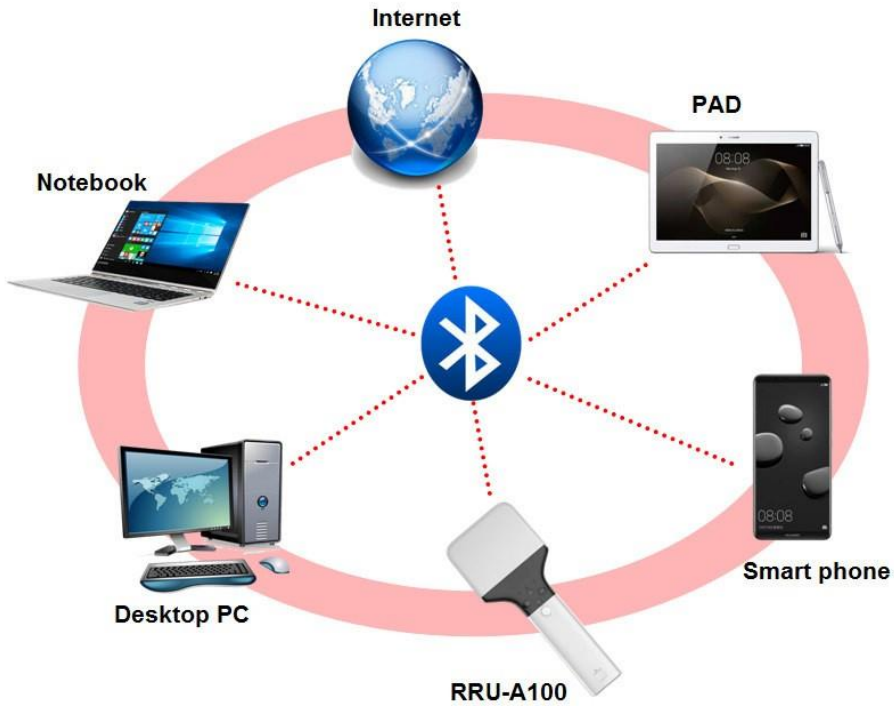
UHF RFID Hand-held Bluetooth Reader RFID-RDT-U100H

1. Introduction

UHF RFID hand-held Bluetooth reader RFID-RDT-U100H carries integrated high performance UHF RFID module and linear polarised antenna. Combining with exclusive efficient processing algorithm, the reader is able to perform high-speed RFID tag read/write operations. The advanced Bluetooth feature of reader provides maximum mobility, as well as the outstanding industrialised but also user friendly design, all together forms an ideal choice for RFID applications, such as property management, stock inventory, product tracing, anti-counterfeiting.

RFID-RDT-U100H supports USB (cable) and Bluetooth (wireless) communication with Smart phone, tablet, Desktop computer and Notebook.



1.1 Product characteristics

- Independent intellectual property rights (IPR) protected design;
- Bluetooth wireless interface, provides maximum mobility;
- Impinj R2000 based design with outstanding anti-collision performance, fully supports EPC CLASS1 G2 defined tag;

- Working frequency : 860 ~ 868MHz / 902 ~ 928MHz (adjustable according to various frequency requirement s in different countries and regions);
- Supports both Frequency Hopping Spread Spectrum (FHSS) transmission and fixed-frequency transmission;
- RF output power up to 30 dBm (adjustable);
- Build-in linear polarised antenna, up to 20 meters typical reading distance*;
- Embedded non-volatile memory;
- Stores up to 65,000 tags;
- Ultra low power design, Build-in massive capacity Lithium-ion battery;
- 3 LED indicators, build-in buzzer and vibration motor
- SDK provided;
- Dustproof and water resisted design, firmware supports online update.

* Active distance correlates with tag and operating environment

1.2 Product specifications

Basic Specifications	LCD Screen	1.3” White OLED LCD（128*64）
	Dimensions	262×105×42mm
	Weight	247g (battery included)
	Communication Interfaces	Bluetooth, USB serial COM
	Power port	USB Type-C
	LED indicators	RFID indicator, Bluetooth indicator, Battery status indicator.
	Buttons	Power button, Scan button, Up Button, Down Button, F1 button, Select button
	Battery	18650 size Lithium-ion rechargeable battery. Capacity: 3100 mA/h Rated Voltage: up to 4.2V
	Adapter	Input: AC 100 ~ 240V, 50 ~ 60Hz; Output: DC 5V/2.0A, USB Type-C
	Extension pole	Supported
	Operating Temperature	-10 ~ 55℃

	Storage Temperature	-20 ~ 75℃
RFID	Reader Chip	Impinj R2000
	Antenna	Integrated linear polarised antenna
	Protocol	ISO 18000-6C / EPC Global Class1 Gen2
	Frequency	860 ~ 868MHz/902 ~ 928MHz (adjustable according to various frequency requirement s in different countries and regions)
	RF output	Maximum +30 dBm(1 Watt), adjustable Adjustment unit: 1 dBm (mimimum).
	Tag ID storage	65,000 pcs, 192bit
	Inventory speed	Up to 200 tag/sec
	Active reading distance	Typical active reading distance 20m (active distance correlates with tag and operating environment)
Barcode/ QR code	Sensor	1-D Laser scanner/ QR code image scanner
	Barcode	UPC/EAN, Code128, Code39, Code93, Code11, Interleaved 2 of 5, MSIDiscrete 2 of 5, Chines 2 of 5, Matrix 2 of 5, Inverse 1D, Codabar, GSI Databar
	QR code	PDF417, MicroPDF417, Data Matrix(Inverse), Maxicode, QR Code(Inverse), Micro QR, Aztec(Inverse)

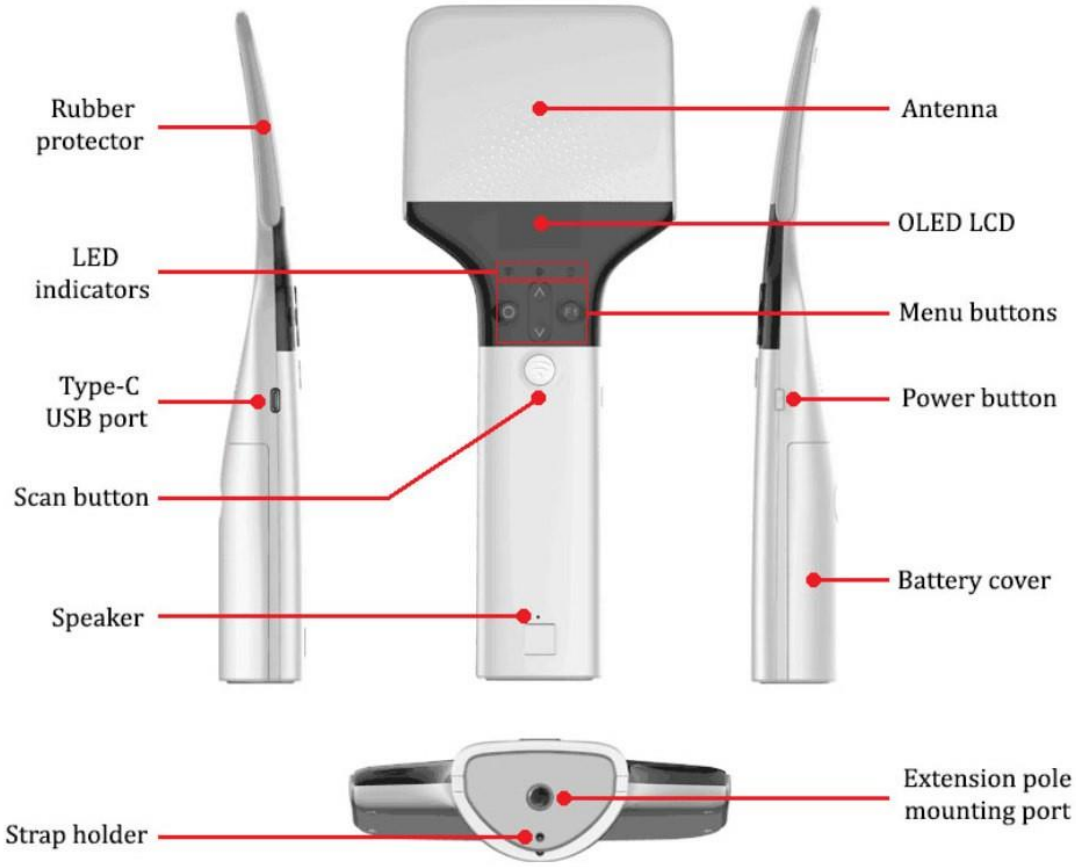
1.3 Product package

The following items are packed in the original manufacturer package.

	
RRUA100 Reader	**Rechargeable battery**

	
Adapter	**USB Type-C cable**

1.4 Product aspect



1.5 Battery installation & removal

(1) Battery removal

① Follow the instruction in the figure to remove the battery cover;

② Remove the battery from reader.

(2) Battery installation

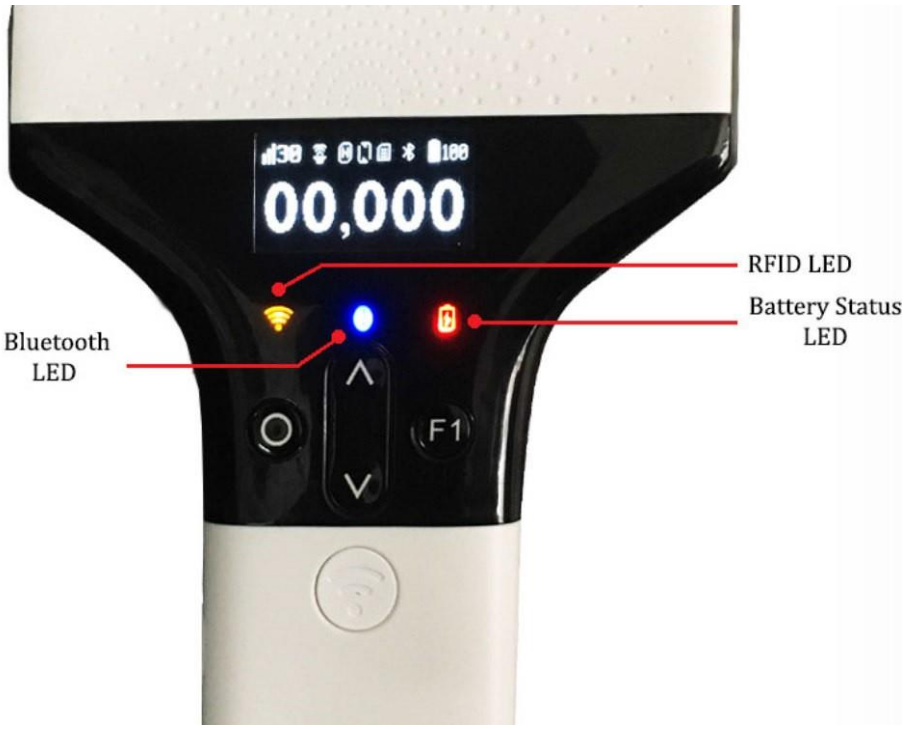
① Install the battery in correct direction. (Battery polarities are stated in the figure)

② Push the battery cover up till tight.

Note: reader will not be powered if battery is not installed properly.

1.6 LED indicators

Reader provides 3 LED indicators, including RFID indicator, Bluetooth indicator and battery status indicator.



Name	LED status	Description
RFID LED	blank	Idle
	orange	Reading/writing RFID tag
Bluetooth LED	flashing	Idle
	blue	Bluetooth connected
Battery status LED	blank	Discharging
	red	Recharging
	green	Fully charged

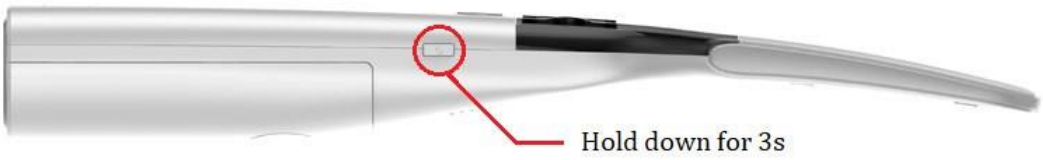
1.7 Buttons

Side button	Name	Description
	ON/OFF	Hold down for 3 seconds: ON/OFF
Front button	**Name**	**Description**
	UP	Switch up, switch configuration
	DOWN	Switch down, switch configuration
	SELECT	Selection confirm
	F1	Click: return to main menu/tag inventory; Hold: clear stored tag ID/return to normal mode.
	SCAN	Start/stop scanning (RFID tag or barcode)

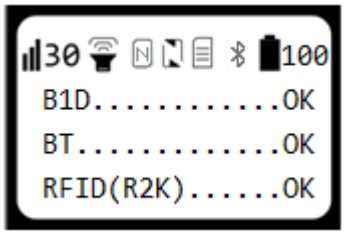
2. Instruction for operations

2.1 Power ON/OFF

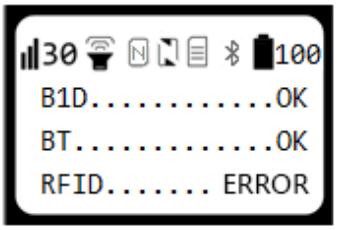
(1) Holding down ON/OFF button (at side) for 3 seconds



(2) Reader will perform self initialisation check during startup. Reader will beep and vibrate once startup is completed.



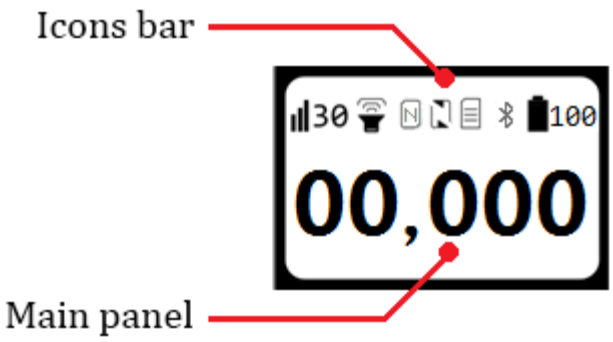
(All modules passed test)



(RFID module encounters error)

2.2 Layout

LCD screen interface includes several elements, as shown in the following figure.



(1) Editable icon (by both device and software)

Icon	Descriptions	
30	30	RFID power output is 30dBm
	16	RFID power output is 16dBm
	09	RFID power output is 9dBm
	B1D	Barcode scanning mode
		Maximum volume
		Normal volume
		Minimum volume
		Mute
		Vibrate
		beep and upload data for new tag only
		beep and upload data for every detected tag (including repeat tags)
		Continuous reading
		single reading (read once)

(2) View only on device, editable by software

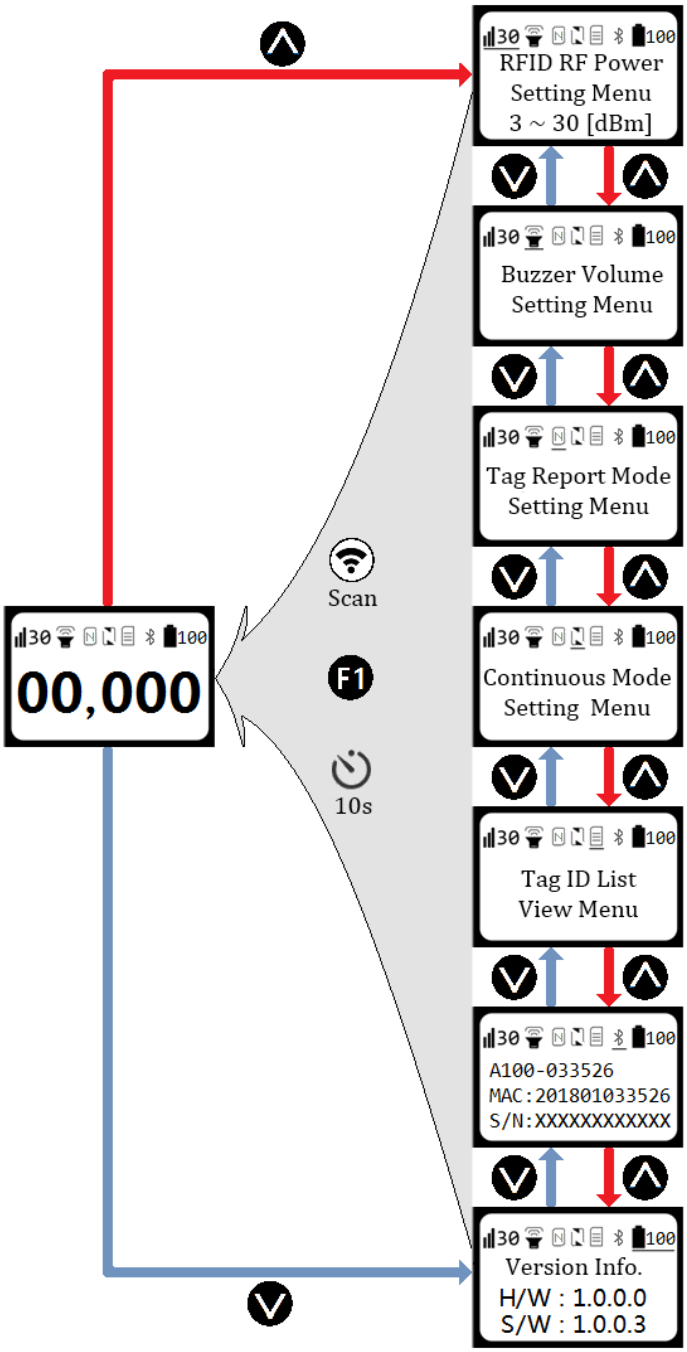
Icon	Descriptions	
		**Normal inventory mode:** Basic RFID operation, identify EPC number of tags.
		**EPC + Data inventory mode:** Identify EPC numbers and data of tags.
		**Single tag searching mode:** Search ONE host software predefined tag. A typical application is search the property location with the specified tag attached.
		**Multiple tags searching mode:** Search MULTIPLE host software predefined tags. A typical application is merchandise acceptance.
		**Wildcard character ('X' or 'x') searching mode:** Search tags which satisfy the host software predefined filter conditions, can be used for searching tags which has EPC number that satisfy a particular rule.

(3) View only icons

Icon	Descriptions	
		Bluetooth idle.
		Bluetooth connected.
		Battery level (100%).
		Battery level (50%).

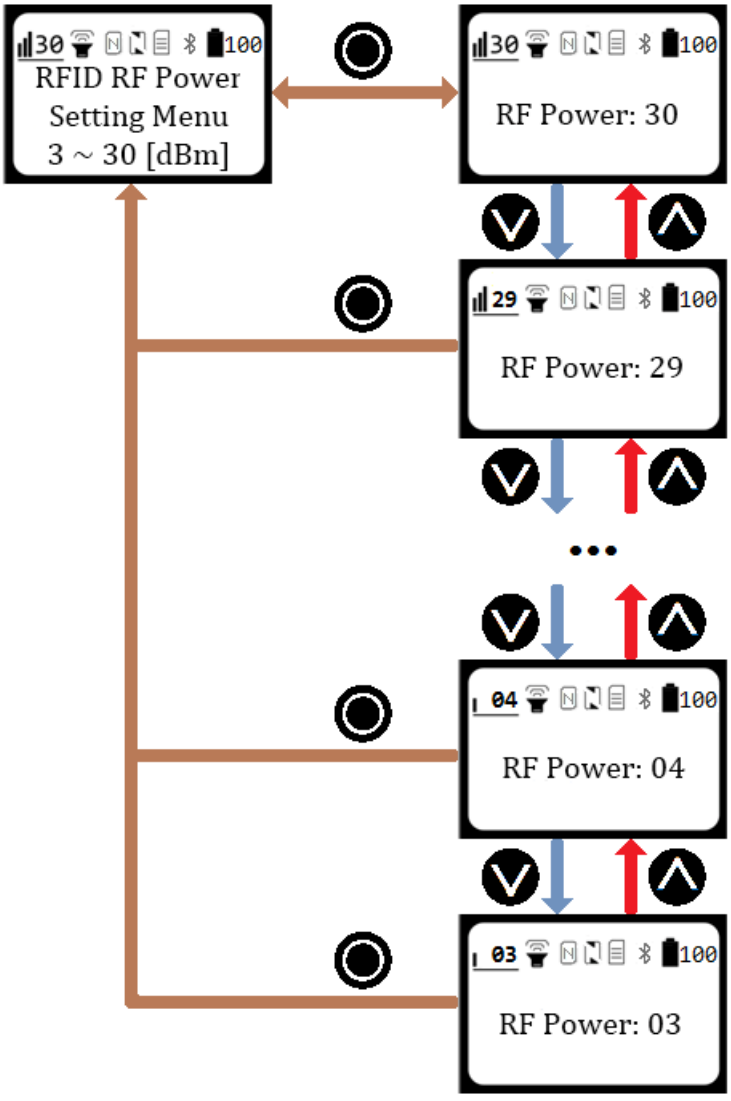
2.3 User menu

- ✓ Use UP and DOWN button to scroll the menu.
- ✓ Press F1 key to exit menu, back to main panel.
- ✓ Menu will be exited automatically after 10 seconds of user inactivity.
- ✓ Performing RFID scan will exit the menu.



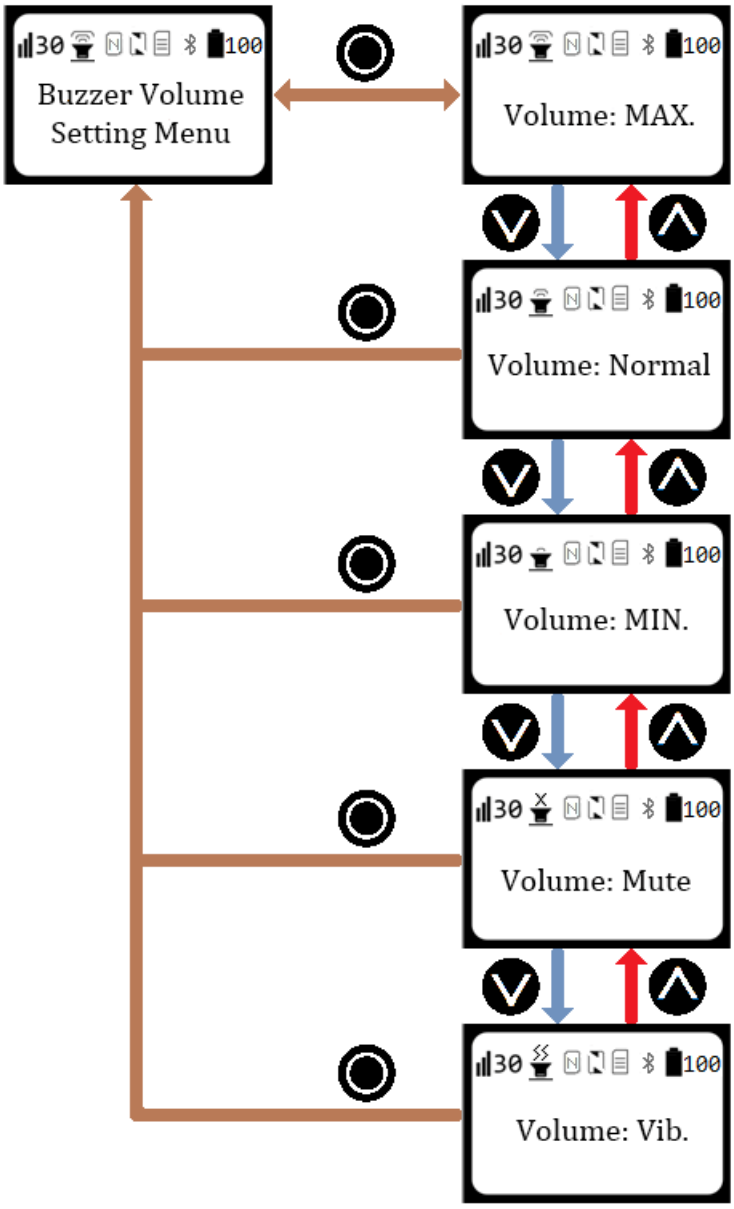
2.3.1 RFID RF Power Setting Menu

- ✓ RFID power is adjustable between 3 ~ 30dBm.
- ✓ Minimum adjustable interval is 1dBm.



2.3.2 Buzzer Volume Setting Menu

- ✓ Reader will produce notification sound when tag is detected.
- ✓ Reader provides 5 different notification modes.

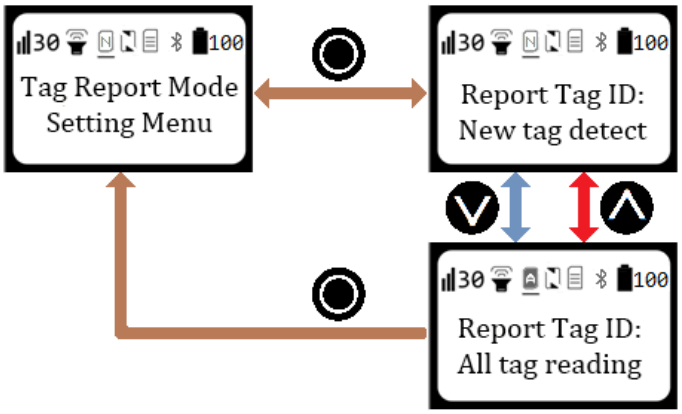


2.3.3 Tag Report Mode Setting Menu

Reader provides 2 different report modes:

- ✓ New tag detect: beep and upload data for new tag only;
- ✓ All tag reading: beep and upload data for every detected tag (including repeat tags).

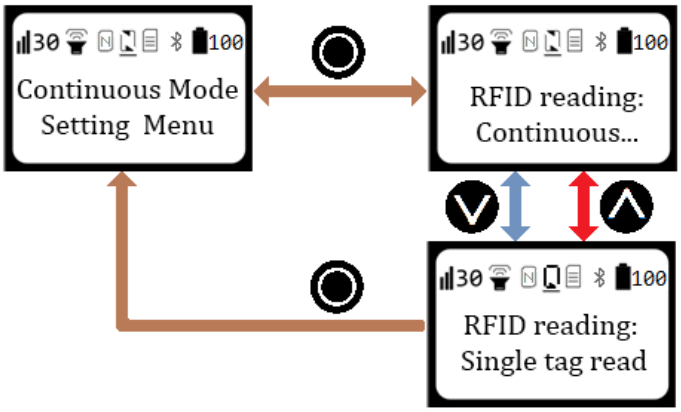
Report includes buzzer alert and data communication to host.



2.3.4 Continuous Mode Setting Menu

Reader provides 2 reading modes.

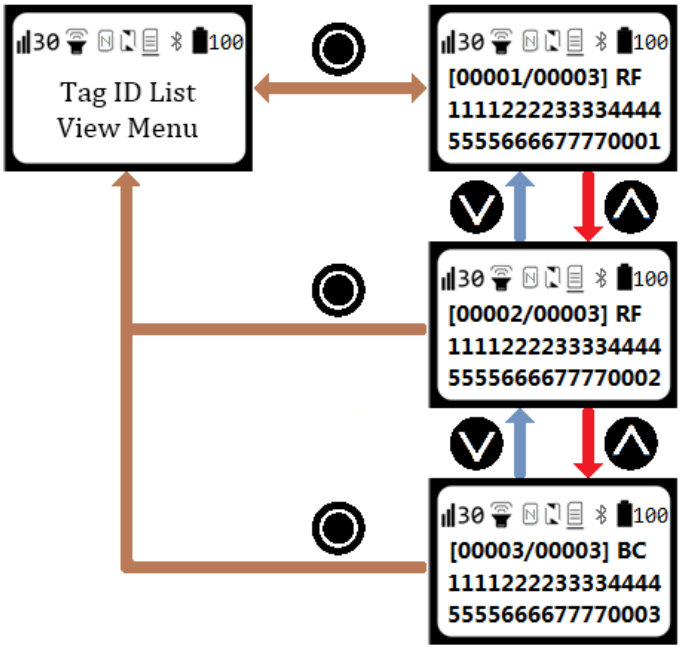
- ✓ Continuous tag read: continuously perform RFID operation until user manually halts the operation.
- ✓ Single tag read: perform read operation once.



2.3.5 Tag ID List View Menu

✓ This function is used for viewing the detail list of detected RFID tag ID or barcode number.

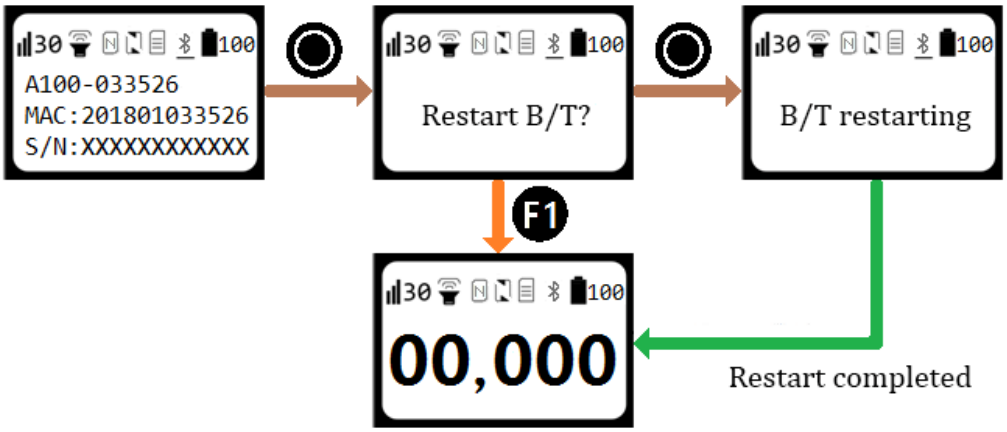
✓ RF represents RFID tag ID, BC represents barcode number.



2.3.6 Bluetooth Info and Bluetooth Restart

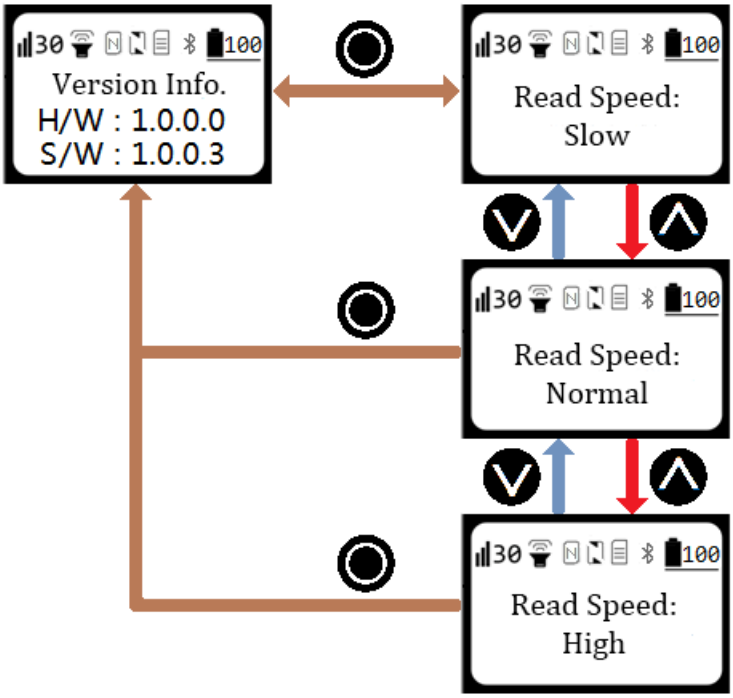
✓ LCD screen displays device name, Bluetooth MAC address and Serial number

✓ Bluetooth restart function.



2.3.7 Version Information and RFID read speed

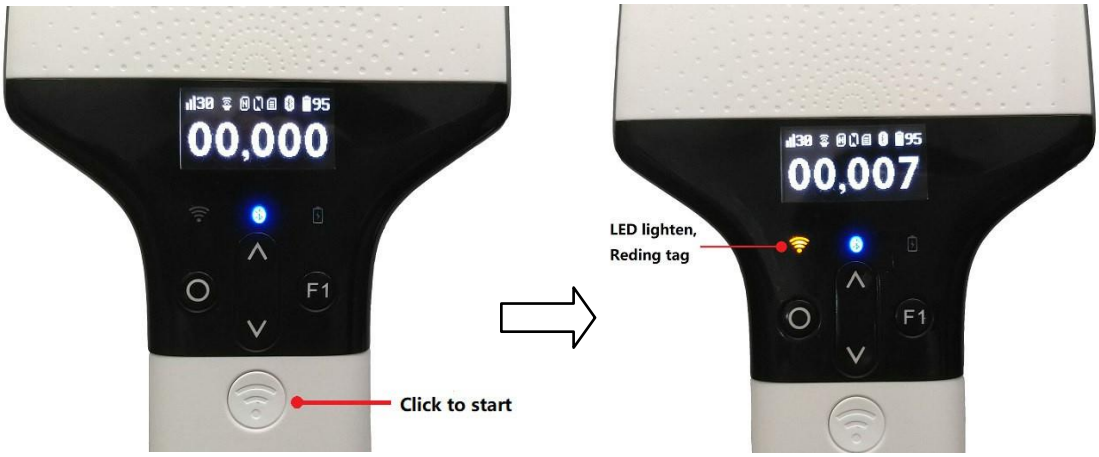
- ✓ LCD screen displays battery level, hardware and software version.
- ✓ Reader provides 3 different RFID read speed configurations: slow, normal and high.



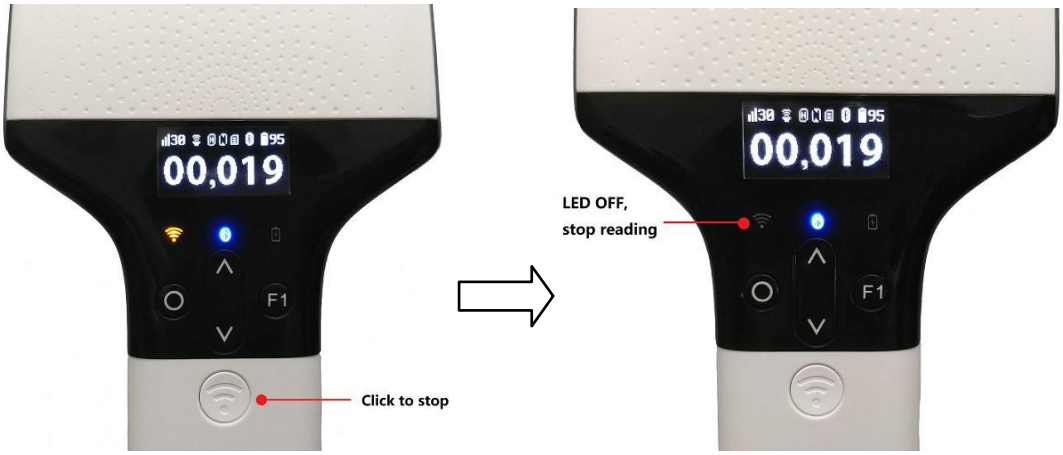
2.4 RFID operations

- ✓ Press SCAN button to start/stop RFID operation
- ✓ Use host software to control the starting or stopping of a RFID operation.
- ✓ Detected RFID tag is stored in reader memory and detection count will be displayed on the LCD screen.
- ✓ Detected tag index and detection count will not be deleted from reader memory, unless a manually clear operation is performed by user.
- ✓ Detected tag index and detection count can be transmitted to computer or android device via USB and Bluetooth connection.

✓ Start RFID



✓ Stop RFID



✓ Clear cache