File : User guide AX'Smart Reader Version : V1.1



# AX'Smart Reader



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## 1. Production introduction

#### 1.1 Interface





## 1.2 Necessary Parts List

1	AX'Smart reader, 12V power adaptor
2	UHF antenna, 6dBi, 9dBi, 12dBi etc.
3	Feeder line, 4x 50 Ohm female TNC (interface on other side needs match with antenna), 2x female SMA ports for WIFI and 4G antennas.
4	RJ45 Ethernet cable
5	HDMI cable
6	4G external antenna
7	WIFI external antenna



#### 1.3 Device installation

AX'Smart 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. USB-A ports are present to connect input devices (keyboard, mouse, touch screen...) dedicated to navigation on the AX'Smart reader. The USB-C port can be used to control the player from a PC via a COM port.



Pic.3-1



## 2. UHF demo

APPS	WIDGETS								
Browser	Calculator	Calendar	Clock	Contacte	demo ubf	Downloade	@ Email	O File Manager	90.9
								()	70
Gallery	Messaging	Music	Phone	Portable Hot	Search	Settings	Sound Reco	Stopwatch	TC
Videos	Voice Dialer	World Clock							
			4			_			
			$\triangleleft$	C					

#### 2.1. Operating Interface



Connect monitor through power cable to switch on device. Click demo\_uhf icon to enter demo as Pic.4-1, UHF module will initiate as Pic.4-2, if no error messages appear, 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 finish, contact technical support for help.







## 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.

demo_uhfSCAN	N REA	D WRITE	CONFIG			1
🗌 filter 🔿 Single	Auto	Total: 58	61	Count	RSSI	Ant
		E2005157881801812	2330261F	1	-59.80	1
Start	Clear	E2005157881801671	890526F	1	-56.90	1
		E2005157881801812	1803368	1	-54.70	1
		E2005157881801672	3702276	1	-50.90	1
		E2005157881801812	2802BC1	1	-53.80	1
		E2005157881801812	2800047B	1	-64.20	1
		E2005157881801671	9504E2A	1	-55.70	1
		E2005157881801672	3602433	1	-51.50	1
		E2005157881801811	3708C70	1	-54.70	1
		E2005157881801672	1303956	1	-50.90	1
		E2005157881801812	23402456	1	-55.70	1
		E2005157881801672	2602BA6	1	-44.20	1

Pic.5-1

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demo_uhf SCAN READ	WRITI	e co	NFIG			1
🗹 filter 🔵 Single 💿 Auto	Total:	57	57	Count	RSSI	Ant
	E2005157881	80167243	01EE9	1	-55.70	1
tr : 32 (bit) Len 0 (bit)	E2005157881	80181147	08374	1	-50.30	1
ata :	E2005157881	80181137	08C70	1	-55.70	1
EPC TID USER	E2005157881	80181242	01D57	1	-52.90	1
	E2005157881	80181228	02BC1	1	-50.90	1
R2000 module only Setup	E2005157881	80181252	016B4	1	-55.70	1
	E20051578818016721303956		1	-48.70	1	
Start	E20051578818016722602BA6		1	-39.50	1	
Start	E2005157881	381801671890526F		1	-57.50	1
	E2005157881	80167237	02276	1	-47.80	1
	E2005157881	80181155	07A74	1	-65.00	1
	E2005157881	80181218	03368	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.

demo_uhf SCAN	REA	D WR	ITE CO	ONFIG			1
Single	Auto	Total:	1	1	Count	RSSI	Ant
_		E2005157	8818018124	301EFC	1	-67.80	1
Start	Clear						



#### 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.

🧔 demo_uhf	SCAN	READ	WRITE CONFIG			1
Ptr : 32			(bit) 长度: 0	)		(bit)
Data :						
	EPC		TID		USER	
Bank : RESER	RVED					
Ptr :	0		(word) Len :		4	(word)
Access Pwd :	00000000					
Data :						
			Read			

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.

demo_uhi	SCAN READ	WRITE C	ONFIG		1
filter					
Enable					
Ptr : 32		(bit)	长度: 0		(bit)
Data :					
	EPC	т	D	$) \square$	USER
Bank : RESER	RVED				4
Ptr :	0	(word)	Len :	4	(word)
Access Pwd :	00000000				
Data :					

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 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.

	nf SCAN READ	WRITE CONFIG		1
Ptr : 32 (b	bit) 长度 0 (bit)			
Data :				
	EPC	TID	USER	
Bank : RESE	RVED			
Ptr :	0	(word) Len :	4	(word)
Access Pwd :	0000000			
Write Data :	Please enter the stored data			_
		Write Data		

Pic.7-1

## 3.5. Lock Tag

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

Input access password(DO NOT 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.

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filter				
Enable				
Ptr : 32		(bit) Len 0		(bit
Data :				
	EPC	TID	USER	
Access Pwd :	Can't use the default pas	ssword		
Lock Code :				

Pic. 8-1

filter	Lock Code :		
Ptr : 32 Data : EPC Access Pwd :Can't Lock Code :	<ul> <li>Open Lock Permanent</li> <li>Kill:</li> <li>Access:</li> <li>EPC:</li> <li>TID:</li> <li>USER:</li> </ul>	mask	USER
	Cancel	ок	

Pic.8-2



#### 3.6. Kill Tag

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

Input access password (DO NOT 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.

🯟 demo_uh	f SCAN	READ	WRITE	CONFIG	KILL		1
S filter							
Ptr : 32				(bit) Len : 96	<b>b</b>		(bit)
Data : hexade	ecimal data						
$\square$	EPC			TID		USER	
Access Pwd :	Can't use the c	lefault pass	word				
				Kill			
-							

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.

demo_uhfSC	AN READ	WRI	TE CO	NFIG			1
Single	🔿 Auto	Total:	0	0	Count	RSSI	Ant
C							
Start	@ UHE V	lersion					
	R2000_V8.1.7						
			Close				
		_	CIUS	e			
-			Dic	10.1			

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#### 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.

🙀 demo_uhf 🛛 SC	AN READ	WRIT	E C	ONFIG			1
<ul> <li>Single</li> </ul>	🔘 Auto	Total:	0	0	Count	RSSI	Ant
Start	Modul Temperatur	le tempe re:31°C	rature				
			Clo	se			

Pic.11-1



# 4. Configuration

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

#### 4.1. Working mode

User could setup a 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.

🤿 demo_uhf	SCAN READ WRITE CONFIG						
Common settin	Common settings						
Working Mode :	United States Standard(902~928MHz)						
	China Standard(920~925MHz)						
Output Power :	China Standard(840~845MHz)	3m					
	ETSI Standard(865~868MHz)						
R2000 settings	Fixed Frequency(915MHz)						
ANT1	United States Standard(902~928MHz)						
Set Antenna Get Antenna							

Pic.12-1

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#### 4.2. Output Power

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

🤿 demo_uhf	SCAN READ WRITE CONFIG	
Common settin	ngs	
Working Mode :	United States Standard(902~928MHz)	
	Set Frequency Get Frequency	
Output Power :	30	dBm
	26	
R2000 settings	27	
ANT1	28	
ANT5	29	
	20	

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.

🤯 demo_uhf	SCAN READ	WRITE CONFIG		
R2000 settings				
ANT1	🗌 ANT2	🗌 ANT3	🗌 ANT4	
ANT5	ANT6	ANT7		
	Set Antenna		Get Antenna	
Protocol(Only R200	00): ISO 18000-6C			
		Set Protocol		
RFLink : PR_ASK	/Miller4/250KHz			
	Set link parameters		Get link parameters	
		Pic.12-3		

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#### 4.4. Protocol

ici demo\_uhf SCAN READ WRITE CONFIG R2000 settings ANT1 ANT2 ANT3 ANT4 ANT5 ANT6 ANT7 ANT8 Protocol(Only R2000): ISO 18000-6C ISO 18000-6C ISO 18000-6D RFLink : PR\_ASK/Mille

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

Pic.12-4

#### 4.5. RF link

There are four parameters that 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.

i demo_uhf SCAN READ WRITE	CONFIG				
Set F	Protocol				
RFLink : PR_ASK/Miller4/250KHz	4				
Set link parameters	Get link parameters				
Find hidden area(QT Tag) :					
Set QTPara	Get QTPara				
Open the tagFocus					
Open the FastID					
Open the EPC and TID					

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.

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#### 4.10. WWAN Specification

WWAN						
F	requency Band	Maximum output power (dBm)				
	GSM 900	33				
	GSM 1800	32				
	UMTS B1/B8	22.5				
FDD L	TE 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)				
86	65MHz~868MHz	27.65				

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# 5. 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.

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