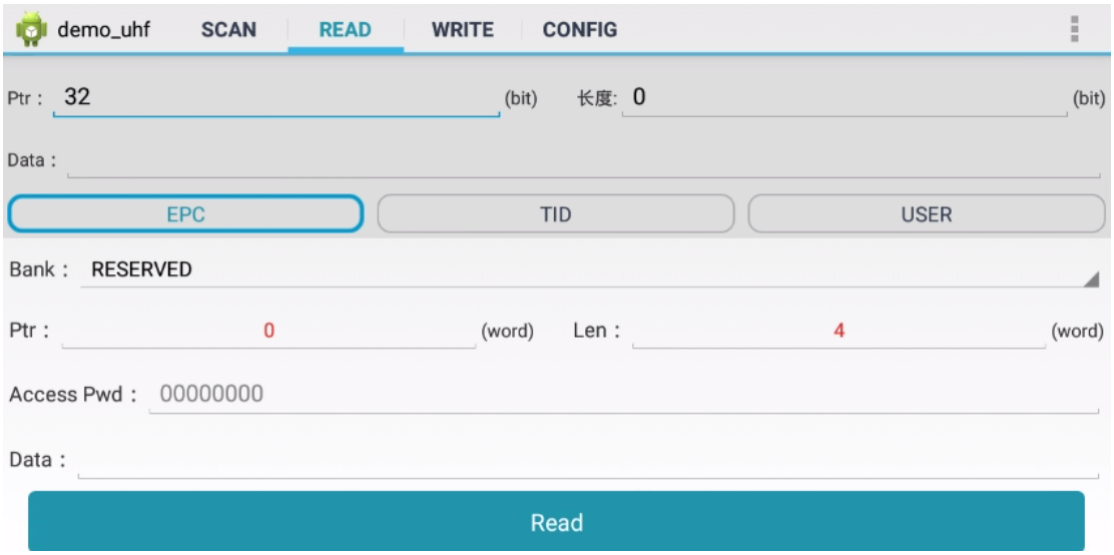


Pic.5-3

3.3 Read UHF Tag

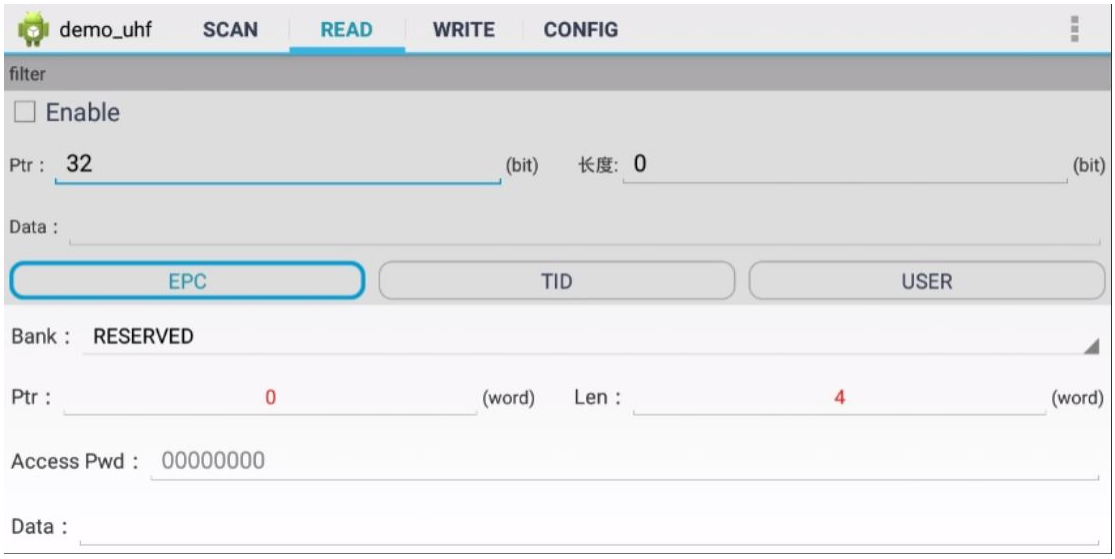
Click “READ” on top of navigation bar to enter page of tag reading.

User could read data of 4 areas, RESERVED, EPC, TID and USER, setup address and data length, default password is “00000000”, click “Read” to read tags in Pic.6-1.



Pic.6-1

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function in Pic.6-2.



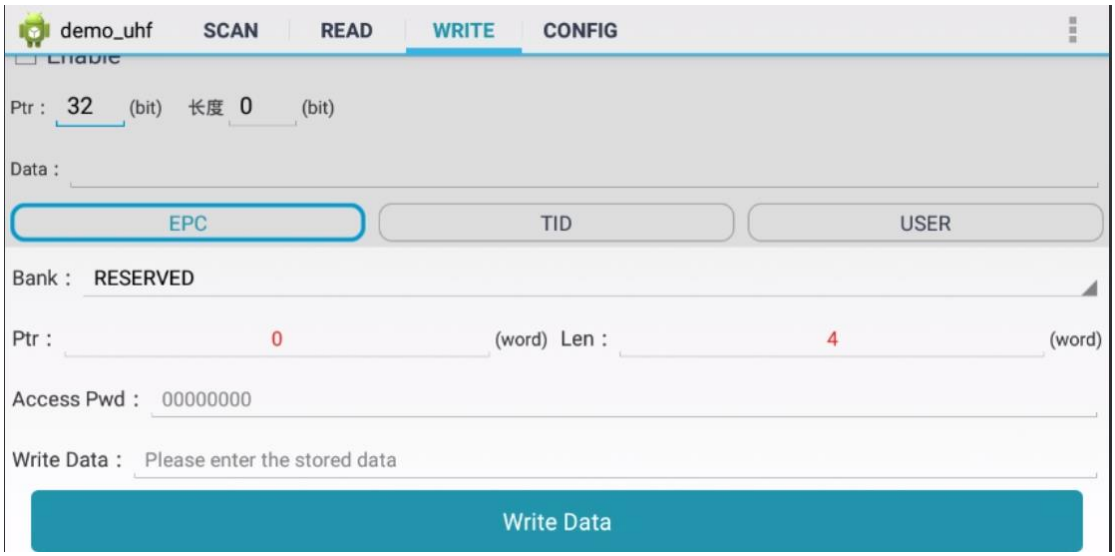
Pic.6-2

3.4 Write Tag

Click “WRITE” on top of navigation bar to enter tag writing page.

User could write data in RESERVED, EPC, TID and USER areas, setup start address and data length, input access password and data(hex), click “Write Data” to write data in Pic.7-1.

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function.



Pic.7-1

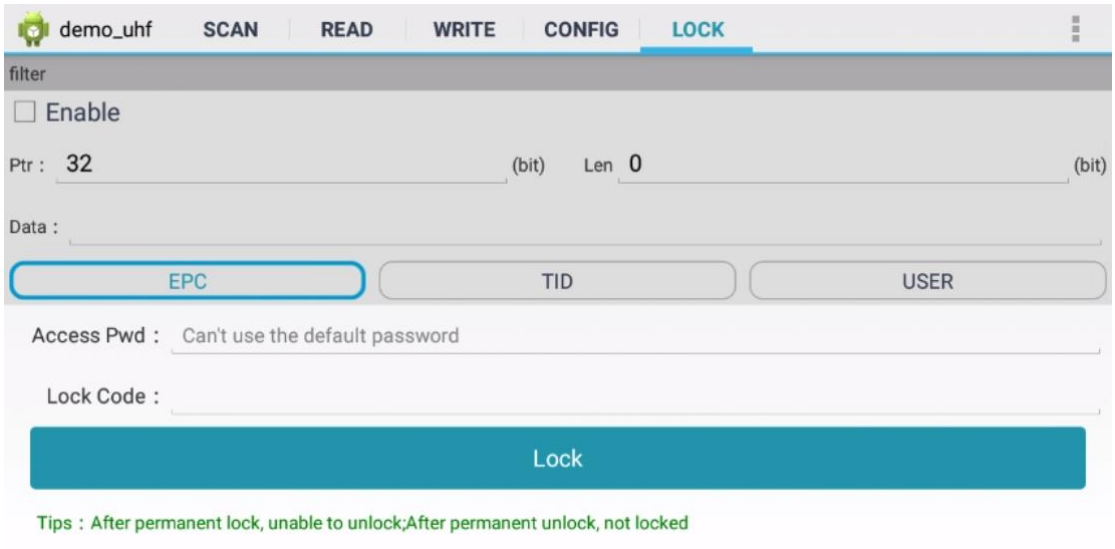
3.5 Lock Tag

Click “LOCK” on top of navigation bar to enter tag locking page.

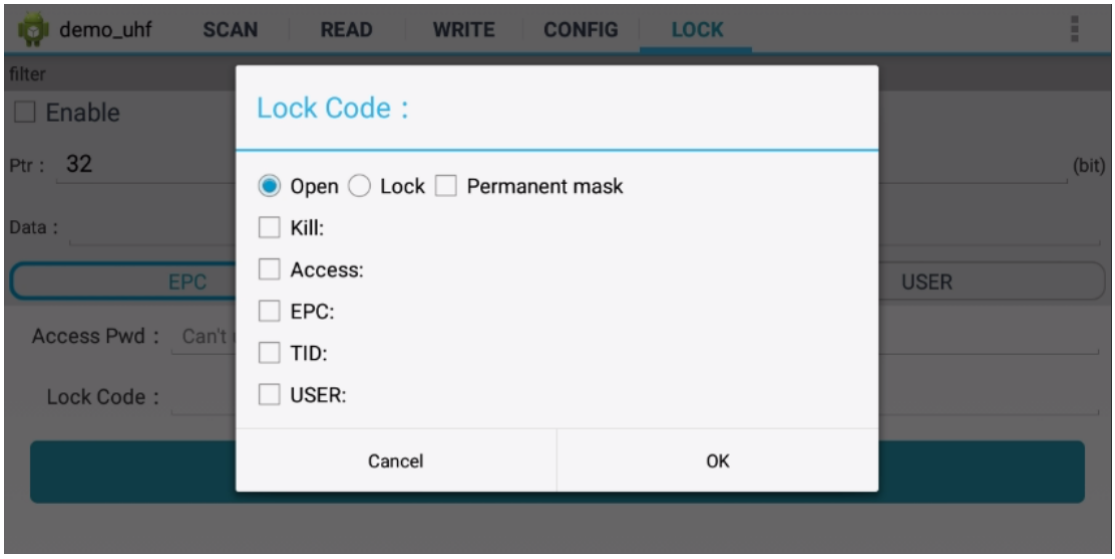
Input access password(DONOT input default password.), then click column of “Lock Code”, it will display window for selecting different methods of locking, click “OK” to generate lock code automatically, then click “Lock” to lock tags in Pic.8-1 and Pic.8-2.

Comment: user could filter tags by setup address, data length and data in EPC, TID and USER areas, select “Enable” button to switch on filter function.

NOTE: If permanent mask has been locked, then it cannot be unlocked. Vice versa.



Pic. 8-1


demo_uhf
SCAN
READ
WRITE
CONFIG
LOCK
filter
Enable
Ptr : 32
(bit)
Data :
EPC
USER
Access Pwd :
Lock Code :
Lock Code :
Open
Lock
Permanent mask
Kill:
Access:
EPC:
TID:
USER:
Cancel
OK

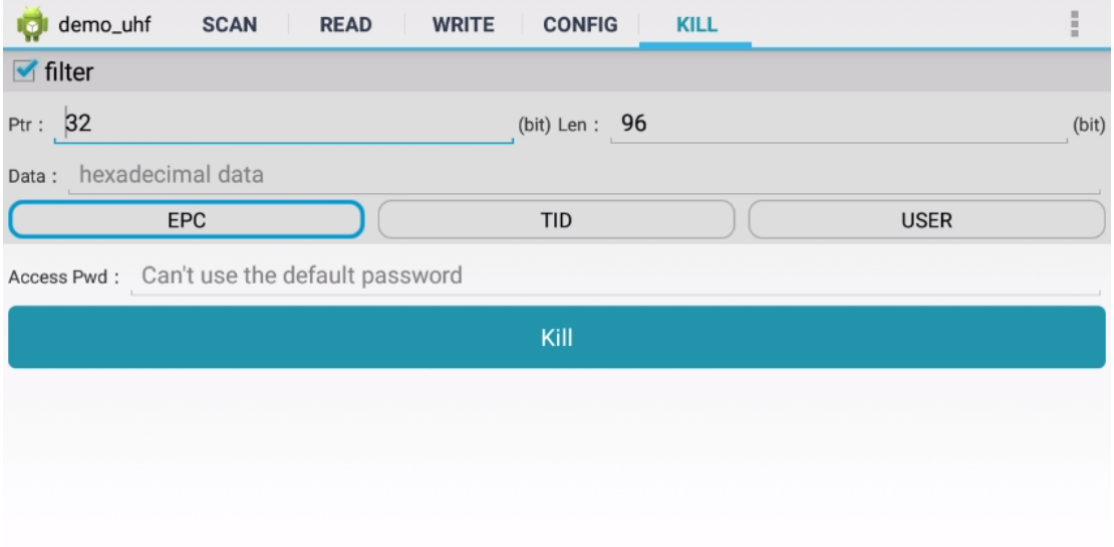
Pic.8-2

3.6 Kill Tag

Click “KILL” on top of navigation bar to enter operating page.

Input access password (DONOT input default password.), click “Kill” button to destroy tags in Pic.9-1.

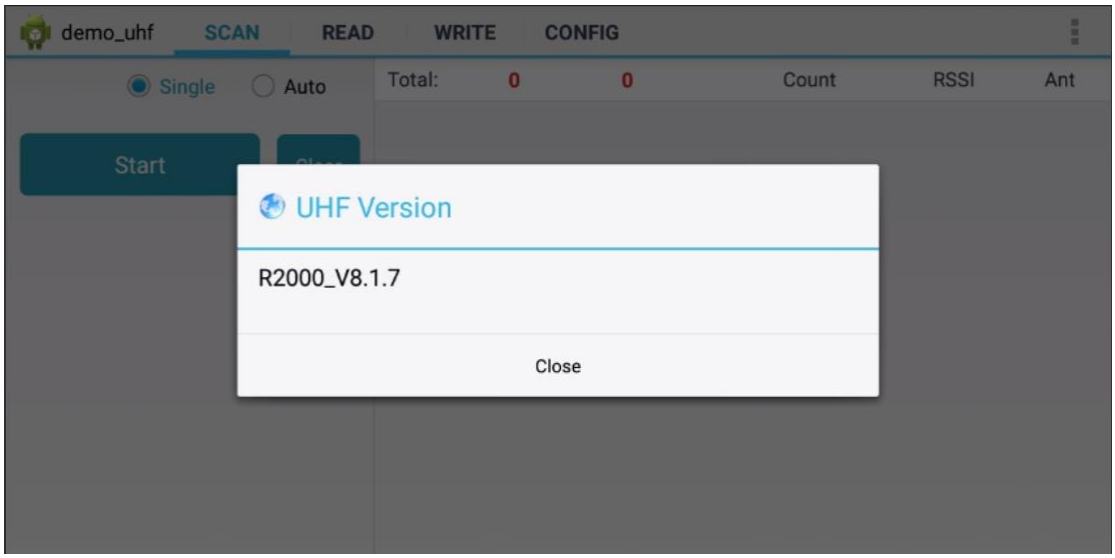
Comment: user could filter tag by setup address, data length and data for selecting EPC, TID or USER area.



Pic.9-1

3.7 UHF Module Version

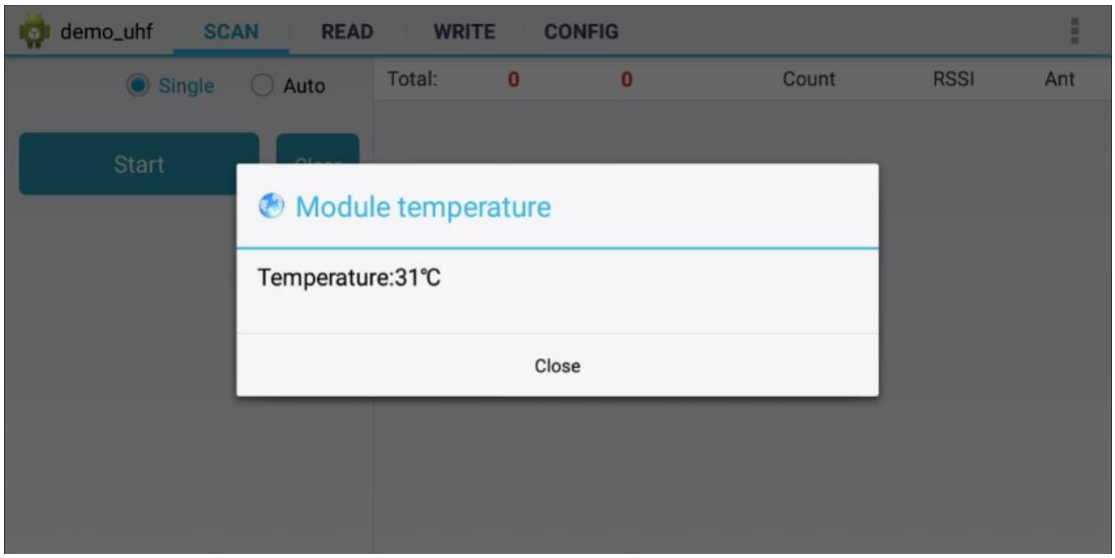
Click 3 dots on top right of application and click “About” in list to check version of UHF module in Pic.10-1.



Pic.10-1

3.8 Module Temperature

Click 3 dots on top right of application, click “Module temperature” in list to check UHF module temperature in Pic.11-1.



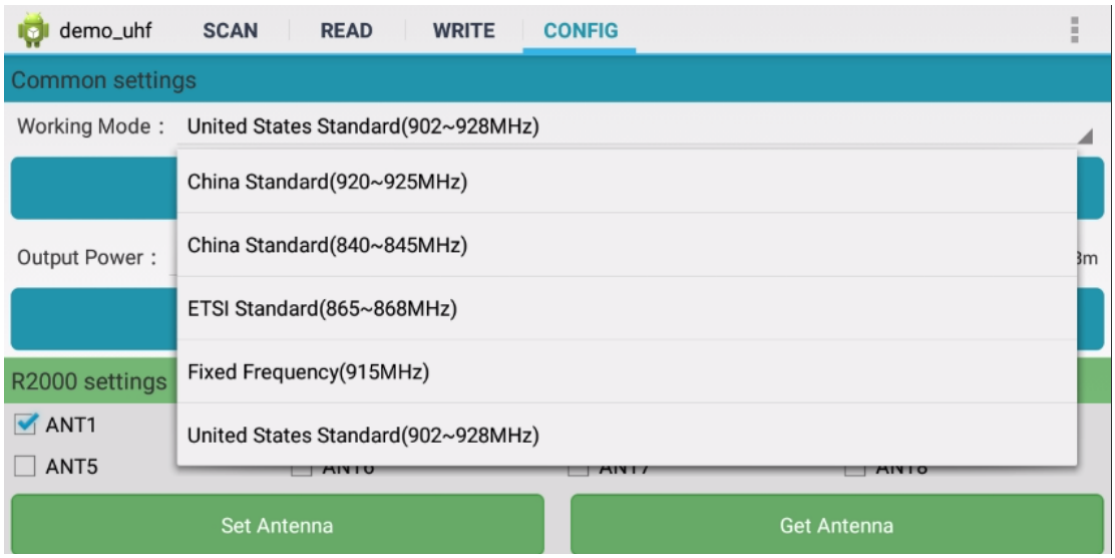
Pic.11-1

Chapter 4 Config

Click “CONFIG” on top of navigation bar to enter setup page.

4.1 Working mode

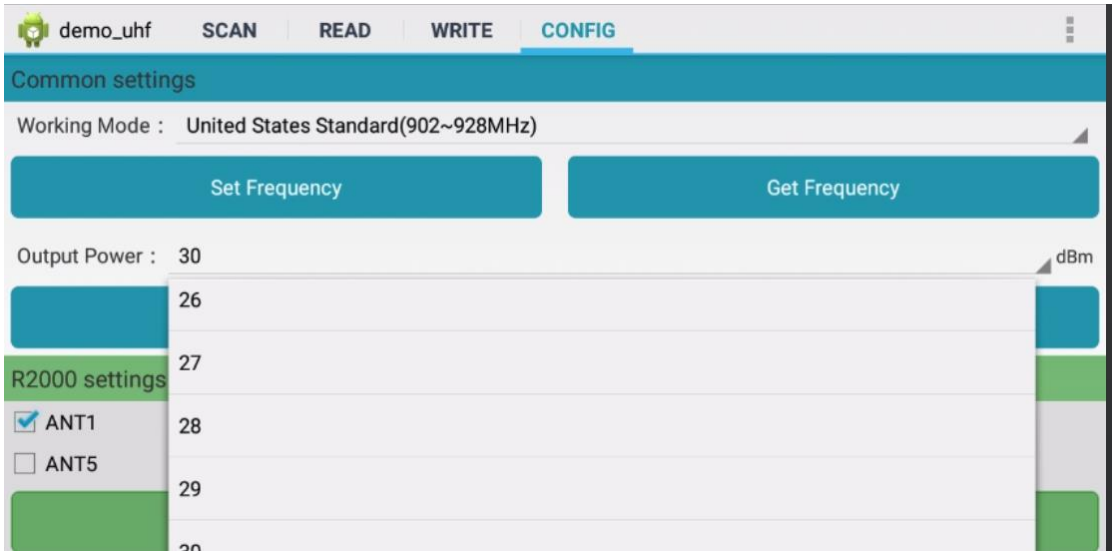
User could setup different frequency band for different countries, as Pic.12-1, click “Set Frequency” to confirm frequency band. Click “Get Frequency” to check current frequency band.



Pic.12-1

4.2 Output Power

User could select different output power from 5 to 30dBm in Pic.12-2, click “Set Power” to confirm setup. Click “Get Power” to get current output power.

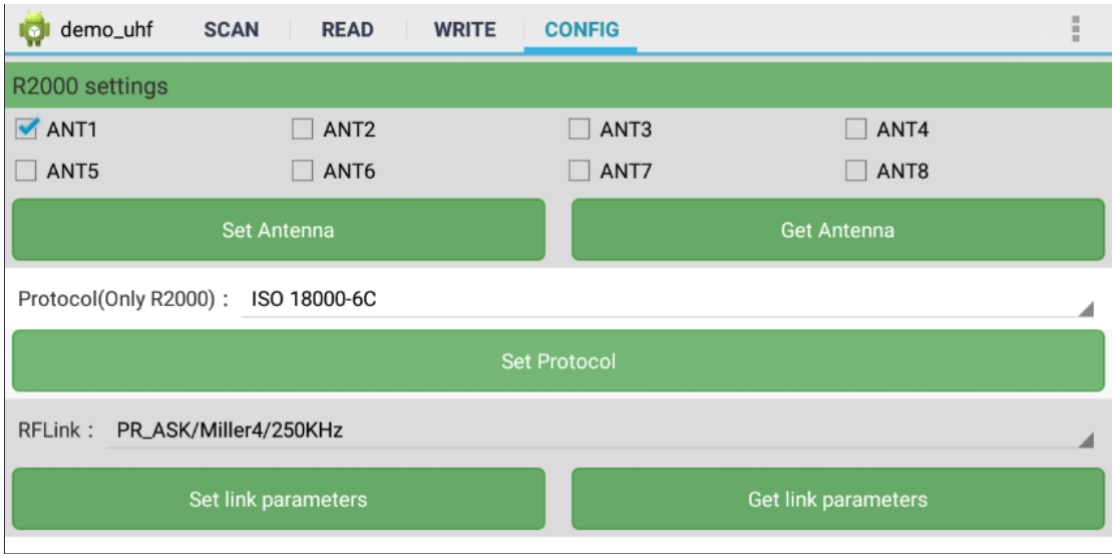


Pic.12-2

4.3 R2000 settings

Select ANT1-ANT8 to setup antenna, selected antenna will start functioning, unselected antenna will in OFF in Pic.12-3.

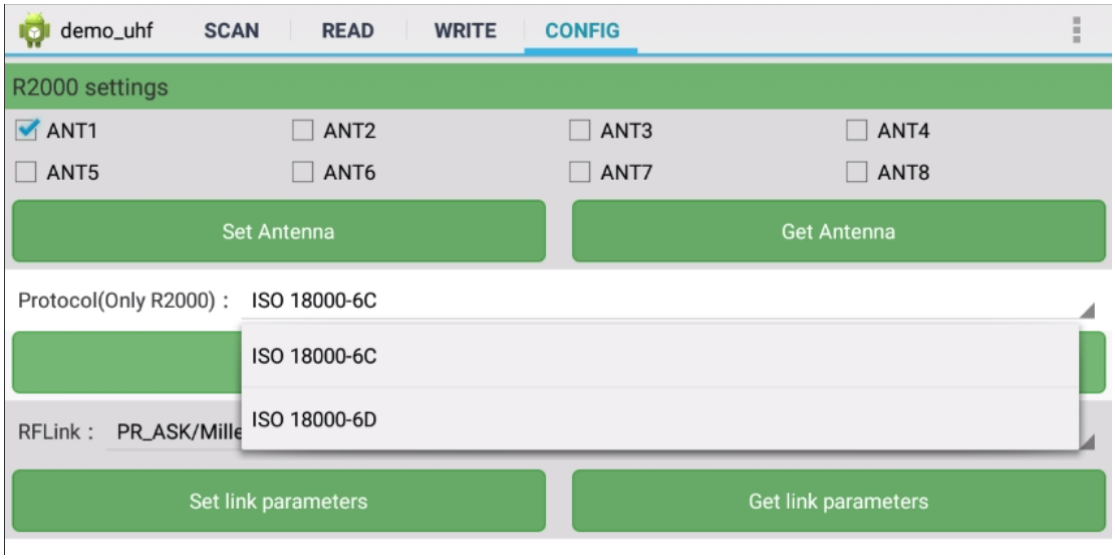
Click “Set Antenna” to confirm setup, “Get Antenna” to check current antenna status.



Pic.12-3

4.4 Protocol

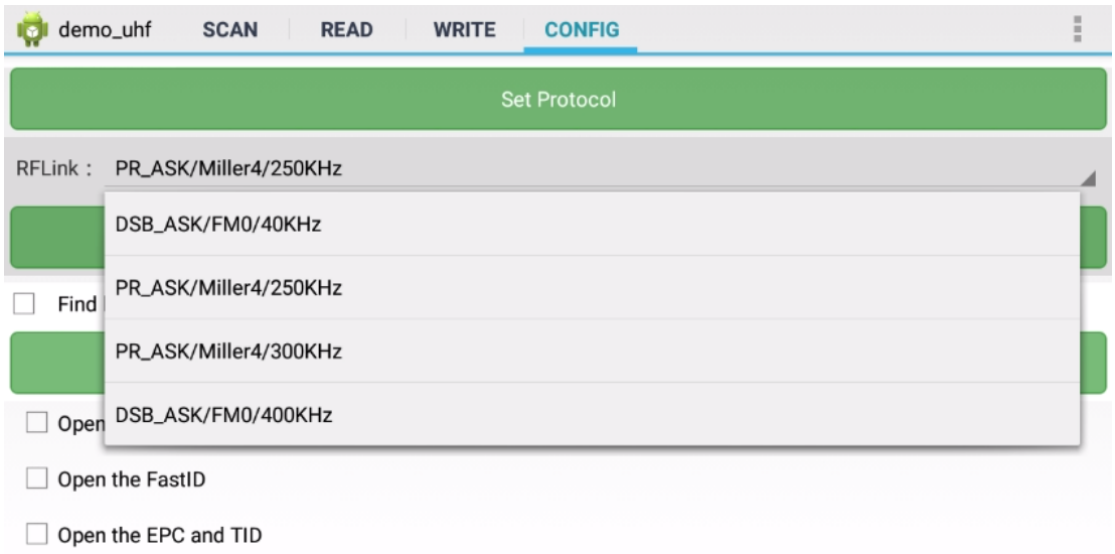
There are two protocols can be selected in Pic.12-4, click “Set Protocol” to confirm.



Pic.12-4

4.5 RF link

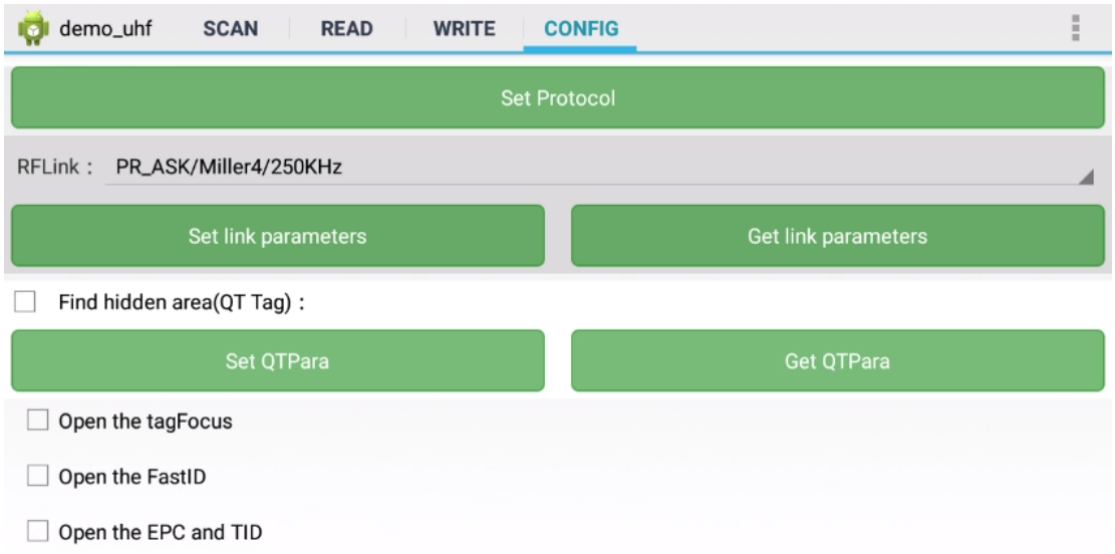
There are four parameters can be selected in this parameter, as Pic.12-5. Click “Set link parameter” to confirm, click “Get link parameters” to check current RF link parameters.



Pic.12-5

4.6 QT Tag

Select “Set QTPara” to switch ON and OFF hidden areas of QT tag, click “Get QTPara” to check current status.



Pic.12-6

4.7 Open tagFocus

Select ON/OFF of tagFocus in Pic.12-6.

4.8 Open FastID

Select ON/OFF of “Open the EPC and TID” in Pic.12-6.

4.9 Open EPC and TID

Select ON/OFF of “Open the EPC and TID” in Pic.12-6.

4.10 WWAN Specification

WWAN		
Frequency Band		Maximum output power (dBm)
GSM 900		33
GSM 1800		32
UMTS B1/B8		22.5
FDD LTE B1/B3/B7/B8/B20		22.5
WLAN		
Standard	Frequency	EIRP Power(dBm)
802.11b	2.412GHz~2.472GHz	15.51
802.11g	2.412GHz~2.472GHz	11.68
802.11n	2.412GHz~2.472GHz	10.74
RFID		ERP Power(dBm)
865MHz~868MHz		27.65

Chapter 5 SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, Shenzhen Chainway Information Technology Co.,Ltd. declares that the radio equipment type Fixed Android UHF Reader is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:(www.chainway.net)

ShuRong Chen

Chapter 6 Warning

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.

FCC:

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.

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.

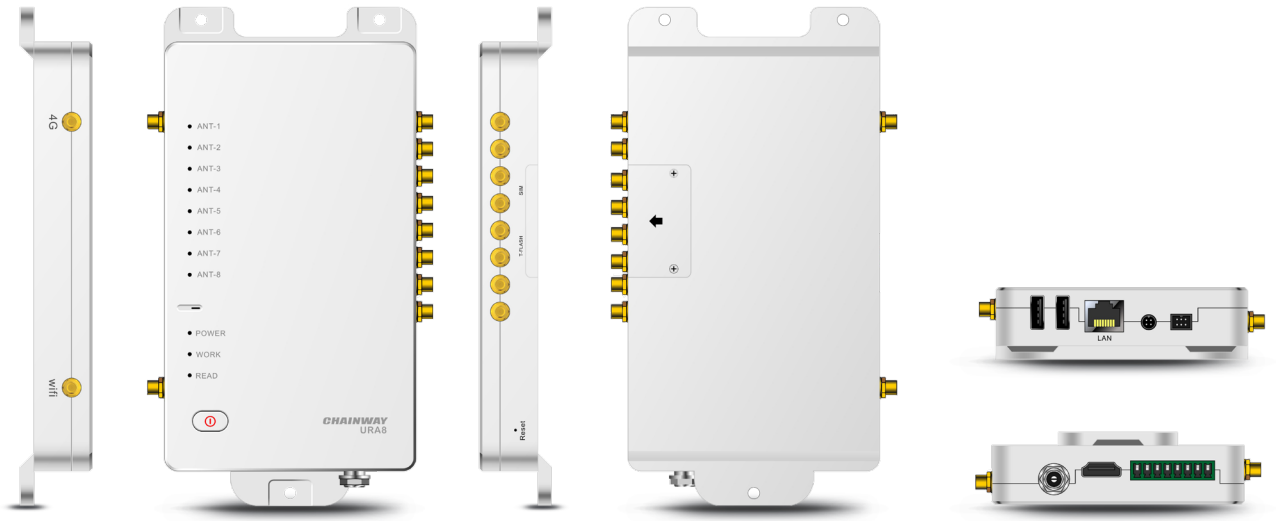
-Consult the dealer or an experienced radio/TV technician for help.

CHAINWAY®

URA8

Fixed Android UHF Reader

Chainway URA8 is an 8-channel fixed RFID reader, based on Android 5.1. Integrated with Impinj R2000 RFID chip, it supports RS232, RJ45 and HDMI, and can be compatible with various types of antennas. With high stability and outstanding performance, URA8 can be ideally applied to warehouse management, archives and library management, bank, clothing and footwear retail, jewelry monitoring, watch industry, laundry, production line management, medical instrument cabinet and vending machines.



Specification

Physical Characteristics

Dimensions	162mm(L) x 95mm(W) x 22mm(H)
Weight	448g/15.80oz(without antenna)
Material	Aluminium alloy
Input Voltage	DC 10V – 24V
Standby Current	<30mA
Work Current	800mA +/-5% @ DC 12V Input
Comm Interface	1*RS-232 , 1*RJ45, 2*USB2.0 Type A, USB Host
Display Interface	HDMI Type A, support 720P
GPIO	2 channel input optical coupling, 2 channel output optical coupling
Baud Rate	115200 bps
Cooling Mode	Air cooling
Power	DC(12V) / POE (IEEE 802.3at 25.5W)

Performance

CPU	Qualcomm 1.3 GHz quad-core
RAM+ROM	1GB+8GB / 2GB+16GB

Developing Environment

Operating System	Android 5.1
SDK	Chainway Software Development Kit
Language	Java
Tool	Eclipse/Android Studio

Communication

WLAN	IEEE802.11 b/g/n, external antenna using SMA port
WWAN(Europe)	2G: GPRS (900： 33 dBm/1800： 32dBm)
	3G: WCDMA B1/B8: 22.5 dBm
	4G: FDD-LTE: B1/B3/B7/B8/B20： 22.5 dBm
WWAN(America)	2G: GPRS (850/1900MHz)
	3G: WCDMA B2/B5
	4G: FDD-LTE: B2/B4/B5/B7/B17
WWAN(China)	2G: GPRS (900/1800MHz)
	3G: WCDMA: B1
	CDMA : EVDO Rev.A800MHz
	TD-SCDMA: B34/B39
	4G: TDD-LTE: B38/B39/B40/B41
	FDD-LTE: B1/B3
External antenna using RP-SMA port	

User Environment

Operating Temp.	-25 °C to 65 °C
Storage Temp.	-40 °C to 85 °C
Humidity	10%- 95%

UHF

Engine	CM2000-8 module based on Impinj Indy R2000
Protocol	EPC C1 GEN2 / ISO18000-6C
Frequency	902-928MHz
Output Power	1W (30dBm, support +5~+30dBm adjustable)
	2W Optional (33dBm, for Lati America, etc.)
Output Power Precision	+/- 1dB
Output Power Flatness	+/- 0.2dB
Receive Sensitivity	< -88dBm
Reading Rate	>700 tags/s
RSSI	Supported
Ambient Temp Monitor	Supported
Antenna Detector	Supported
Antenna	Supporting a variety of antennas, such as 6dBic, 9dBic
Antenna Port	8 channel 50Ω RP-SMA port

4G/WIFI: External Antenna,1.9 dBi Model: AX4GSC03, Shenzhen Kangyuanxin Communication Technology Co., Ltd.

Notice: Product specifications are subject to change without prior notice. / Model: URA8 / Update Date: 2019-10-16

CHAINWAY®
Shenzhen Chainway Information Technology Co., Ltd
Address: 9F, Building2, Phase 2, Gaoxinqi Industrial Park, Liuxian 1st Rd., Bao'an District, Shenzhen, Guangdong 518102, China
Tel: 0086-755-23223316 Fax: 0086-755-23223310 Email: sales@chainway.cn Web: http://www.chainway.net

UHF Antenna, Auxn Technology Co., Ltd.

Model: AX-09PA12C040 , Gain: 12 dBi

Model: AX-RFID09C09, Gain: 9 dBi

Model: AX-04PA06V080, Gain: 6 dBi

Professional installation Declaration

i) This device must be professionally installed.

ii) It does not permit use of any antenna with the transmitter, the permitted types of antenna must be specified above.

iii) The antenna cannot be sold via retail to the general public or by mail order; it must be sold to authorized dealers or installers only.

iv) Installation requires special training.