RS60 RING CONTROL

USER GUIDE

handheld

INTRODUCTION

Ring Control is an application installed on a host device for connecting and controlling the ring scanner.Ring Control is only compatible with Handheld Android devices, such as the Nautiz X2. Following are the functions supported by Ring Control.

- Bluetooth pairing
- Advanced Settings
  - Apply Ring Scanner settings with JSON file
  - Update Ring Scanner F/W with RFU file
  - Wedge settings
  - Ring Scanner settings
  - Rename this ring scanner
  - Factory reset
- Get ring scanner’s information
- Scan demo

INTRODUCTION

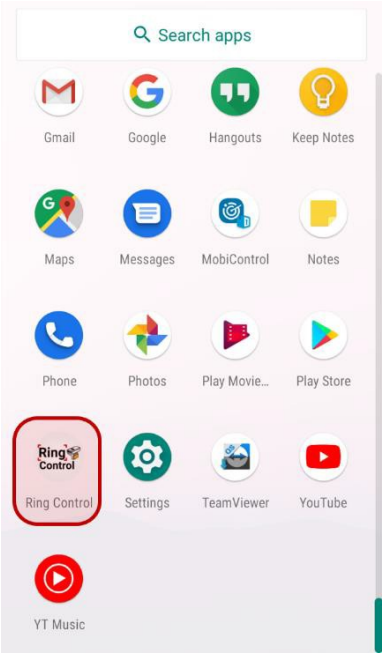
Launch Ring Control

Download Ring Control from Handheld knowledge base.

1. Download the Ring Control apk file and copy to the host device's storage.
2. Go to **File Explorer** from App drawer.
3. Select Ring Control apk file and install.

After installing complete, tap Ring Control from App drawer to run the app.

Figure 1 Ring Control app



Auto-Launch

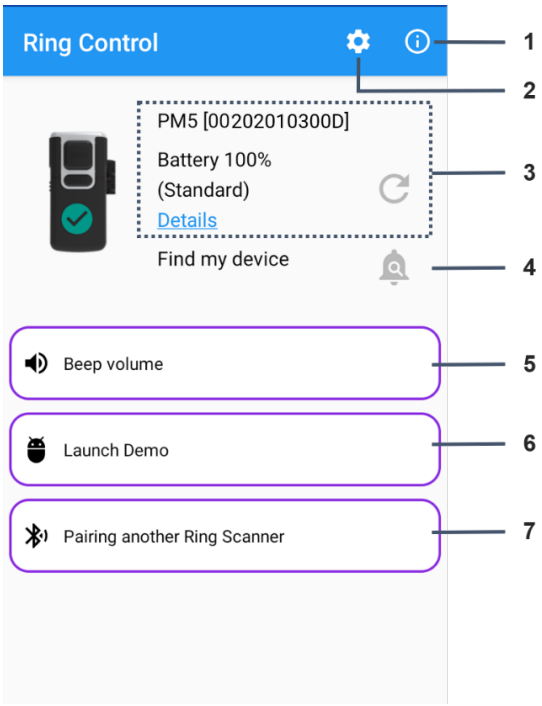
When host device reboots after first launching the Ring Control app, the app will launch automatically on the background. In this state, ring scanner can connect with host device as SPP mode with Tap-to-Pair, and silent update can be performed on the background with JSON and firmware RFU file.

INTRODUCTION

Main Screen

When ring scanner connects with host device, a screen will display as below.

Figure 2 Ring Control main screen



No	Title	Description
1	Information	• Special Barcodes - Provide special barcodes. Adminpassword is required to access. • Status Indication - List up the ring scanner status indications. • About - Version information of Ring Control app
2	Advanced settings	Advanced settings for administrator. Admin password isrequired to access. Ring scanner update, configuration settings, renaming features are available.
3	Ring scanner information	Brief information about connected ring scanner.Tap **Details** to find detailed information
4	Find my device	Find the connected ring scanner by beep and LED indicator
5	Beep volume setting	Set the beep volume of connected ring scanner
6	Launch Demo	Demonstrate scan feature
7	Pairing another ring scanner	Pair with a new or previous connected ring scanner

BLUETOOTH PAIRING

Ring Control is only available when the Bluetooth is turned on. If the Bluetooth is turned off when you runthe Ring Control, a dialog will pop up to confirm you to turn on the Bluetooth.

Bluetooth Modes

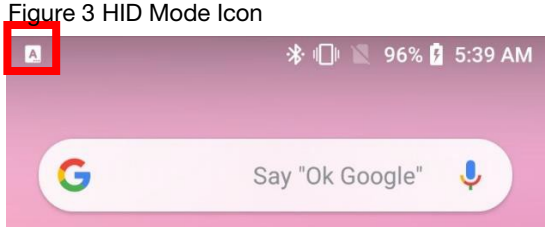
Ring Control can connect the host device and ring scanner with the following Bluetooth modes.

- HID mode (Human Interface Device) – Supports classic and LE
- SPP mode (Serial Port Profile)
- BLE mode – Only for Firmware update

Ring Control only can control the ring scanner in SPP mode. If you set the Bluetooth as HID mode, allfunctions will be disabled except connecting another ring scanner.

Note: When ring scanner is connected as HID mode, an icon is displayed on status bar.

Figure 3 HID Mode Icon



BLUETOOTH PAIRING

Pairing

When you launch the app while no ring scanner is connected, pairing screen indicating the pairingmethods is displayed as below.

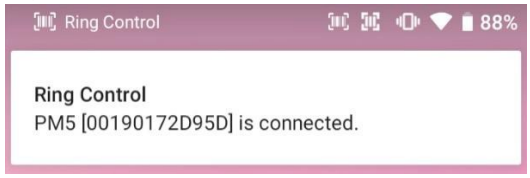
Figure 4 Pairing screen

There are two ways for connection between ring scanner and host device, Scan-to-Pair and Tap-to-Pair. Choose more comfortable method.

Pairing Method	Description	Support Mode
Scan-to-Pair	Scan the barcode on the Ring Control pairing screen.	SPP mode only
Tap-to-Pair	Bring the NFC tag of ring scanner close to host device's NFC antenna.	SPP mode HID mode

When the pairing is completed, an icon  indicating ring scanner is connected appears on statusbar. Also, if the ring scanner is connected while the Ring Control is running on the background, a notification displays for a while (10 seconds) as below.

Figure 5 Connect notification



BLUETOOTH PAIRING

Scan-to-Pair

For pairing using Scan-to-Pair, launch Ring Control. And then, scan the barcode on the pairingscreen. Ring scanner will be connected as SPP mode.

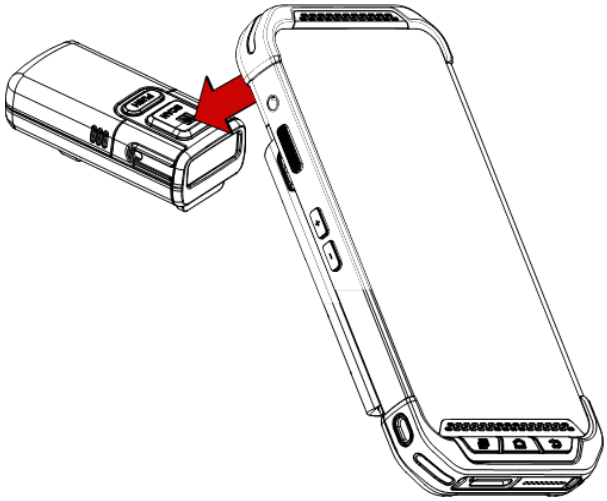
Figure 6 Scan-to-Pair

Tap-to-Pair

Find the NFC location of host device and ring scanner and align NFC tag of ring scanner with NFC antenna of host device to pair.

In case of NAUTIZ X2 and RS60, align the device and scanner as below figure.

Figure 7 Tap-to-Pair NAUTIZ X2 & RS60



Tap-to-Pair operates like toggle in HID mode. This means that if Tap-to-Pair is performed when thering scanner is connected to host device, the connection will be closed.

Note: Tap-to-Pair feature will be paused for 5 seconds after NFC reading. It is a function for preventing duplicate NFC request. So, if you want to connect or disconnect the ring scanner by Tap-to-Pair, try when more than 5 seconds passed since last NFC tagging.

BLUETOOTH PAIRING

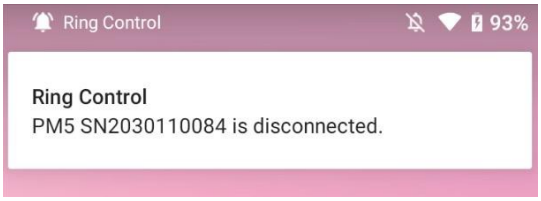
Disconnect

To disconnect the ring scanner,

- Turn off the Bluetooth on the host device
- Reboot ring scanner
- Tap-to-Pair (Do when the ring scanner is connected. Supports only for HID mode)

If the ring scanner is disconnected while the Ring Control is running on the foreground, most menuson main screen will be disabled.
Otherwise, a notification message will appear as below and .

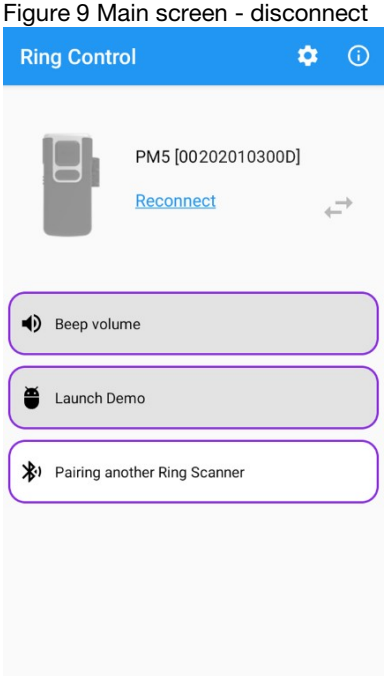
Figure 8 Disconnect notification



Reconnect

If the ring scanner is disconnected while the Ring Control is running, the app screen changed as below. If you want to reconnect the currently connected ring scanner, tap **Reconnect** from the screen(Figure 9). In this case, auto update will not be performed.

Figure 9 Main screen - disconnect



Or, for connecting with another ring scanner, tap **Pairing another Ring Scanner** and connect the ringscanner with Scan-to-Pair or Tap-to-Pair.

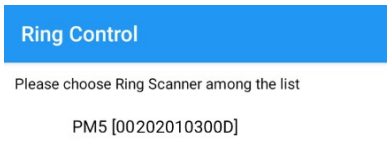
BLUETOOTH PAIRING

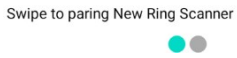
Forget previously paired device

If a ring scanner will no longer be connected with the host device, delete the ring scanner from thepreviously paired list.

1. Tap **Pairing another Ring Scanner** from main screen
2. Swipe the screen to the left
3. Long-press a ring scanner name among the previously paired list

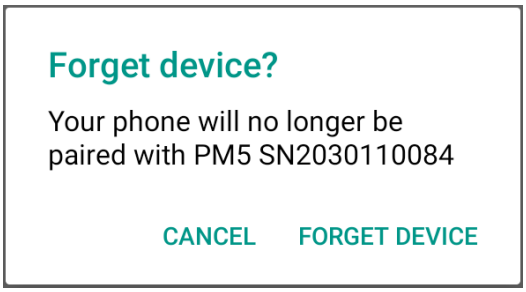
Figure 10 Previously paired list





4. Tap **FORGET DEVICE**

Figure 11 Forget device dialog



BLUETOOTH PAIRING

Change Bluetooth Connect Mode

To change the connect mode, scan the mode change barcodes (Refer to Appendix - Bluetooth ModeBarcodes). If the mode is changed while RS60 is connected to host device, the connection will be closed and you have to connect the devices again. Refer to Pairing Methods.

ADVANCED SETTINGS

Advanced Settings is for administrator, so admin password is required to access the menu. In this menu,you can control the below features.

- Apply Ring Scanner settings with JSON file
- Update Ring Scanner F/W with RFU file
- Wedge settings
- Ring Scanner Settings
  - System settings
  - Bluetooth settings (To be supported)
  - Notification settings
  - Symbologies settings
- Rename this Ring Scanner
- Factory reset this Ring Scanner

Advanced settings are accessible only when a ring scanner is connected. Tap gear icon on the top of themain screen to access advanced settings.

Figure 12 Advanced settings icon

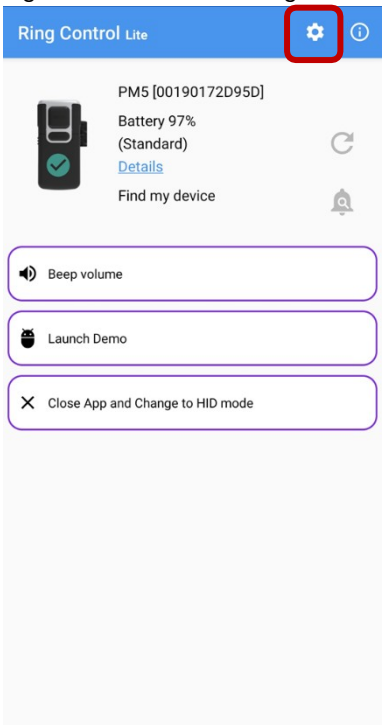
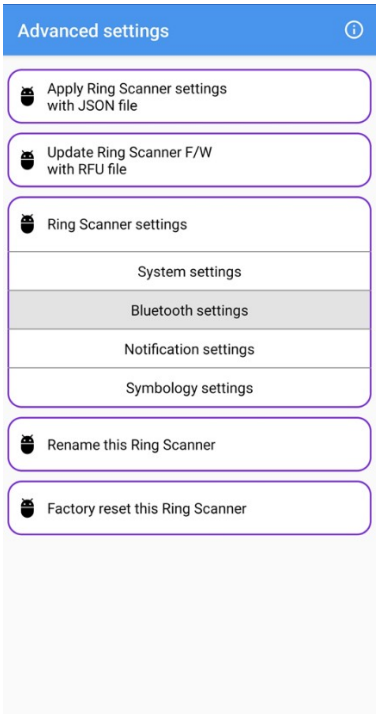


Figure 13 Advanced settings

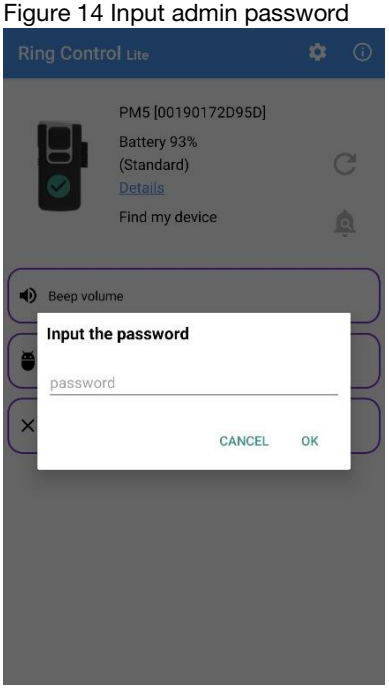


ADVANCED SETTINGS

Admin Password

For access Advanced settings, a password is required. Input the admin password and tap **OK** toaccess.
To cancel accessing Advanced settings, tap **CANCEL** or anywhere other than the input passworddialog.

Figure 14 Input admin password



You can set the password using **Ring Control Configuration Tool**.

Note: Default password is **1010**

Newly set password will be implemented when you apply the JSON file made by Ring Control Configuration Tool manually or automatically. Refer to Apply Ring Scanner settings with JSON file.

ADVANCED SETTINGS

Apply Ring Scanner settings with JSON file

Apply the configuration to the connected ring scanner using configuration JSON file.

By Ring Control Configuration Tool, make a JSON file. It contains Ring Scanner Settings and WedgeSettings. Then, save it as **RingControl.json** and copy it to **RingControl** folder in the internal storageof host device.

Note: Must follow the file name and path. Otherwise, update cannot be performed.

Below table describes two types for applying ring scanner settings with JSON file.

Methods	Description
Auto Update	• Set configuration auto update in JSON file • Apply configuration every time the ring scanner is connected
Manual Update	• Apply configuration immediately

Auto Update

Auto Update will be performed every time the ring scanner is connected as SPP mode (Except connecting by **Reconnect** button on the main screen). This update type can be enabled by JSON file.

To set up the configuration auto update,

1. Set **RingScanner AutoUpdate** as **Enable** in the **RingControl.json** file using Ring Control Configuration Tool. (Refer to Ring Control Configuration Tool User Guide)
2. Save the JSON file and copy it to **RingControl** folder in internal storage of host device

Configuration to be updated depends on the revision number of JSON file. It can be entireconfiguration, or beep volume setting only. See the following chapters.

- **Entire update**
  - When: Revision number of the JSON file is different from previously applied one
  - What: Entire configuration will be updated

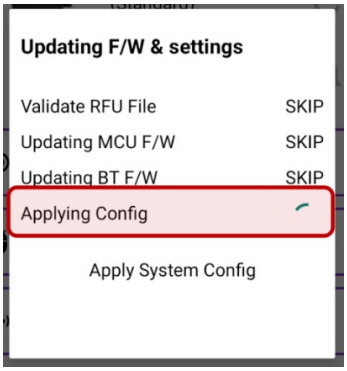
- **Beep volume update**
  - When: Revision number of the JSON file is same as the previously applied one
  - What: Only beep volume will be updated

ADVANCED SETTINGS

General Update

If Ring Control is running on the foreground at the moment the auto update is performed, a dialogindicating update progress will pop up.

Figure 15 Auto update dialog_configuration

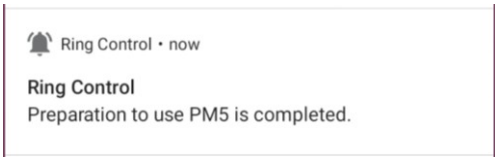


Silent Update

If Ring Control is running on the background by auto-launch at the moment the auto update isperformed, auto update will be performed as silent mode.

In this case, the update process does not appear on the screen and when the update is complete, anotification indicating that the ring scanner is ready to use is displayed.

Figure 16 Preparation complete notification

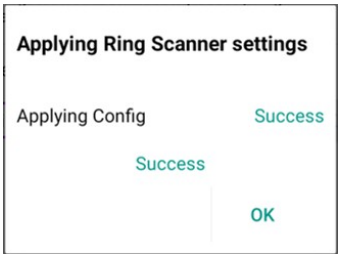


Manual Update

Manual update can be performed regardless the auto update is enabled or disabled. To apply newconfiguration with a JSON file immediately,

1. Go to **Apply Ring Scanner settings with JSON file**
2. Tap **APPLY NOW** and wait until the apply process is done

Figure 17 Complete manual update dialog



ADVANCED SETTINGS

Update Ring Scanner F/W with RFU file

Update ring scanner's firmware and Bluetooth firmware with this menu. Firmware update needs RFU file. Download the RFU file from Handheld knowledge base and copy it to the **RingControl** folder in internal storage of host device.

Note: Must follow the file path. Otherwise, update cannot be performed.

After update, the ring scanner will be restarted.
Below tables describes two types for update the ring scanner's firmware.

Methods	Description
Auto Update	• Set F/W auto update in JSON file • Update F/W every time the ring scanner is connected
Manual Update	• Update F/W immediately

Auto Update

Firmware auto update is performed when…

- Ring scanner is connected
- Firmware auto update is set in **RingControl.json** file
- Firmware version of the RFU file is different from current ring scanner firmware version

To set up the firmware auto update,

1. Set **RFU AutoUpdate** as **Enable** and input the RFU file name in the **RFU AutoUpdateFilename** using Ring Control Configuration Tool
   (Refer to Ring Control Configuration Tool User Guide)
2. Save the JSON file as **RingControl.json** and copy it to **RingControl** folder in internal storage of host device

   Note: Must follow the file name and file path. Otherwise, auto update will not be performed.

Now every time the ring scanner is connected (Except connecting by **Reconnect** button on the mainscreen), Ring Control updates firmware automatically.

ADVANCED SETTINGS

General Update

If Ring Control is running on the foreground at the moment the ring scanner is connected, a dialogindicating update progress will pop up.

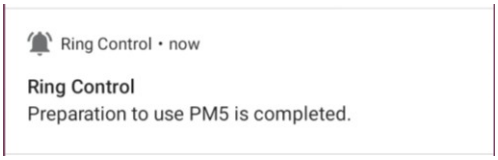
Figure 18 Auto update dialog_firmware

Silent Update

If Ring Control is running on the background by auto-launch at the moment the ring scanner isconnected as SPP mode, auto update will be performed as a silent mode.

In this case, the update process does not appear on the screen and when the update is complete, a notification indicating that the ring scanner is ready to use is displayed.

Figure 19 Preparation complete notification

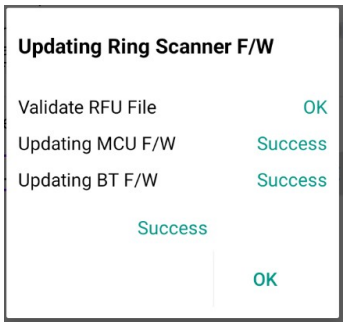


Manual Update

Manual update can be performed regardless the auto update is enabled or disabled. To updatefirmware with RFU file manually,

1. Go to **Update Ring Scanner F/W with RFU file**
2. Tap **BROWSE** and select the RFU file you prepared
3. Tap **UPDATE NOW** and wait until the update process is done

Figure 20 Complete manual update dialog - F/W



ADVANCED SETTINGS

Wedge Settings

Check available settings and default values of each setting as below table.

SETTING	VALUES	DEFAULT
Wedge mode		
Result type	User Message Keyboard Event Clipboard (KEYCODE_PASTE) Clipboard (Ctrl + V) Custom Intent	Clipboard (KEYCODE_PASTE)
Custom intent		
Intent action		device.scanner.EVENT
Intent category		android.intent.category.DEFAULT
Extra decode string value (String)		EXTRA_EVENT_DECODE_VALUE
Extra decode bytes value (ByteArray)		EXTRA_EVENT_BYTES_VALUE
Character set		
Charset	UTF-8 UTF-16 UTF-16BE UTF-16LE US-ASCII ISO-8859-1 EUC-KR Shift-JIS windows-1250 windows-1251 windows-1252 windows-1253 windows-1254 windows-1257	UTF-8

ADVANCED SETTINGS

Result Type

Select result type of decoded data.

- User Message
- Keyboard Event
- Clipboard (KEYCODE_PASTE)
- Clipboard (Ctrl + V)
- Custom Intent

When result type is set one of Keyboard Event, Clipboard (KEYCODE_PASTE) or Clipboard (Ctrl + V), ring scanner checks the currently stored Terminator value and transmits wedge data including KeyEvent of each Terminator as below.

KeyEvent	Terminator
KEYCODE_ENTER	CF LF CF+LF
KEYCODE_TAB	TAB
KEYCODE_SPACE	SPACE

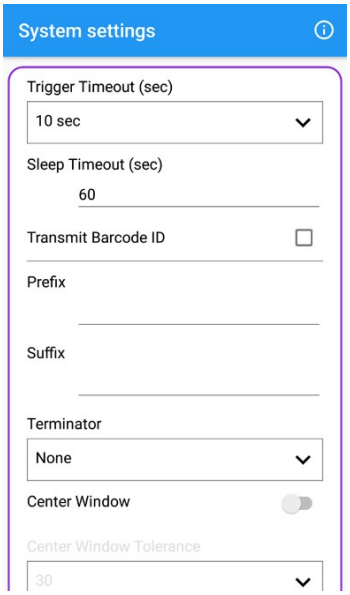
Find when the Terminator value is saved to ring scanner in System settings - Terminator.

ADVANCED SETTINGS

Ring Scanner Settings

System settings

Figure 21 System settings



Setting	Values / Range	Default
Trigger Timeout (sec)	1~10 sec	10 sec
Sleep Timeout (sec)	1~60000 sec	60 sec
Transmit Barcode ID	Disable Enable	Disable
Prefix	Up to 10 characters	
Suffix	Up to 10 characters	
Terminator	None CR LF CR+LF Tab Space	None
Center Window	Disable Enable	Disable
Center Window Tolerance	0 ~ 100	30
Inverse Barcode	Inverse Off Inverse Only Inverse AutoDetect	Inverse Off

ADVANCED SETTINGS

Setting	Values / Range	Default
HID Inter Char Delays	0~250 ms	0 ms
Batch Mode	Normal Standard modeAuto mode USB storage mode	Normal
Deep Sleep Mode	Disable Enable	Disable
Connect alert	Disable Enable	Enable
Trigger Mode	Normal Enhanced Mobile Phone Read	Normal
Poor Quality 1D Codes Reading	Disable Enable	Disable
Poor Quality PDF Codes Reading	Disable Enable	Disable
Decode Security (Reading Tolerance)	Very High High Medium Low	Medium
Aimer	Disable Enable	Enable
Illumination	Disable Enable	Enable
Delay before Decoding (sec)	Disable 0.2 ~ 4.0 seconds	Disable

ADVANCED SETTINGS

Trigger Timeout

Trigger timeout is amount of time the scanner beam stays on in the Triggering Mode until another action occurs. Unit is second.

- Range: 1~10 sec
- Default: 10 sec

Sleep Timeout

Sleep timeout is length of time the ring scanner will remain in an active state. Unit is second.

- Range: 1~60000 sec
- Default: 60 sec

Transmit Barcode ID

Enable or Disable the Transmit Barcode ID feature. If you enable this setting, the ID of barcodesymbology is appended to decoding data as a prefix. Default value is Disable.

Prefix & Suffix

Set the prefix and suffix, which are sent with barcode data. Nothing is inserted by default.

Terminator

Set the terminator text when transmitting the barcode.

- **None (Default)**
- **CR**
- **LF**
- **CR + LF**
- **Tab**
- **Space**

The Terminator value will be saved to the connected ring scanner in the following cases.

- Right after a Ring scanner is connected
- Terminator is changed manually through Ring Control
- Terminator is changed through JSON file

ADVANCED SETTINGS

Center Window

If you enable this mode, decoding will only succeed if the barcode is located near the center of thecaptured rectangle section. Default is Disable.

Center Window Tolerance

Enable the Center window mode and set tolerance with this option. The range of values is 0 ~ 100(interval = 10). Default value is 30.

- 0 = No tolerance
- 100 = Most permissive

Inverse Barcode

This setting is used to let the scanner read 1D inverse barcodes (including PDF417, Codablock symbologies). Figure 22 is an example of inverse barcode.

Figure 22 Inverse barcode

There are three options in Inverse Barcode, and default is Inverse Off.

- Inverse Off: Read standard (not inversed) barcodes only
- Inverse Only: Read inverse barcode only
- Inverse AutoDetect: Read standard and inverse barcode both.

Note: Other 2D barcodes can be read regardless of inverse. Only PDF417, Codablock symbologies are affected by Inverse mode, even though they are 2D barcodes.

HID Inter Char Delay

This setting is the time interval in milliseconds between individual characters transmitted from thescanner to the host. This feature is supported on Bluetooth HID mode only.

- Range: 0 ~ 250 (ms)
- Default: 0 (ms)

ADVANCED SETTINGS

Batch mode

Batch mode is a function that collects decoding data in the ring scanner's internal memory and sendsit to the host device at once. Batch mode has four modes, Normal, Standard, Auto, USB storage.
Each mode has different triggering method to start and stop the batch mode.

To change the batch mode, scan a desired batch mode barcode using ring scanner.

- **Normal:** Do not use batch mode. Get decoding data instantly (Default)
- **Standard mode:** Data collection and transmission will be triggered by START / SENDcommand (ex. Special barcode)
- **Auto mode:** Data collection and transmission will be triggered by Bluetooth connection.

  Note: Auto mode only supports Tap-to-Pair for reconnection.

- **USB storage mode:** Data will be saved to ring scanner's storage and get batched data as a file.(Ring scanner will be rebooted automatically when you set USB storage mode)

Batch mode can be set through Ring Control or Special barcode. To change batch mode with special barcode, find each batch mode barcode in Appendix – Batch Mode Barcodes.

Deep Sleep Mode

Deep Sleep Mode is a function to reduce battery consumption by turning off the power of scanner andBluetooth while the ring scanner is not in use. But this function will make a delay to wake up the ring scanner to activity mode, and it may be not acceptable depending on your working environment.

Deep Sleep Mode is disabled by default. Refer to below table to find a summary of the differences between enable/disable this mode.

	Disable Deep Sleep Mode (Default)	Enable Deep Sleep Mode
Power of Scanner & Bluetooth	Scanner – ON Bluetooth – ON	Scanner – OFF Bluetooth - (Connected) ON - (Not Connected) OFF
Wake Up Delay	No delay	About 1 second
Battery Consumption (While not in use)	Normal	Battery save

ADVANCED SETTINGS

Connect alert

Connect alert helps you to recognize that the ring scanner is disconnected with host device. If thissetting is enabled, specific LED and Beep sequence which is different from normal indication emit.This function is enabled by default.

Connect alert is activated in below condition.

- Bluetooth - Disconnected
- Batch mode - Normal
- Decoding - Success

In case of RS60, the difference is as below.

- Normal Decoding success: (LED) Green flash + (Beep) Short Low
- Connect alert: (LED) Red + (Beep) 3x Short low

Trigger mode

Optimize the scanner according to the working range (depth of field), required scan speed, or where the barcode is displayed (printed or LED displays).

Three modes are available as follows

- Normal mode
  - Offers longest working range and good scan speed.
- Enhanced mode
  - Offers very fast scan speed but slightly less range than Normal mode.
- Mobile phone read mode
  - Use when scanning barcodes behind reflective materials such as mobile phone or otherLED displays.

Referring to the table below, which summarizes the differences, choose the best mode for yourworking environment.

	Normal mode	Enhanced mode	Mobile Phone Read mode
Working range (DOF)	Long (Full DOF)	Normal	Normal
Scan speed	Normal	Fast	Normal / Slow*
Optimized barcode	printed barcode	printed barcode	barcode on LED displays

** Speed of scanning printed barcodes is slightly lower than in other modes.*

ADVANCED SETTINGS

Poor Quality 1D Codes Reading

Improve the scanner's ability to read damaged or badly printed 1D barcodes.
When enabled, the scanner will be less aggressive when reading good quality

barcodes.This setting does not affect 2D barcode reading and is disabled by default.

Poor Quality PDF Codes Reading

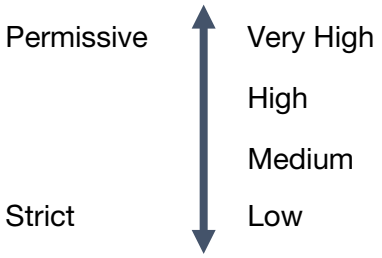
Improve the scanner's ability to read damaged or badly printed PDF barcodes.
When enabled, the scanner will be less aggressive when reading good quality

barcodes.This setting does not affect 1D barcode reading and is disabled by default.

Decode Security (Reading Tolerance)

Implement this setting permissive, and handle the low-quality barcodes, such as damaged or printerrors, etc. This setting is supported only for Code 39, UPC, Code 128 symbologies.

It provides four options as below. (Very High – Most permissive / Low – Strict)



- **Permissive:** Can read barcodes variable quality, but has possibility to decode wrong data
- **Strict:** No chance to decode wrong data, but cannot read less strict / ambiguous barcode.

Aimer

Turn on or off the aimer. Aimer is enabled by default.

Illumination

Turn on or off the illumination. Illumination is enabled by default.

ADVANCED SETTINGS

Delay before Decoding

Set delay time before decoding the barcode. Only aimer appears during the delay time when the scanbutton is pressed. And after the delay time, illumination will be turned on and barcode will be read. (Regardless the aimer is disabled, aimer will appear.)

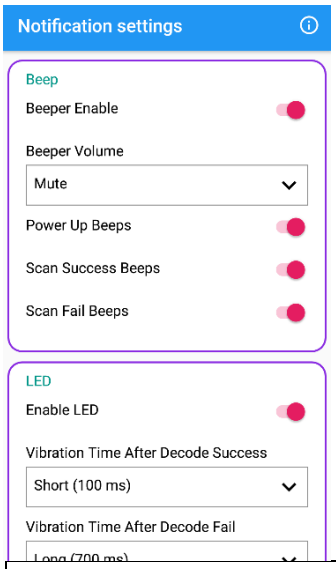
You can utilize this setting for getting time for aiming an exact barcode you want.

- Default: Disable
- Range: 0.2 ~ 4.0 seconds

ADVANCED SETTINGS

Notification settings

Figure 23 Notification settings



SETTING	DESCRIPTION	DEFAULT
Beep		
Beeper Enable	Enable or Disable the ring scanner's beep sound	Enable
Beeper Volume	Adjust the volume of beep sound - Mute - Low Volume - Medium Volume - High Volume	High Volume
Power Up Beeps	Enable or Disable the beep sequence on power up	Enable
Scan Success Beeps	Enable or Disable the beep when scanning is successful	Enable
Scan Fail Beeps	Enable or Disable the beep when scanning is failed	Enable
LED		
Enable LED	Enable or Disable the LED indicator of ring scanner	Enable
Vibration (Only supported for special trigger)		
Vibration Time After Decode Success	Adjust the length of vibration time after decode success - Disable - Short (100ms) - Middle (150ms) - Long (250ms)	Short (100 ms)
Vibration Time After Decode Fail	Adjust the length of vibration time after decode fail - Disable - Short (250ms) - Middle (400ms) - Long (700ms)	Long (700 ms)

ADVANCED SETTINGS

Symbology Settings

Set each symbology settings.

CONFIGURATION	VALUES / RANGE	DEFAULT
Code 39		
Enable	Disable Enable	Enable
ID		E
Min		0
Max		48
Check Character	No Check Check and don't transmitCheck and transmit	No Check
Send Start / Stop Characters	Disable Enable	Disable
Full ASCII	Disable Enable	Disable
Append	Disable Enable	Disable
Code 32 Pharmaceutical	Disable Enable (Couldn't use with Trioptic)	Disable
Unconventional InterCharacter Gaps	Disable Enable	Disable
Redundancy	0 ~ 10	0
EAN8		
Enable	Disable Enable	Enable
ID		I
Send Check Character	Disable Enable	Enable
Addenda Required	Disable Enable	Disable
Send Addenda Separator	Disable Enable	Enable
2-Digit Addenda	Disable Enable	Disable

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
5-Digit Addenda	Disable Enable	Disable
Redundancy	0 ~ 10	0
EAN13		
Enable	Disable Enable	Enable
ID		J
Send Check Character	Disable Enable	Enable
Addenda Required	Disable Enable	Disable
Send Addenda Separator	Disable Enable	Enable
2-Digit Addenda	Disable Enable	Disable
5-Digit Addenda	Disable Enable	Disable
ISBN Translate	Disable Enable	Disable
Redundancy	0 ~ 10	0
GS1 128		
Enable	Disable Enable	Enable
ID		]
Min		1
Max		80
Redundancy	0 ~ 10	0
GS1 DataBar OmniDir		
Enable	Disable Enable	Enable
ID		P
Redundancy	0 ~ 10	0

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
GS1 DataBar Limited		
Enable	Disable Enable	Enable
ID		Q
Redundancy	0 ~ 10	0
GS1 DataBar Expanded		
Enable	Disable Enable	Enable
ID		R
Min		4
Max		74
Redundancy	0 ~ 10	0
Interleaved 2 Of 5		
Enable	Disable Enable	Enable
ID		K
Min		4
Max		80
Check Character	No Check Check and don't transmitCheck and transmit	No Check
UPC A		
Enable	Disable Enable	Enable
ID		S
Send Check Character	Disable Enable	Enable
Send System Character	Disable Enable	Enable
Addenda Required	Disable Enable	Disable
Send Addenda Separator	Disable Enable	Enable

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
2-Digit Addenda	Disable Enable	Disable
5-Digit Addenda	Disable Enable	Disable
Convert to EAN13	Disable Enable	Disable
Redundancy	0 ~ 10	0
UPC E		
Enable	Disable Enable	Enable
ID		T
Send Check Character	Disable Enable	Enable
Expand	Disable Enable	Disable
Leading Zero	Disable Enable	Enable
Addenda Required	Disable Enable	Disable
Send Addenda Separator	Disable Enable	Enable
2-Digit Addenda	Disable Enable	Disable
5-Digit Addenda	Disable Enable	Disable
UPC E1 Enable	Disable Enable	Disable
Redundancy	0 ~ 10	0
Code93		
Enable	Disable Enable	Enable
ID		F
Min		0

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Max		80
Append	Disable Enable	Disable
Redundancy	0 ~ 10	0
Aztec		
Enable	Disable Enable	Enable
ID		A
Min		1
Max		3832
Append	Disable Enable	Enable
DataMatrix		
Enable	Disable Enable	Enable
ID		H
Min		1
Max		3166
Low Contrast Enhancements	Low Contrast Enhancements OffLow Contrast Enhancements On Reflective Low Contrast Enhancements On	Low Contrast Enhancements On
Append	Disable Enable	Enable
Codabar		
Enable	Disable Enable	Enable
ID		B
Min		4
Max		60
Check Character	No Check Check and don't transmitCheck and transmit	No Check

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Concatenation	Disable Enable Require	Disable
Send Start / Stop Characters	Disable Enable	Disable
QR Code		
Enable	Disable Enable	Enable
ID		O
Min		1
Max		7089
Append	Disable Enable	Enable
No Quiet Zone	Disable Enable	Disable
Code 11		
Enable	Disable Enable	Disable
ID		C
Min		4
Max		80
Check Character Required	One Check Char Two Check Char	Two Check Char
Redundancy	0 ~ 10	0
Code 128	** If Append mode is enabled, redundancy does not work.*	
Enable	Disable Enable	Enable
ID		D
Min		0
Max		80
Append*	Disable Enable	Disable
Redundancy	0 ~ 10	0

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Composite		
Enable	Disable Enable	Disable
ID		G
Min		1
Max		2435
UPC EAN	Disable Enable	Disable
Maxicode		
Enable	Disable Enable	Enable
ID		L
Min		1
Max		150
Message Format	Primary Message Only Primary Required, Secondary if Available Both Primary and Secondary Required	Primary Required, Secondary if Available
Micro PDF 417		
Enable	Disable Enable	Enable
ID		M
Min		1
Max		366
PDF417		
Enable	Disable Enable	Enable
ID		N
Min		1
Max		2750
Macro PDF417	Disable Enable	Enable

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Straight 2 Of 5 IATA		
Enable	Disable Enable	Disable
ID		U
Min		4
Max		48
Redundancy	0 ~ 10	0
CodaBlock A		
Enable	Disable Enable	Disable
ID		V
Min		1
Max		600
Coda Block F		
Enable	Disable Enable	Disable
ID		W
Min		1
Max		2048
MSI		
Enable	Disable Enable	Disable
ID		X
Min		4
Max		48

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Check Character	Validate Type 10, Don't transmitValidate Type 10, Transmit Validate 2 Type 10 Chars, Don't transmit Validate 2 Type 10 Chars, Transmit Validate Type 10 then Type 11 Char, Don't Transmit Validate Type 10 then Type 11 Char, Transmit No Check Characters	Validate Type 10, Don't transmit
Redundancy	0 ~ 10	0
TLC39		
Enable	Disable Enable	Disable
ID		Y
Trioptic		
Enable	Disable Enable (Couldn't use with Code32)	Disable
ID		Z
Redundancy	0 ~ 10	0
Matrix 2 Of 5		
Enable	Disable Enable	Disable
ID		[
Min		4
Max		80
Redundancy	0 ~ 10	0
Telepen		
Enable	Disable Enable	Disable
ID		\
Min		1
Max		60

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Output	AIM Original	AIM
Redundancy	0 ~ 10	0
ISBT		
Enable	Disable Enable	Disable
ID		^
Straight 2 Of 5 Industrial		
Enable	Disable Enable	Disable
ID		_
Min		4
Max		48
Redundancy	0 ~ 10	0
HanXin		
Enable	Disable Enable	Disable
ID		a
Min		1
Max		7833
DotCode		
Enable	Disable Enable	Disable
ID		b
Min		1
Max		2400
Poor Quality DotCodes	Disable Enable	Disable

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Digimarc		
Enable	Disable Enable	Disable
ID		c
China Post		
Enable	Disable Enable	Disable
ID		d
Min		4
Max		80
Redundancy	0 ~ 10	0
Korea Post		
Enable	Disable Enable	Disable
ID		e
Min		4
Max		48
Send Check Character	Disable Enable	Disable
2D Postal		
Enable	Disable Enable	Disable
ID		f

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
2D Postal Code	Australian Post InfoMail Japanese Post KIX Post Planet Code Postnet British Post InfoMail and British PostPostal-4i Intelligent Mail Postnet with B and B’ FieldsPlanet Code and Postnet Planet Code and Postal-4i Postnet and Postal-4i Planet Code and Intelligent MailPostnet and Intelligent Mail Postal-4i and Intelligent Mail Planet Code and Postnet with B and B’ Fields Postal-4i and Postnet with B and B Fields Intelligent Mail and Postnet with B and B’ FieldsPlanet Code, Postnet, and Postal-4i Planet Code, Postnet, and Intelligent Mail Planet Code, Postal-4i, and Intelligent MailPostnet, Postal-4i, and Intelligent Mail Planet Code, Postal-4i, and Postnet with B andB’ Fields Planet Code, Intelligent Mail, and Postnet with Band B’ Fields Postal-4i, Intelligent Mail, and Postnet with Band B' Fields Planet Code, Postal-4i, Intelligent Mail, and Postnet Planet Code, Postal-4i, Intelligent Mail, and Postnet with B and B’ Fields Canadian Post	Australian Post

ADVANCED SETTINGS

CONFIGURATION	VALUES / RANGE	DEFAULT
Australian Post Interpretation	Bar Output Numeric N Table Alphanumeric C Table Combination N and C Tables	Bar Output
Send Planet Code Check Character	Disable Enable	Disable
Send Postnet Code CheckCharacter	Disable Enable	Disable

ADVANCED SETTINGS

Rename this Ring Scanner

Change the name of connected ring scanner to find out the device easily.

Note: *You should follow the rules for the name below.*

1. *Start with '**RS60**'*
2. *Length: Up to 32 characters*
3. *Available characters (Including space)*

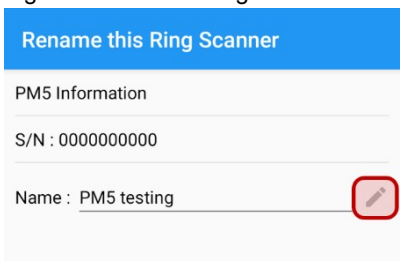
   ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

   0123456789

   () [] {} . , _ -

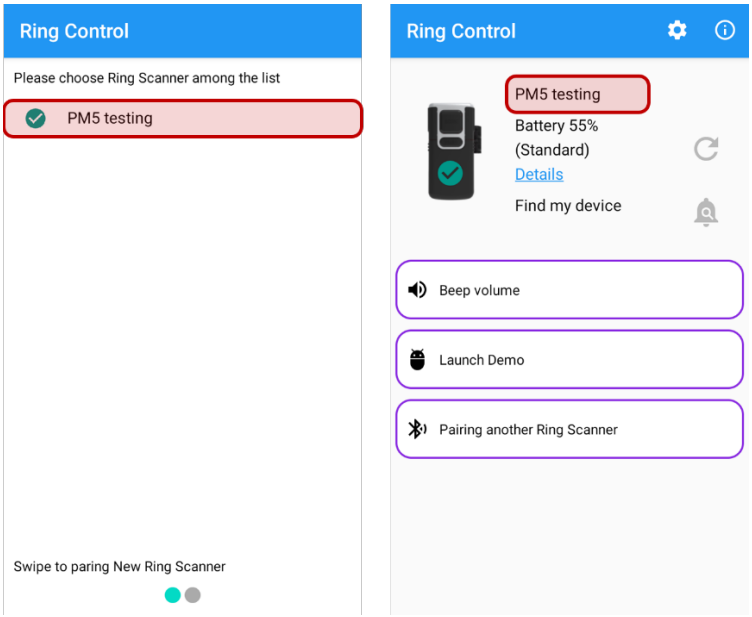
To change the name, tap the textbox and type the new name for the connected ring scanner. Andthen, tap ✎ to save.

Figure 24 Rename ring scanner



The changed name will be shown on the previous connected devices list and main screen from thenext Bluetooth connection.

Figure 25 Changed ring scanner name



ADVANCED SETTINGS

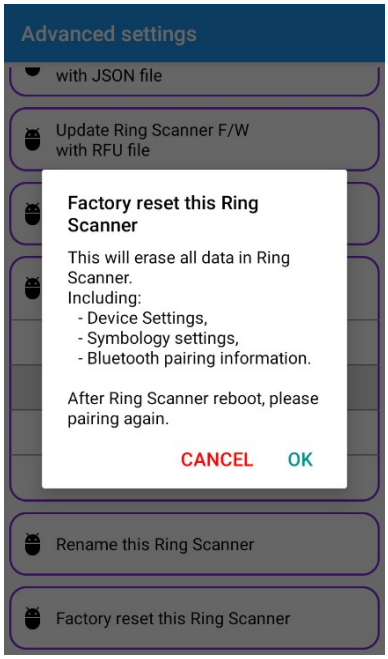
Factory Reset

You can do factory reset when you want to reset all data of the connected ring scanner. Factory resetwill erase the data below.

- Device Settings
- Symbology settings
- Bluetooth pairing information

Tap **Factory reset this Ring Scanner** to do factory reset. After factory reset, ring scanner will reboot automatically. Please connect the ring scanner again.

Figure 26 Factory reset



Note: Factory Data Reset by Special Barcode
Factory data reset can also be performed with a special barcode. Scan the barcode in Appendix 3. Factory data reset and wait until the ring scanner completes reboot.

Ring Scanner Information

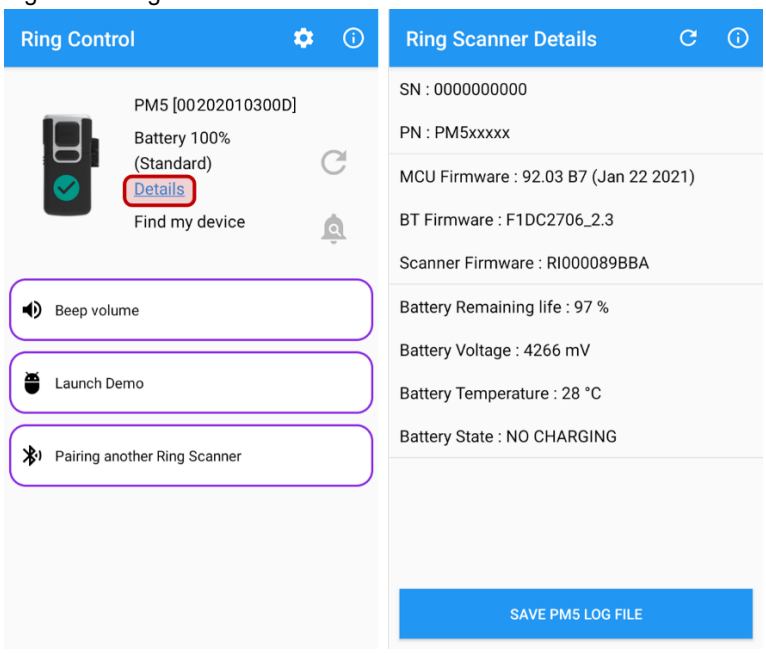
You can find the information on connected ring scanner in main screen and **Ring Scanner Details** screen. The information is loaded from connected ring

scanner.Followings are the information found on each screen.

- Main screen
  - Ring Scanner device name
  - Battery level and capacity
- Ring Scanner Details

  (Tap **Details** from the main screen to move to **Ring Scanner Details**.)
  - SN (Serial Number)
  - PN (Part Number)
  - MCU Firmware version
  - BT Firmware version
  - Scanner Firmware version
  - Battery Information (Remaining life, Voltage, Temperature, State)

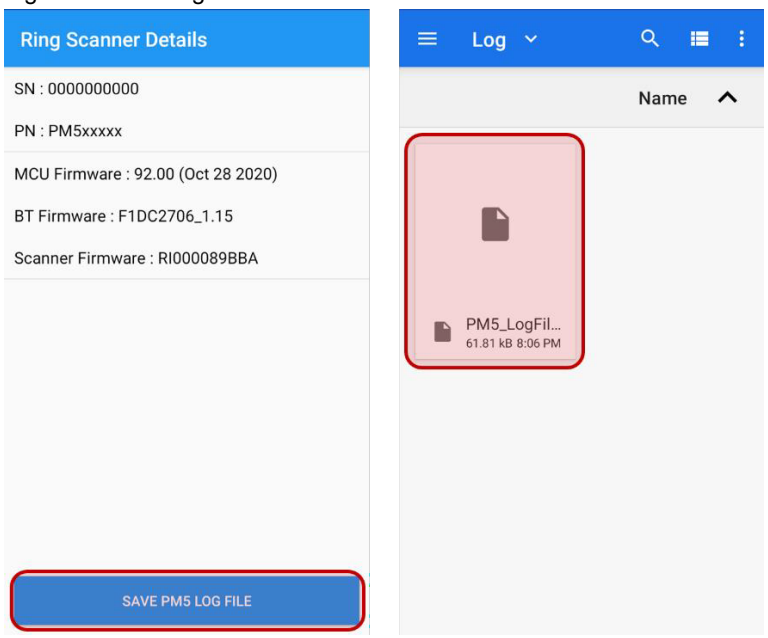
Figure 27 Ring Scanner Details



Save Log

Tap **SAVE RS60 LOG FILE** on the bottom of the **Ring Scanner Details** screen to save log of the connected ring scanner. The log file will be saved to **RingControl** > **Log** folder in the internal storage of host device.

Figure 28 Save log

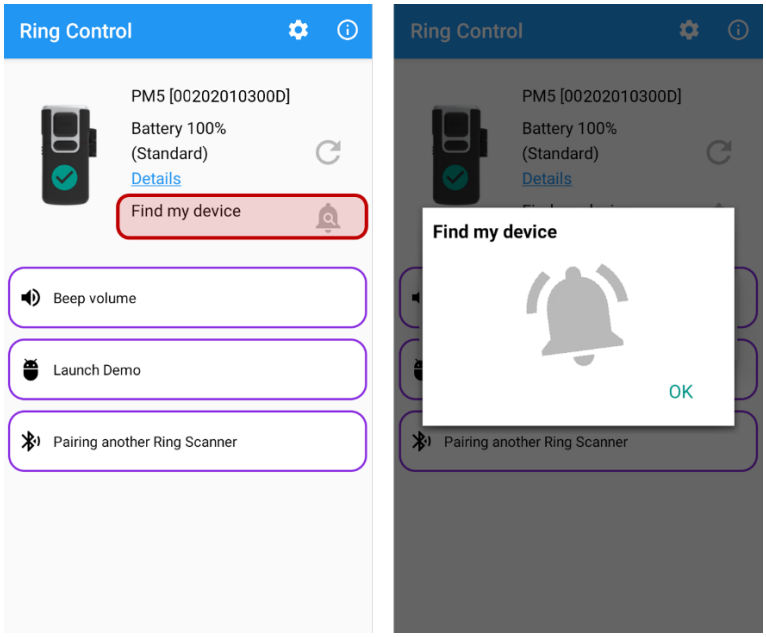


Find My Device

When you want to find what is the connected ring scanner, use Find My Device feature. Tap **Find MyDevice** from the main screen, then the connected ring scanner will run the welcome event.

For example, in case of RS60, welcome event is Low – Medium – High beep sequence and emittinggreen LED.

Figure 29 Find my device

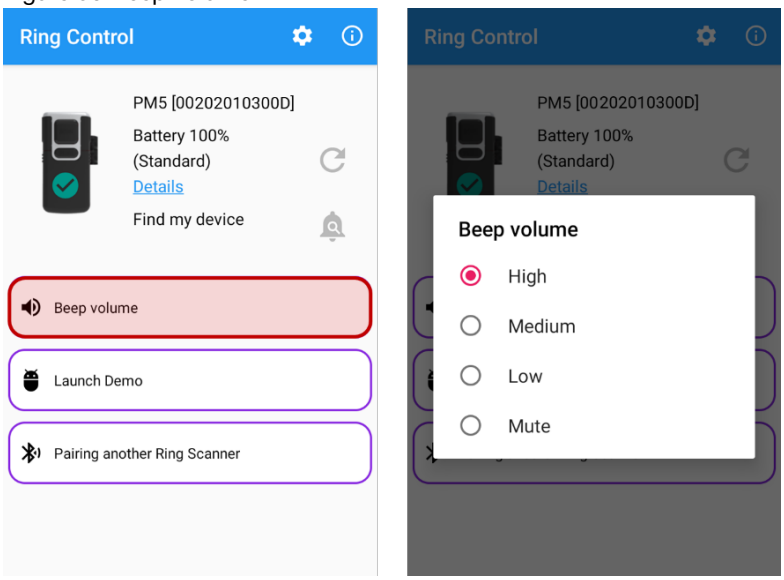


USING RING CONTROL

Beep Volume

You can control the beep volume of ring scanner on the main screen. Tap **Beep Volume** and select the volume among **High, Medium, Low,** or **Mute**.

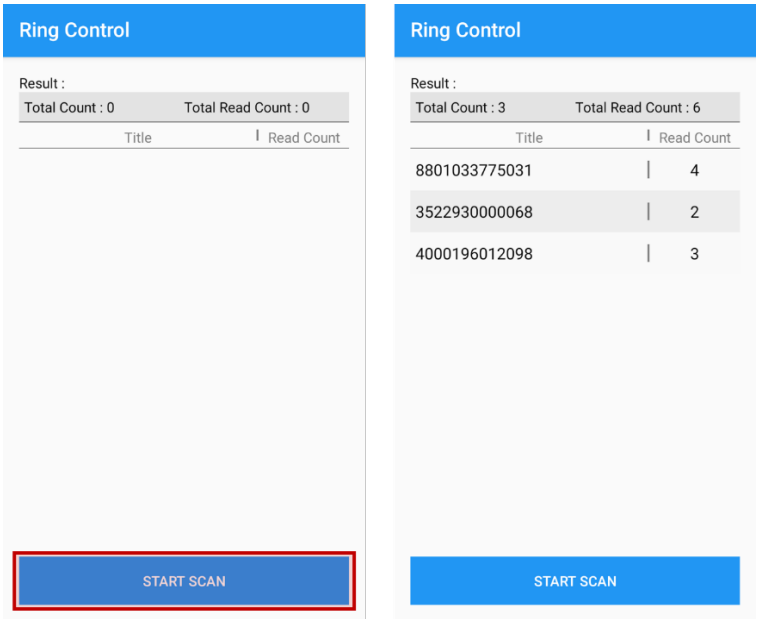
Figure 30 Beep volume



Launch Demo

To demonstrate the scan feature, tap **Launch Demo** on the main screen. And scan a barcode bypressing scan trigger of ring scanner or tapping **START SCAN** on the screen.

Figure 31 Launch Demo



USING RING CONTROL

Special Barcodes

Ring Control provides special barcode page. Special barcode can change ring scanner's configuration which is contained within the barcode. Scan a special barcode to change specific configuration.

Following configurations are supported as special barcodes.

Category	Setting	Options
Notification	Beep Volume	Mute / Low / Middle / High
	Connect Alert	Disable / Enable
	Power On Beep	Disable / Enable
	Scan Success Beep	Disable / Enable
	Scan Fail Beep	Disable / Enable
Bluetooth	Radio Power	Class 1 / Class 2
	Connect Profile	SPP / HID / HID LE
Scanner Settings	Trigger Timeout	1 ~ 10 seconds
	Auto Scan	Disable / Enable (Auto scan interval enabled)
	Inverse Mode	Inverse Off / Inverse Only / Inverse AutoDetect
	Center Window	Disable / Enable (Center window tolerance enabled)
	Trigger Mode	Normal Enhanced Mobile Phone Read
	Poor Quality 1D Codes Reading	Disable / Enable
	Poor Quality PDF Codes Reading	Disable / Enable
	Decode Security (Reading Tolerance)	Very High / High / Medium / Low
	Aimer	Disable / Enable
	Illumination	Disable / Enable

Category	Setting	Options
Scanner Settings (Continued)	Delay before Decoding	Disable / 0.2 ~ 4.0 seconds
Barcode Data	Prefix	Start / End enter prefix
	Suffix	Start / End enter suffix
	Replace GS Character	Start / End enter character
	Terminator	None CR LF CR + LF Tab Space
Batch Mode	Batch Mode	Normal Standard modeAuto mode USB storage mode
	Standard Mode	Standard Batch Start Standard Batch Stop (Send)
Reset	Factory Default Settings	
	Memory Reset	
Log	Save Log	

Note: Scan special barcodes in Inverse Only mode
In Inverse barcode – Inverse Only mode, other special barcodes cannot be read. You must change the inverse barcode setting to **Inverse Off** or **Inverse AutoDetect** mode in order toread the special barcodes.

USING RING CONTROL

Special barcode page can be accessed even when the ring scanner is not connected. To access,

1. Tap ⓘ icon on the top of the screen
2. Select **Special Barcodes**
3. Input admin password (Same as the password of Advanced Settings)
4. Select an option
5. Swipe the screen to find a desired configuration
6. Scan the barcode

Figure 32 Special barcode

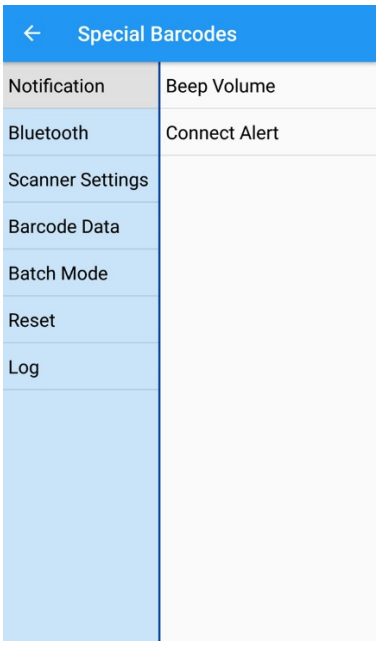


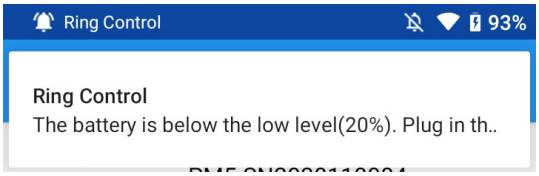
Figure 33 Special barcode - Trigger Timeout

USING RING CONTROL

Status Indication

Ring Control will display a notification to host device when the ring scanner is in specific situationssuch as low battery, low temperature.

Figure 34 Status Notification - Low battery (Example)

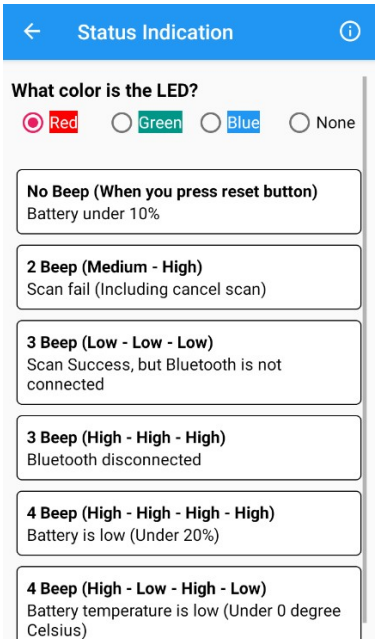


Also, ring scanner indicates other own status using LED indicator and beep sound. Ring Control provides the Status Indication page so operators can find out what status the ring scanner represents,without having to read the manual.

The page can be accessed even when the ring scanner is not connected. To access the page,

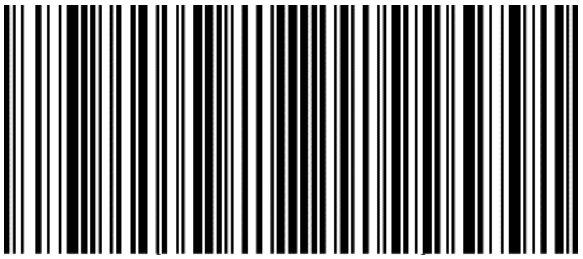
1. Tap ⓘ icon on the top of the screen
2. Tap 🔔 Status Indication
3. Select the color of LED indicator on the ring scanner
4. Find the indication based on the number and tone of beep sound

Figure 35 Status Indication

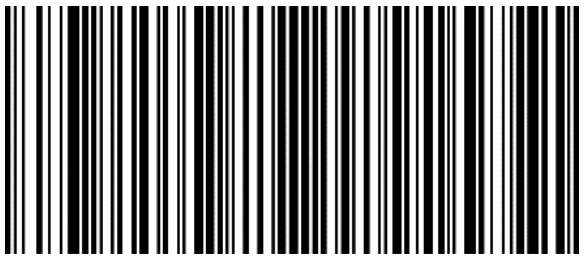


APPENDIX

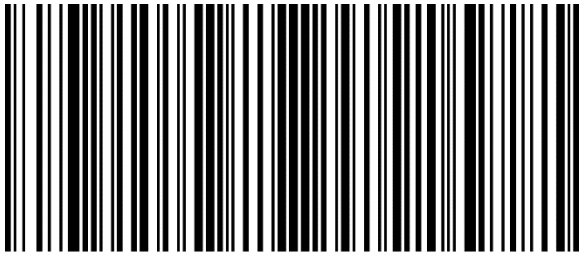
Bluetooth Mode Barcodes



SPP Mode



HID Mode



HID LE Mode

APPENDIX

Batch Mode Barcodes

Normal

Auto mode

Standard mode

USB storage mode

Start
(Standard mode)

Send
(Standard mode)

APPENDIX

Factory Data Reset

Factory Data Reset