



AsReader Finger-Type

ASR-023B

Finger-Type 1D/2D Barcode Reader

User's Manual

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Preface

Thank you for purchasing the AsReader Finger-Type ASR-023B.

AsReader Finger-type ASR-023B is a wearable barcode reader that supports 1D/2D barcodes. Features are that:

- ① It supports Bluetooth wireless connection.
- ② It supports Classic Bluetooth and Bluetooth Low Energy (BLE) specifications
- ③ It supports HID and SPP profiles of Classic Bluetooth.
- ④ It supports data communication with Android, iOS, and Windows operating system. The

corresponding communication mode for each OS is as follows:

OS		Android	iOS	Windows
		Supporting Mode		
Bluetooth Classic	HID	○	○	○
Bluetooth Classic	SPP	○※	N/A	○※
BLE		○※	○※	○※

※ There's a specific SDK for that

In the case of application development without using our company's SDK, when the application is connected to the device through SPP, the device may send several bytes of empty data to the application. It is recommended to filter out this invalid data on the application side.

This manual describes precautions for handling AsReader Finger-Type ASR-023B correctly.

Please read the manual carefully and keep it as long as you have the device.

※In some sections of this manual, we may refer to " AsReader Finger-Type ASR-023B " as "the device", "this device", or "AsReader" except for accessories.

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

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★In order not to damage your life and property safety, please read this manual carefully before using this device. We will not be responsible for any loss caused by non-compliance with this manual.

★We are not responsible for any damage caused by natural disasters, such as earthquake, lightning, wind, flood, fire outside our responsibility, third party behavior, other accidents, intentional or negligent, abuse or other improper use.

★We do not assume any responsibility for the losses caused by improper use of communication hardware or software developed by our company.

★For obtaining information, data, files or other products and services through this product, we do not provide any form of guarantee and technical support or assume any responsibility.

★We do not assume any form of guarantee or technical support responsibility for third-party software work with this product.

★If the damage is caused by falling or collision as determined by our company, the maintenance fee will be charged even within the warranty period.

★We will take appropriate measures to ensure that our products do not infringe other patents, but we are not responsible for any patent infringement caused by any of the following (1) to (3).



(1) Used in combination with components, products, equipment, data processing systems or software outside our company.

(2) Our products are used in unexpected ways.

(3) Modification of our products by any person or company other than our company

Safety Instructions

Please read the following instructions carefully to prevent injury, malfunction, fire, etc.

 Warning
Do not attempt to disassemble, modify or repair the device yourself, otherwise it may cause malfunction, fire or electric shock. We are not responsible for any malfunction of the device, the smart device or the PC.
If you notice any abnormalities such as smoke, abnormal odor, or strange noise coming from the device during use, stop using it immediately. Continued use may cause fire or electric shock.
Do not drop or throw the device and subject it to strong impact. It may cause damage, fire, electric shock, or malfunction. If the device is damaged by dropping and the inside of the device is exposed, do not touch the exposed part with your hands, because there is a risk of electric shock or injury on the damaged part.
Do not charge the battery in wet environment since this device is not waterproof. Otherwise, it may result in electric shock, short circuit, fire, or burns. Do not splash water on the terminals. Also, do not use this device near water such as in a bathroom, shower room, kitchen, or washroom. It may cause fire or electric shock.
Do not use if the micro USB charging terminal is damaged or broken. It may cause fire or electric shock.
If charging is not completed within the specified charging time, stop charging. It may cause liquid leakage, heat generation, fire, or failure.
Do not use, store, or leave the device in hot places (e.g. by the fire, near a heater, in direct sunlight, in a car in hot weather). It may cause rupture, malfunction, fire or injury.
Do not throw the device into fire or heat. It may burst or cause a fire.
 Caution
For charging, please use the dedicated USB charging cable and the magnetic detachable connector and charging adapter with an output of 5V1A. Using different chargers may result in failed charges.
Please refer to local regulations when you recycle this device.
If you notice any abnormalities, please discontinue use and contact your distributor immediately.
This device is not waterproof, do not use it in the rain.
The terminal of the USB charging cable has a built-in magnet, which may erase the data on magnetic cards such as credit cards. So, to protect your data, please keep magnetic cards, such as credit cards, away from more than 10 cm of this magnet.

How to Care for the Device

Please use this device in a clean environment. Adhesive chemicals or oils may cause the resin shell to break.

- chemicals include cosmetics, detergents, pesticides, thinners, gasoline, etc.
- oils include tallow and other animal oils, hand creams, etc.

Please keep the device clean. If the device becomes dirty, wipe it with a soft, dry cloth. Using solvents of high-volatility may cause color changes and performance problems.

1 Assembly of Products and Accessories

1.1 Inside the Box

The following items are contained in the box. Please first make sure you have all of these items. In case that any items are missing, please contact the company from whom you purchased the device.

- The device
- Bluetooth USB adapter
- USB charging cable & magnetic detachable connector



1.2 Application Developments

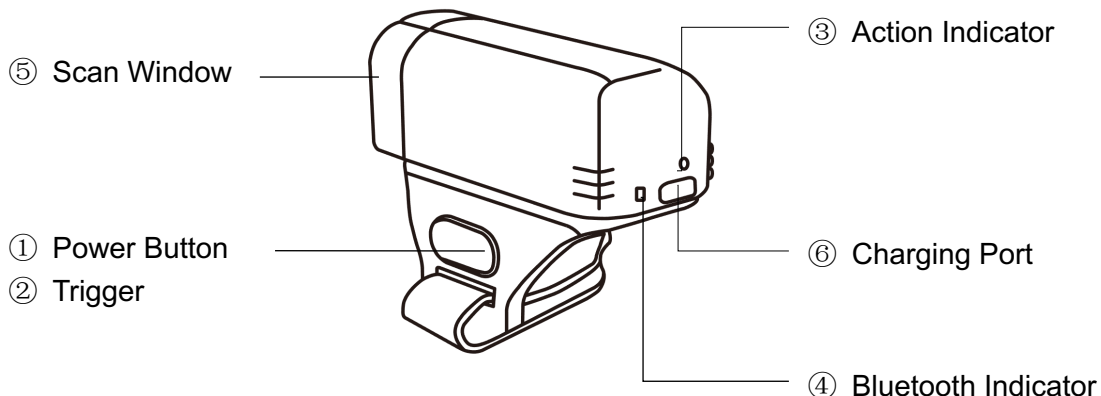
To use the SPP or BLE mode of this device, you need to install related applications on iOS or Android devices. The HID mode does not require APP support.

You can download SDK from our official website for application development (please refer to the SDK development manuals and sample code)

The official website link:

<https://asreader.com/downloads/asr-023b/>

2 Name of Each Part and Operations



① Power Button

- Power on/ off

Press the power button, the buzzer emits two short beeps and the device starts.

When the device is on, press and hold the power button for more than 6 seconds to shut down.

② Trigger

- Scan barcodes

Press the trigger to scan 1D/2D barcodes. Of course, you can also scan within the application.

- iOS keyboard access

When connecting to an iOS device, double press the trigger to pop up/close the keyboard.

③ Action Indicator

Running status	LED status
Power on	-
Power off	Green lights for 1 s
Charging	Red on
Charging complete	Red off
Upload to APP successfully	Green lights for 100ms

④ Bluetooth Indicator

Running status	LED status
Bluetooth disconnected	Blue blinking
Bluetooth disconnected over 1 min	Blue off
Bluetooth connected	Blue on

⑤ Scan Window

- When the trigger is pressed, the scan window will emit a red beam, aim it at the 1D and 2D barcodes, and then scan it.

- Beeping occurs during barcode scanning and can be set by scanning the specific setting barcode. Default as being on.

- You can change the barcode scan settings referring to the barcode setting manual.

※ These settings are permanently saved in the device until reset.

Barcode setting manual download link:

<https://asreader.com/downloads/asr-023b/>

⑥ Charging Port (Micro USB Type-B)

- The device can be charged with the USB charging cable and the magnetic detachable connector supplied with the device.

3 Bluetooth Connect

The following connection is only valid for devices in HID mode. Devices in SPP or BLE serial port mode need to make Bluetooth connection in the smart APP. Please refer to the user manual of the Demo APP for details.

3.1 Connect to Smart devices

- ① Turn on the device then the Bluetooth Indicator blinks.
- ② Turn on Bluetooth of your smart device, search for "ASR-023B-Serial No." and then click it to connect.
- ③ Once pairing successfully, the Bluetooth indicator will stop blinking and remain on.

3.2 Connect to PC via Bluetooth USB Adapter

- ① Scan "Pair with PC" barcode. At this point, the device will beep continuously.
- ② Plug Bluetooth USB adapter into the USB port of PC.
- ③ Once paired, it will stop beep.

※Note: The connection with the smart device has priority over the USB adapter. If you try to connect this product to a smart device while it's connected to the USB adapter, the connection with the USB adapter will be interrupted and the connecting object of this product will move from the USB adapter to the smart device.

※Note: Do not scan the "Pair with PC" code when the device is connected to the smart phone, otherwise the device will be unable to be used and it needs to be restarted.

4 Setting Barcodes

4.1 Bluetooth Communication Mode

※Note: When the AsReader is in SPP or BLE mode connected, to switch the communication mode, the connection must be disconnected before scanning the communication mode setting barcode. Otherwise, the mode switching may failed. You can retry after restarting the AsReader.



HID mode



SPP mode



BLE serial port mode

4.2 Data Upload Mode

4.2.1 Real-time Upload Mode

Once the device scans any barcode data, it will immediately send the data to the smartphone or PC.



Real-time upload mode

4.2.2 Buffer Mode

The device supports buffer mode. In buffer mode, all scanned barcode data is saved in the 023B device.

The storage space is 1.8MB, and 90,000 pieces of barcode can be stored for 20bit length.

The barcode will be saved on the device unless it is removed by scanning the "Clear all data" setting code below.

Scan the following barcodes to enter the buffer mode, view the total number of cached barcodes, upload all cached barcode data, and clear all cached barcode data.

To exit buffer mode and enter real-time upload mode, scan the "Real-time Upload Mode" setting code above.



Buffer mode



Total number of data



Upload all data



Clear all data



Buffer mode upload buzzer on



Buffer mode upload buzzer off

4.3 User ID Setting

Steps to set user ID number :

- ① Scan the barcode "Set ID" first.
- ② Scan the following (0~9) digital barcode. (The number in the first scan represents the tens place of the user ID; The number of the second scan represents the units place of the user ID.)

※Note: this barcode is only applicable when to pair with PC. And the user ID range is 00~99. And when the tens place is 0, only the ones place is displayed.



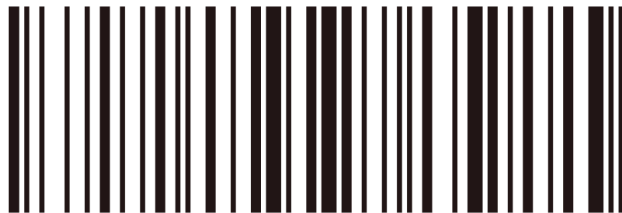
ID set enable



Show ID



Hide ID



0



1



2



3



4



5



6



7



8



9

4.4 Pair with PC

※Note: When the AsReader is connected, to pair with PC, the connection must be disconnected before scanning the following barcode. Otherwise, it may cause the AsReader not working. In this case, you can retry after restarting the AsReader.



Pair with PC

4.5 Power off



Power off

4.6 Get Information of Device



Get firmware version



Get hardware version



Show battery

4.7 Revert to Factory Settings

※Note: When the AsReader is in SPP or BLE mode connected, to revert to factory settings, the connection must be disconnected before scanning the following barcode. If you scan the following barcode without disconnection, please restart the AsReader.



Revert to factory settings

4.8 iOS Keyboard Access/Exit



iOS keyboard access/exit

4.9 Successful Scan Beep

Turn on/off the buzzer sound when barcode scanning.



Successful scan beep on



Successful scan beep off

4.10 Sleep Time Settings

Operation steps:

① Scan the barcode “Sleep time set enable”.

② Scan the time barcode you wish to set as sleep time.

※ Note: When the AsReader is connected in SPP mode and BLE mode, the demo app sets to get the battery power information of the AsReader every 10 seconds, so there is always data interaction, which makes AsReader unable to sleep. During the app development, please coordinate these two times according to the actual requirements.



Sleep time set enable



20 s



30 s



60 s



2 mins



20 mins

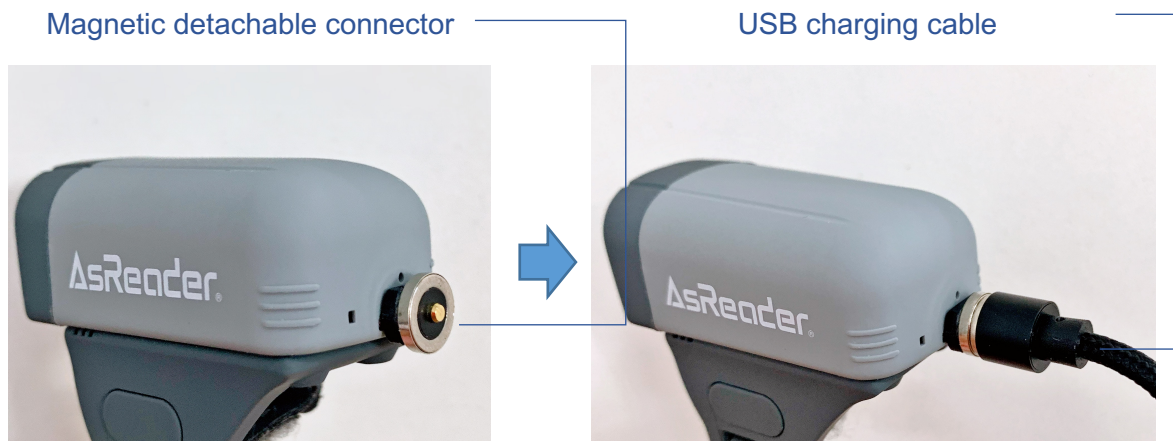


Never sleep

5 How to Charge It

The battery of this device is charged using the included USB charging cable and magnetic detachable connector.

- ① Attach the magnetic detachable connector to the micro USB charging port of this device.
- ② Connect the USB charging cable to charge it.



When using the device for the first time or if it has been stored for a long period of time, please fully charge the battery of this device before use.

While charging the battery of this device, the battery indicator lights red, and when charging is completed, the battery indicator lights off.

When charging this device, please use the 5V/1A charging adapter.

The battery charging time for this device is about 1.5 hours when the remaining battery level is zero (for the above charging adapter).

⚠ Caution

Do not charge the device with a power adapter other than 5V, since this may cause a malfunction and is not covered by the warranty.

6 Troubleshooting

6.1 If cannot connect to other smart phones

It may be difficult to connect when changing a paired phone. Because within about 2 minutes of AsReader being turned on, AsReader will ask to be paired with the phone it was paired with last time. In this case, try the following steps:

- If the last paired phone is nearby, turn off its Bluetooth before attempting a Bluetooth connection with other phones.
- The Bluetooth connection time varies from a few seconds to two minutes, affecting by the phone type and the surrounding environment. If you can't find the device, try turning on and off the phone's Bluetooth a few times to search.
- If you can't find the phone nearby that it last paired with, try the following steps 1) to 5) several times.
 - 1) Turn off and then turn on the Bluetooth of the phone.
 - 2) Power on the AsReader.
 - 3) Check the list of Bluetooth search devices on your phone to make sure the AsReader device is in it.
 - 4) Power off and then power on the AsReader.
 - 5) Click the AsReader device name in the Bluetooth list of the phone within 3 seconds after AsReader be turned on.
- When an Android phone attempts to search for ASR-023B device in SPP mode through Bluetooth, sometimes ASR-023B may not be found due to the setting of "Location" of the Android device.

Try the following steps:

 - ※ On different Android devices, the operation method may be slightly different.
 - 1) Tap the gear icon to enter the "Settings" screen, tap "Location" to enter the location setting screen, and enable the "Use location".
 - 2) Tap the gear icon or long press the app icon to enter the "APP information" screen. Select and tap the AsReader Finger app, and select "Allow only while using the app" from the Location permission in App permissions.

- If the first three methods do not solve the problem, try to scan the " Revert to factory settings " barcode in the user's manual before attempting a Bluetooth connection.

※Note: Scanning the "Revert to factory settings" barcode will restore the device's working mode, data transmission mode, buzzer and other settings to factory settings.

6.2 Unable to read Japanese barcode correctly

The HID mode of this product does not support Shift JIS encoding.

※ BLE mode and SPP mode support Shift JIS encoding.

Therefore, when the device is in HID mode, scanning the Shift JIS encoded barcode (Japanese QR code) may not display the barcode data correctly. Furthermore, when using Japanese keyboard to output the barcode data, some character or symbol data of the barcode may not display correctly. It is recommended to using the half-width alphanumeric mode or English keyboard to output/ input the barcode data.

Appendix-Specifications

Model		ASR-023B
Barcode	Scanning method	CMOS 1280 x 1280 pixels
	Reading distance	Distance to the front of the device (Barcode resolution) EAN-13: 50mm~200mm (13mils) Code39: 40mm~90mm (5mils 10bytes) QR Code: 25mm~240mm (20mils 16bytes) Data Matrix: 50mm~90mm (10mils 20bytes) PDF 417: 30mm~130mm (6.67mils 7bytes)
	Reading angle	Pitch: $\pm 55^\circ$; Roll: 360° ; Skew motion: $\pm 55^\circ$
	Readable code	1D: EAN, UPC, Code 11, Code 39, Code 93, Code 128, UCC/EAN 128, Codabar(NW7), Interleaved 2 of 5(ITF-6, ITF-14), ISBN, ISSN, Plessey, MSI-Plessey, GS1 Databar, GS1 Composite Code, Industrial 2 of 5, Matrix 2 of 5 2D: QR Code, Data Matrix, PDF417, Aztec, Maxicode, HanXin code
	Light sources	White LED (Illumination); Red LED (Aiming)
Battery	Battery capacity	Built-in rechargeable lithium-ion battery 400mAh
	Continuous operation time	> 8,000 times (scan every 0.5 s)
	Power source	USB cable & Magnetic detachable connector
	Power input	5V/1A
	Charging time	About 1.5 hours (Built-in battery)
Key input		Power and trigger button
Communication	Interface	Bluetooth 4.0 (Classic HID/SPP) , BLE
Appearance	Dimensions(D)x(W)x(H)	28.0 x 48.5 x 42.5 mm
	Weight (with Battery)	25.1 g
	Material	ABS
	Case color	Gray
	LED	[Power indicator:] Red (in charging) Off (charging completely) Green (data transiting) [Bluetooth indicator] Wait for connection (Blue blinks) be connected (blue lights on) Bluetooth sleep (blue lights off) be connected with Bluetooth USB adapter PC (No indicating)

Environment	Operation environment	Temperature: -10°C~45°C Humidity: 10~90 %RH
	Charging environment	Temperature: 0°C~45°C Humidity: 10~90 %RH
	Storage temperature	Temperature: -20°C~45°C Humidity: 10~90 %RH
	Anti-drop	(Six-sided, 4 edge, once each) 1m
Certificates		TELEC/ FCC/ CE
Supporting OS		Android, iOS, Windows
Bundled items		USB charging cable, Magnetic detachable connector, Bluetooth USB adapter

**AsReader Finger-Type
ASR-023B**

User Manual

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