



Demo APP

AsReader Combo

User Manual

Copyright © Asterisk Inc. All Rights Reserved.

AsReader® is registered trademarks of Asterisk Inc.

The contents of this manual are subject to change without notice.

Contents

Preface	2
About Demo APP AsReader Combo	3
1. Home Page Description.....	4
2. How to Connect.....	5
3. Operations on UHF RF Tag	6
3.1. How to Read Tags	6
3.2. Read/Write: Read/write tags	9
3.3. How to Change the Passwords.....	11
3.4. EDIT EPC: Write EPC.....	12
3.5. Lock: Lock/Unlock.....	13
3.6. Kill: Deactivate the Tag	14
4. Operations of HF RF Tag.....	16
4.1. Read Multi Block: Read and Display by Block	16
4.2. Write Block: Write by Block	18
5. Settings	20
5.1. Common Settings.....	20
5.2. RFID Settings.....	23
6. Information about the AsReader	31
7. Firmware Update	32

Preface

This document describes the correct operation method of the Demo APP AsReader Combo. Be sure to read it carefully before using the device.

If you have any comments or questions about this manual, please contact us through the following ways:

AsReader, Inc. (USA)

Toll Free (US+ Canada): +1 (888) 890 8880 / Tel: +1 (503) 770 2777

700 SW 5th Ave., Suite 4000, 3rd Fl., Portland, OR 97204-2000 U.S.A.

<https://asreader.com>

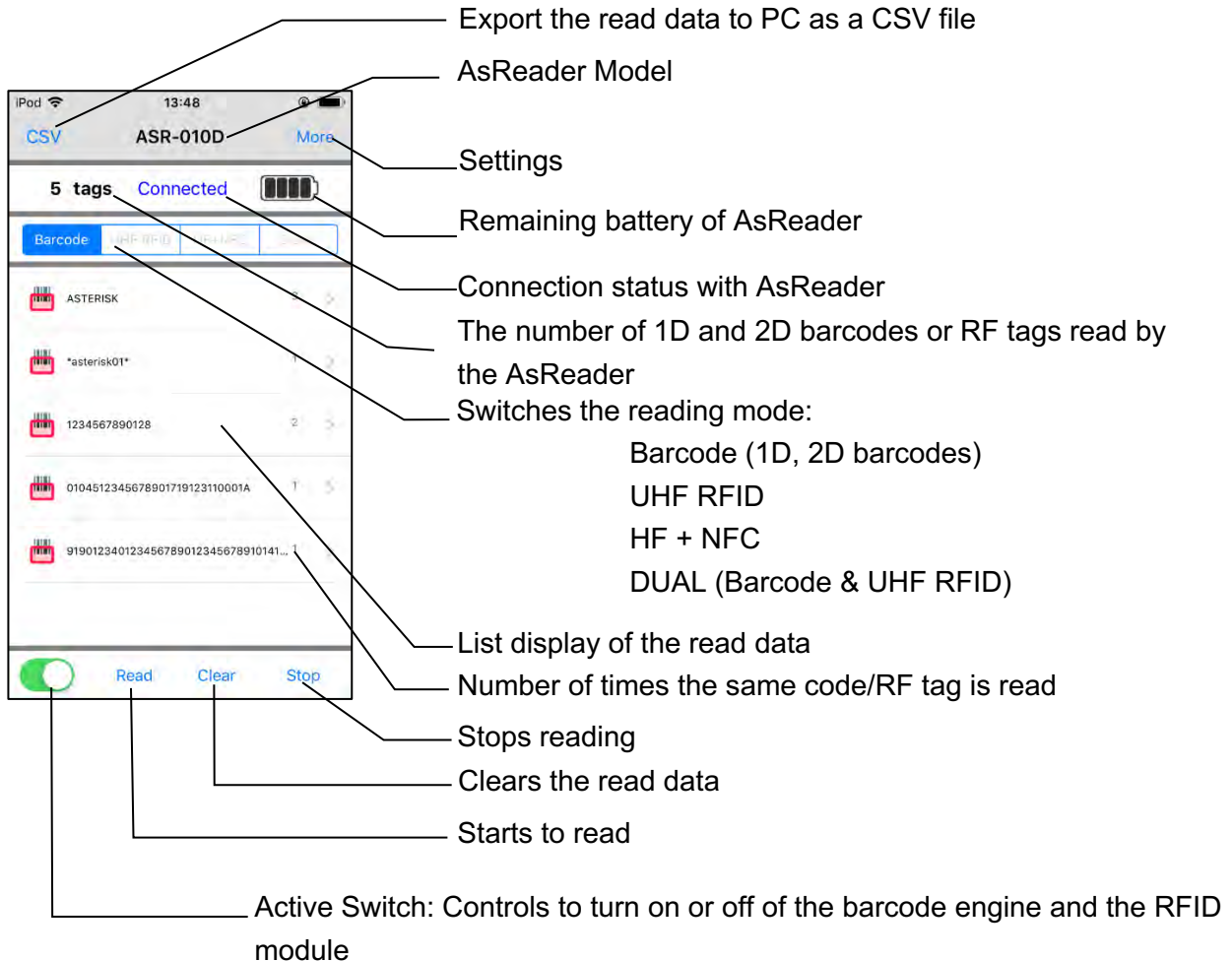
About Demo APP AsReader Combo

AsReader Combo Demo APP (hereinafter referred to as "Demo APP") is an application that customers can use together with our company's Dock-Type, Dock-Type Combo Barcode reader and RFID read and write devices (hereinafter referred to as "AsReader").

Please download this application from the Apple App Store, the search keywords are "AsReader Combo". Or you can scan the following QR code to download.



1. Home Page Description



The corresponding read mode of each model

Model \ Mode	ASR-010D	ASR-020D ASR-022D	ASR-030D (-V2)	ASR-0230D	ASR-0230D-V2 ※3	ASR-0240D
Barcode (1D, 2D)	○ ※1	○		○	○	○
UHF RFID			○	○	○	
HF+NFC						○
DUAL ※2					○	

※1 Barcode mode of ASR-010D only supports 1D code.

※2 In the DUAL mode, Barcode (1D, 2D) and UHF RFID can be read at the same time without switching.

※3 ASR-0230D-V2 will be released soon.

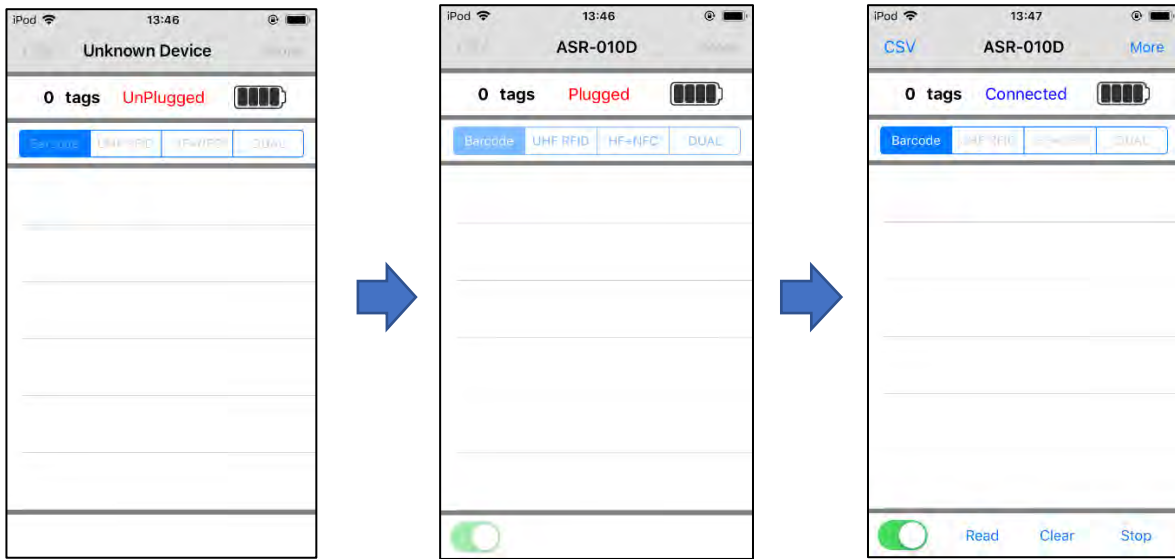
2. How to Connect

Attach the iOS device to the AsReader and start the AsReader Combo Demo APP, the following screen① will be displayed. After successfully connecting to the iOS device, the barcode engine and RFID module will be activated showing the status from screen② to screen③.

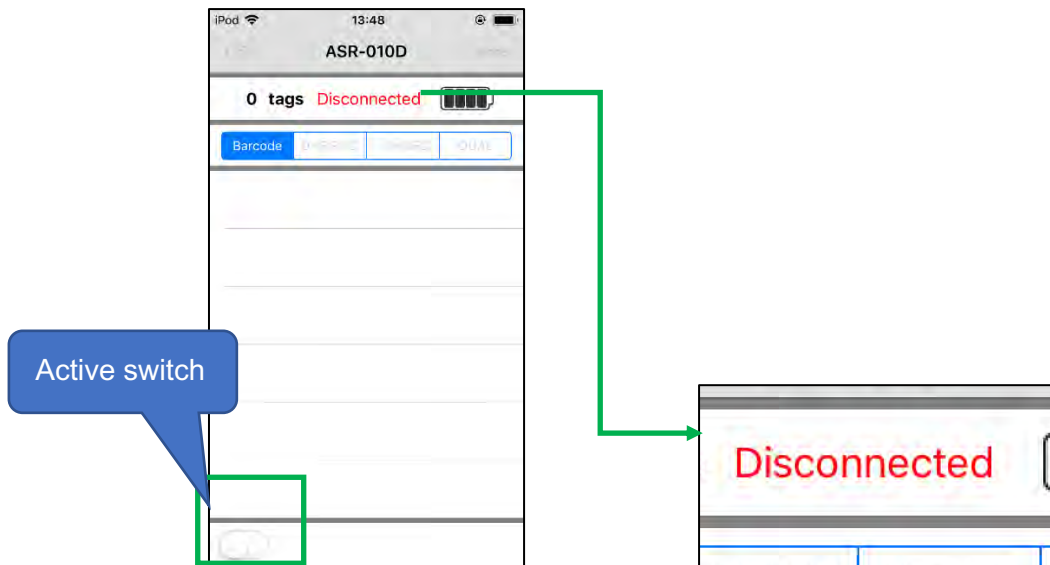
① Not connected yet

② AsReader is active

③ Barcode engine & RFID module is active



If the Active switch is manually turned off from the status of ③ above, the barcode engine/RFID module will stop working, and as shown in the screen below, “Disconnected” will be displayed, this is the same as the “Plugged” status as ② shows.



3. Operations on UHF RF Tag

3.1. How to Read Tags

3.1.1. Operation Steps

1) In the status of the ③ above, select the read mode from the follows:

- Barcode: Reads 1D/2D Barcodes
- UHF RFID: Reads UHF band RF tags
- HF+NFC: Reads HF band RF tag
- DUAL: Reads 1D/2D barcodes and UHF band RF tags

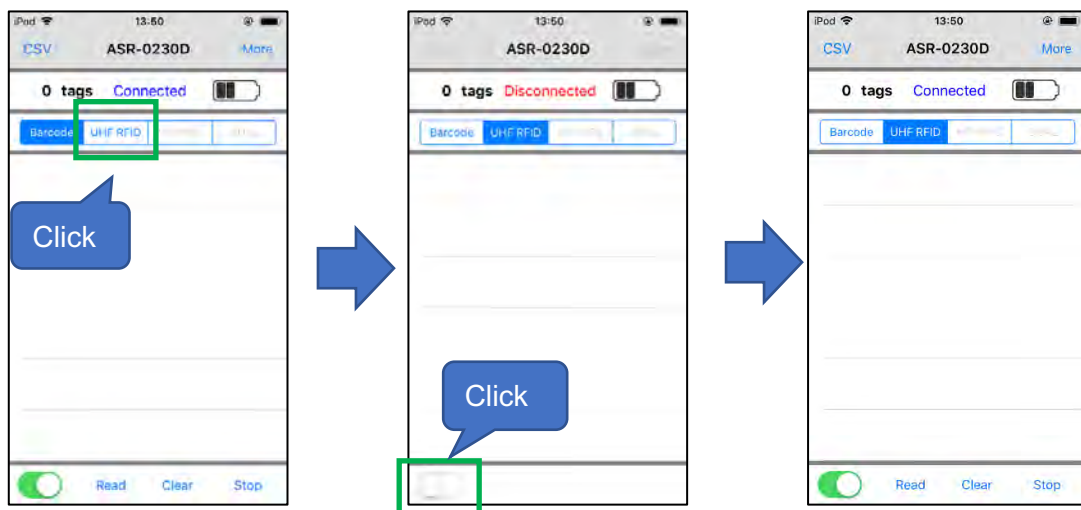
How to switch the reading mode

Example: Switching from Barcode to UHF RFID

Click **UHF RFID** → Open the **Active Switch** button.

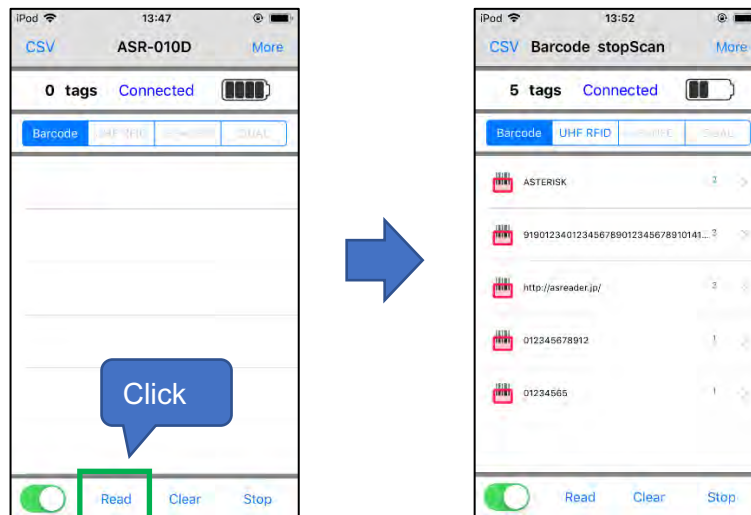
The switch between different modes will be complete when the connection status at the top of the app reads “Connected”.

※ Switching to HF+NFC or DUAL mode is the same procedure.



2) Point your AsReader at a 1D/2D barcode or RF tags and press the trigger button to read.

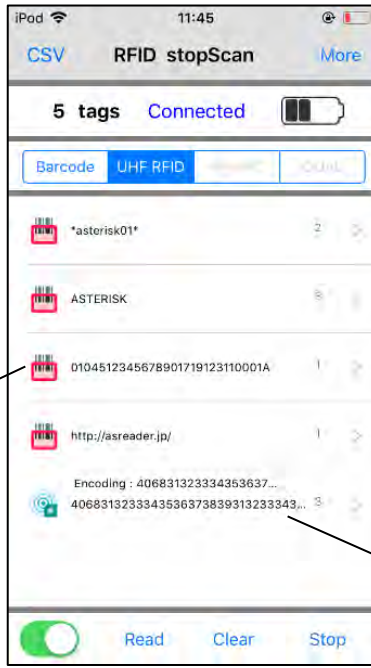
- 3) You can also start to read by clicking on the "Read" button on the screen instead of pressing the trigger button.



- 4) To scan the 1D/2D barcode, once the trigger button is pressed (or the "Read" button on the APP is clicked), the device will emit an aiming LED and/or Laser. If no barcode is scanned within a certain period of time, the scanning will stop automatically. Once any barcode is scanned, the device will stop scanning. (You can also set the device to work in continuous reading mode according to the barcode setting manual.) After the device stops scanning, it will be in the status of waiting for the next trigger button to be pressed or the "Read" button on the APP to be clicked.
- 5) To read an RF tag, once the "Read" button is clicked, the device performs the read until any of the preset stop conditions are met, or until the "Stop" button is clicked. Scanning continues while you hold down the trigger button on the AsReader.

3.1.2. Description of the Read Data

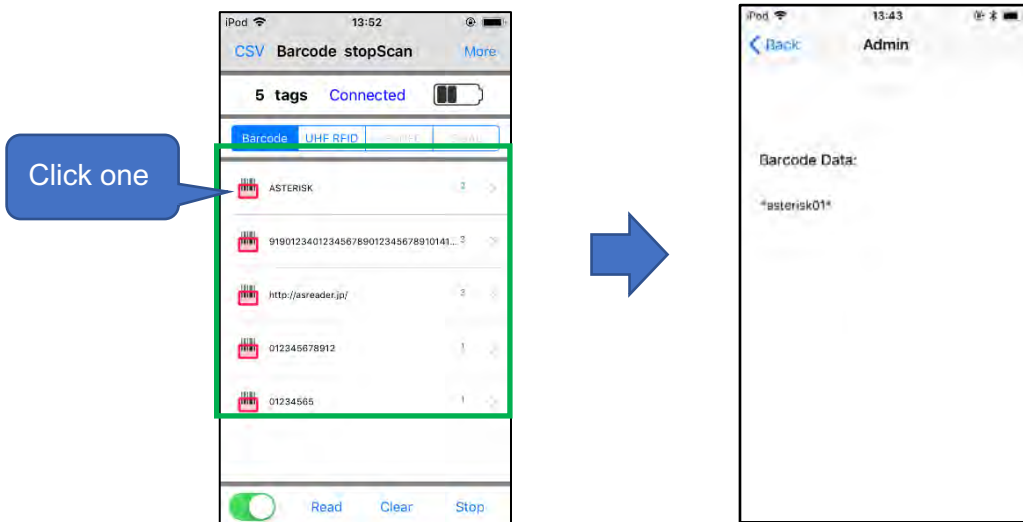
When you scan 1D and 2D codes/RF tags, the scanned data will be displayed on the screen as a list.



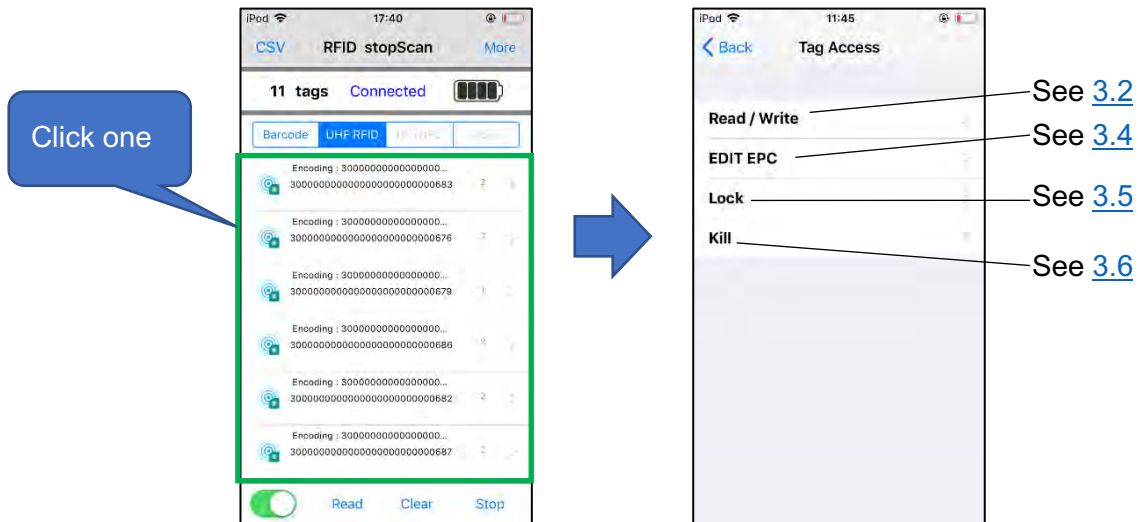
① List of scanned 1D and 2D barcodes

② List of read RF tags

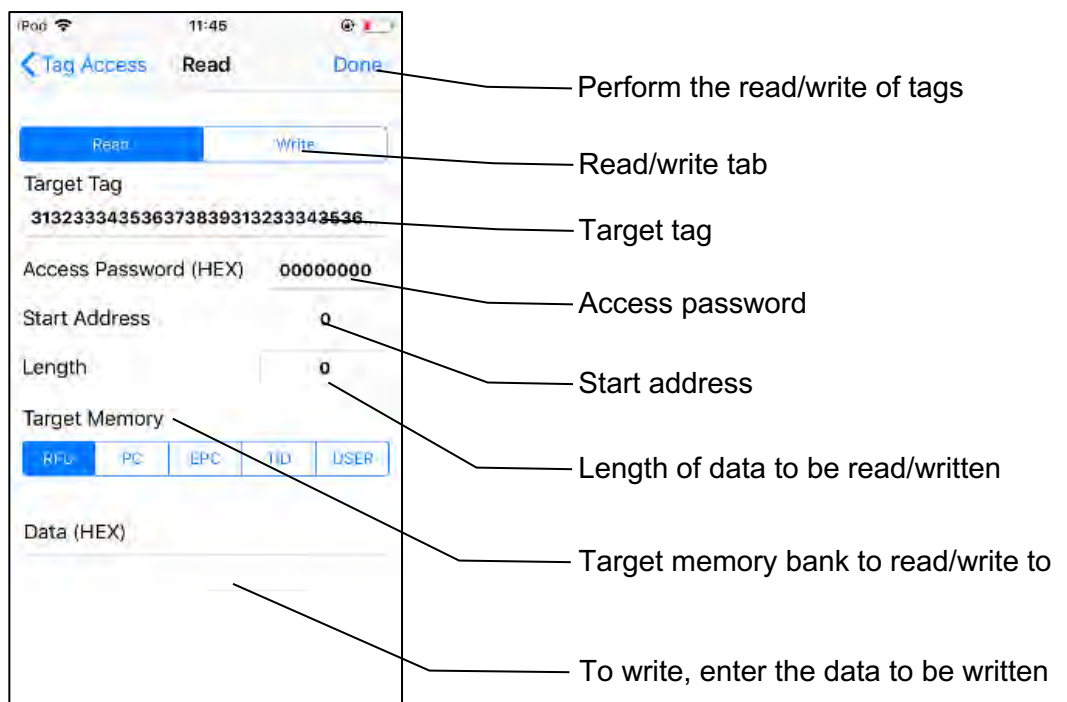
- ① For 1D/2D barcodes, tap a scanned 1D/2D barcode in the list to display detailed information about the tag.



- ② For UHF band RF tags, tap the tag data in the list to perform processing such as reading/writing.



3.2. Read/Write: Read/write tags



3.2.1. Operation Steps

- 1) Click the target tag to be read/written in the list.

- 2) Click the "Read/Write" tab to select whether to read or write the tag.
 - 3) Enter the starting address into the "Start Address" input box.
 - If the target bank is PC or EPC, the start address cannot be entered manually.
 - The default value of PC is 1, and the default value of EPC is 2.
 - 4) Enter the length of the data to be read or written into the "Length" input box.
 - If the target bank is PC or EPC, the length cannot be entered manually.
 - The default value of PC is 1, and the default value of EPC is 0. "0" means the length will be automatically matched.
 - 5) Enter the access password into the "Access Password" input box. The default password is "00000000".
 - 6) Select the target bank to read/write.
 - 7) To write, enter the data to be written into the "Data (Hex)" input box.
 - 8) Click "Done".
 - Once the reading is successful, the read tag information will be displayed in the "Data (Hex)" text box.
 - Once the writing is successful, the page will display a "Finished writing" message.
- ※ When reading, please ensure that there is only one tag in the readable range. When writing, please write at a distance of 10 to 30 cm from the target tag.

3.2.2. Description of the Memory Banks

RFU: Reserved for User

- is readable and writable.
- The first to second word (8 bits) is the kill password of the tag, and the third to fourth word (8 bits) is the access password of the tag. The default value of both is "00000000".

- To read/write a locked tag, you need to enter the access password.
- To read/write the kill password of a tag, enter 0 for the start address and 2 for the length.
- To read/write the access password of a tag, enter 2 for the start address and 2 for the length.

PC: Protocol Control.

- The second 16bits of the EPC bank is the PC bit, and the first five bits of the PC represent the length of the EPC data to be read. The length of the EPC data to be read (unit: word) can be changed by changing the content of the PC.

EPC: Electric Product Code

- Is readable and writable.
- ※ To write the EPC of a locked tag, you need to enter the access password.

TID: Tag Identifier

- is readable but not writable.

USER: User Bank

- Is readable and writable.
- ※ If you want to write to a locked tag, you need to enter the access password.

3.3. How to Change the Passwords

3.3.1. Operation Steps

- 1) Click the target tag in the list.
- 2) Select "RFU" bank.
- 3) To change the access password, enter 2 in the starting address. To change the kill password, enter 0 in the start address.
- 4) Enter 2 for the length.

- 5) Enter the old access password. The default password is "00000000". If you have changed to another password, please enter the changed password.
- 6) Enter the new password into the "Data (Hex)" input box.
- 7) Click the "Write" tab → click "Done".
 - Once the change is successful, the page will display a "Finished writing" message.

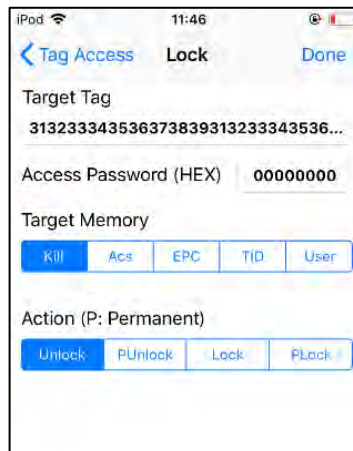
3.4. EDIT EPC: Write EPC



3.4.1. Operation Steps

- 1) Click the target tag in the list.
- 2) Enter the data to be written into "EPC (HEX)" or "EPC (Text)".
- 3) Click "Write" to finish writing.
 - Once the writing is successful, the page will display a "Write Successful" message.
 - ※ To write EPC, please write at a distance of 10 to 30 cm from the target tag.

3.5. Lock: Lock/Unlock



3.5.1. Operation Steps

- 1) Click the target tag in the tag list.
- 2) Select the target memory from the "Target Memory" tab.
- 3) Select the operation to be performed from the "Action" tab.
 - Unlock: unlock
 - PUnlock: Unlock, and can no longer be locked.
 - Lock: locked
 - PLock: Locked and can no longer be unlocked.
- 4) Enter the access password. (Please change the password, because the default password "00000000" cannot be accepted. For password changes, please refer to [3.3 How to Change the Passwords.](#))
- 5) Click "Done" to finish the operation.

3.5.2. Description of the Memory Banks

Kill: Kill Password

- Once the memory bank is locked (Lock) or permanently locked (PLOCK), it cannot be read/written with the default password. Especially when it is permanently locked (PLOCK), the kill password will never be changed.

Acs: Access Password

- Once the memory bank is locked (Lock) or permanently locked (PLOCK), it cannot be read/written with the default password. Especially when it is permanently locked (PLOCK), the access password will never be changed.

EPC: Electric Product Code

- Even if the memory bank is locked (Lock) or permanently locked (PLOCK), it can still be read with the default password, but to write to it, an access password is required.

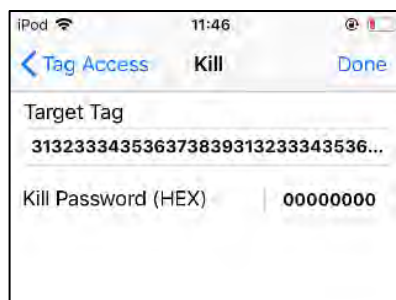
TID: Tag Identifier

- This memory bank has been permanently locked (PLOCK) before the tag leaves the factory.

User: User Bank

- Even if the memory bank is locked (Lock) or permanently locked (PLOCK), it can still be read with the default password, but to write to it, an access password is required.

3.6. Kill: Deactivate the Tag



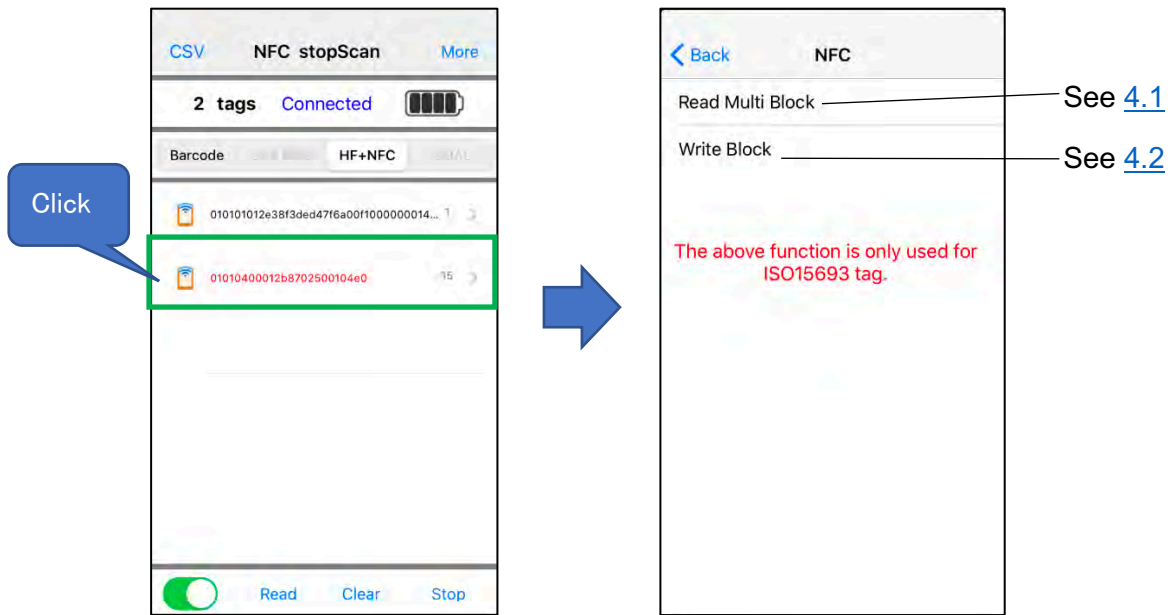
3.6.1. Operation Steps

- 1) Click the target tag in the tag list.

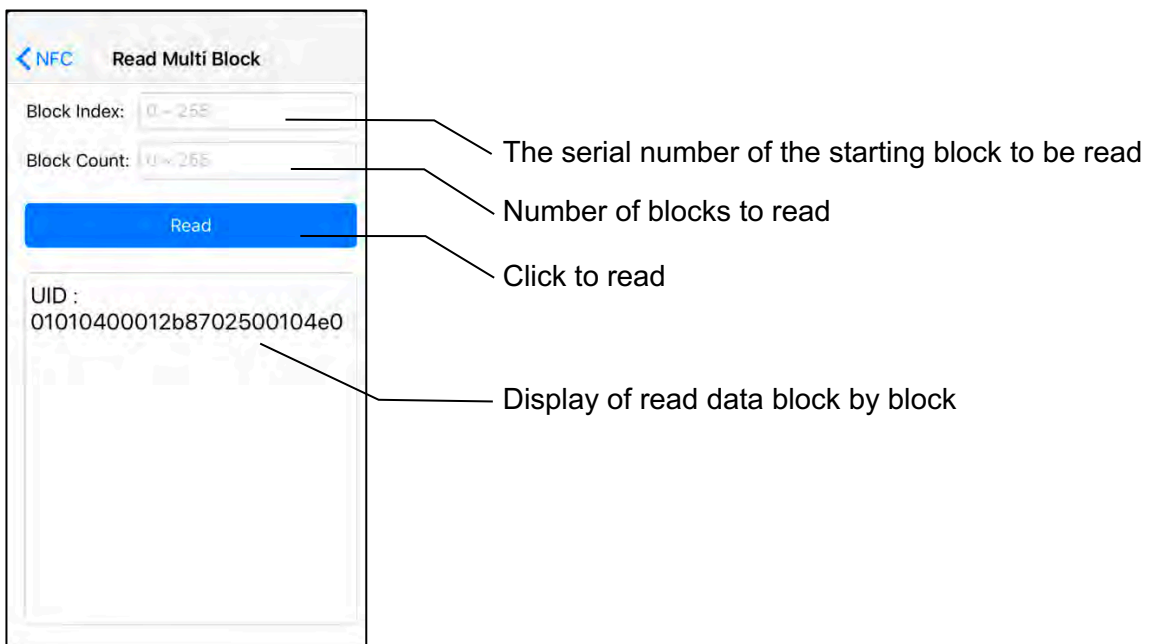
- 2) Enter the kill password into "Kill Password" input box. (Please change the password, because the default password "00000000" cannot be accepted. For password changes, please refer to [3.3 How to Change the Passwords.](#))
- 3) Click "Done" to finish the operation.
 - Once the killing is successful, the page will display a "Killed Tag" message.

4. Operations of HF RF Tag

For HF RF tags, you can click the tag data in the scanned tag list to read/write. *This operation is only applicable to tags of ISO15693 standard.

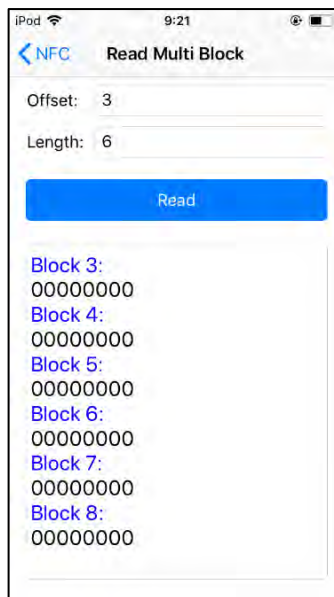


4.1. Read Multi Block: Read and Display by Block



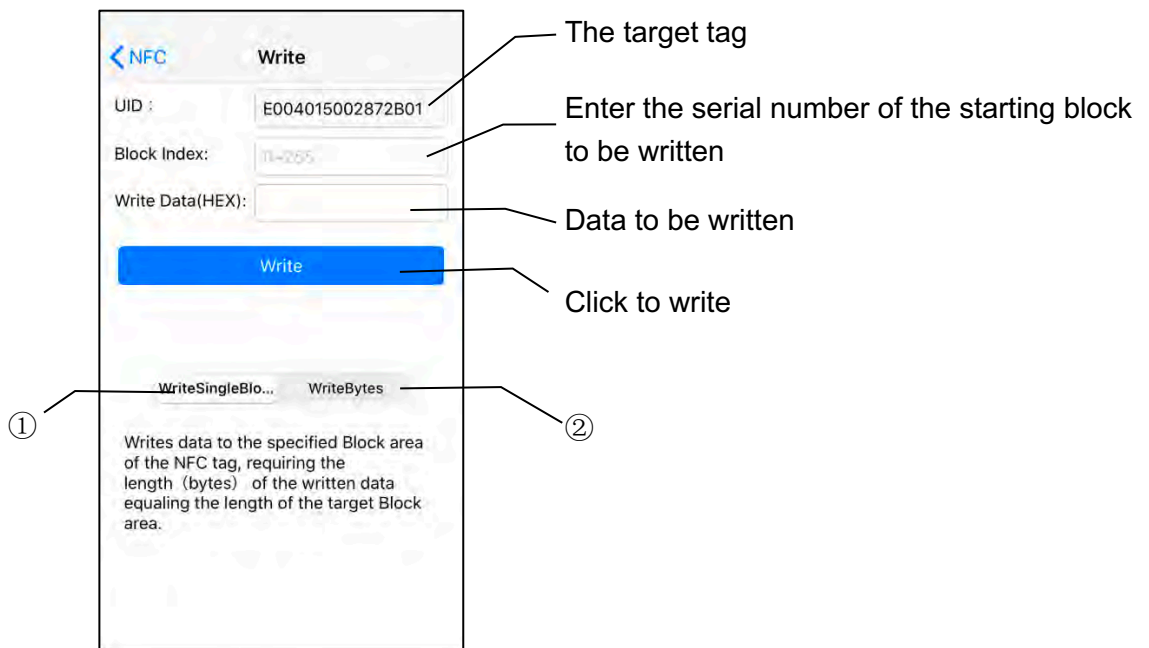
4.1.1. Operation Steps

- 1) Click the target tag in the tag list.
- 2) Enter the serial number of the starting block to be read into the "Block Index". The range is "0~255", and the maximum value that can be entered depends on the number of blocks contained in the target tag.
- 3) Enter the number of blocks to be read into "Block Count".
- 4) Click "Read" to read.
 - Once the reading is successful, the following screen will be displayed:



※ When reading, please ensure that there is only one tag in the readable range.

4.2. Write Block: Write by Block



① Write Single Block

- Write data into the specified block. Enter data of the same length as the target block area and write it into the tag.

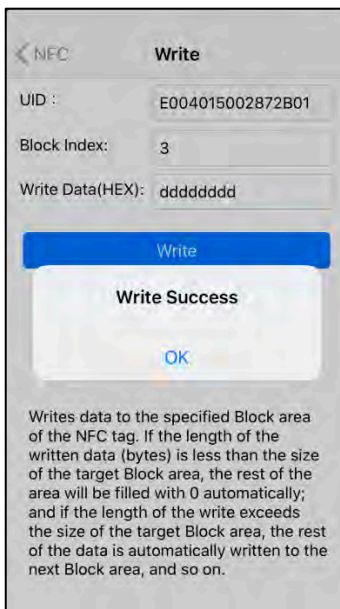
② Write Bytes

- Write data into the specified block. If the length of the written data (unit: byte) is less than that of the target block's, the remaining bytes will be automatically filled with 0. If the length of the written data exceeds the length of the target block area, the data will be sequentially written into the next block area.

4.2.1. Operation Steps

- Click the target tag in the tag list.
- Enter the serial number of the starting block to be written into the "Block Index". The range is "0~255", and the maximum value that can be entered depends on the number of blocks contained in the target tag.
- Enter the data to be written into " Write Data(HEX)".

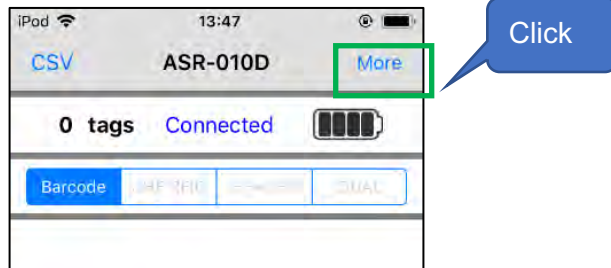
- 4) Select "Write Single Block" or "Write Bytes".
- 5) Click "Write" to finish the writing.
 - Once the writing is successful, the following screen will be displayed:



※ When writing, please ensure that there is only one tag in the readable range.

5. Settings

Some settings can be done by clicking "More" at the top right of the screen.



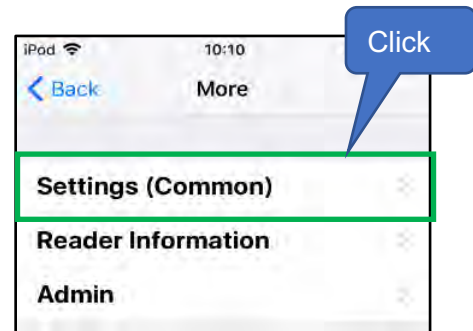
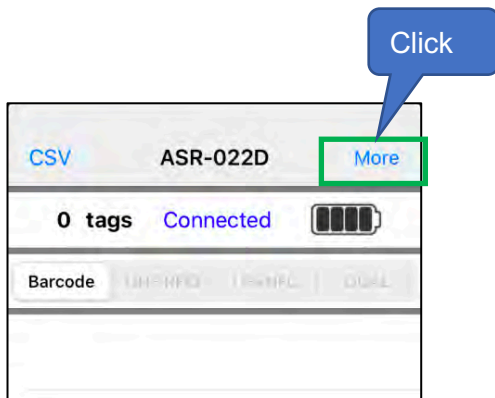
5.1. Common Settings

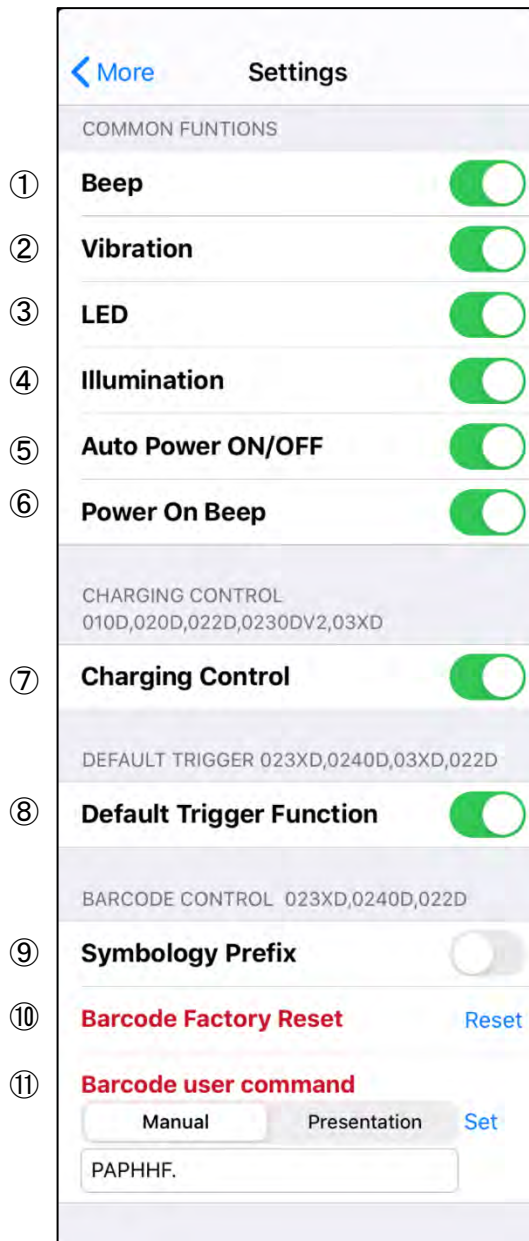
How to access the common settings page

Click **More** at the top right of the homepage → and then click **Settings (Common)**.

The following is an example of ASR-022D.

- ※ Due to the different functions supported by different device models, the displayed settings may be different.





① Beep

- Turns on/off the beep when reading 1D/2D barcodes or RF tags. This setting is saved in the App.

② Vibration

- Turns on/off the vibration when reading 1D/2D barcodes or RF tags. This setting is saved in the App.

③ LED

- Turns on/off the function of the battery LED indicators (on the back of the AsReader) that display the remaining battery power by holding down the trigger button. This setting is saved in the App.

④ Illumination

- Applied model: ASR-020D, ASR-022D, ASR-0230D, and ASR-0240D
- Turns on/off the laser guide light when reading 1D/2D barcodes. This setting is saved in the App.
- ※ With ASR-020D, when turned on, the aiming light is continuously on. When turned off, the aiming light is emitted only during scanning.

⑤ Auto Power ON/OFF:

- Sets whether the active switch is automatically turned on when the AsReader is connected and the application is started. This setting is saved in the APP.

⑥ Power On Beep

- Sets the beep prompt to be turned on or off when the AsReader is successfully connected. This setting is saved in the APP.

⑦ Charging Control

- Applied models: ASR-010D, ASR-020D, ASR-022D, ASR-0230D-V2, and ASR-03xD
- Turns on/off the simultaneous charging of the iOS device. This setting is ON by default. You can also turn it off when the AsReader is connected to an iOS device. It will be turned on again automatically at any of the following times:
 - When being turned on within the APP.
 - When the charging cable is reconnected.
 - When the iOS device is reconnected or restarted.
 - When the iOS device is woken up after going to sleep for a while.

⑧ Default Trigger Function

- Applied models: ASR-023xD, ASR-0240D, ASR-03xD, ASR-022D
- Turns on/off the reading function when the trigger button is pressed. This setting is saved in the APP.

⑨ Symbology Prefix

- Applied models: ASR-022D, ASR-023xD, and ASR-0240D
- Sets whether to display the type (AIM code) of the 1D/2D barcodes that have been read. When set to ON, a symbol indicating the type is added before the scanned barcode name. This setting is saved in the AsReader.

⑩ Factory Reset

- Applied models: ASR-022D, ASR-023xD, ASR-0240D
- All settings of the device will return to the factory default settings. This setting is saved in the AsReader.

⑪ Barcode user command

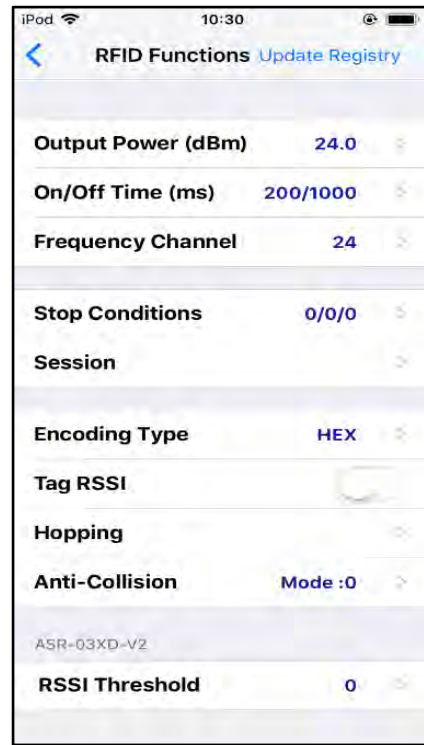
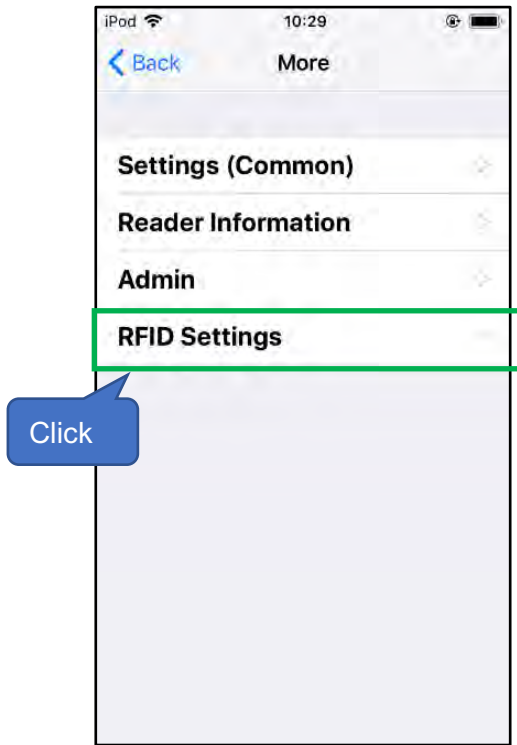
- Applied models: ASR-022D, ASR-023xD, ASR-0240D
- This is where you can apply the settings mentioned in the *Barcode Setup Manual* to the device on the application side. The setting is saved in the AsReader.

5.2. RFID Settings

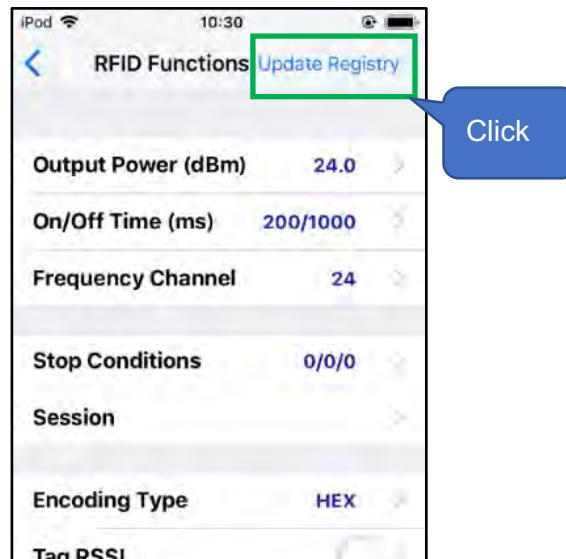
How to access the RFID settings page

First of all, make sure the device model supports the RFID function.

Then select the reading mode to **UHF RFID** on the APP homepage → Click **More** at the top right → Click **RFID Settings**.



★**Update Registry**: is used to save the RFID settings. Please be sure to click "Update Registry" to save the settings after changing them.



① Output Power (dBm)



- Changes the output power of RFID.
- If the setting value is increased, the reading distance will increase, but the battery consumption will also increase.
- The value that can be set depends on the region (regulations of the country/region where the device is used).

ASR-030D, ASR-0230D

JP: 18.0~24.0dBm

US2: 18.0~25.0dBm

EU: 18.0~25.0dBm

ASR-030D-V2

JP: 13.0~24.0dBm

US2: 13.0~27.0dBm

EU: 13.0~27.0dBm

- These settings are saved in the RFID module.

② On/Off Time (ms)



- Changes the transmission time and the stop time of RFID radio waves.
- Longer On Time and shorter Off Time will make scanning easier, but will be accompanied by greater battery consumption. In addition, if there are many tags to be read at a time, and the Off Time is set too short, it may not be possible to read all the tags.
- If the On Time is set to 0ms, it will operate at 100ms. If Off Time is set to 0ms, it will operate at 400ms. (Recommended)
- If the On Time is set to 149ms or less, it may be automatically changed to 200ms to ensure the performance of the tag reading.
- The maximum value of the On Time is 40000ms.
- The maximum value of the Off Time is 40000ms and the minimum is 50ms.
- ※ The following settings are obligatory under the Radio Law of each country. Please set within this range when using:

Specification	On Time	Off Time
Japan	≤ 4000ms	≥ 50ms
FCC	≤ 400ms	≥ 20ms
CE	≤ 4000ms	≥ 100ms

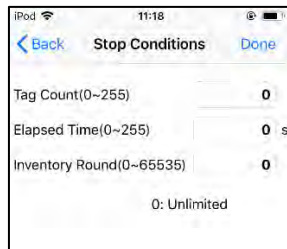
- The settings will be permanently saved in the RFID module.

③ Frequency Channel



- Sets the default setting of the channel (frequency).
- Generally, leave this value unchanged.
- In the case of "Hopping On", the channel will be changed at every "On Time" during inventory.
- The channels displayed in "Available Channels" can be changed to the optimum values by executing the STEP 1 (Set Optimum Frequency Hopping table) of "Hopping" setting (See [⑧ Hopping](#)).
- The setting is saved in the RFID module.

④ Stop Conditions



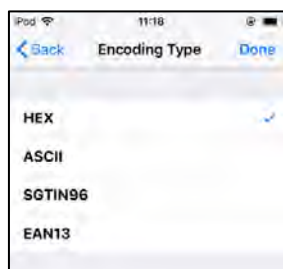
- Controls the stop of inventory by setting the following three parameters. (If a parameter is set to 0, the inventory is not restricted by that stop condition)
 - Tag Count: Once the number of tags read reaches the set number, the inventory stops.
 - Elapsed Time: Once the reading time reaches the set time (unit: second), the inventory stops.
 - Inventory Round: Once the number of inventory rounds reaches the set number, the inventory stops.
- The settings are saved in the APP.

⑤ Session



- Changes the response time of the tags. (The response time depends on the specification of the tag)
- For the value settings, we give the following suggestions based on the number of Inventory tags.
 - S0: The tag that has just been read can be read again immediately. This setting is recommended when the number of tags to be scanned is not more than 50.
 - S1: The tag cannot be read again within 0.5 to 5 seconds after being read. This setting is recommended when the number of tags to be scanned is not more than 100.
 - S2, S3: The tag cannot be read again within 2 to 60 seconds after being read. This setting is recommended when the number of tags to be scanned exceeds 100.
 - ※ S2 and S3 have the same effect and are not related to each other. When multiple readers are working at the same time, their Session values need to be set differently.
- The settings are saved in the RFID module.

⑥ Encoding Type

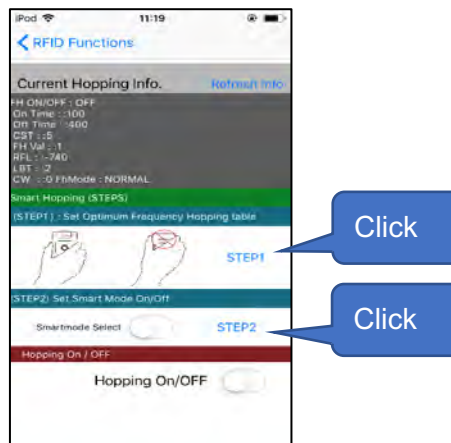


- The inventory results are displayed with the encoding types you set.
- This setting is saved in the APP.

⑦ Tag RSSI

- If the switch is turned on, the signal strength of the tag will be displayed during inventory.
- The setting is saved in the APP.

⑧ Hopping



- Changes the frequency hopping settings.
- Smart Hopping

The following two Settings contribute to the selection of channels for better antenna performance, and keeping the better stability when increasing the read distance.

○ STEP1 (Set Optimum Frequency Hopping table)

Click the "STEP 1" on the screen above to make the device automatically select the channel with better antenna performance.

※ Be careful not to cover the antenna with your hand when setting. Otherwise, the communication may be affected resulting in an incorrect setting.

○ STEP2 (Set Smart Mode On/Off)

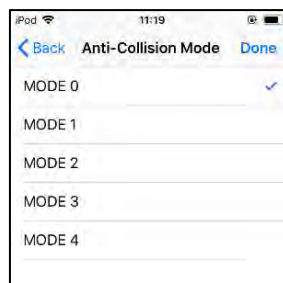
Click "STEP2" on the above screen to set that only uses the channel selected in "STEP1".

- Hopping On/Off

If the switch is set to On, hopping has priority, and if it is set to Off, LBT has priority.

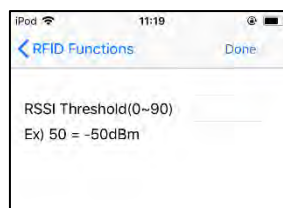
- ※ Please turn the switch off in Japan and turn it on in other countries.
- ※ Although the “Smart Hopping” is the default factory setting, the reading distance may be shortened by differences in iOS devices and by the environment in which they are used.
 - In this case, the read distance may be improved by resetting the "Smart Hopping".
 - The setting is saved in the RFID module.

⑨ Anti-Collision



- You can change the anti-collision mode preset in the RFID module.
- Reading may be faster by setting this mode when multiple tags are inventoried.
- The setting is permanently saved in the RFID module.

⑩ RSSI Threshold (ASR-030D-V2)

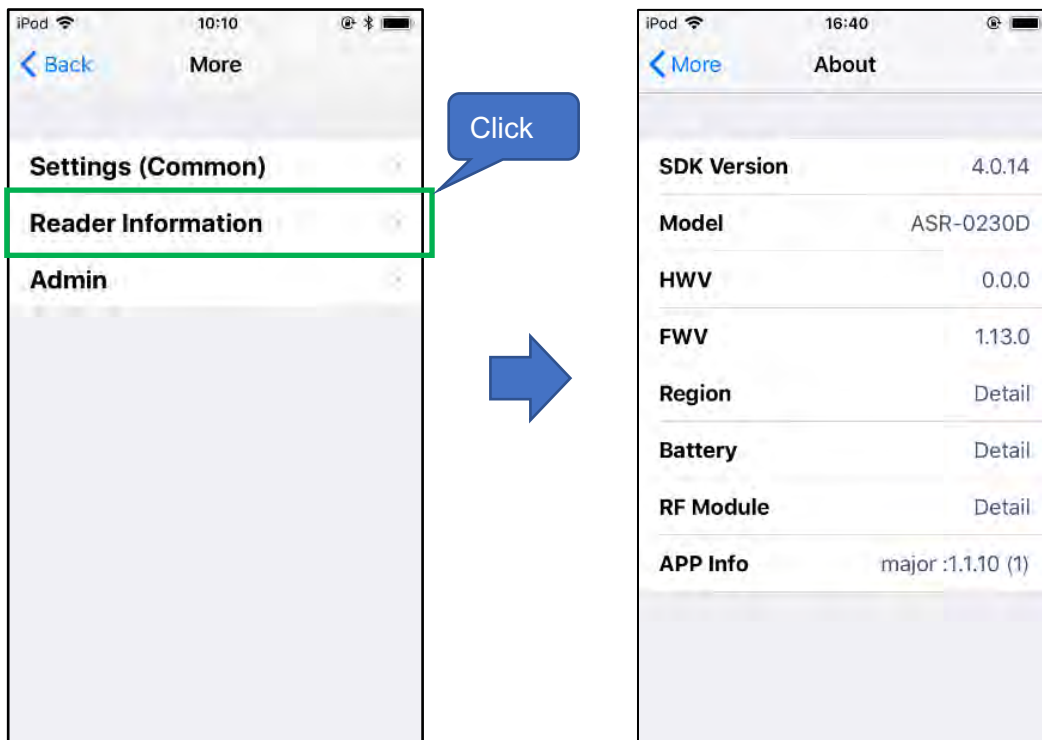


- Sets a filter so that only the tags whose signal strength is higher than the set RSSI value can be inventoried.
- It needs to be set when you want to read only the tags at hand such as within 10 cm from the AsReader.
- Reading beep may sound even if tags are not displayed due to the filtering.

6. Information about the AsReader

How to access the Reader Information page:

Click **More** on the APP homepage → Click **Reader Information**.



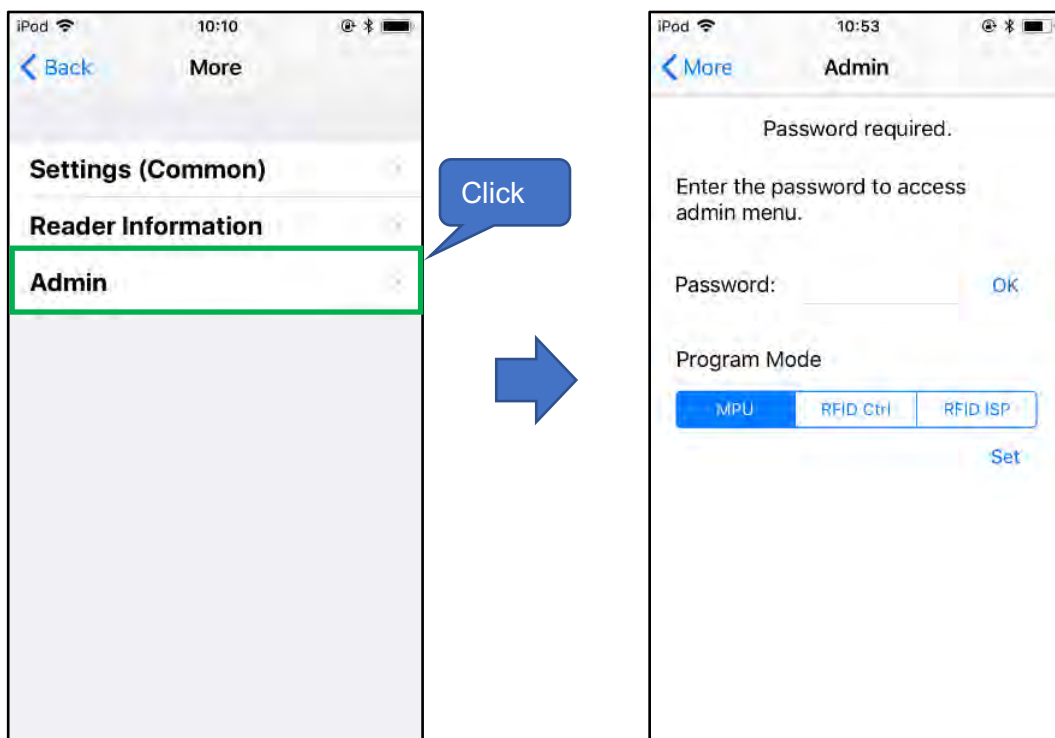
- ① SDK version: SDK version
- ② Model: AsReader model
- ③ HWV: Hardware version
- ④ FWV: Firmware version
- ⑤ Region: RFID (UHF) country/region
- ⑥ Battery: Battery remaining power
- ⑦ RF Module: RFID module version
- ⑧ APP Info: App version

7. Firmware Update

To use this function, please contact our support team.

You can also update the firmware with the AsFWUpdater APP.

<https://apps.apple.com/en/app/asfwupdater/id1277587497>



**Demo App
AsReader Combo
User Manual**

Sep. 2020 Version 2.0

AsReader, Inc. (USA)

Toll Free (US + Canada): +1 (888) 890 8880/ Tel: +1 (503) 770 2777
700 SW 5th Ave., Suite 4000, 3rd Fl., Portland, OR 97204-2000 U.S.A.