



RS-MR20 User Manual

Wearable BT UHF Reader

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Chapter 1 Product intro

1.1 Intro

RS-MR20 is our refined and new generation wearable Bluetooth UHF readers. Being a compact and portable device, it can be operated together with gloves, wristbands, or lanyards and make your work much more flexible and convenient. With a built-in UHF module, RS-MR20 possesses a powerful data-collection and transmission function via a simple Bluetooth connection with Android/iOS devices. Removable battery and fast charging capability enable it to achieve work continuity for a long duration. Besides, this tiny device has the protection features like dustproof, waterproof, shockproof, and drop resistance. All these functions make the RS-MR20 a most adaptable device in a wide spectrum of circumstances such as logistics & express delivery, retail store management, warehouse management, power patrol inspection, asset management, e-commerce picking, and tickets checking, etc. helping users free their hands and significantly improve work efficiency.

1.2 Precaution before using battery

- Do not leave battery unused for long time, no matter it is in device or inventory. If battery has been used for 6 months already, it should be checked for charging function or it should be disposed correctly.
- The lifespan of Li-ion battery is around 2 to 3 years, it can be circularly charged for 300 to 500 times. (One full battery charge period means completely charged and completely discharged.)
- When Li-ion battery is not in use, it will continue to discharge slowly. Therefore, battery charging status should be checked frequently and take reference of the related battery charging information on the manuals.
- Observe and record the information of a new unused and non-fully charged battery. On the basis of operating time of new battery and compare with a battery that has been used for long time. According to product configuration and application program, the operating time of battery would be different.
- Check battery charging status at regular intervals.
- When battery operating time drops below about 80%, charging time will be increased remarkably.
- If a battery is stored or otherwise unused for an extended period, be sure to follow the storage instructions in this document. If you do not follow the instructions, and the battery has no charge remaining when you check it, consider it to be damaged. Do not attempt to recharge it or to use it. Replace it with a new battery.
- Store the battery at temperatures between 5 °C and 20 °C (41 °F and 68 °F).

1.3 Charger

The charger type is PWR-R2/R5/R6/MR20-5V2A-CN, output voltage/current is 5V DC/1.5A. The plug considered as disconnect device of adapter.

1.4 Notes

Note:

Using the incorrect type battery has danger of explosion. Please dispose the used battery according to instructions.

Note:

Due to the used enclosure material, the product shall only be connected to a USB Interface of version 2.0 or higher. The connection to so called power USB is prohibited.

Note:

The adapter shall be installed near the equipment and shall be easily accessible.

Note:

The suitable temperature for the product and accessories is 0-10°C to 50°C

Note:

CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Chapter 2 Installation instructions

2.1 Appearance

RS-MR20 appearances are showing as follows:



Indicating Lamps instruction

Lamps		Description
Indicating Lamps	Power	Red lamp lights up constantly (charging status) Green lamp lights up constantly (battery fully charged) Blue lamp lights up constantly (battery level higher than 20%) Blue lamp flashing (battery level lower than 20%)
	Bluetooth	Constant light up (Bluetooth connected)
	Work	Flash when read UHF tags

2.2 Battery charge

By using USB contact, the original adaptor should be used for charging the device. Make sure not to use other adaptors to charge the device.

2.3 Buttons and function area display

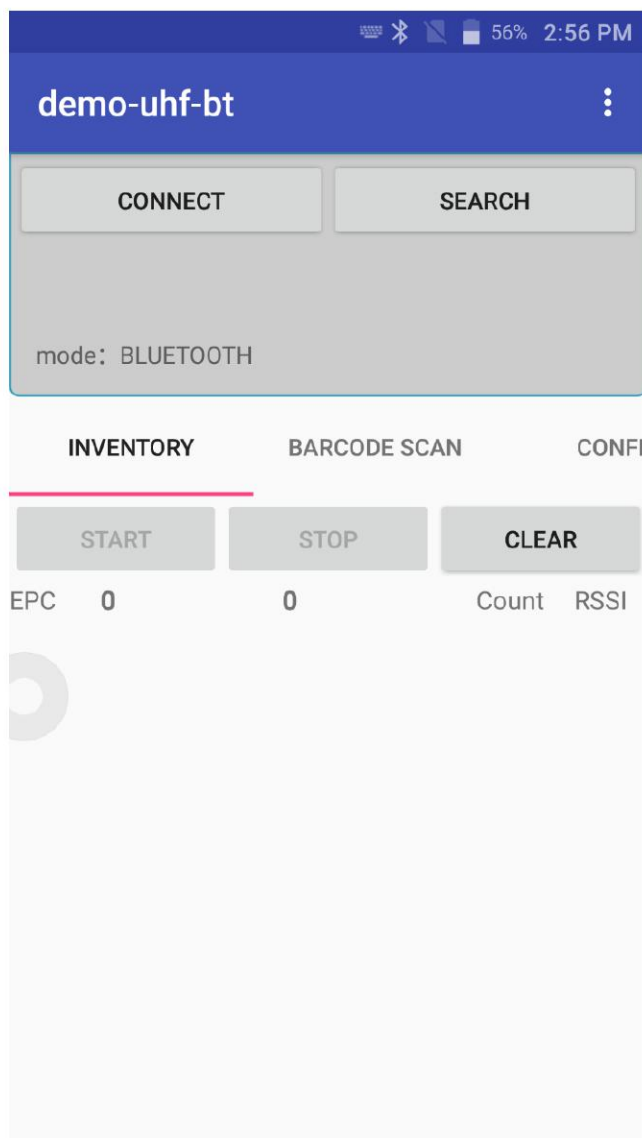
RS-MR20 reader has 1 power button and 1 Type-C port, 1 SCAN button.



Chapter 3 Demo Test

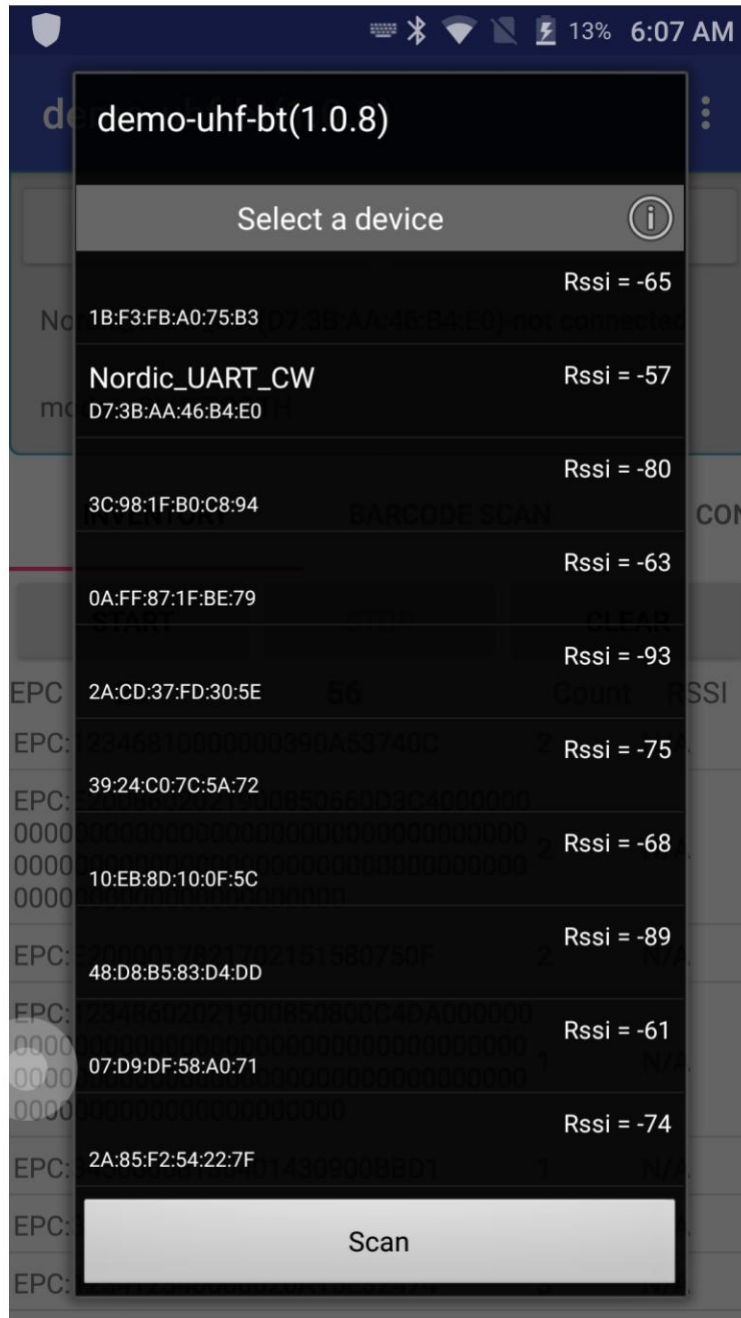
3.1 Install demo-uhf-bt (1.0.8)

1. Copy demo-uhf-bt (1.0.8) into internal storage of smart phone or RS-C7x device.
2. Click to install.
3. Click icon to open demo.



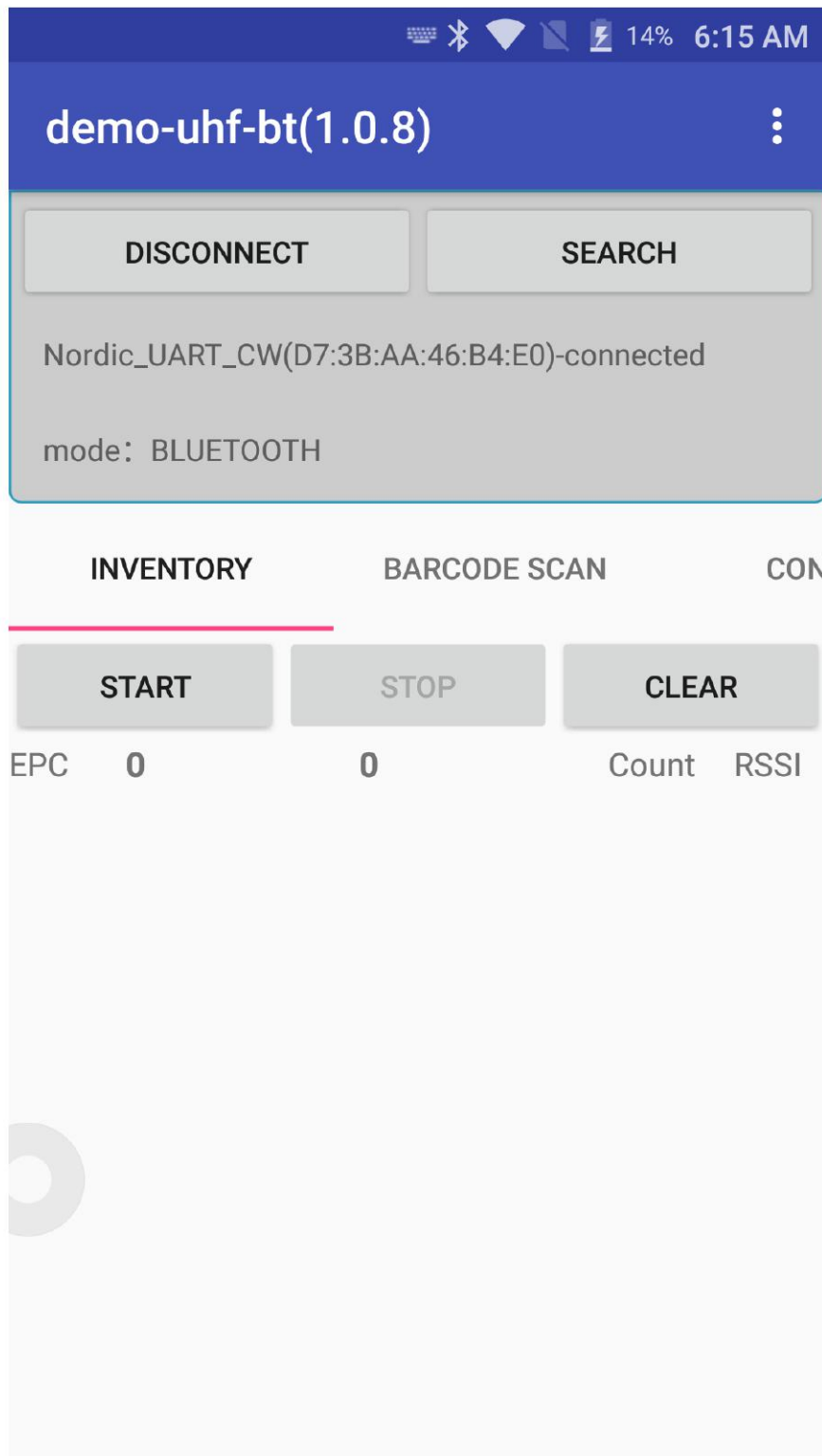
3.2 Pairing Device

1. Switch on Bluetooth function of smartphone or RS-C7x device.
2. Power on RS-MR20.
3. Click BLUETOOTH in the demo.
4. Click SEARCH to search for MAC of RS-MR20.



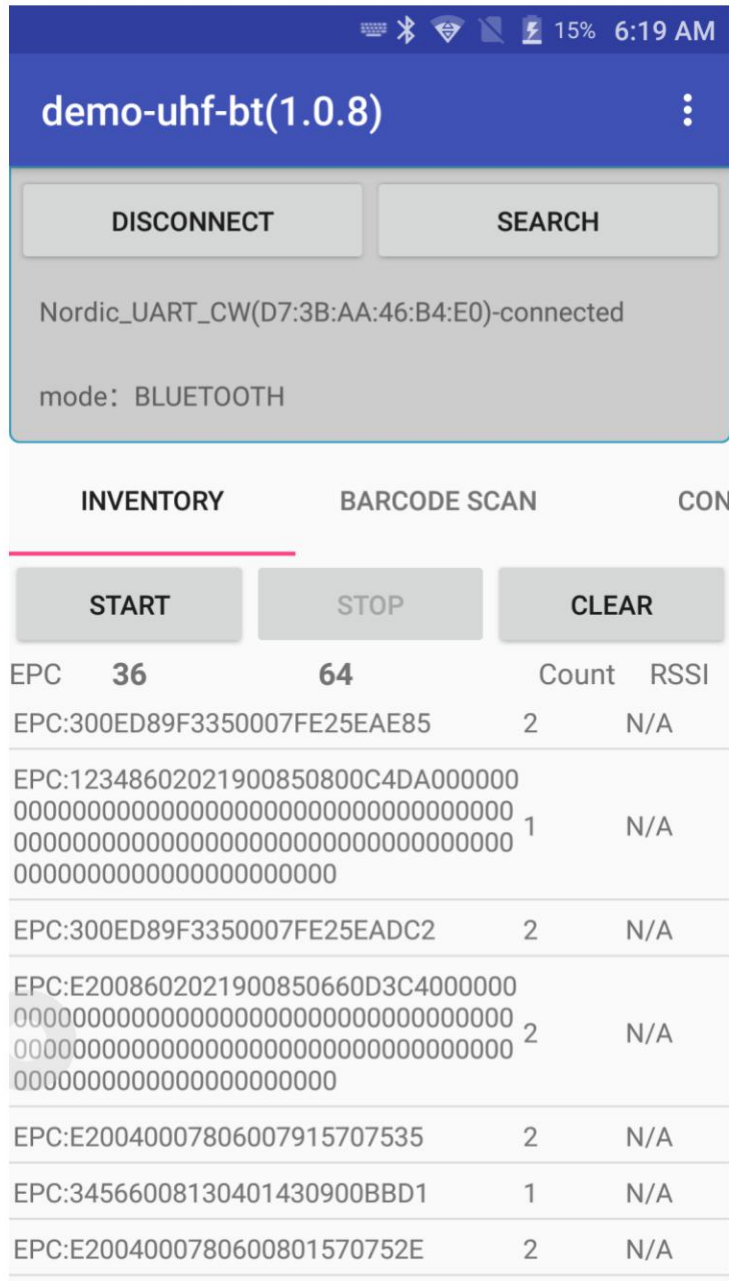
5. Click the correct MAC to connect.

6. After connecting successfully, user could click 3 dots on top right to check UHF version, battery percentage and UHF module temperature.



3.3 UHF Scan Function

1. Click START in demo or pull the trigger on R6, the UHF tags could be read.
2. Click STOP in demo to stop reading of UHF tags.
3. Click CLEAR to clean all EPC information.



3.4 UHF Configuration

1. Click CONFIG in demo to adjust working mode and output power.

The screenshot shows the 'demo-uhf-bt(1.0.8)' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, Wi-Fi, signal strength, battery (16%), and time (6:28 AM). Below the title bar, there are two buttons: 'CONNECT' and 'SEARCH'. The main display area shows 'Nordic_UART_CW(D7:3B:AA:46:B4:E0)-not connected' and 'mode: BLUETOOTH'. Below this, there are three tabs: 'CODE SCAN', 'CONFIG' (which is selected and underlined in red), and 'ENCRYPTION'. Under the 'CONFIG' tab, the 'Working Mode' is set to 'China Standard1(840~84..'. There are two buttons: 'FREQUENCYSET' and 'READ FREQUENCY'. Below these, there are three radio buttons: 'US' (selected), 'BRA', and 'Other'. The 'Hop' is set to '902.75'. There is a 'SET FREHOP' button. The 'Output Power' is set to '5' dBm. At the bottom, there are two buttons: 'POWERSET' and 'READ POWER'.

demo-uhf-bt(1.0.8)

CONNECT SEARCH

Nordic_UART_CW(D7:3B:AA:46:B4:E0)-not connected

mode: BLUETOOTH

CODE SCAN CONFIG ENCRYPTION

Working Mode: China Standard1(840~84..

FREQUENCYSET READ FREQUENCY

☒ US ☐ BRA ☐ Other

Hop: 902.75

SET FREHOP

Output Power: 5 dBm

POWERSET READ POWER

3.5 UHF Tag Reading and Writing

1. The storage of one tag has 4 zones: RESERVED, EPC, TID and USER. Normally, the default password is 00000000. And TID zone can only be read, other zones can be read and written.

The image displays two side-by-side screenshots of the 'demo-uhf-bt(1.0.9)' application interface, showing the 'READ' and 'WRITE' modes.

Left Screenshot (READ Mode):

- Header: demo-uhf-bt(1.0.9)
- Buttons: CONNECT, SEARCH
- Mode: mode: BLUETOOTH
- Filter: filter
- Enable: ☐ Enable
- Ptr: 32 (bit) 长度: 0 (bit)
- Data:
- Buttons: EPC (highlighted), TID, USER
- Bank: RESERVED
- Ptr: 0 (word) Len: 4 (word)
- Access Pwd: 00000000
- Data:

Right Screenshot (WRITE Mode):

- Header: demo-uhf-bt(1.0.9)
- Buttons: CONNECT, SEARCH
- Mode: mode: BLUETOOTH
- Filter: filter
- Enable: ☐ Enable
- Ptr: 32 (bit) 长度: 0 (bit)
- Data:
- Buttons: EPC (highlighted), TID, USER
- Bank: RESERVED
- Ptr: 0 (word) Len: 4 (word)
- Access Pwd: 00000000
- Write Data:

3.6 UHF Tag Lock and Kill

1. Lock Function:

For example. User could try to lock down EPC zone.

The screenshot shows the 'demo-uhf-bt' application interface on an Android device. The status bar at the top indicates 56% battery and 3:04 PM. The app's title bar is blue with the text 'demo-uhf-bt' and a menu icon. Below the title bar are two buttons: 'DISCONNECT' and 'SEARCH'. The main content area shows the device name 'Nordic_BT_CW_20181212(C1:21:31:CD:34:AB)-connected' and the mode 'mode: BLUETOOTH'. A tabbed interface at the bottom has three tabs: 'WRITE', 'LOCK' (which is selected and highlighted with a red underline), and 'KILL'. The 'LOCK' tab contains a 'filter' section with an 'Enable' checkbox (unchecked), a 'Ptr' field set to '32' (bit), and a 'Len' field set to '0' (bit). Below these fields is a 'Data:' label and a text input field. At the bottom of the filter section are three buttons: 'EPC' (highlighted with a blue border), 'TID', and 'USER'. Below the filter section are two more text input fields: 'Access Pwd:' with the text 'Can't use the default password' and 'Lock Code:'. At the very bottom is a large blue button labeled 'LOCK'.

demo-uhf-bt

DISCONNECT SEARCH

Nordic_BT_CW_20181212(C1:21:31:CD:34:AB)-connected

mode: BLUETOOTH

WRITE LOCK KILL

filter

☐ Enable

Ptr: 32 (bit) Len: 0 (bit)

Data:

EPC TID USER

Access Pwd: Can't use the default password

Lock Code:

LOCK

2. Kill Function:

Kill function can be used to kill the tag permanently. Input the correct access password and click kill.

The screenshot shows the 'demo-uhf-bt' application interface. At the top, there's a status bar with icons for keyboard, Bluetooth, signal, and battery (56%), along with the time 3:09 PM. The app title 'demo-uhf-bt' is in a blue header. Below the header are two buttons: 'CONNECT' and 'SEARCH'. The main area displays '(C1:21:31:CD:34:AB)-not connected' and 'mode: BLUETOOTH'. A pink underline highlights the 'KILL' tab among 'LOCK' and 'MODIFY BTNAME'. Below the tabs is a 'filter' section with an 'Enable' checkbox, 'Ptr: 32 (bit)' and 'Len: 0 (bit)' fields, and a 'Data:' field. Three buttons 'EPC', 'TID', and 'USER' are at the bottom of the filter section, with 'EPC' selected. Below the filter is an 'Access Pwd:' field containing the text 'Can't use the default password'. At the bottom is a large teal 'KILL' button.

demo-uhf-bt

CONNECT SEARCH

(C1:21:31:CD:34:AB)-not connected

mode: BLUETOOTH

LOCK KILL MODIFY BTNAME

filter

☐ Enable

Ptr: 32 (bit) Len: 0 (bit)

Data:

EPC TID USER

Access Pwd: Can't use the default password

KILL

Chapter 4 Device characteristic

Physical characteristics

Size	50 × 62 × 19 mm / 1.97 × 2.44 × 0.75 in.
Weight	64 g / 2.26 oz. (with glove: 90 g / 3.17 oz.)
Color	Yellow, Blue, Gray
Appearance material	Plastic
Product material	Plastic
Battery specification	1200 mAh (removable)
Indicator LED	Power, Work, Bluetooth
Buzzer	Y
Interfaces	Type-C

User environment

Operating temp.	-20°C to 50°C
Storage Temp.	-40°C to 70°C
Humidity	5%RH - 95%RH non condensing

UHF

Antenna	Linear Polarized Antenna (-2.2dBi)
Frequency	920-925MHz/902-928MHz/865-868MHz
Protocol	EPC C1 GEN2 / ISO18000-63
Module power	0.5W (27dBm, support +19-27dBm adjustable)
R/W range	80 cm

Declaration

The simplified EU declaration of conformity referred to in Article 10(9) shall be provided as follows: Hereby, we declare that the radio equipment type UHF Sled Reader is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following.

● **Performance and Illustrations:** Graphs and visuals are for reference only; actual product performance may vary depending on usage and environment. ● **Storage and Handling Guidelines:** Follow standard ESD-safe storage and handling procedures to maintain product integrity and avoid damage. ● **Product Updates and Revisions:** rfidbridge.com may change products, specs, or services at any time without prior notice. ● **General Use Disclaimer:** Products are for general-purpose use and not intended for safety-critical or life-support applications. ● **Legal Notice:** Information is believed accurate but may change. rfidbridge.com is not liable for use-related issues or outcomes.



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