



AsReader Scan User Manual

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Contents

Preface	1
About AsReader Scan.....	2
1. Screen Description	3
2. How to Connect.....	4
3. How to Read	5
4. More Settings	20
5. AsReader Information.....	31
6. RFID RFM Sensor (RED4S/Magnus S3)	32

Preface

This document describes the correct operation method of the demo app “AsReader Scan”. Be sure to read this document carefully before using the app.

If you have any comments or questions about this manual, please contact us:.

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<https://asreader.com>

About AsReader Scan

The "AsReader Scan" demo app is an application that customers can use together with our company's SLED/DOCK-Type barcode scanner and RFID reader/writer devices (hereinafter referred to as "AsReader").

Please download this application from the AppStore using the search keyword "AsReader Scan". Alternatively, you can scan the following QR code to download it:



1. Screen Description

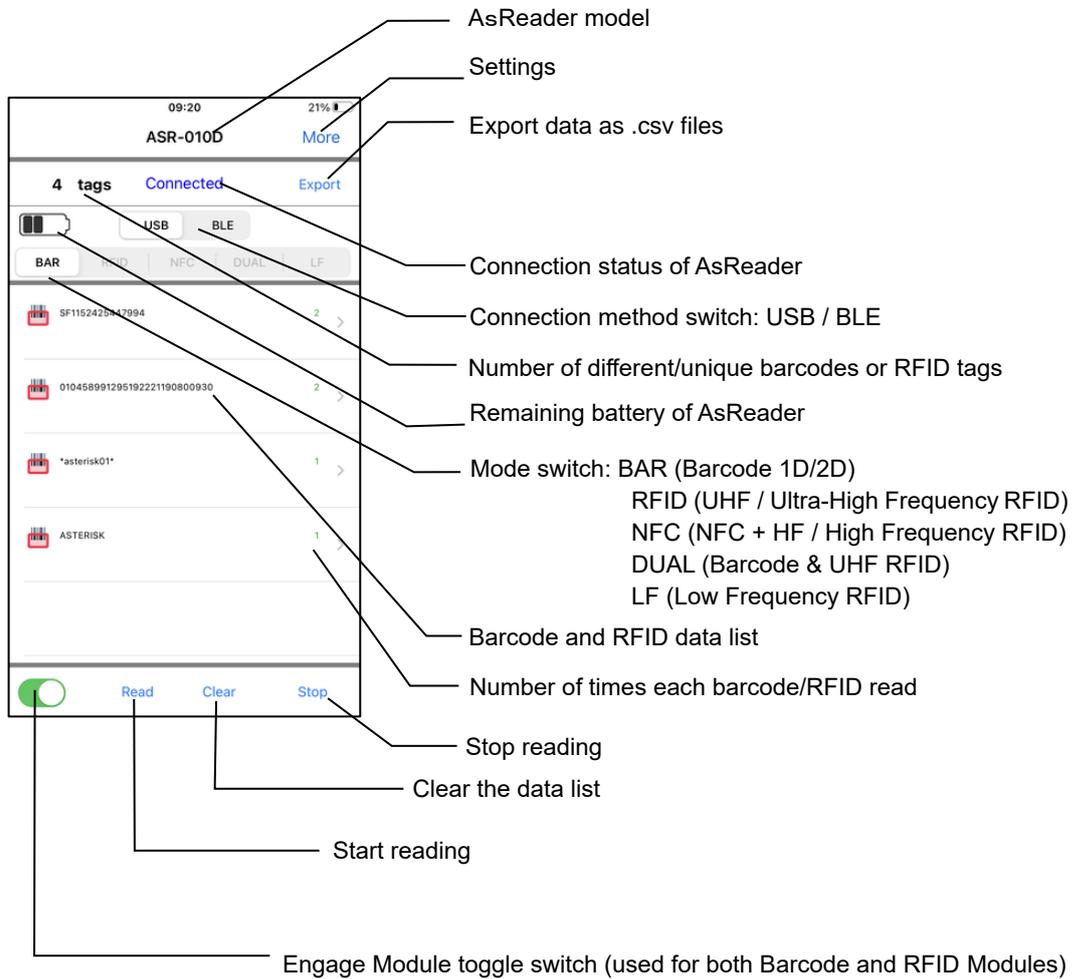


Table-1 List of read modes supported by each model

Mode	Barcode (1D, 2D)	UHF RFID	NFC+HF	DUAL※2	LF
Model					
ASR-010D(V2/V3/V4)	○※1				
ASR-020D(V2/V3/V4) ASR-022D(V3/V4)	○				
ASR-03xD(V2/V3/V4)		○			
ASR-023xD	○	○			
ASR-023xD-V2(V4)	○	○		○※3	
ASR-0240D(V4)	○		○		
ASR-L70D					○

※1 The Barcode mode of ASR-010D supports only 1D barcode scanning.

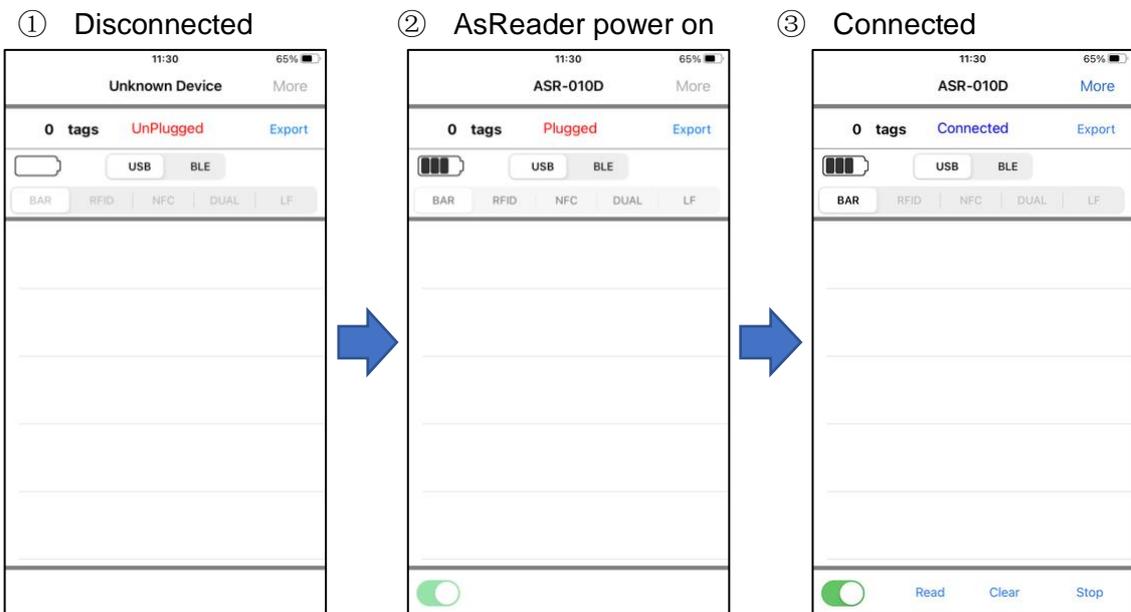
※2 DUAL mode: Both barcodes (1D/2D) and UHF RFID tags can be read without switching modes.

※3 Only the - V2 & higher versions of AsReader support DUAL mode.

2. How to Connect

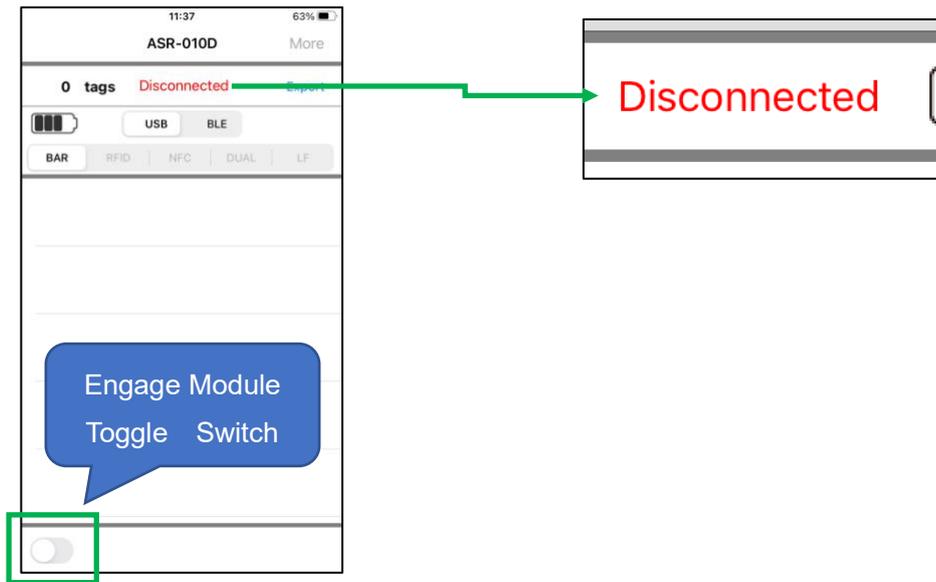
Start the AsReader Scan app on the iOS device. (Screen shown below in image ①.)

Plug the iOS device into the AsReader. After the screen ② is displayed for a short time, the screen ③ will be displayed, indicating that the connection is successful.



In screen ③, if the “Engage module toggle switch” is turned off, the barcode engine or RFID module will be disengaged as shown in the figure below, displaying “Disconnected”.

※Disengaging the barcode engine or RFID module reduces power consumption.



3. How to Read

3-1 Operation Steps:

1) In the screen ③, select the read mode.

- Barcode: Reads 1D/2D barcodes.
- RFID: Reads UHF (Ultra-High Frequency) RF tags.
- NFC: Reads HF (High Frequency) RF tags, including NFC.
- DUAL: Reads both 1D/2D barcodes and UHF RF tags simultaneously.
- LF: Reads LF (Low Frequency) RF tags.

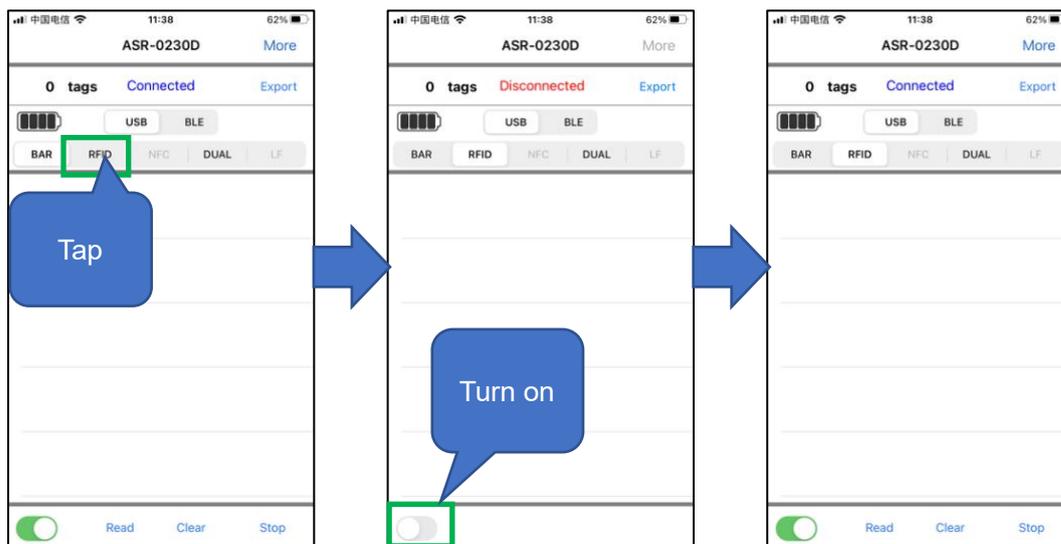
※How to switch read modes

For example: Switch Barcode mode to RFID mode

- Tap "RFID".
- Turn on the Engage module toggle switch.

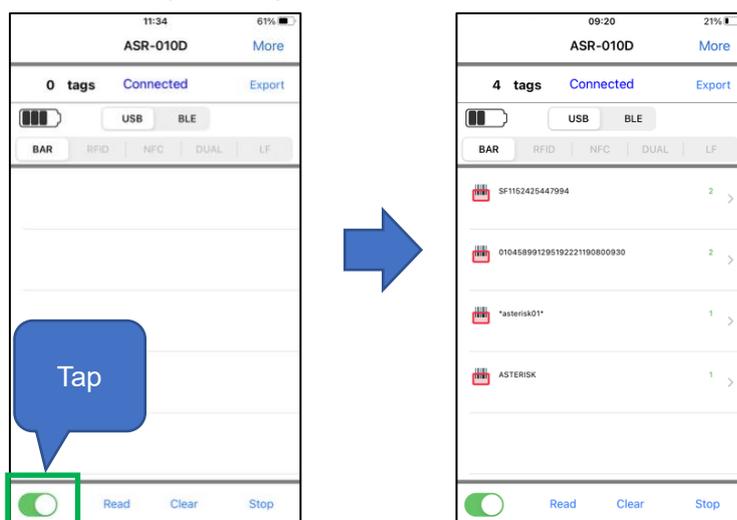
If the screen displays "Connected", the reading mode switch is complete.

※The same operation applies for switching to NFC, DUAL, or LF mode.



2) Point the AsReader towards a 1D/2D barcode or RF tag & press the hardware trigger button to read.

3) You can also scan by tapping the “Read” button on the screen.

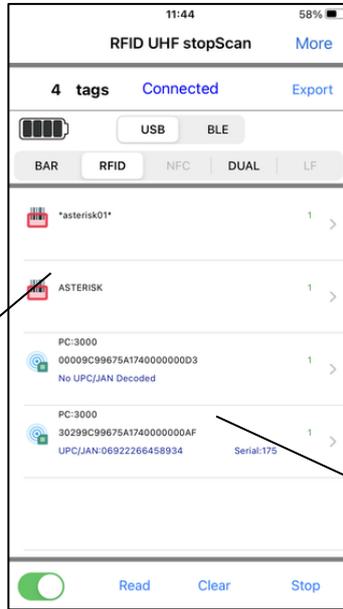


4) When reading 1D/2D barcodes, press the trigger button or tap the "Read" button to illuminate the LED/laser aimer. Depending on the parameter settings, if the AsReader does not read any barcodes for a certain period of time, or right after reading a barcode, the LED/laser will stop illuminating. (AsReader can be set to read continuously by adjusting the barcode parameter settings using the Parameter Settings Manuals, which can be found on our website and are different for different models).

5) When an AsReader reads RF tags with the “Read” button on the screen, it continues reading until the set conditions are met, or the "Stop" button is tapped. Also, pressing and holding the trigger button(s) continuously allows for continuous reading. In this case, the AsReader continues reading until you release the trigger buttons.

3-2 The Read Data

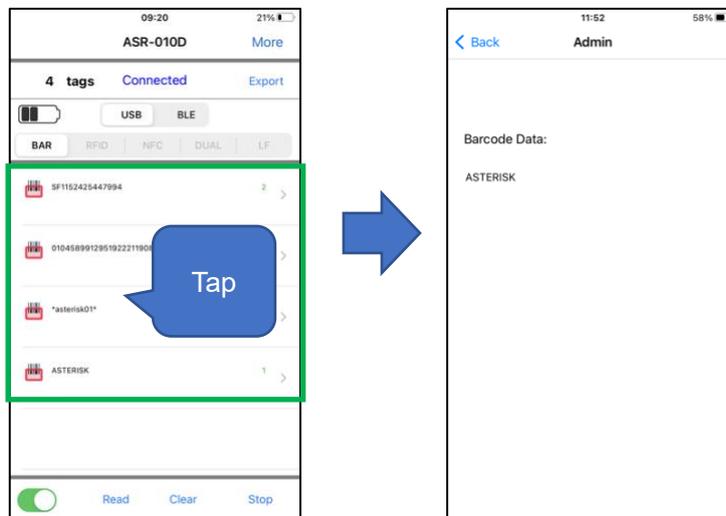
When reading 1D/2D barcodes /RF tags, the read data is displayed in the data list on the screen.



Barcode data list

RF tag data list

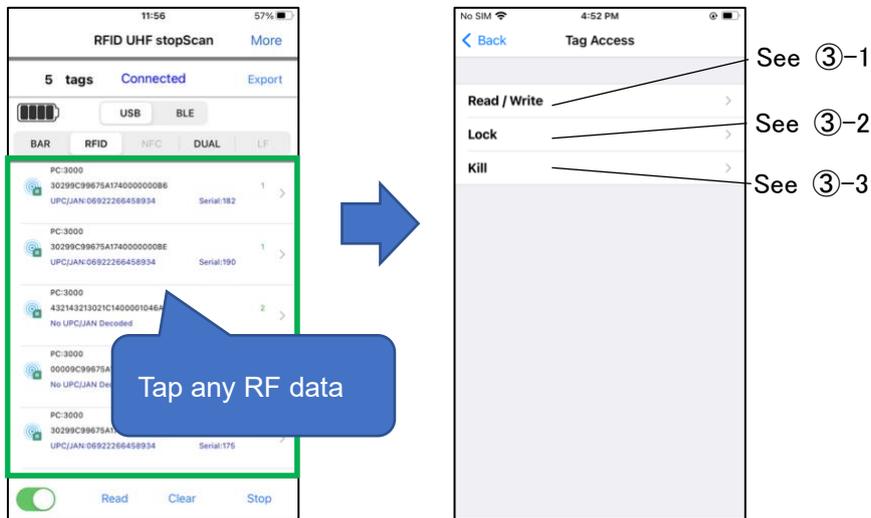
① Please tap one of the 1D/2D barcode data to see the barcode details.



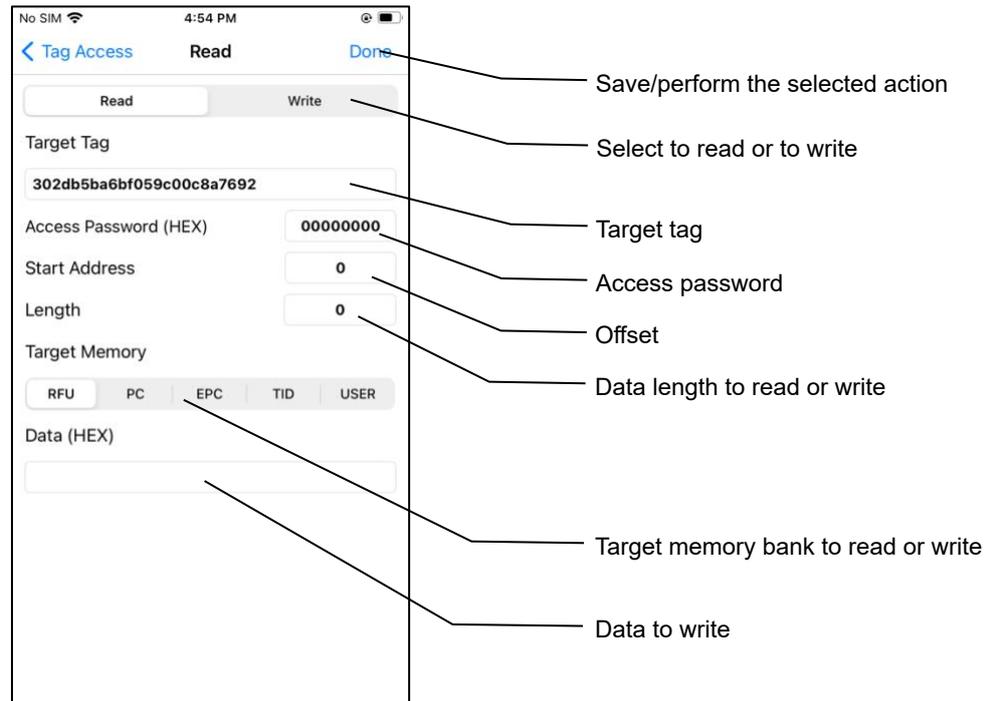
② For RFID tags with the encoding format of "SGTIN-96", the UPC/JAN code and serial numbers are displayed in the reading results. For tags in other encoding formats, the sentence "No UPC/JAN Decoded" is displayed.



③ For UHF RF tags, tap the tag data in the list to read and write the tag.



③-1 Read/Write: RFID Read/Write



Operating Steps:

- 1) Tap the target tag to read/write to from the tag data list.
- 2) Tap to select Read or Write.
- 3) Enter the start address in the "Start Address" text box.
 - When the target memory is PC or EPC, the start address cannot be entered.
 - The fixed value for PC is 1. The fixed value for EPC is 2.
- 4) Enter the Length of data to be modified in the "Length" text box.
 - If the target memory is PC or EPC, the length is not allowed to change.
 - The fixed value for PC is 1. EPC has a fixed value of 0. "0" indicates automatic length adaptation.
- 5) Enter the Access Password in the "Access Password" text box. The default password is "00000000" (eight zeros).
- 6) Select the target memory to read or write.
- 7) If you want to write data to a memory bank, you need to enter the data to write to the memory bank in the "Data (Hex)" text box.
- 8) Tap "Done" to perform/save the action.
 - If the read succeeds, the tag data information will be displayed at "Data (Hex)".
 - After the writing succeeds, "Finished Writing" will be displayed.

Note:

When reading, please make sure that there is only one tag in the readable range of the antenna.

When writing, please make sure that the target tag is 10 to 30cm (4 to 12”) away from the AsReader.

Target Memory

RFU: Reserved memory

Can be read or written.

The first two words 0 through 1 (8 bits for every word) indicate the kill password.

The two words 2 through 3 indicate the access password.

The default value for both is “00000000” (eight zeros).

※If the tag is locked, an access password is required to read or write to it.

※To read or write only to the kill password area, enter

0 for the Start Address and 2 for the Length.

※To read or write only to the access password area, enter

2 for the Start Address and 2 for the Length.

PC: Protocol Control

Define the length of EPC, etc.

EPC: Electric Product Code

Can be read or written.

※When writing to a locked tag, you need to enter an access password.

TID: Tag Identifier

Can only be read

USER: User Area

Can be read or written to

※When writing to a locked tag you need to enter an access password.

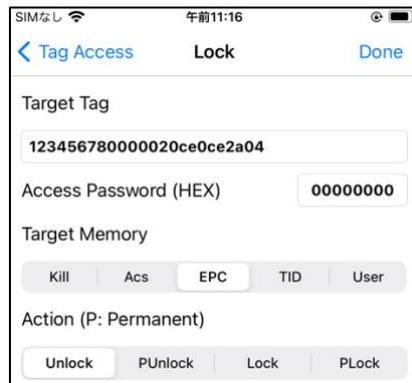
※How to change passwords

Procedure for changing the access password or the kill password:

- 1) Tap the target tag in the tag data list.
- 2) Select the “RFU” memory bank.
- 3) To change the access password, enter 2 for the Start Address.
To change the kill password, enter 0 for the Start Address.
- 4) Enter 2 for the Length.
- 5) Enter the current access password. (The default value is "00000000" (eight zeros); if the password has been changed, you need to enter the current access password.)
- 6) Fill in the new access or kill password to the "Data (Hex)" text box.
- 7) Select “Write” and tap “Done”.

If the password is changed successfully, you will see the message “Done Write”.

③-2 Lock or Unlock



Operating Steps:

- 1) Tap the target tag in the tag data list.
- 2) Select a target memory.
- 3) Select an action to perform.
 - Unlock: Unlock
 - PUnlock: Permanently unlock
 - Lock: Lock
 - Plock: Permanently lock
- 4) Enter the access password. (The default password “00000000” is not allowed. Please change the access password. For details about how to change a password, see “※ How to change passwords” in ③-1 Read/Write: RFID Read/Write.

5) Tap “Done” to save your work and perform the action.

Actions to Memory Banks

Kill: Kill password area

Can be unlocked/permanently unlocked/locked/permanently locked.

It cannot be read or written after being locked/permanently locked. Especially if it is permanently locked, it can never be changed.

Acs: Access Password

Can be unlocked/permanently unlocked/locked/permanently locked.

It cannot be read or written after being locked/permanently locked. Especially if it is permanently locked, it can never be changed.

EPC: Electric Product Code

Can be unlocked/permanently unlocked/locked/permanently locked.

After being locked/permanently locked, the memory bank can be read without entering the access password, but writing to it requires entering the correct access password.

TID: Tag Identifier

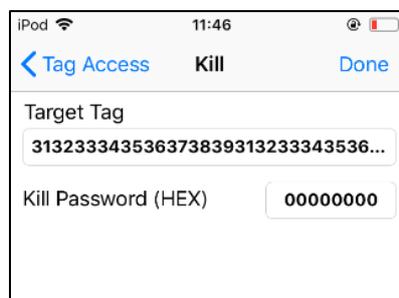
This memory bank is permanently locked when the tag is produced.

User: User

Can be unlocked/permanently unlocked/locked/permanently locked.

After being locked/permanently locked, the memory bank can be read without entering the access password, but writing to it requires entering the correct access password.

③-3 Kill: Deactivate the tag to make it unreadable.



Operating Steps:

- 1) Tap the target tag in the tag data list.
- 2) Enter the kill password in the “Kill Password” text box.

Note: The default password “00000000” is not allowed. Please change the kill password.
For details about how to change a password,

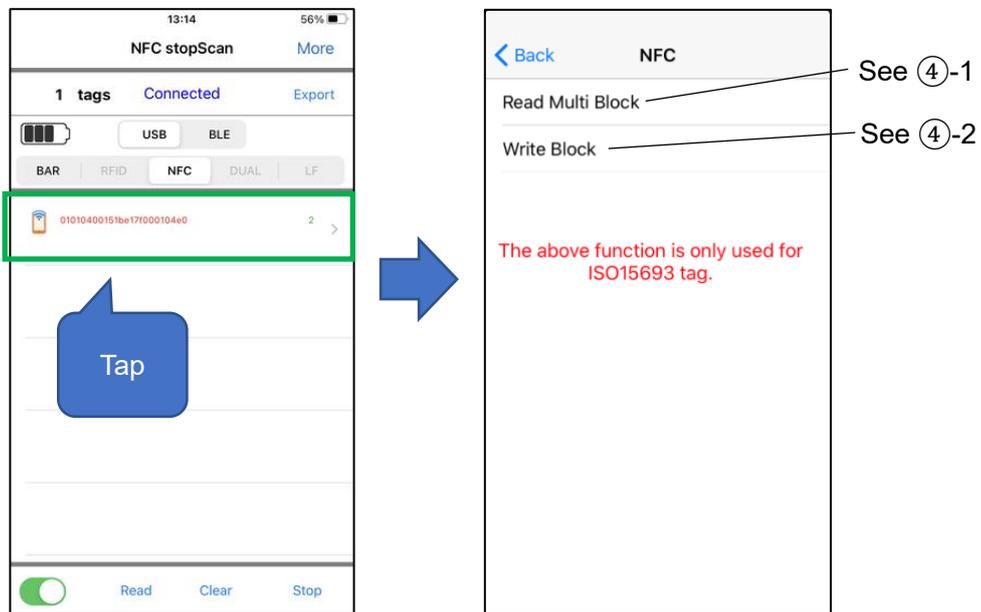
see “※ How to change passwords” in ③-1 Read/Write: RFID Read/Write.

3) Tap “Done” to perform the “Kill” action.

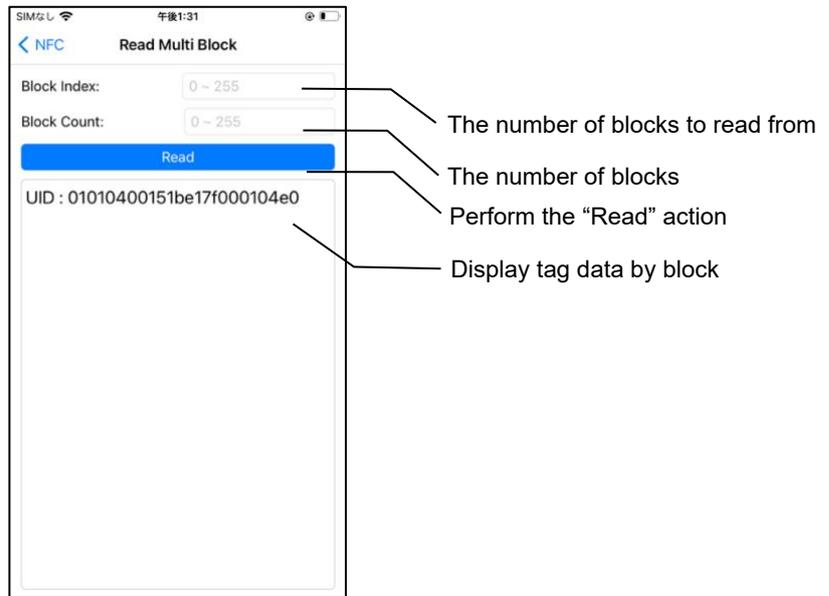
If the tag is killed successfully, you will see the message “Killed Tag”.

④ For HF RF tags, tap the tag data in the list to read and write the tag.

※Only ISO15693 tags are supported.



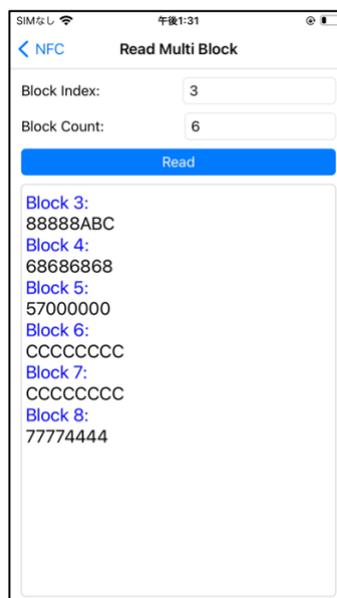
④-1 Read Multi Block: Read and display by block



Operating Steps:

- 1) Tap the target tag in the tag data list.
- 2) In the "Block Index" text box, enter the number of blocks to read from. The value ranges from 0 to 255. The maximum value that can be entered varies depending on the number of blocks contained in the target tag.
- 3) Enter the number of blocks to read in the "Block Count" text box.
- 4) Tap "Read" to perform.

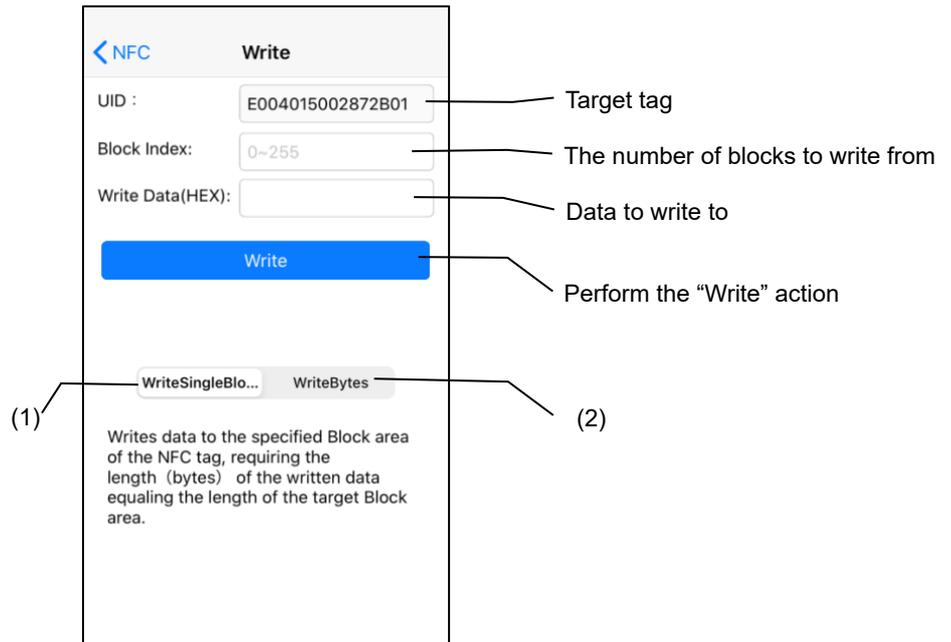
If the data is successfully read, the following information will be displayed:



Note:

When reading, ensure that there is only one tag in the readable range of the antenna.

④-2 Write to Blocks:



(1) Write Single Block

Write data to the specified block. Please enter data of the same length as the target block.

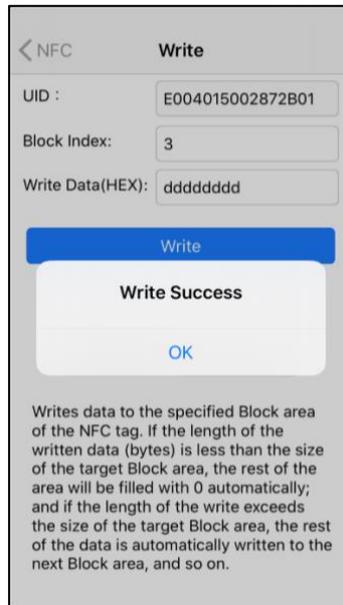
(2) Write Bytes

Writes data to the specified block. If the length of the data to be written (in bytes) is less than the length of the target block, the remaining blocks are automatically filled with zeros.

Operating Steps:

- 1) Tap the target tag in the tag data list.
- 2) In the "Block Index" text box, enter the number of blocks to write from. The value ranges from 0 to 255. The maximum value that can be entered varies depending on the number of blocks contained in the target tag.
- 3) Enter the data to write to the "Write Data(HEX)" text box.
- 4) Select "Write Single Block" or "Write Bytes".
- 5) Tap "Write" to perform.

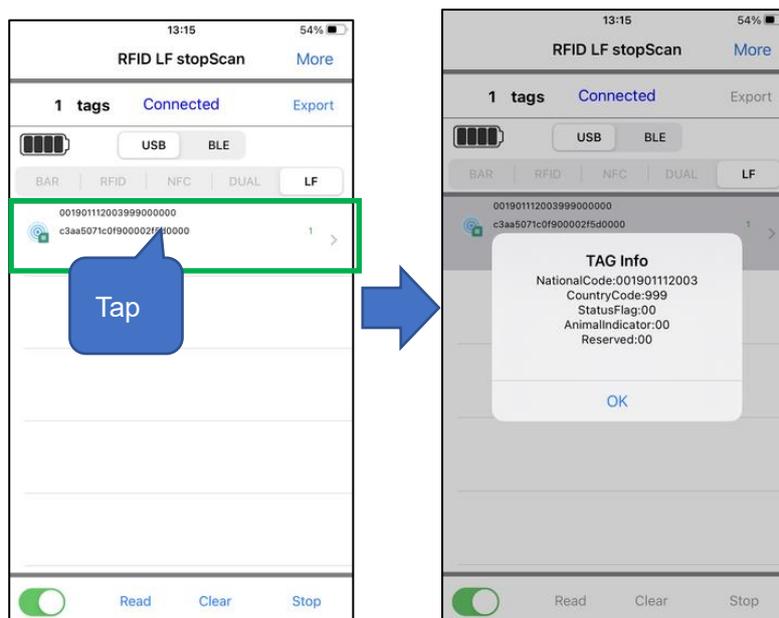
If the data is successfully written, the following information will be displayed:



Note:

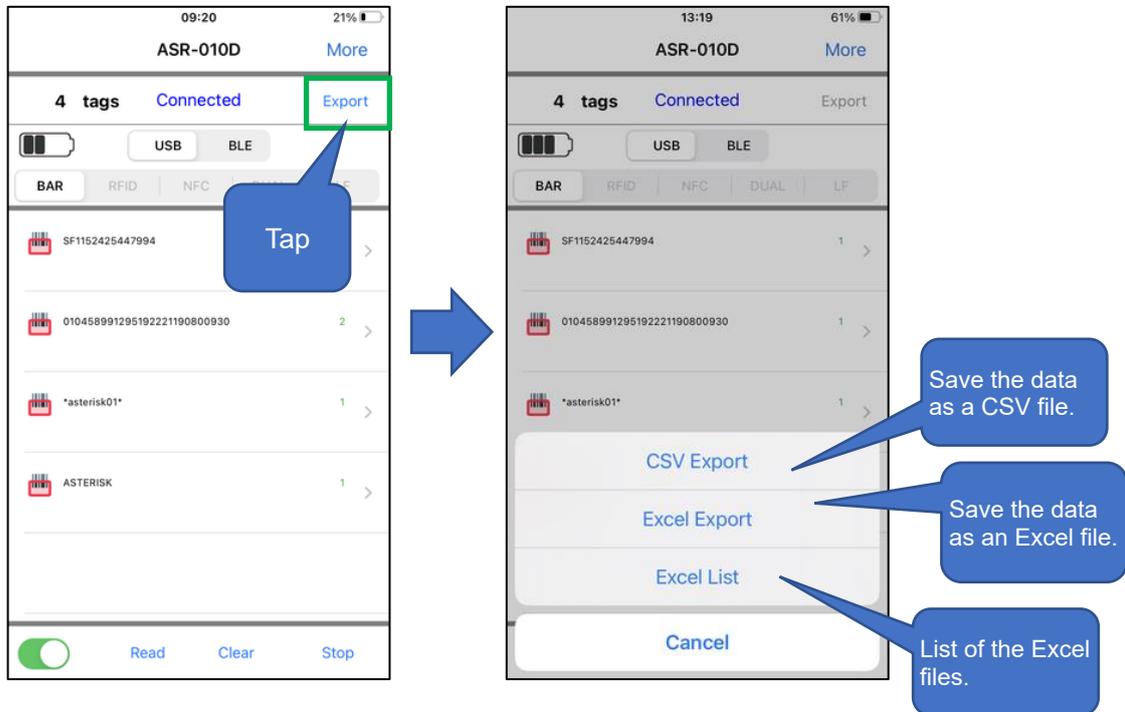
When writing, ensure that the target tag is isolated and 10 to 30cm (4 to 12") away from the AsReader.

⑤ When reading an LF RF tag, tap the tag data in the list to display its details.



3-3 Export

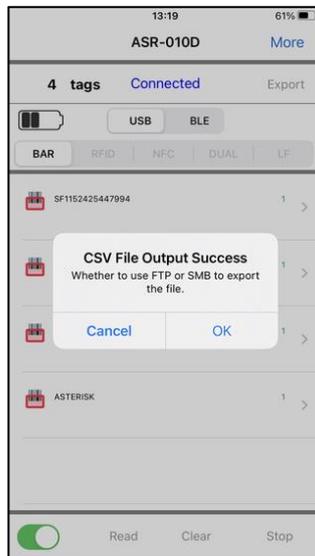
The read data can be saved as CSV files or Excel files in the application and can be exported through iTunes.



Operating Steps:

- 1) Tap [Export] on the main screen.
- 2) Select the file format you want to save to. To save the data as a CSV file, tap "CSV Export". To save the data as an Excel file, tap "Excel Export". The file will then be saved to the application. In addition, tap the Excel List to view the "Excel files" saved in the application.

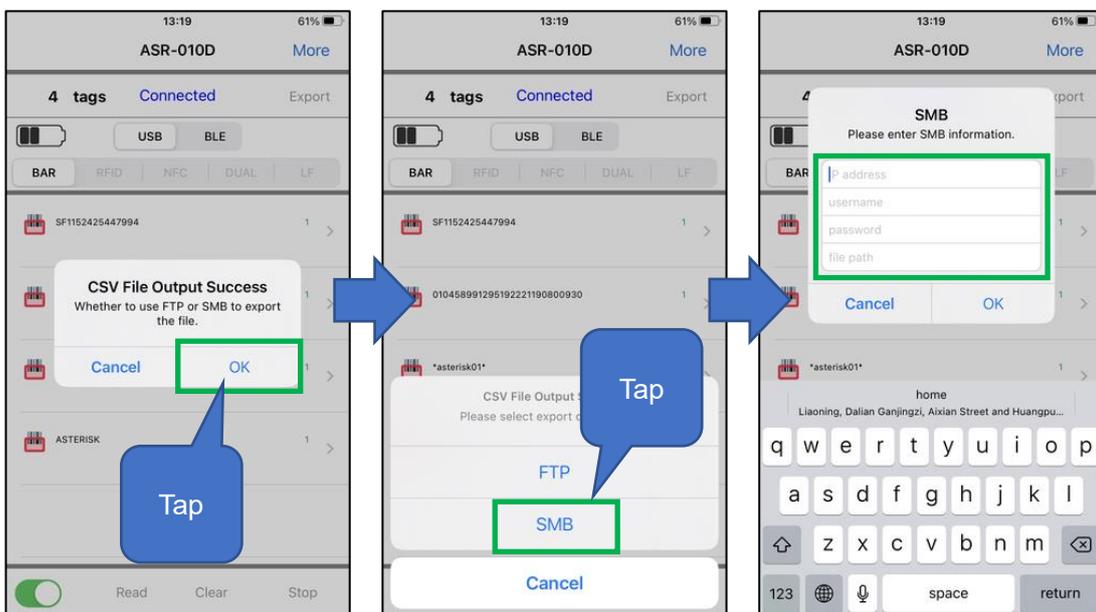
After successful exports, messages that indicate successful file exports is displayed as shown in the figure below.



The messages allows you to choose whether to send the generated files to a server. If you do not wish to send them, please tap "Cancel".

※ For sending the data file to the server, please refer to the following instruction:

3) Connect your smart device to your computer and launch iTunes. Retrieve the data files saved in the application through iTunes.



※ Send the generated data file to the server

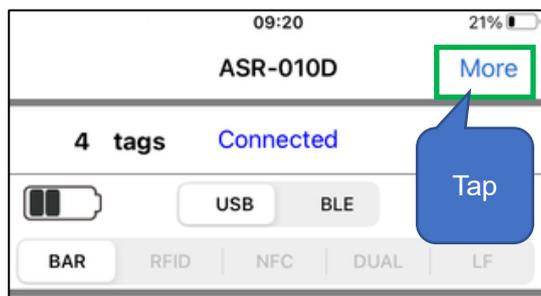
1) Tap the OK button in the message indicating that you wish export the data to a server.

2) Select the server (FTP or SMB).

3) Enter the appropriate server information and tap the "OK" button. The data file is then sent to the server.

4. More Settings

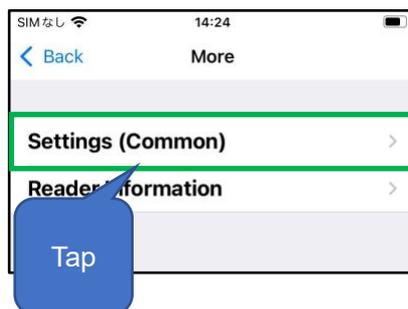
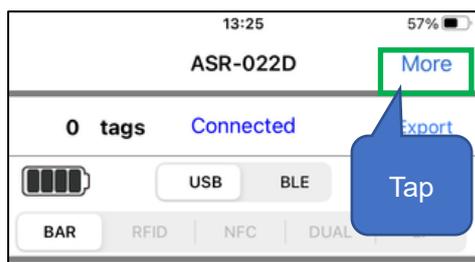
Tap "More" in the upper right corner of the screen to go to the Settings page.

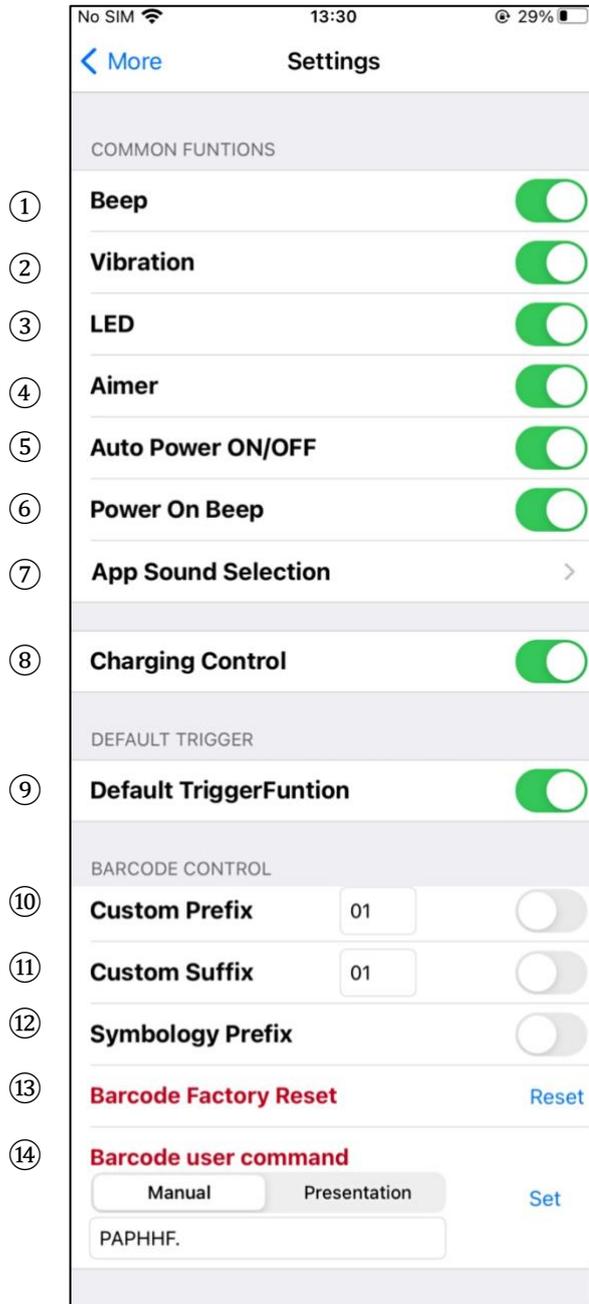


4-1 Settings

Tap "More" and then tap "Settings (Common)".

The images are examples of ASR-022D. (※ As different models have different functions, the displayed items are different.)





① Beep:

Turn on/off the sound (beep) when reading RF tags or barcode data. This setting is saved in the application. This sound is controlled by and emitted from the AsReader.

② Vibration:

Turn on/off the vibration when reading RF tags or barcode data. This setting is saved in the application.

③ LED:

Long-press the trigger button to turn on or off the function that indicates the battery level with the LED light (on the back of the AsReader). This setting is saved in the application.

④ Aimer:

(Supports models: ASR-020D (V2/V3/V4), ASR-022D(V3/V4), ASR-023xD(V2/V4), and ASR-0240D(V4))

Turn the laser on/off when reading 1D and 2D barcodes. This setting is saved in the application.

※ For the ASR-020D, if this function is set to ON, the aiming light will be continuously illuminated. If set to OFF, the aiming light is only illuminated during reading.

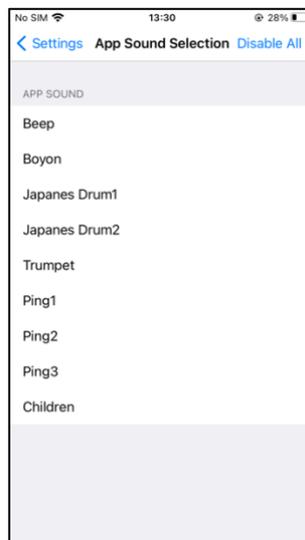
⑤ Auto Power ON/OFF:

Turn the Engage Module Toggle Switch on/off automatically after connecting to AsReader and starting the application. This setting is saved in the application.

⑥ Power On Beep:

Turn the sound (beep) of AsReader on/off when successfully connecting. This setting is saved in the application.

⑦ App Sound Selection:



Set which sound to play when an AsReader successfully reads. Unlike the sound set in ① above, this sound is played by the iOS device, not the AsReader.

This feature is disabled by default.

If you want to use the sound of this item as the prompt tone, it is recommended that you turn off the Beep setting in ① above.

※ Once the mute mode is enabled on the iOS device, no sound will be played even if the APP Sound Selection is enabled in the app. In addition, the volume is controlled by the "RINGER AND ALERTS" in iOS Settings-->Sounds & Haptics, not by the volume button.

※ When both the beep in ① above and the APP sound are enabled, both of them are emitted when reading.

⑧ Charging Control:

(Supported models: ASR-010D (V2/V3/V4), ASR-020D (V2/V3/V4), ASR-022D(V3/V4), ASR-023xD-V2(V4), ASR-03xD (V2/V3/V4))

Turn on/off the function of charging an AsReader and an iOS device simultaneously. This setting is usually on and can be turned off temporarily after connecting to an iOS device.

It can be automatically turned on again at any of the following times:

- Tapping the function button in the application to open it.
- Reconnecting the magnetic charging cable.
- Reconnecting or restarting the iOS device.
- The iOS device sleeps for tens of seconds, and waking it up again.

⑨ Default trigger function (Supported models: ASR-023xD(V2/V4), ASR-0240D(V4), ASR-03xD (V2/V3/V4), ASR-022D(V3/V4)) :

Turn on/off the function to read by pressing the trigger button. This setting is saved in the application.

⑩ Custom Prefix (Supported models: ASR-022D(V3/V4), ASR-023xD(V2/V4), ASR-0240D(V4)) :

The function is to add a prefix to the read barcode data. In the barcode setup manual, confirm the Hex value of the data that you want to set as a prefix. Enter it, then turn on the switch, and the set prefix and read barcode data are displayed

together when reading. This setting is saved in the application.

- ⑪ Custom Suffix (Supported models: ASR-022D(V3/V4), ASR-023xD(V2/V4), ASR-0240D(V4)) :
The function is to add a suffix to the read barcode data. In the barcode setup manual, confirm the Hex value of the data that you want to set as a suffix. Enter it, then turn on the switch and the set suffix and the read barcode data are displayed together when reading.
This setting is saved in the application.

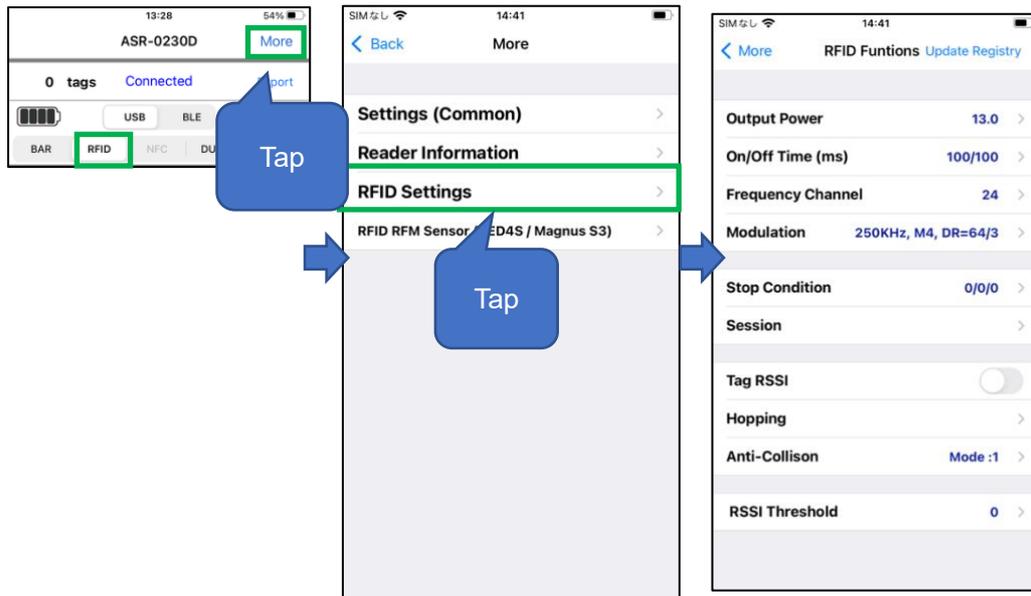
- ⑫ Symbology Prefix (Supported models: ASR-022D(V3/V4), ASR-023xD(V2/V4), ASR-0240D(V4)) :
Displays the type of read 1D or 2D bar codes (AIM code). When set to ON, the symbol of the barcode type will be displayed in addition to the beginning of the read barcode data. These settings are saved in the AsReader.

- ⑬ Factory Reset: (Supported models: ASR-022D(V3/V4), ASR-023xD(V2/V4), ASR-0240D(V4)) Restores the AsReader to factory default settings.

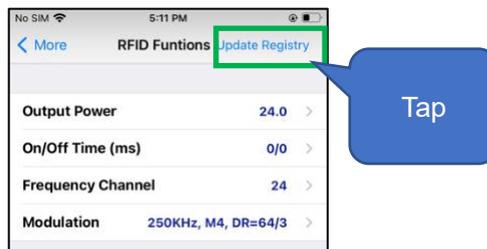
- ⑭ Barcode user command: (Supported models: ASR-022D(V3/V4), ASR-023xD(V2/V4), ASR-0240D(V4))
Change some settings which are described in the Barcode Parameter Setup Manual. These settings are saved in the AsReader.

4-2 RFID Settings

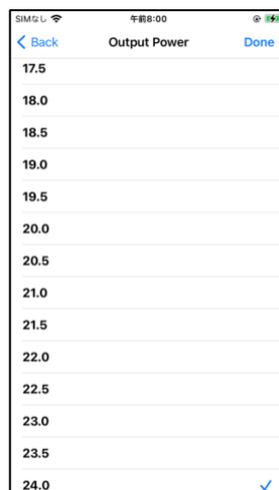
For models that support RFID tag reading, when the reading mode is set to "RFID", tap "More" in the upper right corner of the screen, and then tap "RFID Settings".



★**Update Registry:** Save the settings for RFID-related functions. If you change any settings, be sure to tap Update Registry to save the changes.



① **Output Power:**



Change the RFID radio wave output power.

By increasing the output power, the read distance can be increased, but the power consumption will also be faster.

The range of this parameter varies depending on the region (standards of the country).

- ASR-03xD, ASR-023xD:
 - JP: 18.0~24.0dBm
 - US2: 18.0~25.0dBm
 - EU: 18.0~25.0dBm
- ASR-03xD-V2(V3/V4), ASR-023xD-V2(V4):
 - JP: 13.0~24.0dBm
 - US2: 13.0~27.0dBm
 - EU: 13.0~27.0dBm

This setting is saved in the RFID module.

② On/Off Time (ms):



Change the On time and the Off time of RFID radio waves.

You can make reading easier by increasing On Time and decreasing Off Time, but the battery will drain faster. In addition, when there are many tags that need to be read at once, you may not be able to read all the tags if you set the Off Time too short.

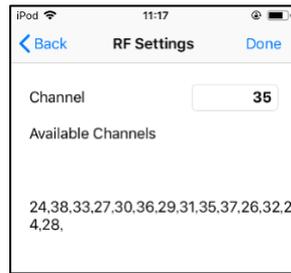
- When On Time is set to 0ms, the actual running time is 100ms. When Off Time is set to 0ms, the actual running time is 400ms. (recommended)
- If the On Time is set to less than 149ms, it may be automatically set to 200ms to ensure reading performance.
- The maximum value of On Time is 40000ms.
- The maximum value of Off Time is 40000ms, and the minimum value is 50ms.

※ The following settings are required by the laws of each country. Please set it within the following range when using.

Specification	On Time	Off Time
Japan	Less than 4000ms	More than 50ms
FCC (USA)	Less than 400ms	More than 20ms
CE (EU)	Less than 4000ms	More than 100ms

This setting is saved in the RFID module permanently.

③ Frequency Channel:



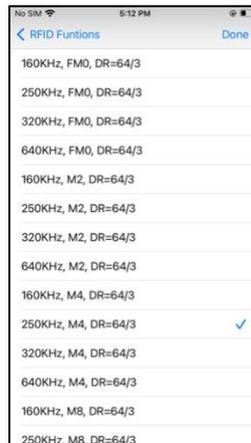
Set the default channel (frequency)

Normally you should not change this and keep it as the default.

- With Hopping On, the channel changes each time the device enters the On Time phase while taking inventory of RFID tags.
- The channel shown in Available Channels will be changed to the best value when Hopping's setting STEP1 (Set Optimum Frequency Hopping table) is executed.

This setting is saved in the RFID module.

④ Modulation

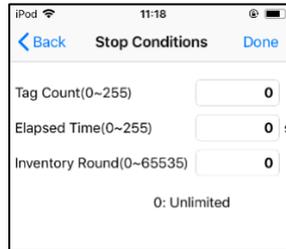


Changing the settings of the RFID module: Basically, there are three settings.

① 250KHz, M8, DR=64/3	The reading speed is slow, but the reading sensitivity is high. More able to read difficult-to-read RFID tags.
② 250KHz, M4, DR=64/3	Normal reading speed and sensitivity. This setting is recommended.

③ 250KHz,M2,DR=64/3	The reading speed is high, but the reading sensitivity is low.
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⑤ Stop Conditions:

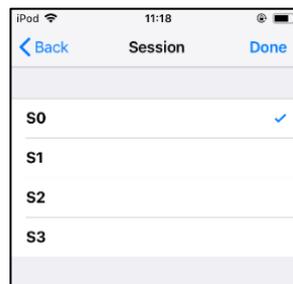


The conditions to stop inventory automatically:

- If the values are set to 0, there is no stop condition.
- Tag Count: Stop inventory when the set number of RFID tags have been read.
- Elapsed Time: Stop the inventory when the read action for the set time has been executed.

These settings are saved in the application.

⑥ Session:



Change the response time of the RFID tag. (Response time varies by RFID tag specification)

According to the number of target RFID tags, the following settings are recommended.

- S0: RFID tags that have been read can be re-read immediately. It is recommended to use this option when the number of target RFID tags to be read is less than 50.
- S1: RFID tags that have been read cannot be re-read within 0.5 to 5 seconds. It is recommended to use this option when the number of target RFID tags is between 50 and 100.
- S2, S3: RFID tags that have been read cannot be re-read for 2 to 60 seconds. It is recommended to use either of these two options if the number of target RFID tags is more than 100.

※S2 and S3 have the same effect. The two options are set to avoid interference when multiple RFID devices are used at the same.

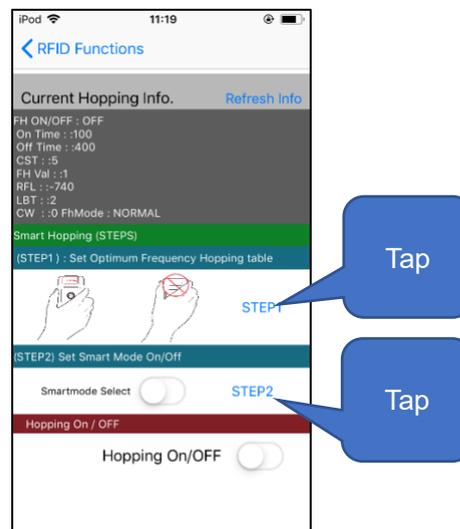
This setting is saved in the RFID module.

⑦ Tag RSSI:

When this switch is turned on, the Received Signal Strength Indicator for each read RFID tag is displayed.

This setting is saved in the application.

⑧ Hopping:



Change the settings of frequency hopping.

- Smart Hopping

With the following two-step setup, you can select the channel that provides the best antenna performance and increase the read distance in a stable manner.

STEP1 (Set Optimum Frequency Hopping table):

Tap "STEP1" on the screen above to automatically select the channel with good antenna performance.

IMPORTANT: Do not cover the antenna with your hand when setting.

(If you cover the antenna with your hand, it may affect communication and lead to incorrect settings.)

STEP2 (Set Smart Mode On / Off):

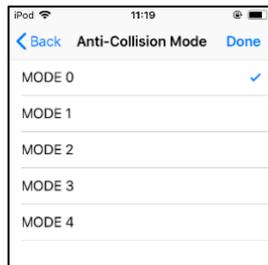
Tap "STEP2" on the screen above to use only the channel selected in "STEP1".

- Hopping On / Off
With this switch “on”, Hopping is turned on in the preferences. With this switch off, LBT (“Listen Before Talk”) is turned on in the preferences.

※ This switch should be set to “on” in all countries outside of Japan.

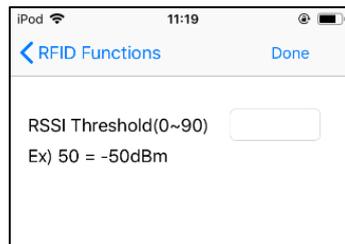
- ※ The default setting is Smart Hopping, but depending on which iOS device and case you're using, the read distance can get shortened. In this case, setting the Smart Hopping mode again might improve the reading distance.
This setting is saved in the RFID module.

⑨ Anti-Collision:



Change the default anti-collision mode in the RFID module.
Changing this mode may speed up reads when multiple RFID tags are inventoried.
This setting is permanently stored in the RFID module.

⑩ RSSI Threshold (ASR-03xD-V2(V3/V4), ASR-023xD-V2(V4)):

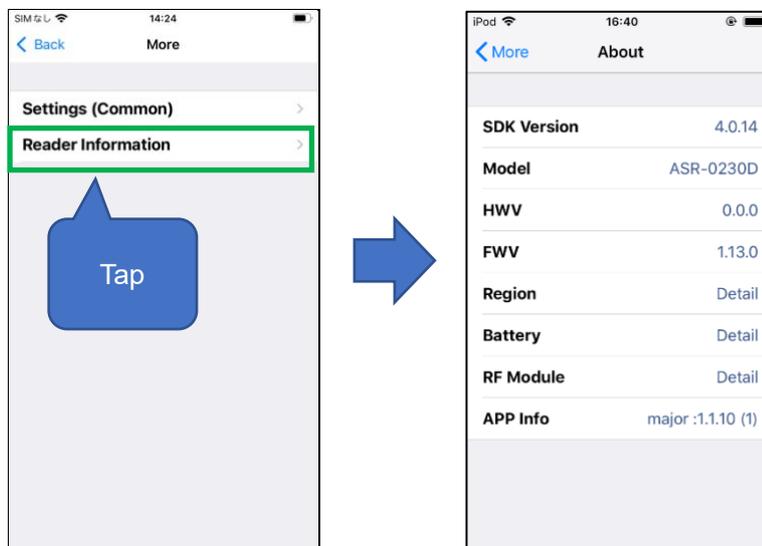


RFID tags are filtered when reading, and only RFID tags whose radio intensity is stronger than the set minimum RSSI value are inventoried.
Use this feature when you only want to count tags that are nearby, such as those within 10 cm (4 inches) of the AsReader.

※Beep sounds may be emitted when read tags are filtered and not shown on the screen.

5. AsReader Information

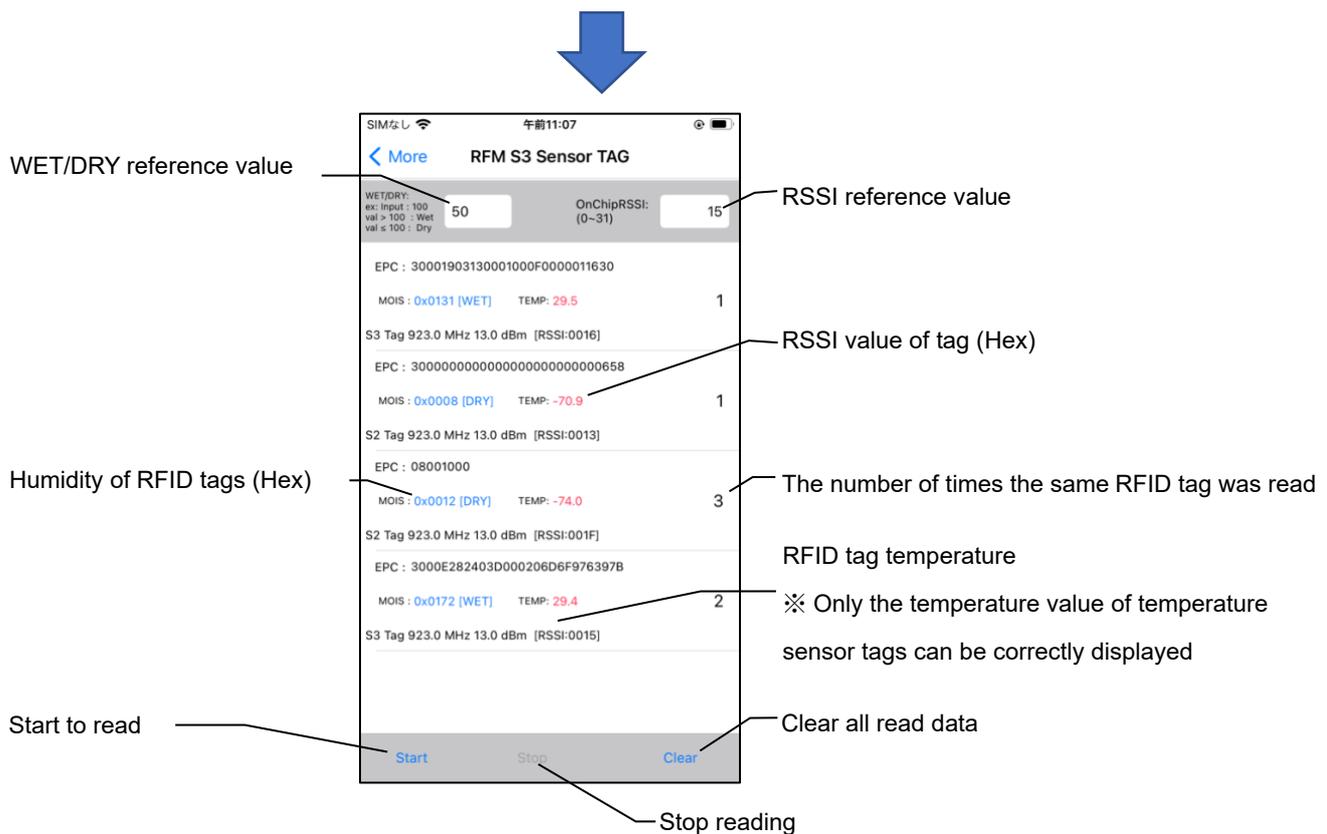
To check the AsReader Information, tap "More" → "Reader Information."



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

6. RFID RFM Sensor (RED4S/Magnus S3)

Read RFID tags with temperature and humidity sensors. If the read mode of the AsReader device is set to "RFID", tap "More" in the top right corner of the screen, and then tap "RFID RFM Sensor (RED4S/Magnus S3)". (Supports models: ASR-03xD-V2(V3/V4) and ASR-023xD-V2(V4))



WET/DRY reference value:

Set a reference value for whether the read humidity value is judged as WET or DRY.

For example, if the reference value is set to 50, "WET" would be displayed when the humidity of the read RFID tag is above 50.

If the humidity value of the read RFID tag is below 50, "DRY" would be displayed.

RSSI reference value:

You can set an RSSI reference value to prevent RFID tags whose RSSI value is lower than the reference value from being displayed. (Value range: 0 to 31).

For example, if the reference value is set to 15, only RFID tags with RSSI values above 15 would be displayed.

After setting the RSSI value, please clear the existing RFID tag information on the screen before inventorying the RFID tags.

※ The humidity value and RSSI value of RFID tags are displayed in hexadecimal.

**DemoApp
AsReader Scan**

User Manual

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