unitech
because we care

# Bluetooth Barcode Scanner

**- MS852B -**

## User's Manual

Version 1.0

## Change Log

| Date | Change Description | Version |
|---|---|---|
| | | |
| | | |
| | | |

Preface

# About This Manual

Thank you for purchasing the unitech product.
This manual explains how to install, operate and maintain our product.
No part of this publication may be reproduced or used in any form, or by any electrical or mechanical means, such as photocopying, recording, or information storage and retrieval systems, without permission in writing from the manufacturer. The material in this manual is subject to change without notice. All product and company names are trademarks, service marks, or registered trademarks of their respective owners.

# Regulatory Compliance Statements

## FCC Warning Statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

–Reorient or relocate the receiving antenna.
–Increase the separation between the equipment and receiver.
–Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
–Consult the dealer or an experienced radio/TV technician for help.



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1. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with FCC RF exposure requirements, avoid direct contact to the transmitting antenna during transmitting.
3. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

## FCC Label Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

## RF Radiation Exposure Statement

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

## Canadian Compliance Statement

This Class B Digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe B respecte les exigences du Reglement sur le material broilleur du Canada.



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## European Conformity Statement

unitech Electronics co., Ltd herewith declares that the unitech product is in compliance with the essential requirements and all other provisions of the RED 2014/53/EU directive, the EMC 2014/30/EU directive and the Low Voltage 2014/35/EU directive.
The declaration of conformity is available for download at :
https://portal.unitech.eu/public/Safetyregulatorystatement

## CE RF Exposure Compliance

This device meets EU requirements (2014/53/EU) on the limitation of exposure of the general public to electromagnetic fields by way of health protection. For body-worn operation, this device has been tested and meets the ICNIRP guidelines and the European Standard EN 62209-2, for use with dedicated accessories, SAR is measured with this device at a separation of 0.5 cm to the body, while transmitting at the highest certified output power level in all frequency bands of this device. Use of other accessories which contain metals may not ensure compliance with ICNIRP exposure guidelines.

## CE Mark Warning

This equipment complies with the requirements of Directive 2014/53/EU of the European Parliament and Commission from 24 May, 2014 governing Radio and Telecommunications Equipment and mutual recognition of conformity.

## RoHS Statement

This device conforms to RoHS (Restriction of Hazardous Substances) European Union regulations that set maximum concentration limits on hazardous materials used in electrical and electronic equipment.



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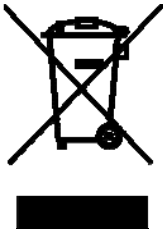
# Waste electrical and electronic equipment (WEEE)



unitech has set up a policy and process to meet the EU directive 2002/96/EC and update 2003/108/EC concerning electronic waste disposal.

For more detailed information of the electronic waste disposal of the products you have purchased from unitech directly or via unitech's resellers, you shall either contact your local supplier or visit us at : https://portal.unitech.eu/public/WEEE



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# Taiwan NCC Warning Statement

## 低功率電波輻射性電機管理辦法

第十二條：經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條：低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
前項合法通信，指依電信法規定作業之無線電通信。
低功率射頻電機需忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

注意事項:

1. 使用過度恐傷害視力。
2. 使用30分鐘請休息10分鐘；2歲以下幼兒不看螢幕，2歲以上每天看螢幕不要超過1小時。
3. 減少電磁波影響，請妥適使用。


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# Laser Information

The unitech product is certified in the U.S. to conform to the requirements of DHHS/CDRH 21CFR Subchapter J and to the requirements of IEC 825-1. Class II and Class 2 products are not considered to be hazardous. The unitech product contains internally a Visible Laser Diode (VLD) whose emissions do not exceed the maximum limits as set forth in the above regulations. The scanner is designed so that there is no human access to harmful laser light during normal operation, user maintenance or prescribed service operations.

The laser safety warning label required by the DHHS/IEC for the unitech product's optional laser scanner module is located on the memory compartment cover, on the back of the unit.

* Laser information only applies to the products with laser components.

**CAUTION!** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light. Use of optical instruments with the scanner, including binoculars, microscopes, and magnifying glasses, with will increase eye damage. This does not include eyeglasses worn by the user.

# LED Information

The unitech product contains LED indicator(s) or LED ring whose luminance is not harmful to human eyes during normal operation, user maintenance or prescribed service operations.

*LED information only applies to the products with LED components.



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# Battery Notice

1. To guarantee optimal performance, it is recommended that rechargeable batteries be replaced every year, or after 500 charging cycles are completed. It is normal for the battery to balloon or expand after one year or 500 cycles. Although it does not cause damage, it cannot be used again and must be disposed of according to the location's safe battery disposal procedures.
2. If a battery performance decreases more than 20%, the battery is at the end of its life cycle. Stop use and ensure the battery is disposed of properly.
3. The length of time that a battery lasts depends on the battery type and how the device is used. Conserve the battery life by doing the following:
   - Avoid fully uncharging the battery because this places additional strain on it. Several partial uncharges with frequent charges are better than a fully uncharged battery. Charging a partially charged battery does not cause harm to the unit.
   - Keep the battery cool. Avoid hot vehicles. For prolonged storage, keep the battery at a 40% charge level.
   - Do not leave the battery uncharged and unused for an extended period of time, the battery will wear out and the longevity of the battery will be at least half of one with frequent charges.
4. Protect battery life by not over or under charging the battery.
5. Please do not leave battery unused for long time without charging it. Despite unitech's safety precautions, the battery pack may begin to change shape. If so, stop using it immediately. Please check to see if you are using a proper power adapter to charge the battery or contact your service provider for service.
6. If you cannot charge the battery after it has been idle for an extended period of time and it begins to heat up, please do not try to charge it. It may not be functional anymore.
7. Please only use the original battery from unitech. Using a third party battery can damage our products. Please note that when such damage occurs, it is not covered by your warranty.


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**CAUTION!**

- RISK OF EXPLOSION IF BATTERY IS REPLACED INCORRECTLY.
  DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
- 如果更換不正確之電池行事會有爆炸的風險
  請依製造商說明書處理用過之電池
- 如果更换不正确之电池行事会有爆炸的风险
  请依制造商说明书处理用过之电池

## Battery charge notice

It is important to consider temperature when the battery pack is charging. Charging is most efficient at normal room temperature or in a slightly cooler environment. It is essential that batteries are charged within the stated range of 0˚C to 40˚C. Charging batteries outside of the specified range could damage the batteries and shorten their life cycle.

**CAUTION!** Do not charge batteries at a temperature lower than 0˚C. This will and make the batteries unstable and dangerous. Please use a battery temperature detecting device for a charger to ensure a safe charging temperature range.

**CAUTION!** To ensure the unit working properly, please keep all connectors away from the contaminants staying inside of them such as dust, grease, mud, and water. The negligence may cause the unit with no communication, short circuited, overheated and so on.

**CAUTION!** If the connector is damaged, please ensure the connector is being fully repaired before use the unit to avoid causing short circuited.


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## Storage and safety notice

Although charged batteries may be left unused for several months, their capacity may be depleted due to build up of internal resistance. If this happens, they will require recharging prior to use. Batteries may be stored at temperatures between -20°C to 60°C, however they may deplete more rapidly at higher temperatures. It is recommended to store batteries at room temperature.

** The message above only applies to the usage of the removable batteries. For the products with non-removable batteries / without batteries, please refer to the specification of each product.*

## Product Operation and Storage Notice

The unitech product has applicable operation and storage temperature conditions. Please follow the limitation of suggested temperature conditions to avoid failure, damage or malfunction.

**For applicable temperature conditions, please refer to the specification of each product.*


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# Adapter Notice

1. Please do not leave the power adapter in the socket when it is not connected to your unitech product for charging.
2. Please remove the power adapter when the battery is fully recharged.
3. The bundled power adapter that comes with your unitech product is not meant to be used outdoors. An adapter exposed to water or rain, or a very humid environment can cause damage to both the adapter and the product.
4. Please only use the bundled power adapter or same specification of adapter to charge your unitech product. Using the wrong power adapter can damage your unitech product.

** The message above only applies to the product connected to the adapter. For the products without using the adapters, please refer to the specification of each product.*

# Hearing Damage Warning

**Zx.3 Warning**

The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:

- the symbol of Figure 1 with a minimum height of 5 mm; and
- the following wording, or similar :

To prevent possible hearing damage, do not listen at high volume levels for long periods.

Figure 1 – Warning label (IEC 60417-6044)

Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.



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# Worldwide Support

unitech's professional support team is available to quickly answer questions or assist with technical-related issues. Should an equipment problem occur, please contact the nearest unitech regional service representative.
For complete contact information please visit the Web sites listed below:

| Taipei, Taiwan – Headquarters | | Europe | |
|---|---|---|---|
| **Tel:** | +886-2-89121122 | **Tel:** | +31-13-4609292 |
| **E-mail:** | info@hq.ute.com | **E-mail:** | info@eu.ute.com |
| **Address:** | 5F, No. 136, Lane 235, Baoqiao Road, Xindian District, New Taipei City 231, Taiwan (R.O.C.) | **Address:** | Kapitein Hatterasstraat 19, 5015 BB, Tilburg, the Netherlands |
| **Website:** | http://www.ute.com | **Website:** | http://eu.ute.com |
| **China** | | **Japan** | |
| **Tel:** | +86-59-2310-9966 | **Tel:** | +81-3-35232766 |
| **E-mail:** | info@cn.ute.com | **E-mail:** | info@jp.ute.com |
| **Address:** | Room401C, 4F, RIHUA International Mansion, Xinfeng 3nd Road, Huoju Hi-tech District, Xiamen, Fujan , China | **Address:** | Kayabacho Nagaoka Building 8F.,1-5-19 Shinkawa, Chuo-Ku, Tokyo, 104-0033, Japan |
| **Website:** | http://cn.ute.com | **Website:** | http://jp.ute.com |
| **Asia & Pacific / Middle East** | | **Latin America** | |
| **Tel:** | +886-2-27911556 | **Tel:** | +52-55-5171-0528 |
| **E-mail:** | info@apac.ute.com<br>info@india.ute.com<br>info@mideast.ute.com | **E-mail:** | info@latin.ute.com |
| **Address:** | 4F., No. 236, ShinHu 2nd Rd., NeiHu Chiu, 114, Taipei,Taiwan | **Address:** | 17171 Park Row, Suite 210 Houston, TX 77084USA (Rep.) |
| **Website:** | http://apac.ute.com / http://mideast.ute.com | **Website:** | http://latin.ute.com |
| **North America** | | **Please scan QR Code to visit us :** | |
| **Tel:** | +1-714-8926400 | | |
| **E-mail:** | info@us.ute.com / info@can.ute.com | | |
| **Address:** | 6182 Katella Ave, Cypress, CA 90630, USA | | |
| **Website:** | http://us.ute.com | | |


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# Warranty Policy

The items covered under the unitech Limited Warranty are free from defects during normal use.
The warranty period is varied from each country. Please consult with your supplier or unitech local office for actual length of warranty period to your purchased product.

Warranty becomes void if equipment is modified, improperly installed or used, damaged by accident or neglect, or if any parts are improperly installed or replaced by the user.


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# Table of Contents

Preface ..... i
About This Manual ..... i
Regulatory Compliance Statements ..... i
Laser Information ..... vi
LED Information ..... vi
Battery Notice ..... vii
Adapter Notice ..... x
Hearing Damage Warning ..... x
Worldwide Support ..... xi
Warranty Policy ..... xii
Chapter 1 - Overview ..... 1
1.1 Package ..... 1
1.2 Product Detail ..... 2
1.3 Specifications ..... 4
1.4 Getting Started ..... 6
1.5 Battery Charging ..... 7
1.6 LED Indicator ..... 8


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# Chapter 1 - Overview

## 1.1 Package

Please make sure the following contents are in the MS852B gift box.
If something is missing or damaged, please contact your unitech representative.

### The package contents (without cradle):

- MS852B 2D Imager Barcode Scanner
- USB Type C Cable
- Quick Start Guide
- Regulatory Compliance Statements

### The package contents (with cradle):

- MS852B 2D Imager Barcode Scanner
- Cable
- Cradle
- Quick Start Guide
- Regulatory Compliance Statements

*NOTE: **The barcode with an asterisk (*) which appears in the following chapters indicates that it is the default option for the corresponding setting.***


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# 1.2 Product Detail

- Scanner details

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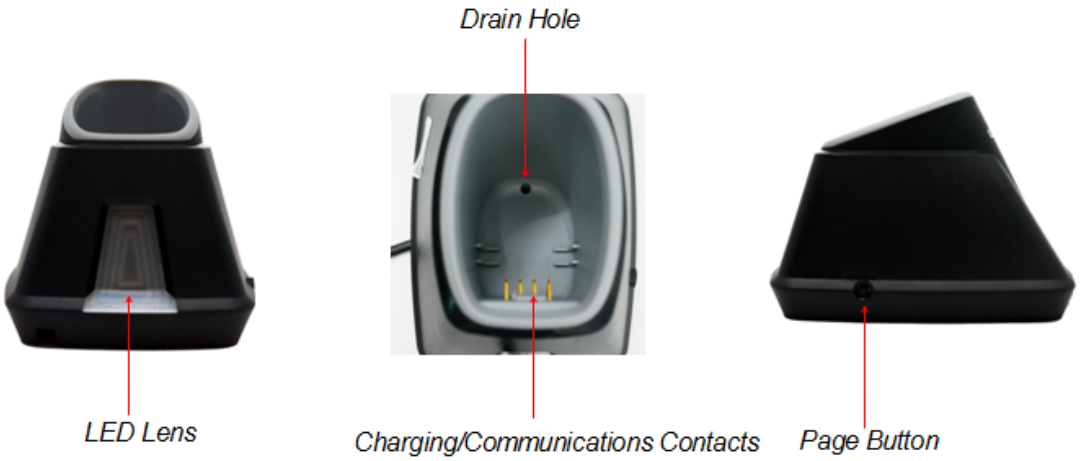
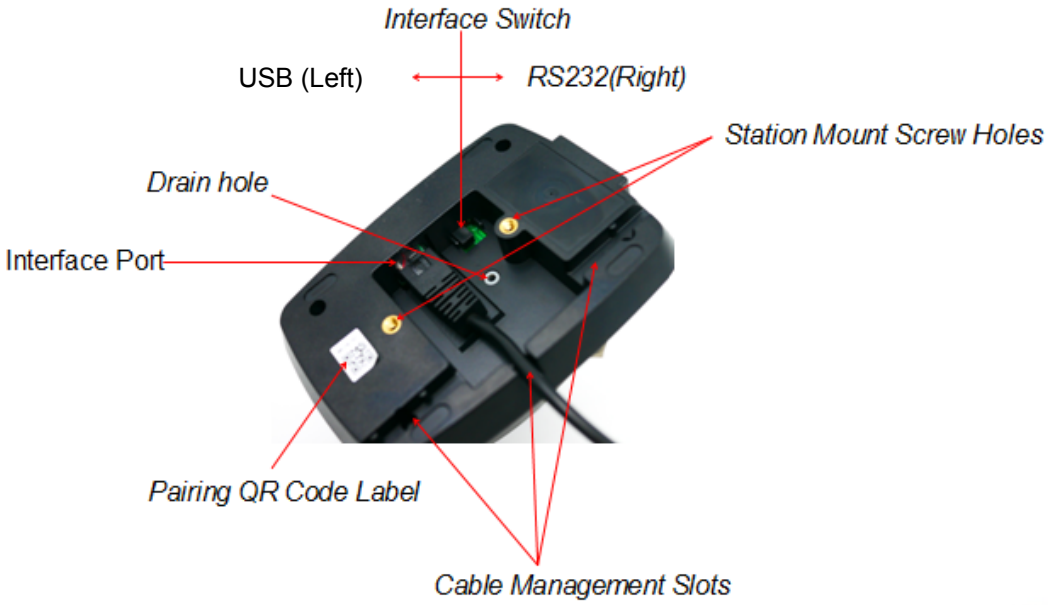
## ■ Cradle details

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# 1.3 Specifications

| Optical & Performance | |
|---|---|
| 1D or 2D | 2D |
| Sensor | CMOS sensor with 640 x 400 pixel |
| Aiming Element | 610nm |
| Illumination | Hyper Red 660nm |
| Ambient Light | 10000 ft. candles (107,639 lux) |
| Skew Angle | ± 60° |
| Pitch Angle Sensor | ± 60° |
| Roll Angle | 0 - 360° |
| Optical Resolution | 5.0 mil (Code 39), 6.6 mil (PDF417) |
| Printing Contrast Scale | Minimum 20% |
| Depth of Field (DOF PCS=80%) | SYMBOLOGY / X-DIM TYPICAL RANGE* Near Far<br>5 mil Code 39 2.0 in / 5.1 cm 6.4 in / 16.2 cm<br>5 mil Code 128 2.5 in / 6.3 cm 5.0 in / 12.7 cm<br>6.6 mil PDF417 2.5 in / 6.3 cm 6.3 in / 16.0 cm<br>10 mil PDF417 1.8 in / 4.5 cm* 9.0 in / 22.8 cm<br>13 mil 100% UPC 2.0 in / 5.0 cm* 12.5 in / 31.7 cm<br>20 mil Code 39 2.0 in / 5.0 cm* 19.5 in / 49.5 cm<br>20 mil Data Matrix 1.5 in / 3.8 cm 13.5 in /<br>34.3 cm 20 mil QR Code 1.5 in / 3.8 cm 11.0 in / 27.9 cm |
| **Communication** | |
| Host Interface supported | USB / RS232 |
| Radio | Bluetooth LE® V4.2<br>Bluetooth® 2.1+EDR, Class1<br>Dual mode |
| Wireless Coverage | 100m ( line of sight) |
| Interface/ Profile | Serial Port and HID profiles |


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| | |
|---|---|
| **Mechanical** | |
| Scanner Dimension | 87.8 mm x 177.7 mm x71.6 mm (L x H X W) |
| Cradle Dimension | 120.6 mm x 86.0 mm x 88.7 mm (L x H X W) |
| Weight | 213g (without cradle) |
| Trigger Switch Life | 10 million times |
| **Functionality** | |
| Symbologies | **1D:** All major symbologies and PDF417<br>**2D:**<br>QR Code, Data Matrix, Aztec Code, PDF417, Macro PDF417, Micro PDF417, MaxiCode, Coda block A, Codablock F, GS1Composite, Han Xin Code<br>**Postal :**<br>Australian Post, British Post, Canadian Pos, InfoMail, Intelligent Mail Bar Code, Japanese Post, KIX (Netherlands) Post, GS1 Composite, Korea Post, Planet Code, Postal, Postnet |
| **Electrical** | |
| Indicator | LED & Beeper & Vibrator |
| Battery Type | Rechargeable and replaceable battery pack |
| Battery Capacity | 2850mAh |
| Battery Charging time | <6.5 hours |
| Operating Time | >25 hours |
| **Environmental** | |
| ESD Protection | Functional after 8K Contact and 15K Air |
| Mechanical Shock | 2.1M onto concrete (scanner only) |
| Operating Temperature | -10°C to 50°C (14°F to 122°F) |
| Storage Temperature | -40°C to +70°C (-40°F to +158°F) |
| Relative Humidity | 95% non-condensing |
| IP Rating | IP42 |
| **Regulatory Approvals** | |
| CE, FCC, BSMI, VCCI, NCC, TELEC, BQB | |


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# 1.4 Getting Started

## ■ How to pair devices with MS852B

Please scan the barcode below to begin pairing.
The scanner will show solid blue when it is pairing.

BT/BLE Un-Pair / Pair

## ■ How to pair devices with MS852B on the cradle

If the MS852B has already paired, please scan the barcode below to un-pair it first then put it on the cradle to start pairing.

BT/BLE Un-Pair / Pair

There are two ways to start pairing with the cradle :

- When put MS852B on the cradle, it will automatically start pairing.

- Scan the barcode label that appears under the cradle. The cradle will show solid blue when the pairing process has been done.


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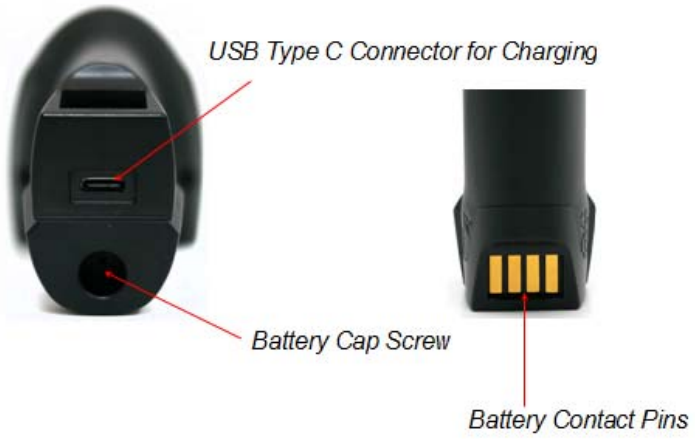
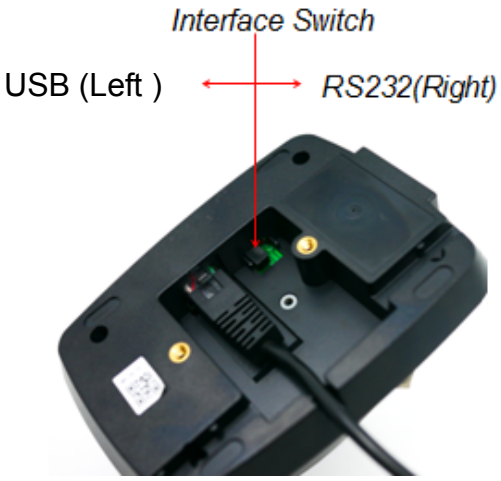
# 1.5 Battery Charging

When you receive the package and use the MS852B for the first time, you will need to fully charge the battery. It takes approximately 5 hours to fully charge the battery. To charge the scanner with / without a cradle, please follow the instructions below.
To charge MS852B, please connect USB type C cable to the USB port of a host PC.

- Connect USB type C cable with MS852B




- Connect USB type C cable with the cradle

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# 1.6 LED Indicator

## ■ Scanner LED indicator

| Description | Indication |
|---|---|
| Trigger Pull | N/A |
| No decode | |
| Wake up | |
| Decode | Green Blink |
| Snapshot | Blinking |
| Snapshot is complete | N/A |
| Power on | N/A |
| Transmission error | N/A |
| Entry error | Green Blink |
| Defaults set | Green Blink |
| Number entry expected | Green Blink |
| Battery charging | Solid Red |
| Battery Low < 15% (battery LED) | Red LED blinking every 2 seconds |
| Battery Low < 5% (battery LED) | Red LED blinking fast with all other LED indicators disabled |
| System Warning /Error | Red LED toggling every second for 5 seconds or until trigger key pressed |
| BT is paired and disconnected to the host | Green LED on |
| Scanner in Presentation Mode | Green LED blinking every 2 seconds |
| System busy with data scanning disabled | Green LED toggling every second |
| BT is connected to host & ready to send data | Blue LED on |
| Good read | Green LED flashing once |
| BT in pairing mode | Blue LED toggling every second |


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## ■ Cradle LED indicator

| Description | Indication |
|---|---|
| Power off | N/A |
| Power on & Host is not connected | Solid Red |
| Host is connected and BT is waiting for pairing. | Blue LED toggling every second |
| Host is connected and BT is paired & ready for connection | Solid Green |
| Host & BT are connected | Solid Blue |
| Cradle in Bootloader Mode For FW update only | White LED |
| BT is connect & its signal is weak than normal | Blue flashing quickly |


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