AsReader Scan
User Manual

Contents

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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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

AsReader model

Settings

Export data as .csv files

Remaining battery of AsReader

Connection status of AsReader

Number of different/unique barcodes or RFID tags

Mode switch: BAR (Barcode 1D/2D)
RFID (UHF / Ultra-High Frequency RFID)
NFC (NFC + HF / High Frequency RFID)
DUAL (Barcode & UHF RFID)
LF (Low Frequency RFID)

Barcode and RFID data list

Number of times each barcode/RFID read

Stop reading

Clear the data list

Start reading

「Engage Module toggle switch (used for both Barcode and RFID Modules)」

Table-1　List of read modes supported by each model

Mode ／ Model	Barcode (1D, 2D)	UHF RFID	NFC+HF	DUAL※2	LF
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 and 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.

① Disconnected   ② AsReader power on   ③ Connected
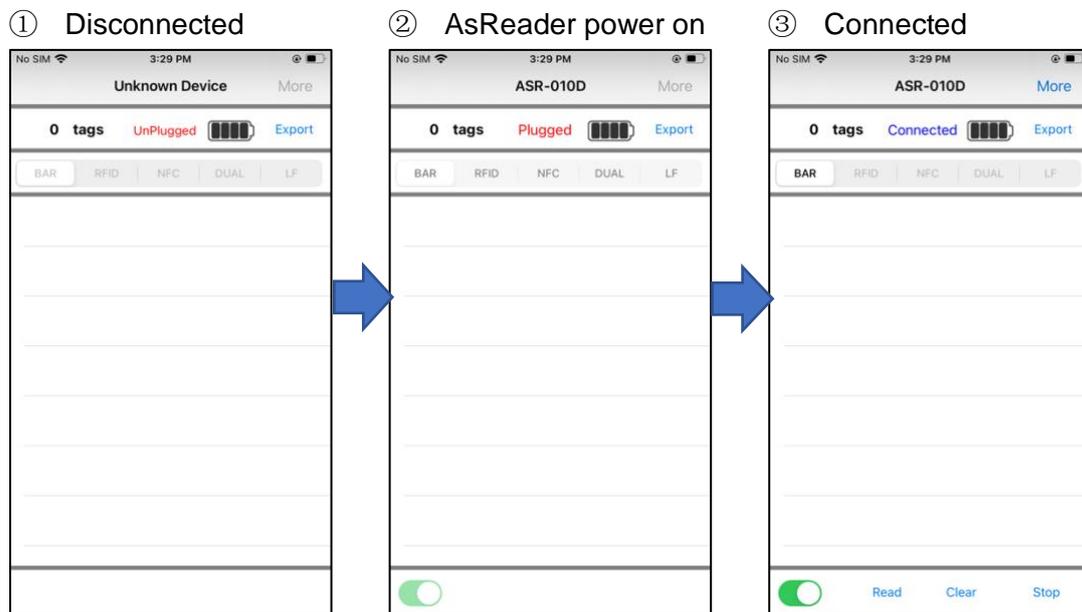
Under screen ③, if the "Engage module toggle switch" is turned off, the barcode engine or RFID module will be disengaged as shown in the figure below, displaying "Disconnected". In this case, the state is in the same state as the screen ② that displays Plugged.

※Disengaging the barcode engine or RFID module reduces power consumption.
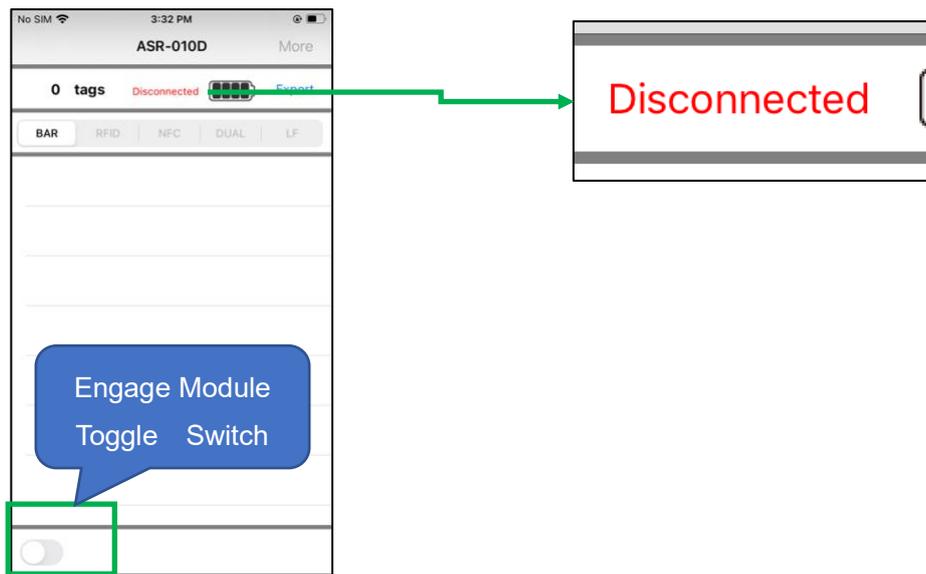
3．How to Read

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 Engage module toggle switch.
If the screen displays "Connected", it indicates that the reading mode switch is complete.

※The same goes for switching to NFC, DUAL, or LF mode.
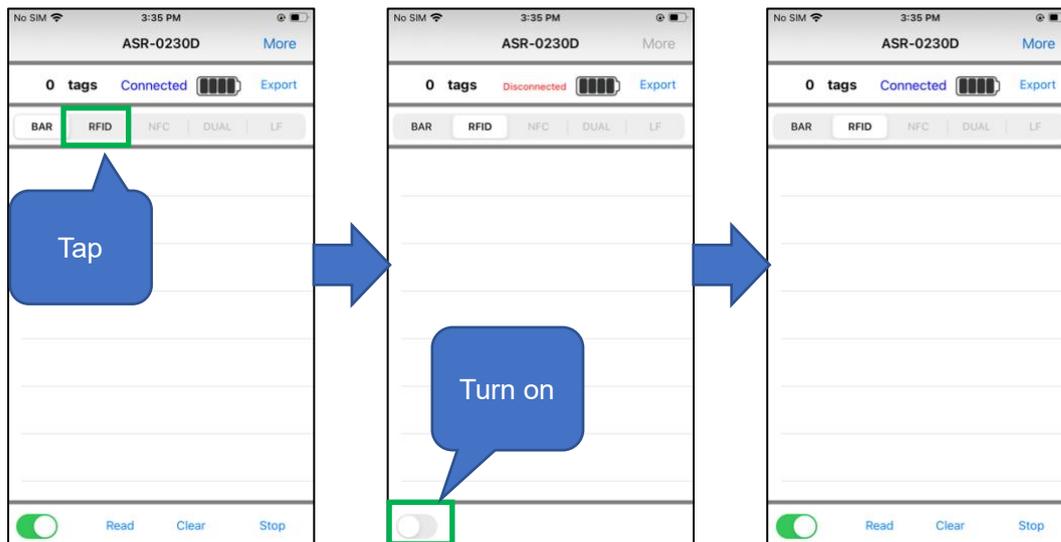
2) Point the AsReader towards a 1D/2D barcode or RF tag & press the trigger button to read.

3) Or, tap the "Read" button on the screen to read.   This is a "software trigger."
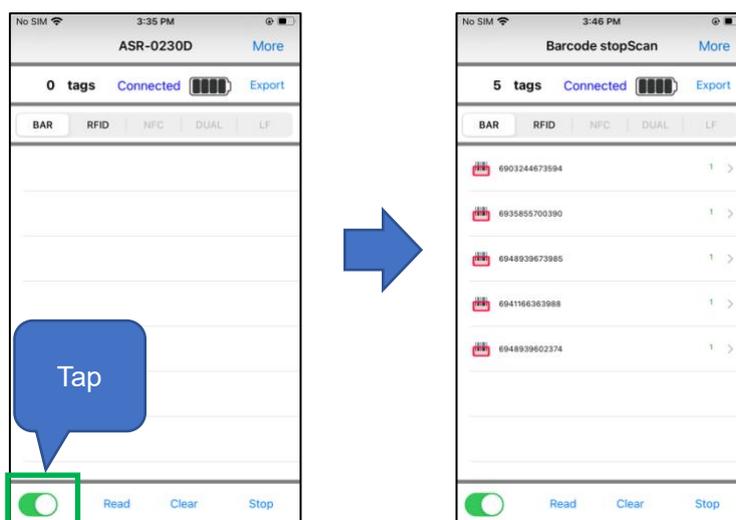
4) When reading 1D/2D barcodes, press the trigger button or tap the "Read" button to illuminate the LED/laser aimer. Depending on the parameter settings, if AsReader does not read any barcodes for a period of time, or after reading a barcode, the LED/laser will stop illuminating. (AsReader can be set 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) As AsReader reads the RF tag, it will continue reading from the time the "Read" button is tapped until the set stop condition is met or the "Stop" button is tapped. Continuously holding down either trigger button also allows continuous reading and will stop when released.

3-2 The Data Read

When reading 1D/2D barcode /RF tag, the read data is displayed on the data list of the screen.

Barcode data list   RF tag data list

①Tap one of the 1D/2D barcode data, the barcode details will be displayed.
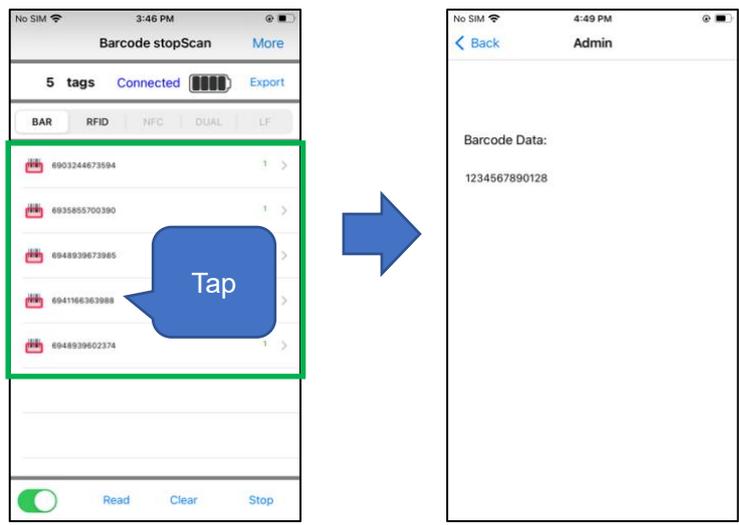
②For RFID tags with the encoding format of "SGTIN-96", the UPC/JAN code and serial number will be displayed in the reading results. For tags in other encoding formats, the display "No UPC/JAN Decoded" will appear.

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

③-1 Read/Write: RFID Read/Write

Save/perform the selected action

Select to read or to write

Target tag

Access password

Offset

Data length to read or write

Target memory bank to read or write
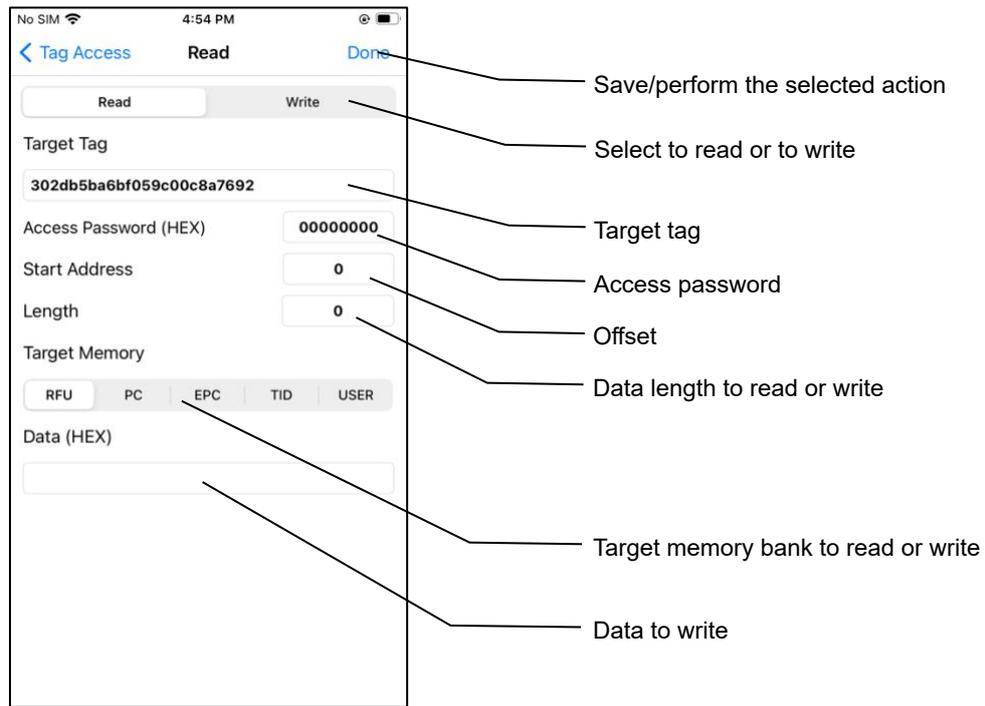
Data to write

Operating Steps:

1) Tap the target tag to read/write in the tag data list.

2) Tap to select to read or to write.

3) Enter the start address in the "Start Address" text box.

- The start address is not allowed when the target memory is PC or EPC.
- 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, 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" (that's eight zeros).

6) Select the target memory to read or write to.

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 the action.

- If the read succeeds, the tag data information will be displayed at "Data (Hex)".
- After the writing succeeds，a "Finished Writing" message will be displayed.

Note:

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

When writing, ensure 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 to

The first two words 0 through 1 (8 bits 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 this memory bank 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 to

※When writing to a locked memory bank, 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 memory bank, 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"; 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 modified successfully, you will see the message "Done Write".

③-2 Lock or Unlock
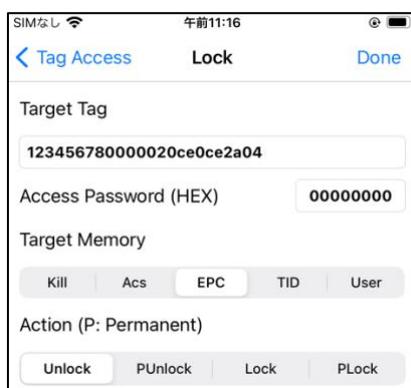
Operating Steps:

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 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 unavailable.
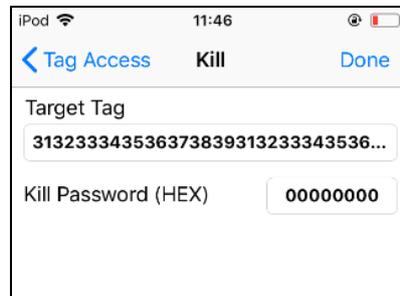
Operating Steps:

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 tag, tap the tag data in the list to read and write the tag.

※Only ISO15693 tags are supported.

See ④-1
See ④-2
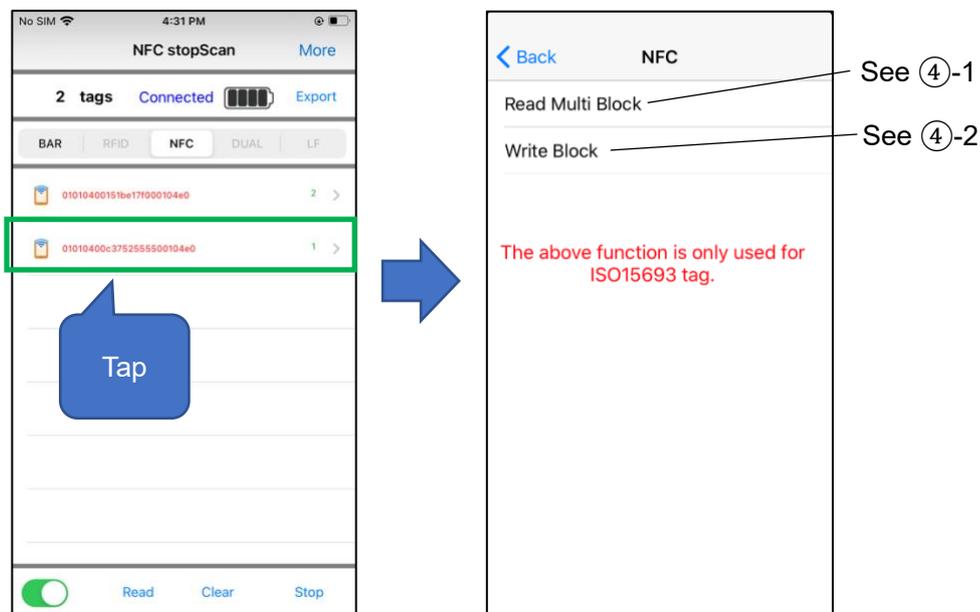
④-1 Read Multi Block: Read and display by block
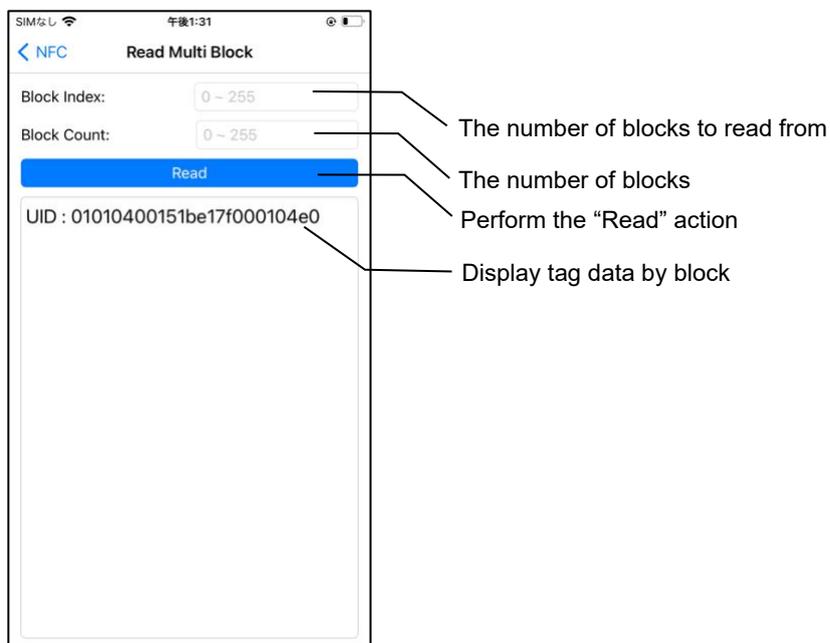
The number of blocks to read from

The number of blocks

Perform the "Read" action

Display tag data 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:
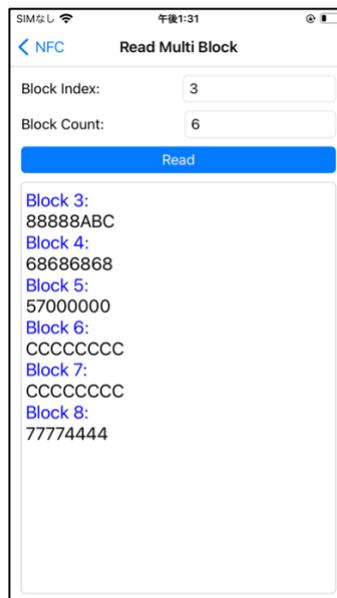
Note:

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

④-2 Write to Blocks：
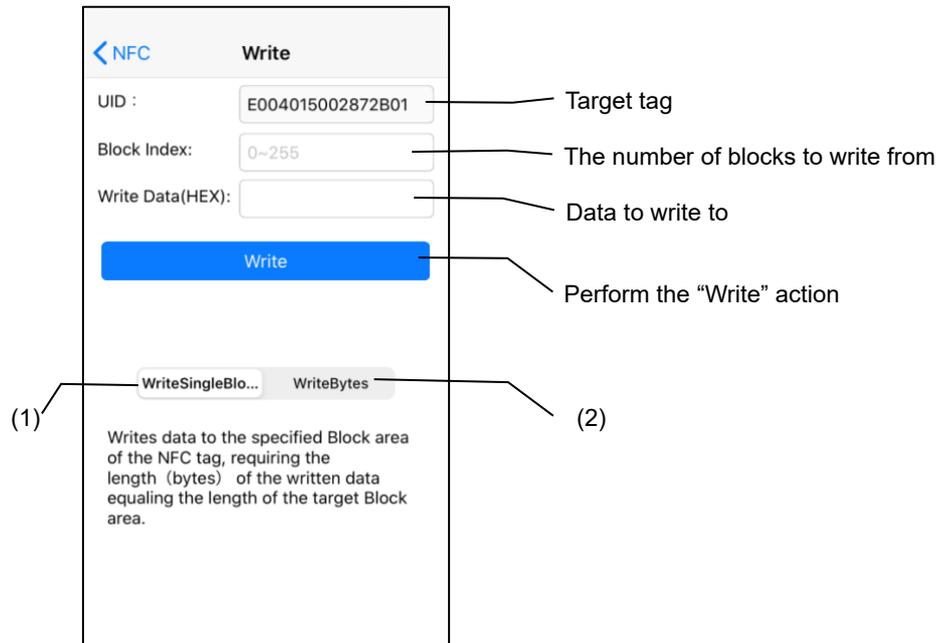
(1) Write Single Block

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 in 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:
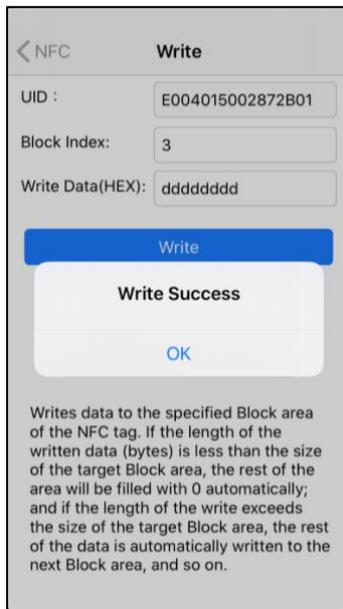
Note:

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

⑤If it is an LF RF tag, tap the tag data in the list to display its details.
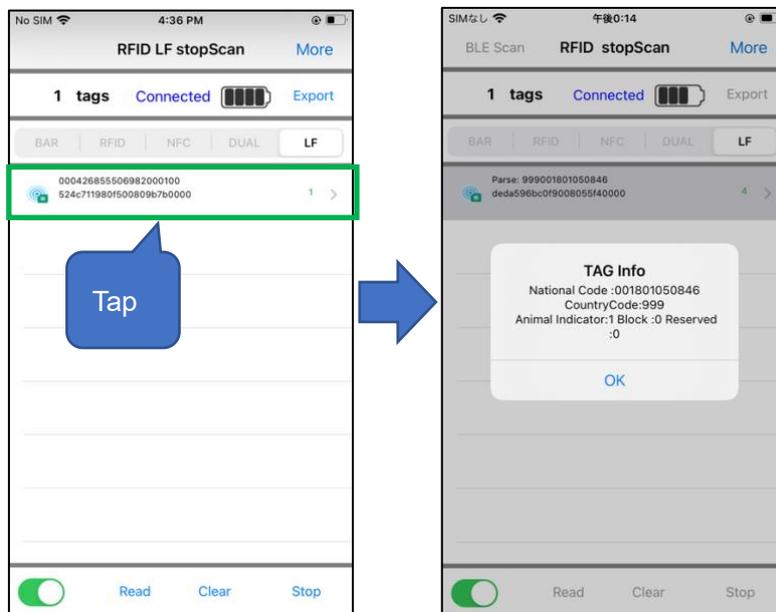
3-3 Export

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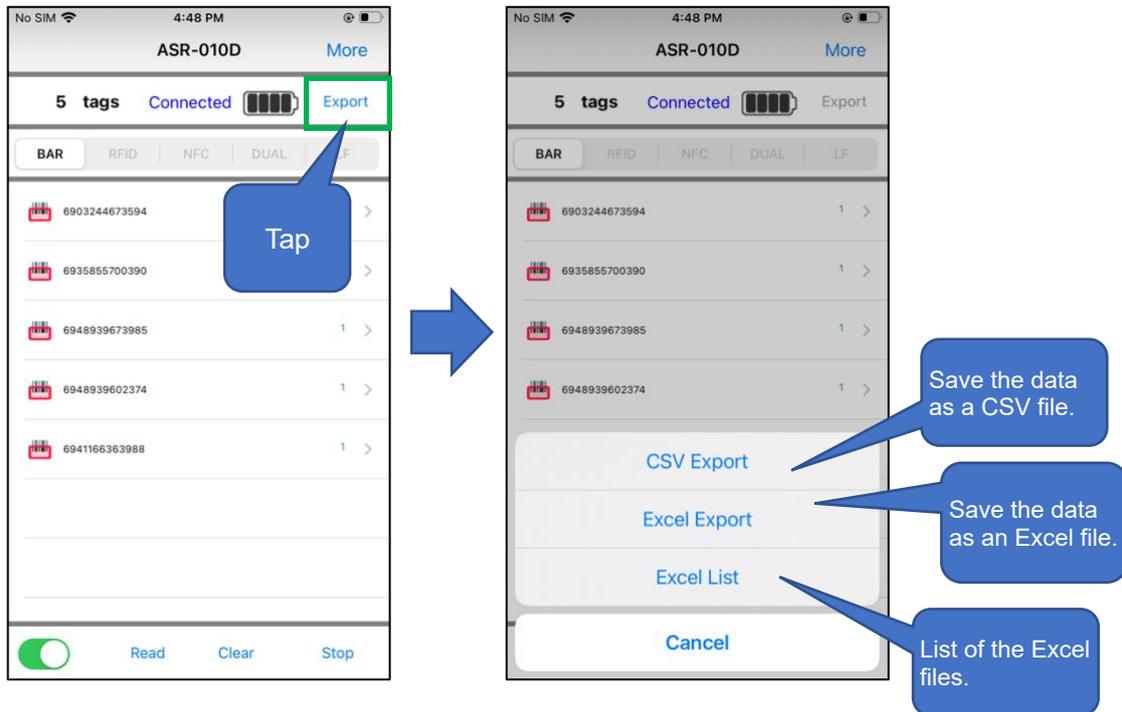
Operating Steps:

1) Tap [Export] on the main screen.

2) Select the file format you want to save to. To save it as a CSV file, tap "CSV Export".

To save 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.

Tap "CSV Export" or "Excel Export" to generate a file. If the file is successfully generated, the following information is displayed:
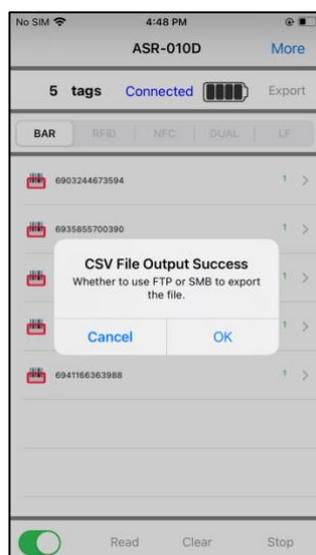
This information also allows you to choose whether to send the generated file to the server. If you do not wish to send it, please tap "Cancel".

※ If you want to send the data file to the server, please refer to "※ Send the generated

data file to the server" for details.
3) Connect your smart device to your computer and launch iTunes. Retrieve the data files saved in the application through iTunes.
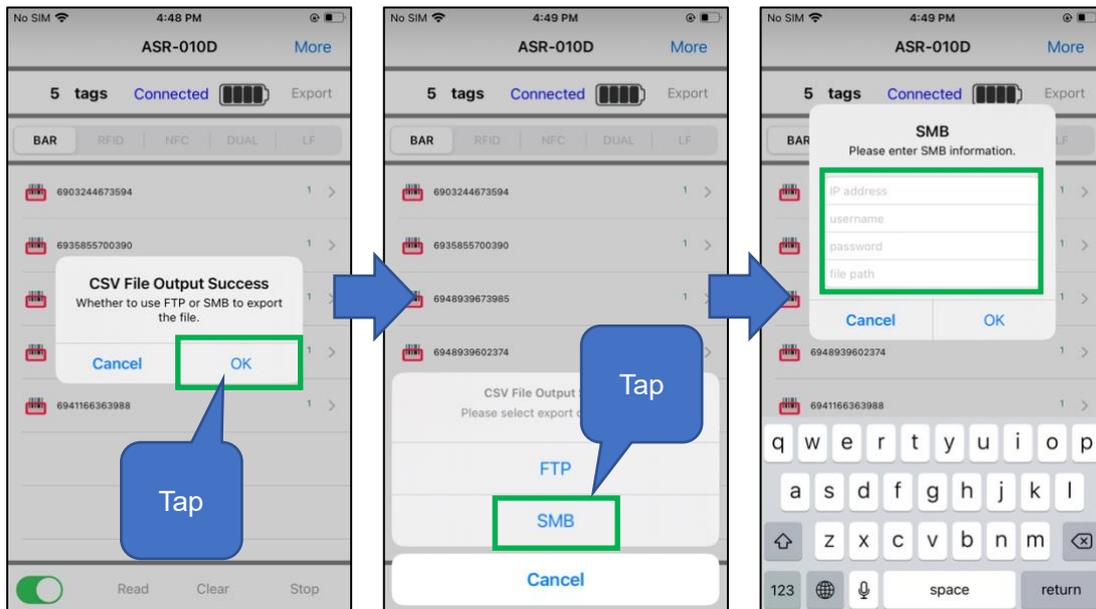
※ Send the generated data file to the server

1) Tap the OK button in the message indicating that the export is successful.
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.

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4．More Settings

Tap "More" in the upper right corner of the screen to go to the Settings page.
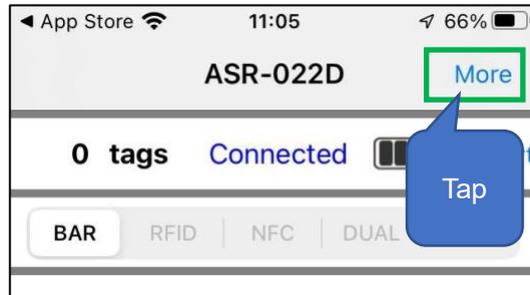
4-1 Settings

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

The following uses ASR-022D as an example. (※ Different models have different functions, so the display items are also different.)
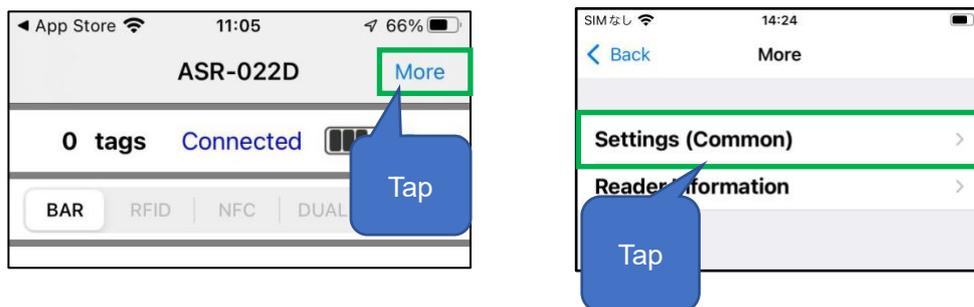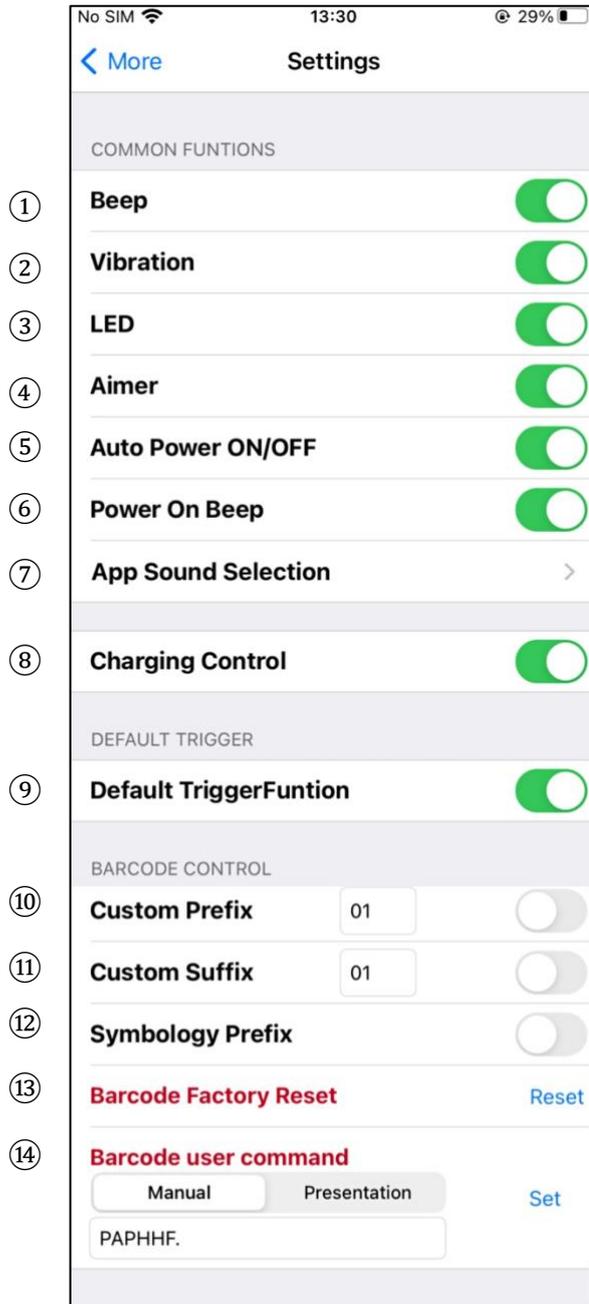
① Beep:
Turn on/off the sound (beep) when reading RF tags or barcode data. The setting is saved in the application. This sound is played simultaneously by the AsReader.

② Vibration:
Turn on/off the vibration when reading RF tags or barcode data. The 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). The setting is saved in the application.

④ Aimer:

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

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

※ For the ASR-020D, if this function is set to ON, the aimer-light will be

continuously illuminated. If set to OFF, the aiming light is only illuminated during reading.

⑤ Auto Power ON/OFF:

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

⑥ Power On Beep:

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

⑦ App Sound Selection:
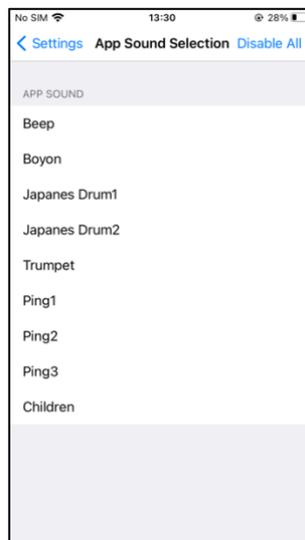
Sets which audio file to play when AsReader successfully reads. Unlike the sound set in ① above, this sound is played by the iOS device, not the AsReader. This feature is disabled by default.

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

※ Once 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.

※ If the prompt tone set in ① above is enabled, when you perform this setting, two sounds will be played.

⑧ Charging Control:
(Supports 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 simultaneously charging iOS terminals. This setting is usually on and can be temporarily turned off after connecting to an iOS terminal. It can be automatically turned on again at any of the following times:
・   Tap the function button in the application to open it.
・   Reconnect the magnetic charging cable.
・   Reconnect or restart the iOS terminal.
・   The iOS terminal sleeps for tens of seconds and wakes up again.

⑨ Default trigger function (Supports models: ASR-023xD(V2/V4)、ASR-0240D(V4)、ASR-03xD (V2/V3/V4) 、ASR-022D(V3/V4)) :
Turn on/off the read function by operating the trigger button. The setting is saved in the application.

⑩ Custom Prefix   (Supports 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, so that the set prefix and read barcode data will be displayed together. The setting is saved in the application.

⑪ Custom Suffix (Supports 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, so that the set suffix and read barcode data will be displayed together.

The setting is saved in the application.

⑫ Symbology Prefix (Supports models: ASR-022D(V3/V4)、ASR-023xD(V2/V4)、ASR-0240D(V4)) :

Displays the type of 1D and 2D bar codes (AIM bar codes) to be read. If it is set to On, the symbol of a barcode type will be displayed before the read barcode data. The settings are saved in the AsReader.

⑬ Factory Reset:　(Supports models: ASR-022D(V3/V4)、ASR-023xD(V2/V4)、ASR-0240D(V4)) Restore to factory settings. The settings are saved in the AsReader.

⑭ Barcode user command:　(Supports models: ASR-022D(V3/V4)、ASR-023xD(V2/V4)、ASR-0240D(V4))

Here, you can do some settings which are described in the Barcode Parameter Setup Manual. The 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".
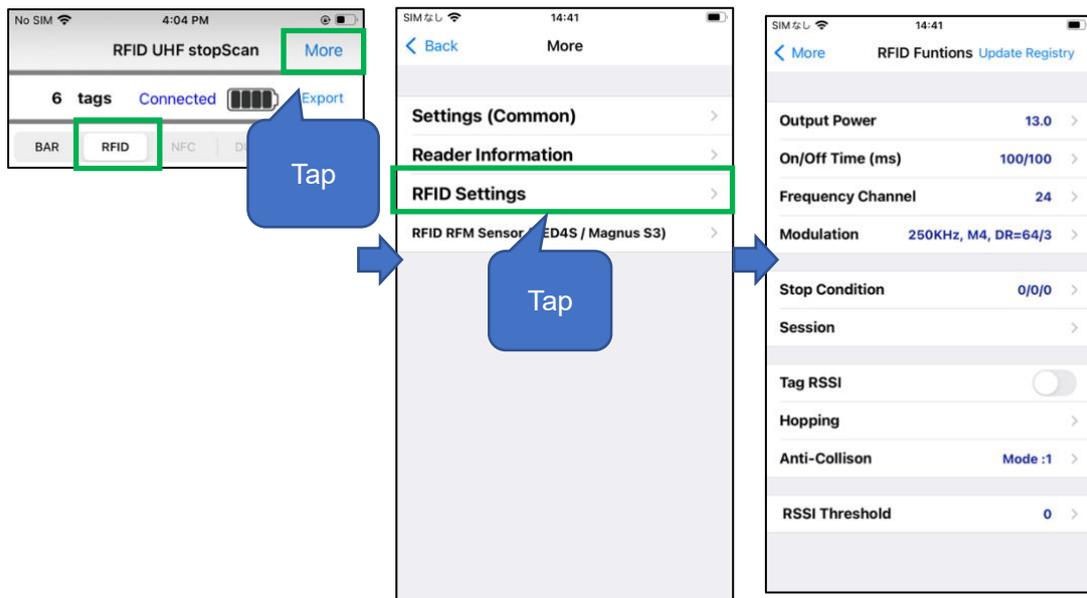
★**Update Registry:** Save the settings for RFID-related functions. If you change any settings, be sure to tap Update Registry to save the changes.
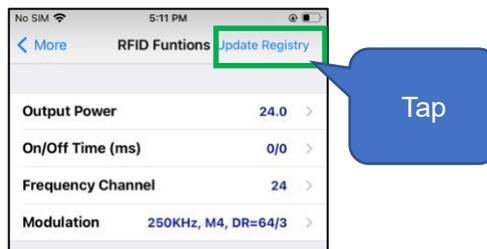
① Output Power:
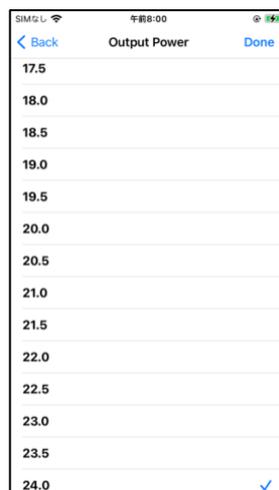
Change the radio wave output power of RFID.

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

The range of this parameter varies depending on the region (standard 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

The 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, if 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 radio laws of each country. Please set it within this 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

The setting is saved in the RFID module permanently.

③ Frequency Channel:

Set the default channel (frequency)

Normally you should not change this and use it as is.

· 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 the Available Channels location will be changed to the best value when Hopping's setting STEP1 (Set Optimum Frequency Hopping table) is performed.

The setting is saved in the RFID module.

④ Modulation
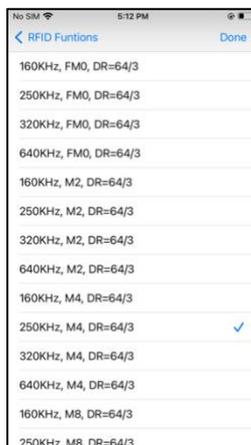
Changing the settings of the RFID module: Basically, there are three settings.

①250KHz,M8,DR=64/3	The reading speed is low, but the reading sensitivity is high. Able to read difficult-to-read RFID tags.

②250KHz,M4,DR=64/3	Normal read speed and read sensitivity. This setting is recommended.
③250KHz,M2,DR=64/3	The reading speed is high, but the reading sensitivity is low.

⑤ Stop Conditions:
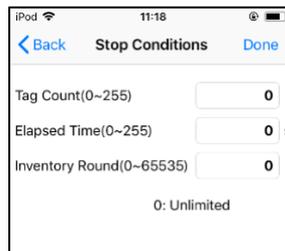
Stop the inventory according to the set limits. (If the value is set to 0, there is no stop condition limits.)

· Tag Count: Stop inventory after the set number of RFID tags have been read.
· Elapsed Time: Stop the inventory after the read action for the set time has been performed.
· Inventory Round: Stop the Inventory after the read action has performed the set Inventory Round.

The setting is saved in the application.

⑥ Session:
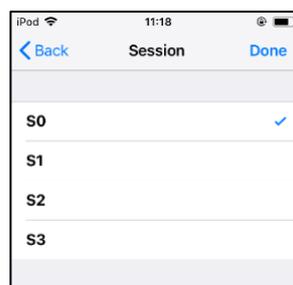
Change the response time of the RFID tag. (Response time varies by RFID tag specification)

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 set 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 that this parameter be set to this option when the number of target RFID tags to be read 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 that this parameter be set to each of the two options if the number of target RFID tags to be read 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 time and the same Session value is set. The setting is saved in the RFID module.

⑦ Tag RSSI:
If this switch is turned on, the Received Signal Strength Indicator for each read RFID tag is displayed.
The setting is saved in the application.

⑧ Hopping:
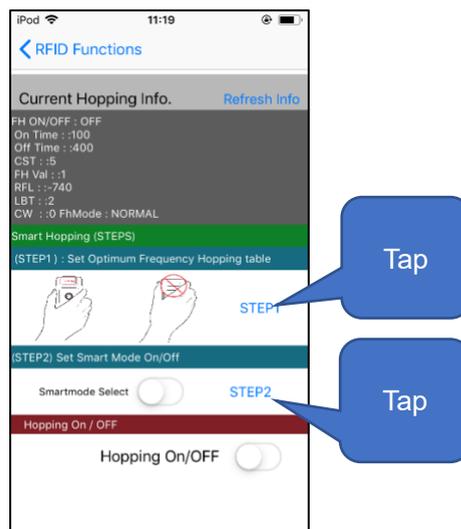
Change the settings of frequency hopping.

· 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.
Note: 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 preferentially set; with this switch off, LBT ("Listen Before Talk") is preferentially set.

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

※ The default setting is Smart Hopping, but depending on which iOS terminal and case you're using, the read distance can get short. In this case, setting it to Smart Hopping again might improve the reading distance.

The setting is saved in the RFID module.

⑨ Anti-Collision:
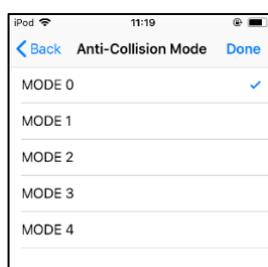
Change the default anti-collision mode in the RFID module.

Changing this mode may speed up reads when multiple RFID tags are inventoried.

The setting is permanently stored in the RFID module.

⑩ RSSI Threshold (ASR-03xD-V2 (V3/V4) 、ASR-023xD-V2(V4)):
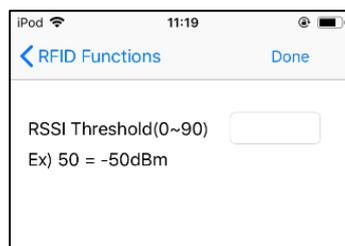
RFID tags are filtered when reading, and only RFID tags whose radio intensity is stronger than the set RSSI value are inventoried.

Use this feature when you only want to count tags that are nearby, such as those within 10 cm (4 inches) of AsReader.

※ Even if the filtered RFID tag data is not displayed, the Beep sound may sound.

5．AsReader Information

To check the AsReader Information, tap "More" → "Reader Information" to check the device Information.
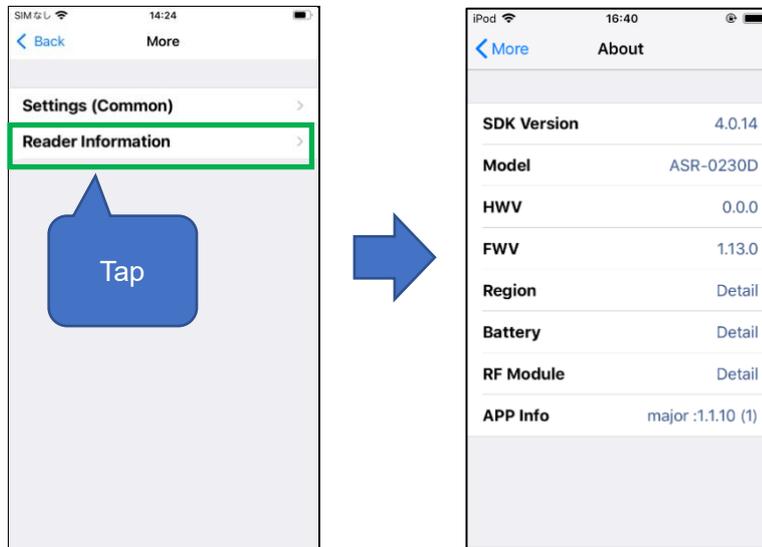
① SDK version: SDK version
② Model: AsReader model
③ HWV: Hardware version
④ FWV: Firmware version
⑤ Region: Country/region of the RFID (UHF).
⑥ Battery: Battery power
⑦ RF Module: RFID module version
⑧ APP Info: App version

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)、ASR-023xD-V2(V4))

WET/DRY reference value
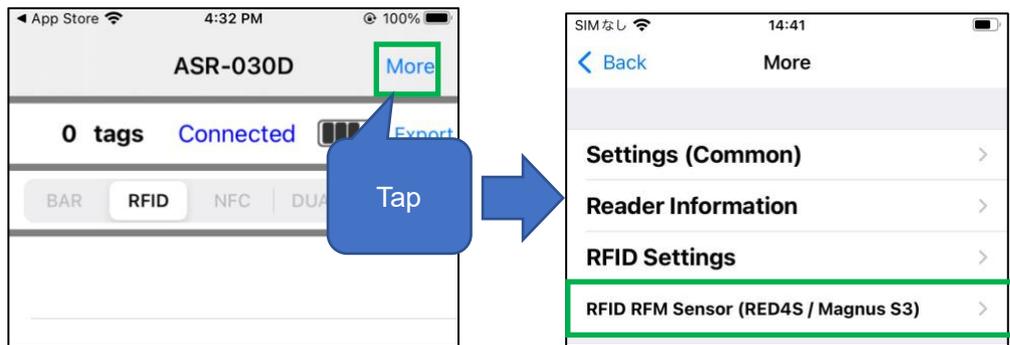
RSSI reference value

RSSI value of tag (Hex)

Humidity of RFID tags (Hex)

The number of times the same RFID tag was read

RFID tag temperature
※ Only the temperature value of RFID

Start to read

Clear all read data

Stop reading

WET/DRY reference value:

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

For example, when the reference value is set to 50, WET will 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 will 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 will be displayed.

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

※ Humidity value and RSSI value of RFID tag are displayed in hexadecimal.

DemoApp
AsReader Scan

User Manual

Sep. 2022 Rev 11

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