



ASR-A3xD Demo App (OTG Connection)

User's Manual

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Preface

This manual describes the correct operation method of the AsReader ASR-A3xD Demo App (OTG connection). Be sure to read it carefully before using it.

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

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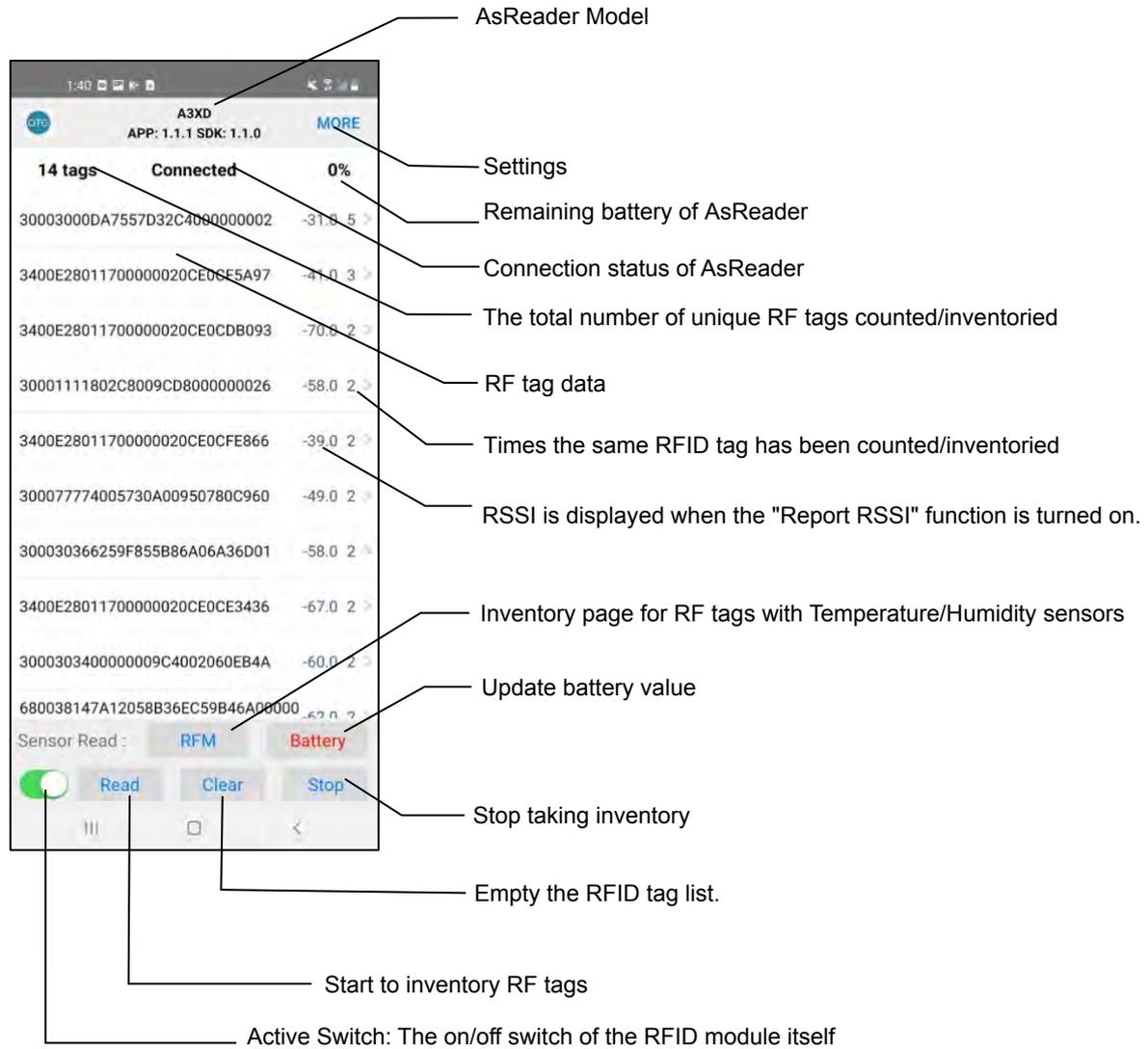
About ASR-A3xD Demo App

ASR-A3xD Demo App is an application that customers can use together with our company's ASR-A3xD, including the ASR-030D and ASR-031D SLED/DOCK-Type UHF RFID reader/writer (hereinafter referred to as "AsReader").

Please search for "AsReader" or "asr-a3xd" in the Google Play Store or scan the following QR code to download the application:



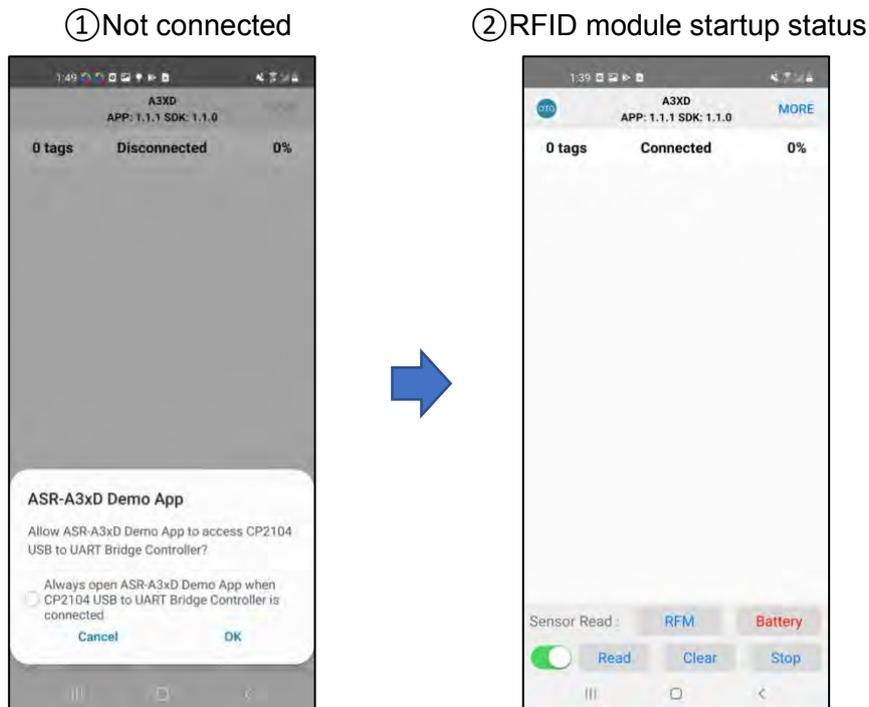
1. Page Descriptions



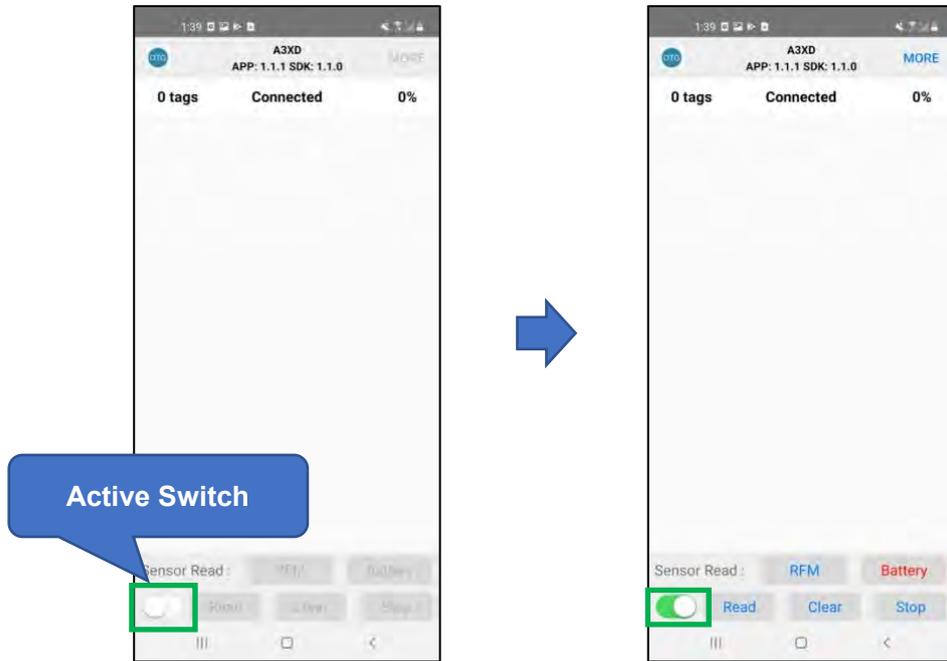
2. How to Connect

After connecting your mobile device to AsReader, start the ASR-A3xD Demo App. The app will display the information shown in the following figure ① (the pop-up information may be different, depending on the phone model).

After the connection is successful, the page shows "RFID module startup status" as shown in figure ② below. (Some models of mobile devices may require turning on the "Active Switch" manually.)



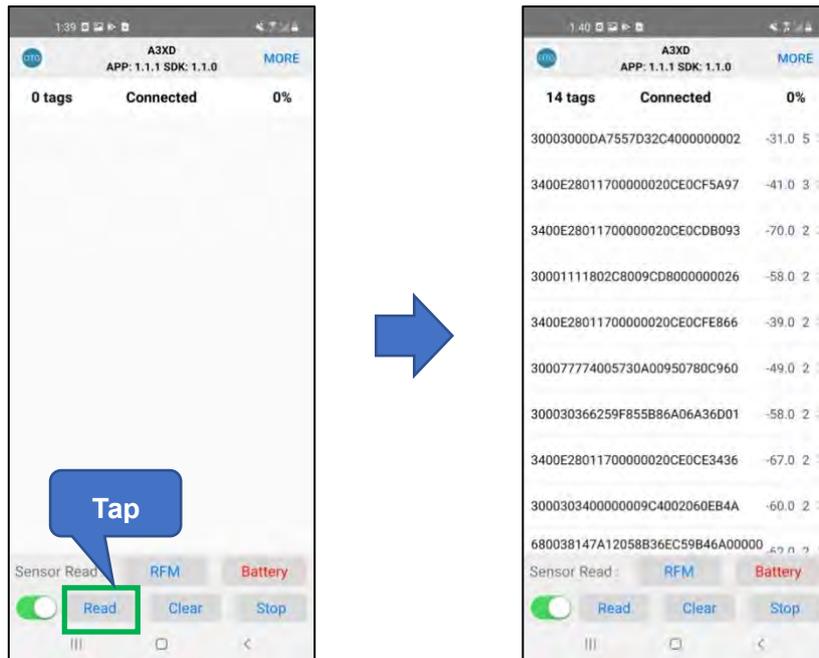
※ Turn on the Active Switch:



3. How to Operate

3-1 Inventory of RFID tags

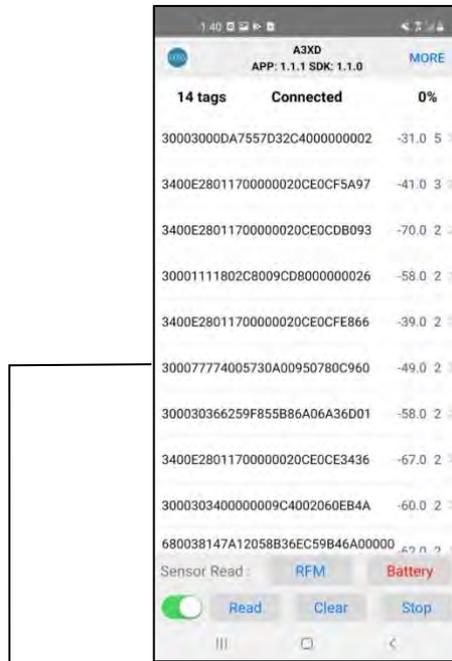
- 1) Place the AsReader close to the RF tag(s) and press the Trigger key(s) to inventory.
- 2) You can also take inventory by tapping the "Read" button displayed on the screen without using the Trigger keys.



- 3) After the "Read" text-button is tapped, RF tag inventory will continue until the set stop condition is met, or until the "Stop" text-button is tapped. Alternately, using the hardware trigger button(s) will cause the AsReader device to continue to take inventory until the Trigger key(s) are released.

3-2 About the RF Tag Data Inventoried

Once the inventory is executed, the inventoried RF tags will be displayed on the screen.

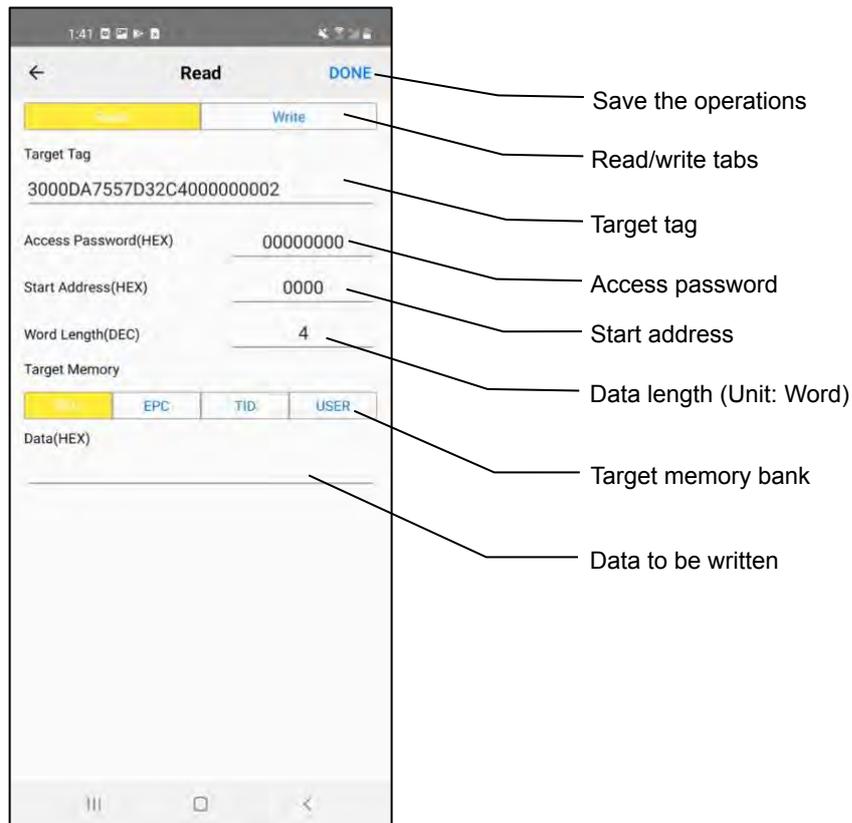


RF data list

Tapping a tag data in the list will allow you to read/write that specific tag or conduct other operations.



① Read/Write: read or write the tag data.



Operation Steps:

- 1) In the tag list, tap the tag data which you want to read/write to.
- 2) Tap the "Read/Write" tab and choose to Read or Write.
- 3) In the Start Address field, enter the offset of the position.
 - ※ The start address is automatically set to 2, in case the target written memory bank is EPC.
- 4) Enter the Length in the "Word Length" field.
 - ※ If Write is selected, the length cannot be specified.
- 5) Enter the access password. The default password is 00000000.
- 6) Select the target memory bank.
- 7) To perform a write operation, enter what to write in the "Data (HEX)" field.
- 8) Tap the "Done" text-button in the top-right. This saves the operations you performed.
 - If performing the Read operation, "Data (HEX)" field displays the inventoried tag data.
 - If performing the Write operation, a "Success" message pops up.

Note:

When writing or reading a tag, ensure that only one tag is in range of the AsReader. When writing a tag, ensure that the tag is written within a distance of 10 cm to 30cm (4 to 12 inches).

Target Memory Bank Operation Descriptions

RFU: Reserved memory bank

Readable and writable.

The first two Words (0-1) are kill passwords, and the 2-3 words are access passwords.

The initial value of both passwords is 00000000.

※ When reading/writing a locked tag, you need to enter the access password.

※ When reading the kill password, enter 0 for the start address and 2 for the length. When writing the kill password, enter 0 for the start address and 8 digits in Data (HEX) as the new password.

※ When reading the access password, enter 2 for the start address and 2 for the length. When writing the access password, enter 2 for the start address and 8 digits in Data (HEX) as the new password.

EPC: Electronic Product Code

Readable and writable.

※ If the tag to be written is locked, you will need to enter the access password.

TID: Tag Identifier

Readable.

USER: User memory bank

Readable and writable.

※ If the tag to be written is locked, you need to enter the access password.

Modify Passwords

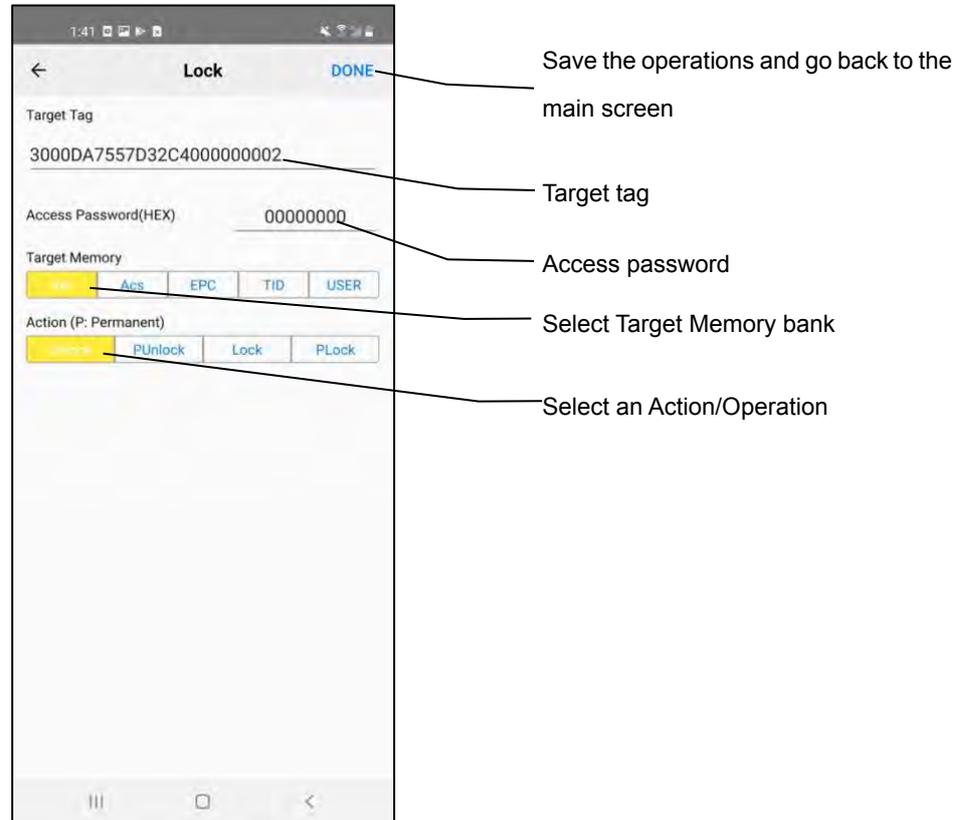
Access/kill password modification steps:

- 1) Tap the target tag data in the tag data list page.
- 2) Select the "RFU" memory bank.
- 3) When changing the access password, enter 2 for the start address. When changing the Kill password, enter 0 for the start address.
- 4) Enter the original access password. The default password is 00000000. If the password has been changed, enter the correct password.
- 5) Enter the new password (8 bits) in the "Data (HEX)" field.

6) Select “Write” tab, tap “Done”.

If the modification is successful, a “Success” message will be displayed.

② Lock: Lock or Unlock the tag.



Operating steps:

1) In the tag list page, tap the target tag.

2) Select a target memory bank on the Target Memory tab.

3) On the Action tab, select an operation to perform.

Unlock: unlock

PUnlock: permanent unlock

Lock: lock

PLock: permanent lock

4) Enter access password. (This operation cannot be performed with the initial password 00000000, so you need to change the password beforehand. For details about how to change the password, see **Modify Passwords** above in ①Read/Write.)

5) Tap “Done” to perform the operation.

Target Memory Bank Operation Descriptions

Kill: Kill Password

Operations that can be performed on this bank: Unlock / PUnlock / Lock / PLock

After Lock / PLock, the Kill password cannot be read or written. Especially with PLock, it's permanently un-readable and un-writable.

Acs: Access Password

Operations that can be performed on this bank: Unlock / PUnlock / Lock / PLock

After Lock / PLock, the access password cannot be read or written. Especially with PLock, it's permanently un-readable and un-writable.

EPC: Electronic Product Code

Operations that can be performed on this bank: Unlock / PUnlock / Lock / PLock

If the Lock / PLock operation is performed on this bank, then the EPC can be read, but the access password is required to write to the EPC.

TID: Tag Identifier

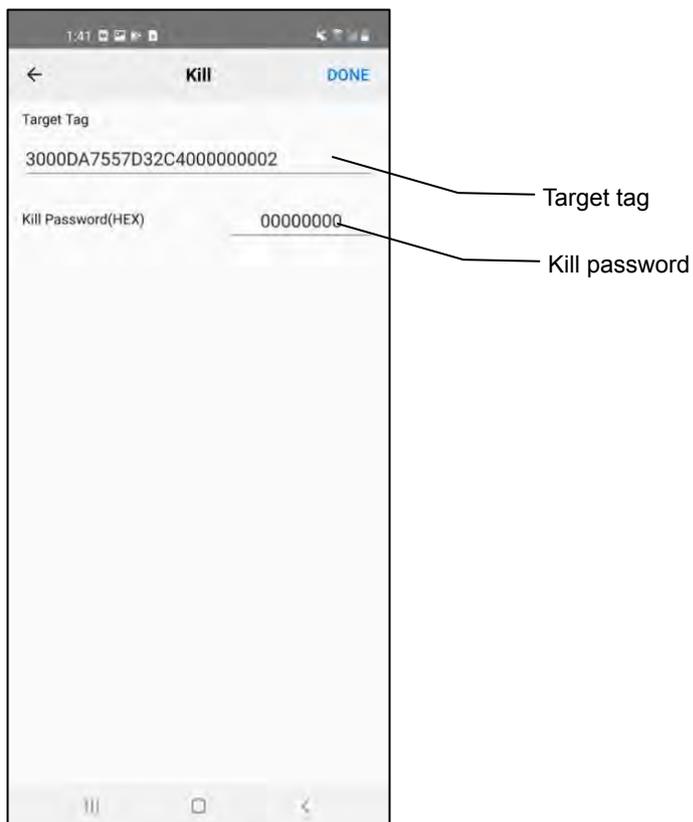
The bank is in PLock state.

User: User Memory Bank

Operations that can be performed on this bank: Unlock / PUnlock / Lock / PLock

If the Lock / PLock operation is performed on this bank, then the User bank can be read, but the access password is required to write to the bank.

③ Kill: Deactivate the tag so that it can no longer be used.



Operating steps:

1) In the tag list page, tap the target tag.

2) Enter the kill password in the Kill Password field.

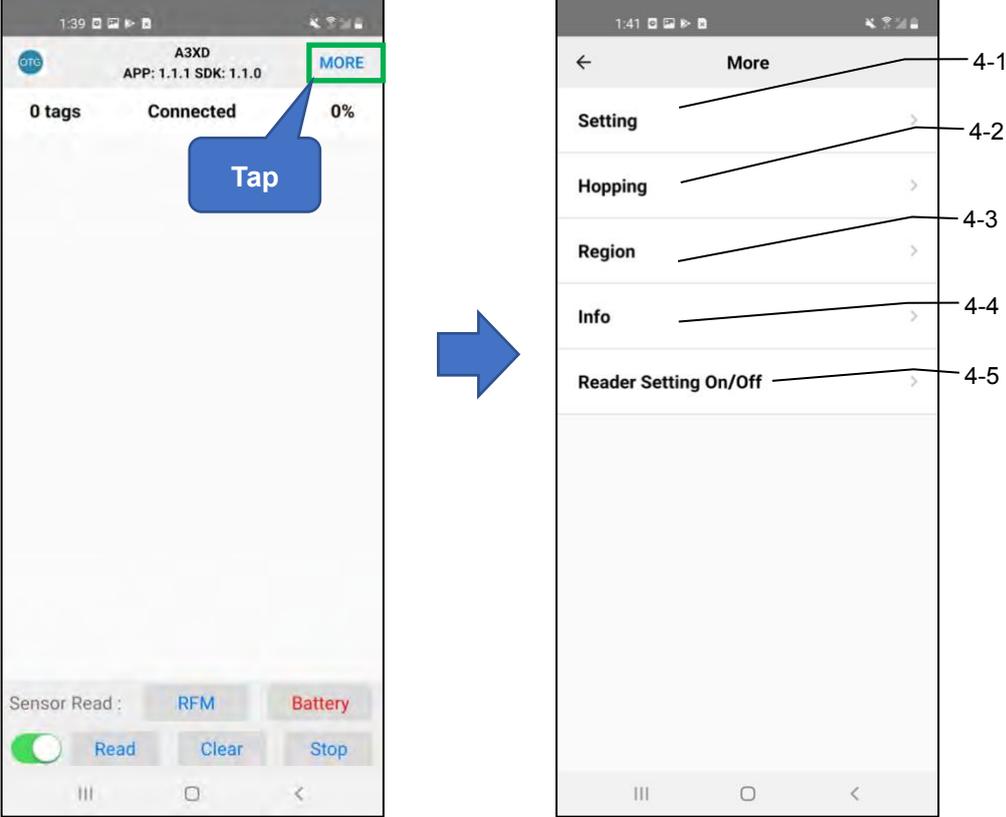
Note: This operation cannot be performed with the initial password 00000000, so you need to change the password beforehand. (For details about how to change the password, see [Modify Passwords in ①Read/Write.](#))

3) Click “Done” to perform the Kill operation.

Once the Kill operation is executed successfully, a “Success” message will pop up.

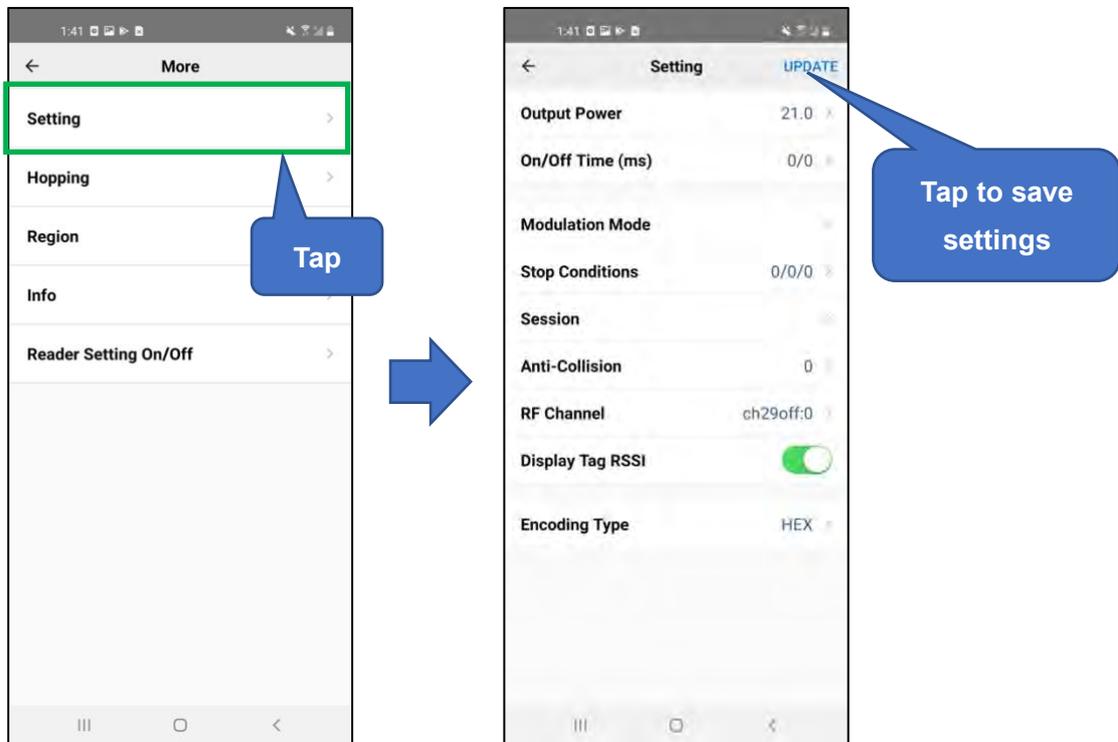
4. Settings

Tap "MORE" in the upper right corner of the page to find more settings.



4-1 Settings

Tap the "UPDATE" in the upper right corner of the page to save the settings.



① Output Power (dBm):



Modify the RFID output power.

The higher the value, the farther the inventory distance, but the faster the battery drain.

Different regions (depending on the specifications of the user country) can set different values.

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):



RFID power On Time (transmission time) / Off Time (idle time) can be set.

The longer the On Time, the shorter the Off Time, the faster the scan, but also the faster the battery drain. In addition, in the case of a large number of tags scanned at a Time, if the Off Time is set too short, it may not be possible to inventory all tags.

- When the On Time is set to 0ms, it will be automatically adjusted to 100ms when working. If the Off Time value is set to 0ms, the value is automatically adjusted to 400ms (recommended).

- If the value of On Time is less than 149ms, the value is automatically set to 200ms to ensure inventory performance.
- The maximum value of On time is 40,000ms.
- The maximum value of Off Time is 40,000ms, and the minimum value is 50ms.

※ The laws and regulations related to output power in different countries are different. Please set the output power according to the laws of the country.

Standard	On Time	Off Time
Japan	≤ 4,000ms	≥ 50ms
FCC	≤ 400ms	≥ 20ms
CE	≤ 4,000ms	≥ 100ms

This setting is permanently stored in the RFID module.

③ Modulation Mode:

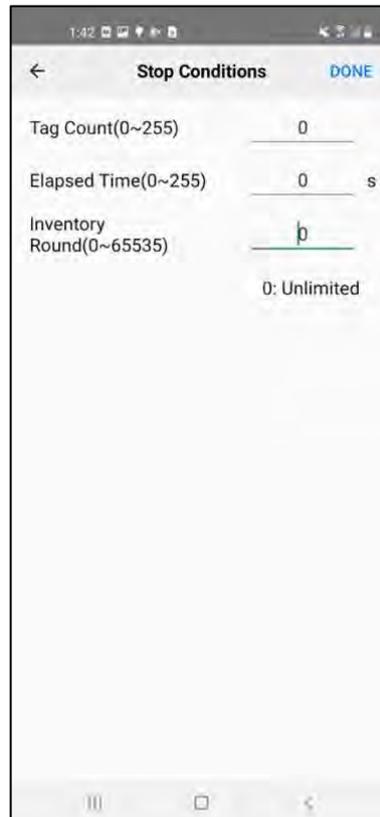


Modify the RFID module settings. Refer to the following three settings.

① 250KHz, M8, DR=64/3	Although the inventory speed is slow, the inventory sensitivity is high. Tags that are not easily inventoried can also be inventoried.
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② 250KHz, M4, DR=64/3	Inventory speed and sensitivity are conventional values. This setting is recommended.
③ 250KHz, M2, DR=64/3	Inventory speed is fast, but the sensitivity of inventory is low.

④ Stop Conditions:



The inventory will automatically stop at the set value. (Unlimited if the setting value is 0)

Tag Count: The inventory stops when the set number of tags is reached.

Elapsed Time: The inventory stops when the set inventory time is reached.

Inventory Round: The inventory stops when the set inventory round is reached.

These settings are saved to the app.

⑤ Session:



Modify the response time of the tag. (NOTE: Different tags have different response times)
Based on the number of target tags, the following settings are recommended.

S0: The tag immediately becomes readable after it has been read. This parameter is recommended when the number of target tags does not exceed 50.

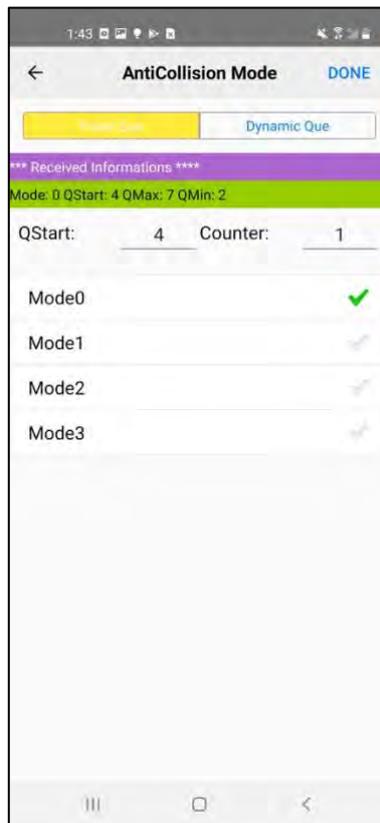
S1: Tags that have been inventoried will return to the state that can be inventoried 0.5 to 5 seconds after being inventoried. This parameter is recommended when the number of target tags does not exceed 100.

S2, S3: Tags that have been inventoried will return to the state that can be inventoried 2 to 60 seconds after being inventoried. This parameter is recommended when the number of target tags exceeds 100.

※ S2 and S3 have the same style, but have little correlation with each other. When multiple AsReaders are used for inventory, different AsReaders can set different Session values to avoid conflicts.

This setting is saved to the RFID module.

⑥ Anti-Collision:



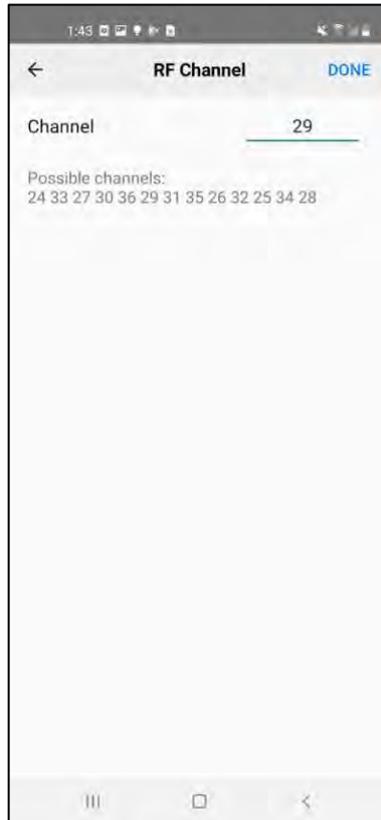
Sets the Q value of the number of lots used (= 2 to the Q power) to be fixed or variable.

Sets the anti-collision mode in the RFID module.

The efficiency of inventory can be optimized by adjusting the Anti-Collision mode when a large number of tags are inventoried.

This setting is permanently saved in the RFID module.

⑦ RF Channel:



Sets the initial value of the channel (frequency).

In general, do not change this value.

In the case of Hopping On, when performing inventory, the channel is changed every On Time.

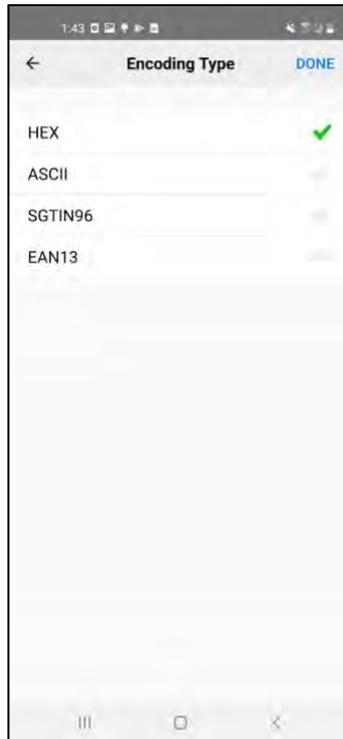
This setting is saved in the RFID module.

⑧ Display Tag RSSI:

If this feature is enabled, the RSSI (Received Signal Strength Indicator) value of the tag is displayed when the tag is inventoried.

This setting is saved in the app.

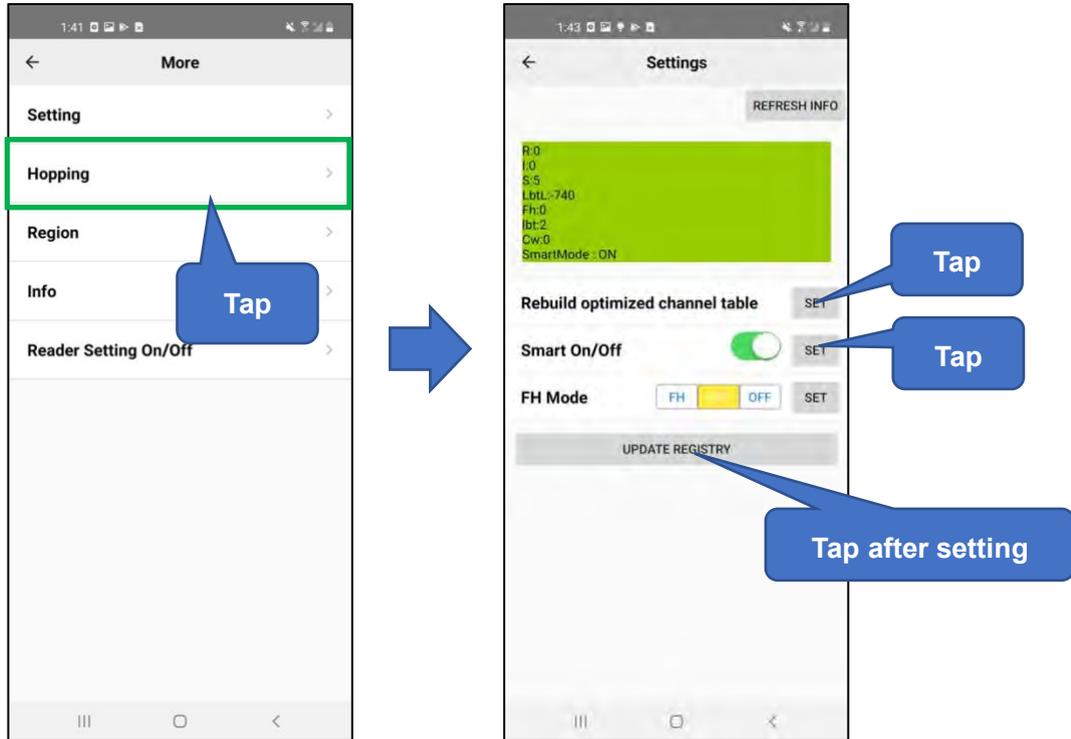
⑨ Encoding Type:



Sets the encoding type of the inventory results. The page displays inventory results in this encoding type.

This setting is saved in the app.

4-2 Hopping



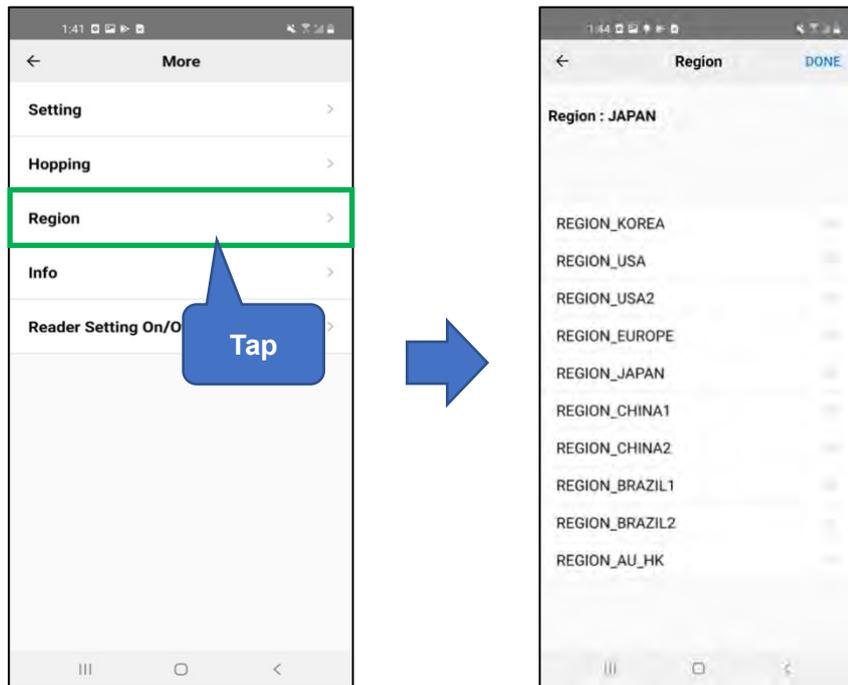
You can modify the frequency hopping setting.

- **Smart Hopping**
 With the following two-step settings, you can select the channel that gives the best antenna performance and increase the reading distance in a stable manner.
 - 1) **Rebuild optimized channel table:**
 Tap "SET" to automatically select the channel with the best antenna performance.
IMPORTANT: Do not cover the antenna with your hand when setting this. (If the antenna is blocked, the communication status is affected, and the setting may fail.)
 - 2) **Smart On / Off:**
 Tap "SET" to set to use only the channel selected in step 1).
- **FH Mode**
 Select FH for Hopping priority and LBT for LBT priority. Select OFF to disable Hopping.
 ※ Use LBT (Listen Before Talk) for Japan, and FH for other countries.
- **Update Registry**
 Tap this button to save the settings above.
- ※ Smart Hopping is set at the time of shipment, but depending on the smart phone and the case, the inventory distance may get shorter.

To stabilize inventory distance, it is recommended that Smart Hopping be set to high at the beginning of use.

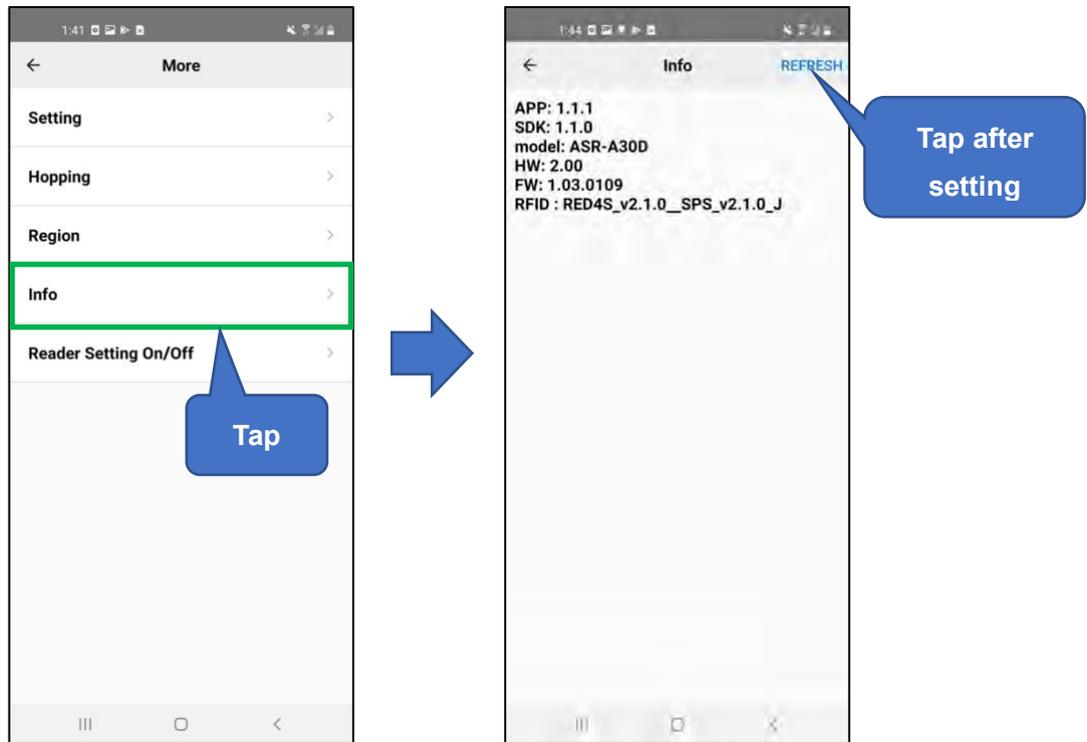
This setting is saved in the RFID module.

4-3 Region



Sets RFID (UHF) country or region. In general, do not modify this setting.

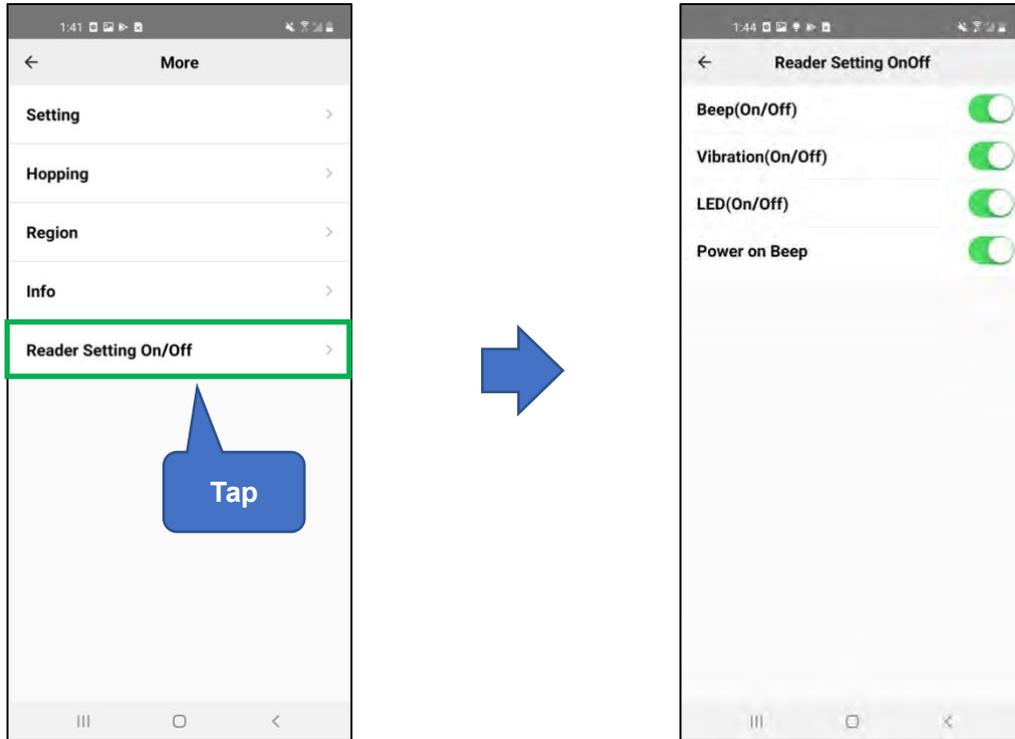
4-4 Info



AsReader information. To confirm the latest information, tap "Refresh" at the top left of the page.

- APP: App version
- SDK: SDK version
- model: AsReader model
- HW: Hardware version
- FW: Firmware version
- RFID: RFID module version

4-5 Reader Setting On/Off

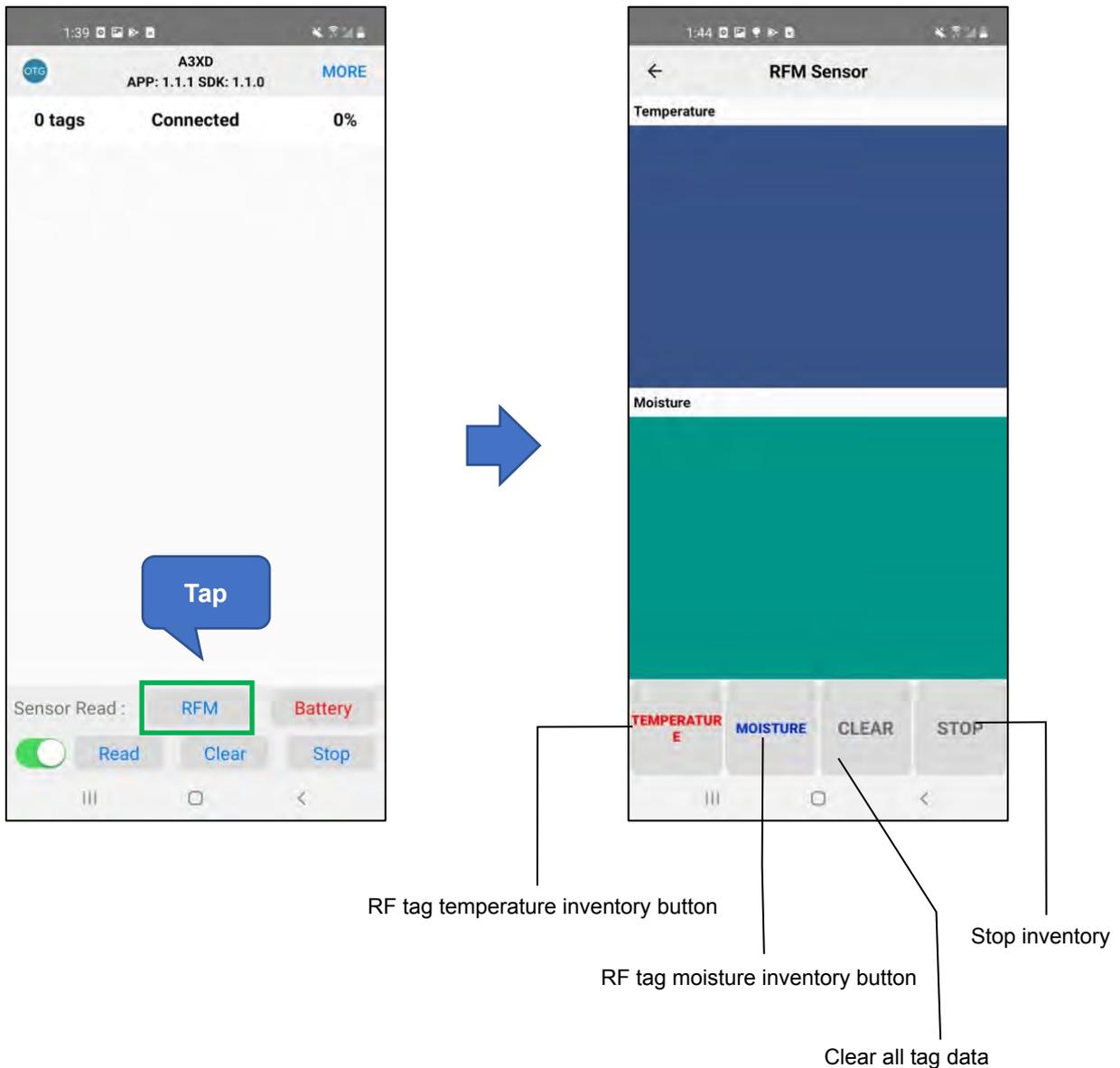


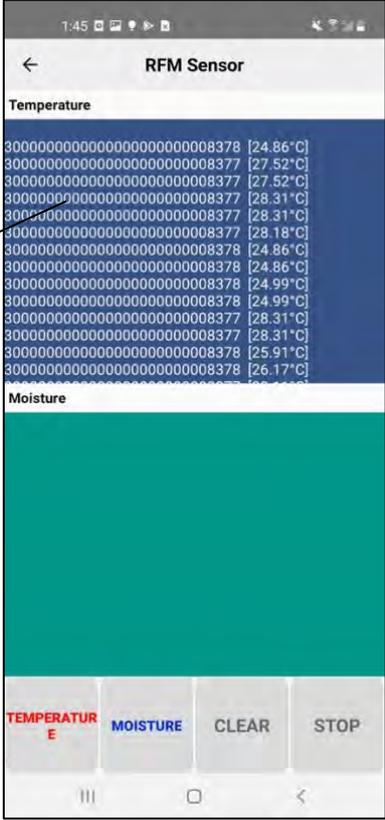
- ① Beep:
Turn on/off the inventory beep sound. This setting is saved in the app.
- ② Vibration:
Turn on/off the inventory vibration. This setting is saved in the app.
- ③ LED:
Turn on/off the function that a long press of the Trigger buttons will light the LED lights on the back of the AsReader device to indicate the current remaining battery power of the AsReader. This setting is saved in the app.
- ④ Aimer (Barcode only):
N/A (this is only for devices that scan barcodes and is not applicable to this RFID device)
- ⑤ Power on Beep:
Turn on/off the sound (beep beep) on successful connection with AsReader.
This setting is saved in the app.

5. RFM Sensor

Tap the "RFM" button on the inventory page to open the RFM Sensor page. This page is used for the inventory of temperature and humidity tags.

- ① When taking inventory of temperature RF tags, simply tap "Temperature" at the bottom of the page, the RF tag information and the perceived ambient temperature will be displayed in the upper part of the page.
- ② When taking inventory of moisture RF tags, simply tap "Moisture" at the bottom of the page, the RF tag information and the perceived ambient moisture will be displayed in the upper part of the page.





Displays RF tag temperature



Displays RF tag moisture



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