unitech
because we care

Wireless UHF RFID Pocket Reader

-RP901 -



User's Manual

Version 2.1

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd

Change Log.

Date	Change Description	Version
2016/11/17	first published version	1.0
2016/12/19	Update contents	1.1
2017/1/17	Add cautions on System Time/ Operation	1.2
2017/4/13	Update Drop durability	1.3
2017/6/26	Add frequency	1.4
2017/09/15	Update Drop durability	1.5
2018/1/24	Update output power	1.6
2018/2/27	Update 3.5.2 & 3.6.3 information	1.7
2018/10/09	Update contents	1.8
2019/01/08	Update SPEC	1.9
2019/09/23	Update enter Firmware mode	2.0
2020/05/08	Update Spec	2.1

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd

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 Statements

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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.

Operation on the 5.15 - 5.25GHz frequency band is restricted to indoor use only. The FCC requires indoor use for the 5.15-5.25GHz band to reduce the potential for harmful interference to co-channel Mobile Satellite Systems. Therefore, it will only transmit on the 5.25-5.35 GHz, 5.47-5.725 GHz and 5.725–5.850 GHz band when associated with an access point (AP).

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, and
2. This device must accept any interference received, including interference that may cause undesired operation.

RF Radiation Exposure Statement

For body contact during operation, this device has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.5 cm from the body.
Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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

CE

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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。

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。

SAR 標準值 2.0W/Kg，送測產品實測值為　　w/Kg

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

Battery Notice

1. To guarantee optimal battery performance we generally recommend you replace your rechargeable batteries every year, or after 500 charging cycles.
2. The battery may expand slightly at the end of its useful life.
   Please dispose the battery according your local battery disposal rules.
3. If a battery performance decreases below 20%, dispose of the battery according your local battery disposal rules.
4. The length of time a battery maintains its useful life depends on various factors. However, consider the following to prolong the useful life of the battery:

   - Avoid fully depleting the battery. Several partial drains with frequent charges are better than a totally depleted battery. Charging a partially charged battery does not harm the battery.
   - Keep the battery cool. For example, don't leave it in a hot vehicle.
   - For prolonged storage of over a month, discharge the battery to 40%.
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 unitech's warranty policy.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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.

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.*

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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 info@india.ute.com 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:	+1-714-8916400		
E-mail:	info@us.ute.com / info@can.ute.com		
Address:	6182 Katella Ave, Cypress, CA 90630, USA		
Website:	http://us.ute.com		

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

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.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

Table of Contents

Preface i
About This Manual i
Regulatory Compliance Statements i
Laser Information vi
LED Information vi
Battery Notice vii
Adapter Notice ix
Hearing Damage Warning ix
Worldwide Support x
Warranty Policy xi
Chapter 1 - Overview 1
1.1 Package 1
1.2 Scanner Detail 2
1.3 Specifications 3
1.4 Getting Started 5
1.5 LED Indicator / Beeper Sequence 21
Chapter 2 –Configuration General 22
2.1 Entering Configuration Mode 22
2.2 Canceling / Exiting Configuration Mode 23
2.3 Operating the RFID Utility 24
Chapter 3 – Command Setting 26
3.1 RFID Parameters Setup 26
3.2 Scan Operation and Delay Time 33
3.3 Scheme and Filter 34
3.4 RF Parameters 37
3.5 Data Output Format 38
3.6 Other Parameters Setup 49
3.7 Memory Communication Interface Options 52
3.8 BT-HID and BT-SPP Communication Interface Options 53
3.9 USB-HID and BT-HID Communication Interface Options 54
3.10 Data Terminator 56
3.11 Sleep Mode /Timer 57
3.12 Buzzer 58
3.13 Vibrator 59

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

3.14 Wait Time 60
3.15 System Time..... 61
Chapter 4 – Additional Function 62
4.1 System Time..... 62
4.2 Operation..... 64
4.3 Tools 65
Chapter 5 – Updating Firmware 66
5.1 Entering Firmware Update Mode..... 66
5.2 Executing Firmware Update 68

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co., Ltd.

Chapter 1 - Overview

1.1 Package

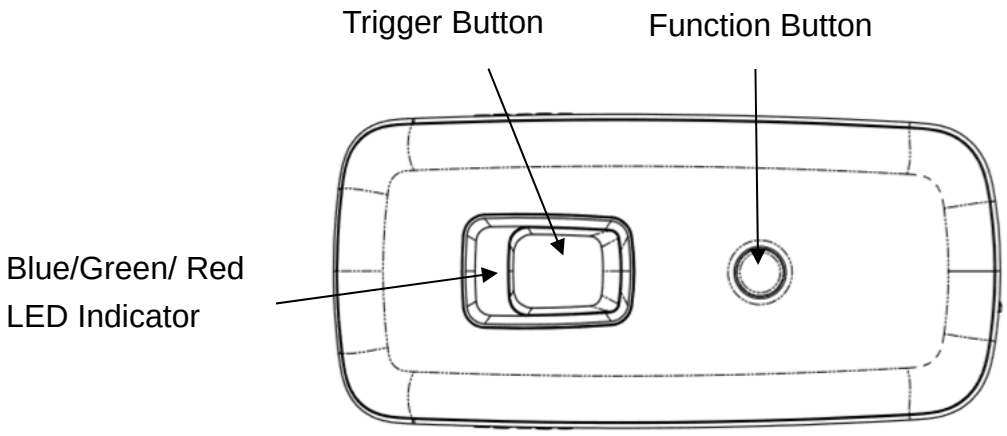
Please make sure the following contents are in the RP901 gift box.
If something is missing or damaged, please contact your unitech representative.

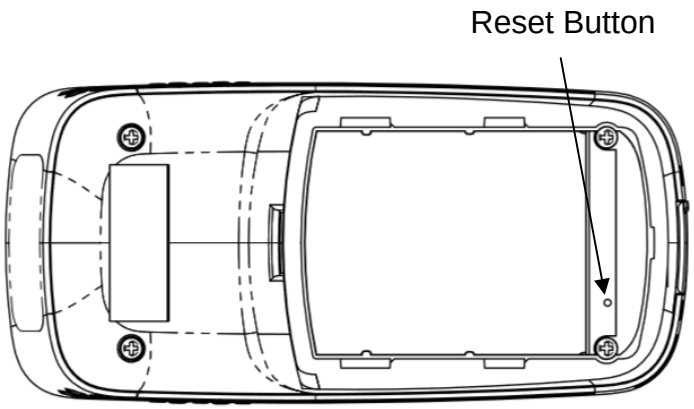
The standard package contents:

- RP901 Wireless UHF RFID Reader
- Hand Strap
- Micro USB Cable
- Battery
- Quick Start Guide
- Regulatory Compliance Statement

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.2 Scanner Detail





© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.3 Specifications

The RP901 can support the EPC protocols Generation 2 of RFID tags.
Both EPC Code and TID data of GS1 standard are readable.

System & Performance	
Frequency	8652MHz~928MHz (US/EU/JP/TW/CN)
RFID Protocol	EPC Generation-2, ISO 180000-6C
Memory	2 MB
Antenna	UHF compact antenna
Read Mode	■ Single Tag Mode: Up to 100cm (Depends on the type of RFID tag and environment) ■ Multiple Tag Mode: Less than 50 cm (Depends on the type and quantity of RFID tag, and environment)
Reading Distance	Up to 100 cm (Depends on the RFID tag and environment)
Physical Characteristics	
Dimension	W 51.4×L 109.3×H 28.1 mm
Weight	106g (with battery)
Material	PC
Indicator	LED Indicator / Trigger & Function Buttons / Vibrator / Audible Tone
Power	
Operation Voltage	3.7 VDC
Battery	3.7V, 1100mAh, Lithium Battery
Battery Life	6,000 scans
Charge Time	4hrs (fully charged)
Connectivity	
Radio	Bluetooth® 2.1 + EDR
Range	10M (line of sight)
Interface/ Profile	BT (SPP) BT (HID) Micro USB (HID/ VCP)

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Environmental	
Operating Temperature	-10~50˚C
Storage Temperature	-20~60˚C
Humidity	0%~95%RH (Non-condensing)
Drop Durability	1.5M
IP Rating	IP42
Regulation Approvals	
ESD	Functional after 4KV contact, 8KV air discharge
EMC	CE, FCC, BSMI, CCC, VCCI
RF	CE, FCC, NCC, SRRC ,TELEC

Radio type	Description	Transmitter Frequency	Maximum Output Power
Bluetooth®	Bluetooth®	2400-2483.5MHz	4.6dBm
RFID	UHF	865~868MHz and 902~928MHz	20dBm

Reading Distance (reference)		
Type of RFID Tag: ALIEN-9640		
Quantity of ALIEN-9640	Reading Distance	Note
1 unit	100 cm	Single Tag Mode
2 units	40 cm	Multiple Tag Mode
3 units	25 cm	
5 units	20 cm	

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.4 Getting Started

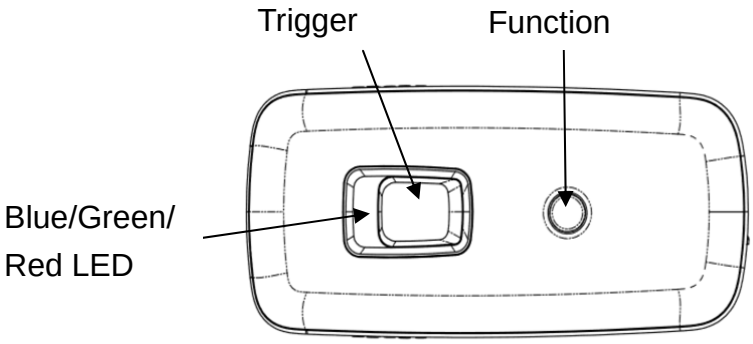
1.4.1 Power Up

Press the Trigger Button for 2 seconds without releasing. RP901 will emit one long beep and light the LED red. When the sound then stops and the light goes off, the reader successfully powers up.

1.4.2 Shut Down

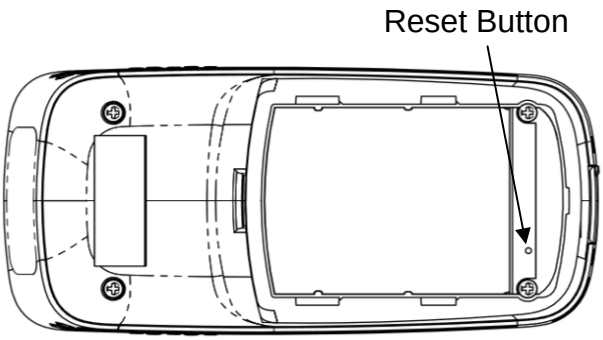
Method 1:

By default, RP901 shuts down automatically after 5 minutes of inactivity. To adjust the auto power-off timeout, please refer to 3.11 Sleep Mode / Timer.



Method 2:

Using a needle or paper clip, press the Reset Button located at the bottom of the RP901 once. This will force a shut down.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

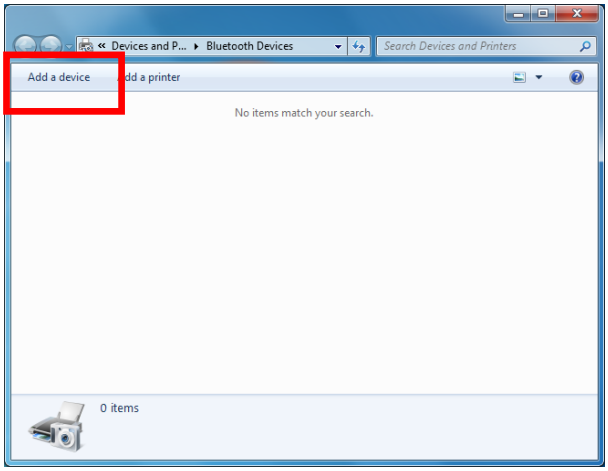
1.4.3 Connecting to a PC/ Notebook

Step 1:

Press and hold the Trigger Button for 2 seconds to power up RP901, after that the blue indicator LED will flash continuously. (If the blue LED does not flash, it means RP901 is not currently in Bluetooth® Mode. Please refer to 3.7 Communication Interface.

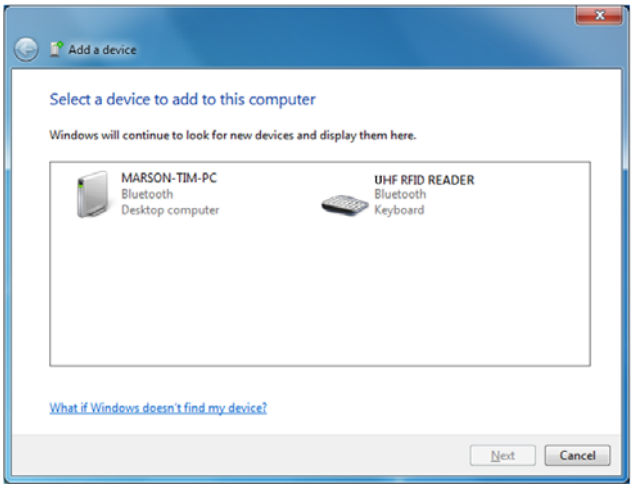
Step 2:

Enter the PC/Notebook's Bluetooth® application and click Add a Device.



Step 3:

In the Add a device window, double click UHF RFID Reader to connect.

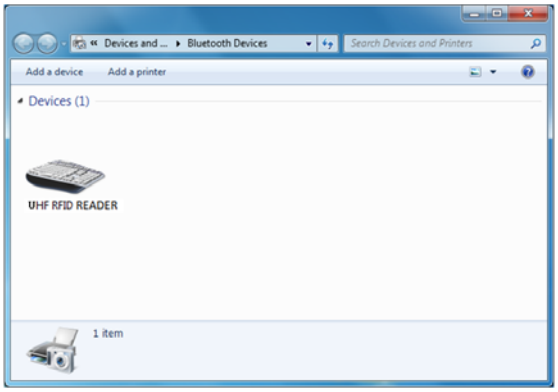


© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 4:

When successfully connected the RP901 will emit two short beeps, and the blue LED indicator will shut off. The PC/NB will show a message window, and after clicking Close the PC/NB Bluetooth® application Main Window will show UHF RFID Reader as a connected device.





Step 5:

Launch an application program that can accept HID keyboard input, such as Notepad. RFID Tag data read by the RP901 will output to that application program.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.4.4 Connecting to an Apple iOS Device

Step 1:

Press and hold the Trigger Button for 2 seconds to boot the unit, after which the blue LED indicator will flash continuously. (If the blue LED indicator does not flash, it means RP901 is not currently in Bluetooth® Mode. Please refer to 3.7 Communication Interface.

Step 2:

On the Apple iOS device, go to Settings > Bluetooth®, and turn on Bluetooth®.



Step 3:

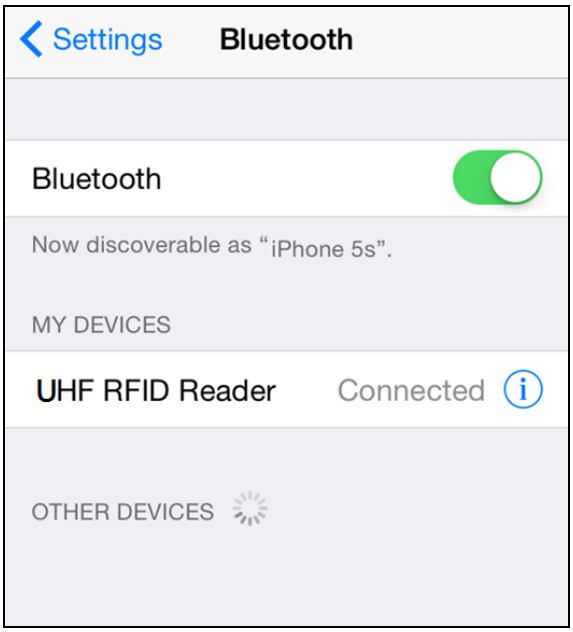
In the discoverable devices list, select UHF RFID Reader.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

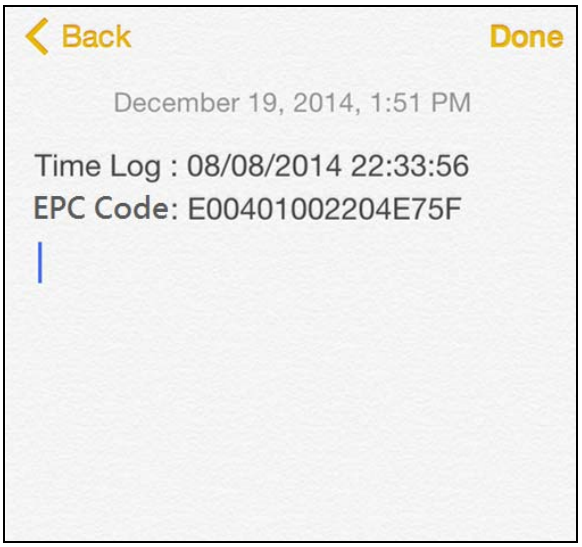
Step 4:

Upon establishing connection the RP901 will emit two short beeps and turn off its blue LED indicator. Also, the UHF RFID Reader in the Apple iOS device's Bluetooth® devices list will list as "Connected".



Step 5:

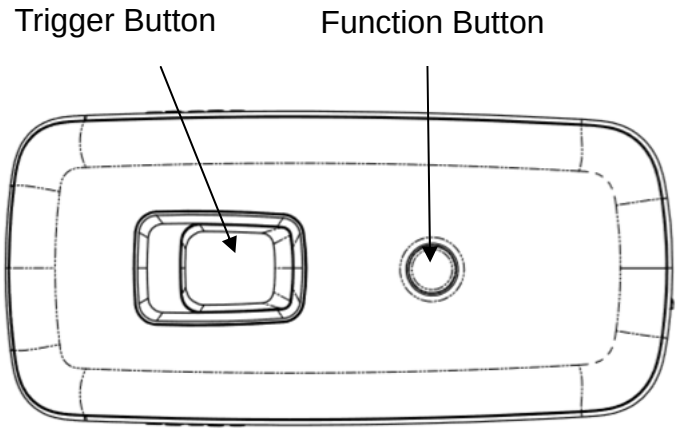
Launch an app that can accept HID keyboard input, such as Notes. RFID Tag data read by RP901 will output to that app.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 6:

If a virtual keyboard is required, please press the Function Button once. At this moment the RP901 will emit one short beep, and the Apple iOS device's virtual keyboard will pop out.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

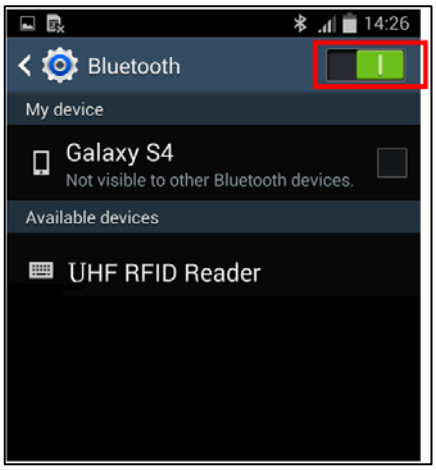
1.4.5 Connecting to an Android Device

Step 1:

Press and hold the Trigger Button for 2 seconds to boot the unit, after which the blue LED indicator will flash continuously. (If the blue LED does not flash, it means the unit is not currently in Bluetooth® Mode. Please refer to 3.7 Communication Interface, and change the communication interface to BT-HID)

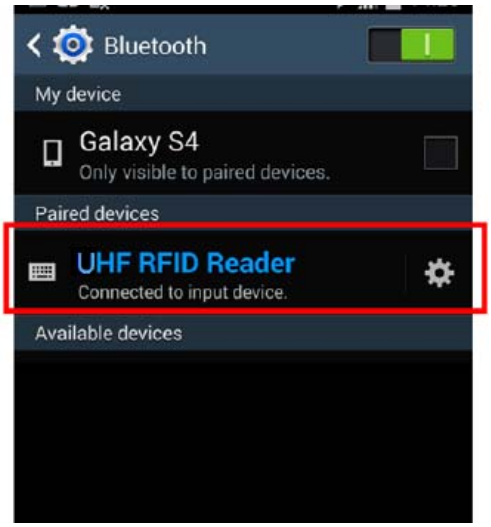
Step 2:

On the Android device, go to Settings > Bluetooth®, and turn on Bluetooth®.



Step 3:

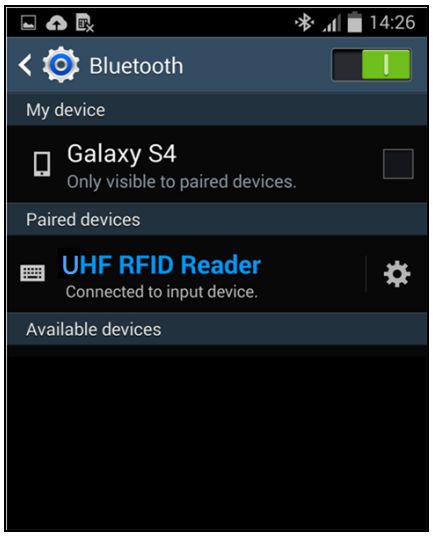
In the available devices list, select UHF RFID Reader.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

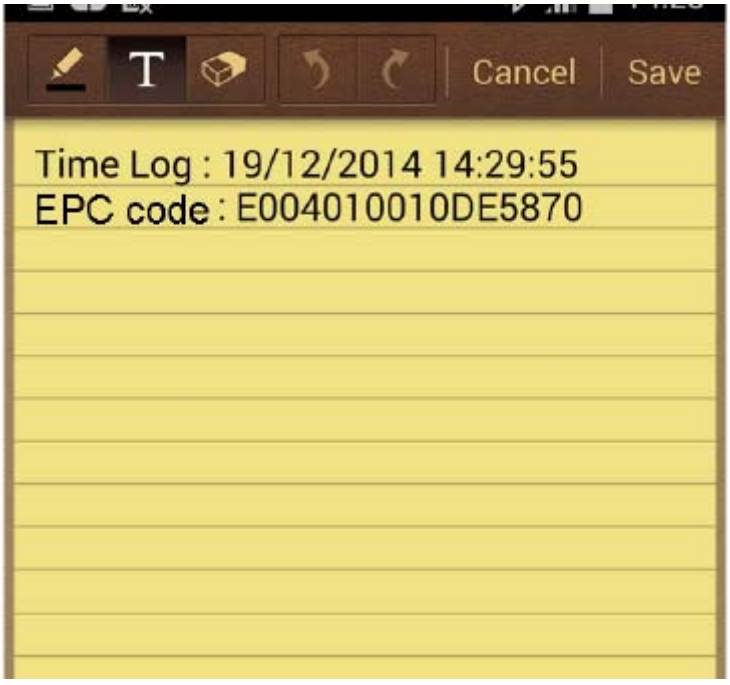
Step 4:

Upon establishing connection the RP901 will emit two short beeps and turn off its blue LED indicator. Also, the UHF RFID Reader in the Android device's Bluetooth® devices list will list as "Connected".



Step 5:

Launch an app that can accept HID keyboard input, such as ColorNote. RFID Tag data read by the RP901 will output to that app.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 6:

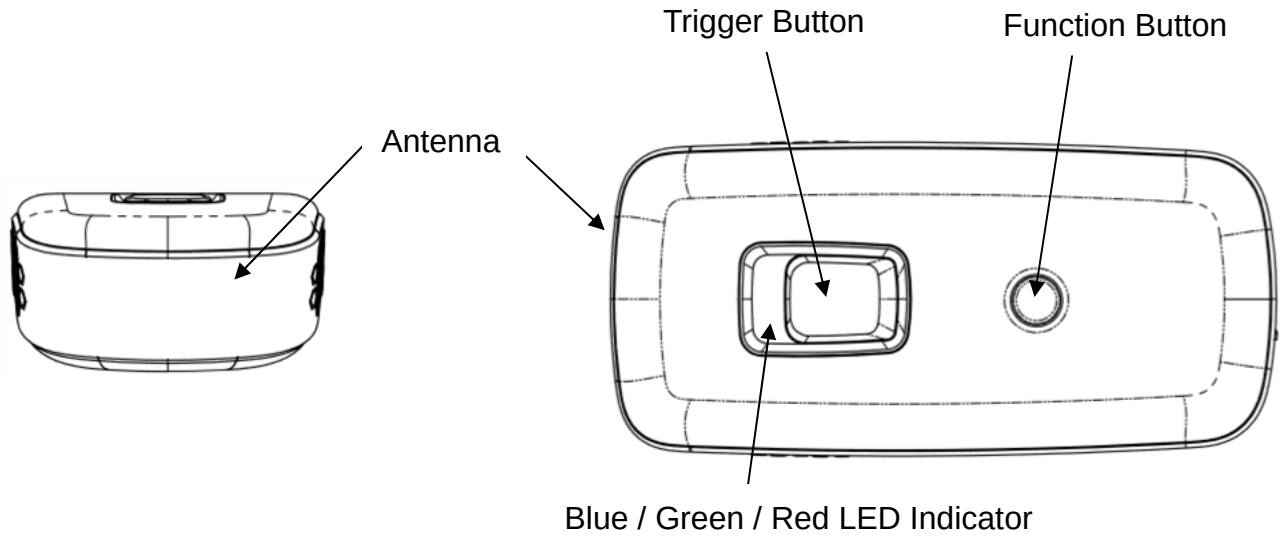
If a virtual keyboard is required, please go to **Settings > Language and Input > Default**, and turn off the physical keyboard (or in some cases, turn on the on-screen keyboard) in the Select Input Method screen. At this time the virtual keyboard will resume normal operation.

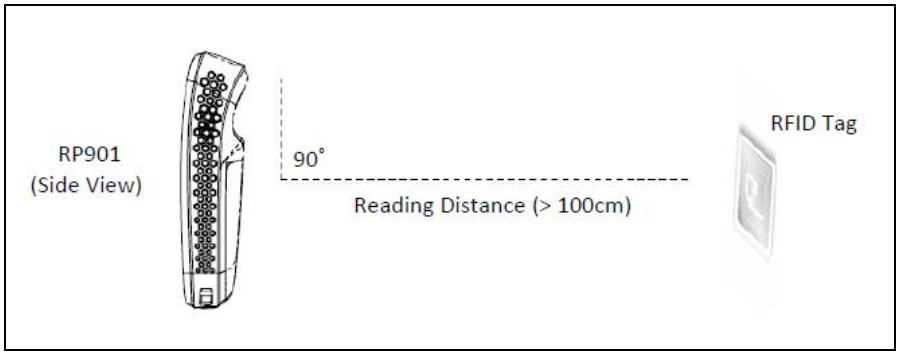


© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.4.6 Reading RFID Tags

RP901's RFID antenna is located at its front. When reading, hold the unit, aim at the RFID tag, and press the Trigger button. If reading is successful (Good Read), the RP901 will emit one beep and the green LED indicator will simultaneously lit for one second. Reading Distance varies based on RFID tag's specifications and the different placement of tags.





CAUTION! Reading distance may be impacted by the type of tag and environmental conditions. The graphic above is based on Alien 964X Higgs-3 tag and tested in an office environment (25˚C)

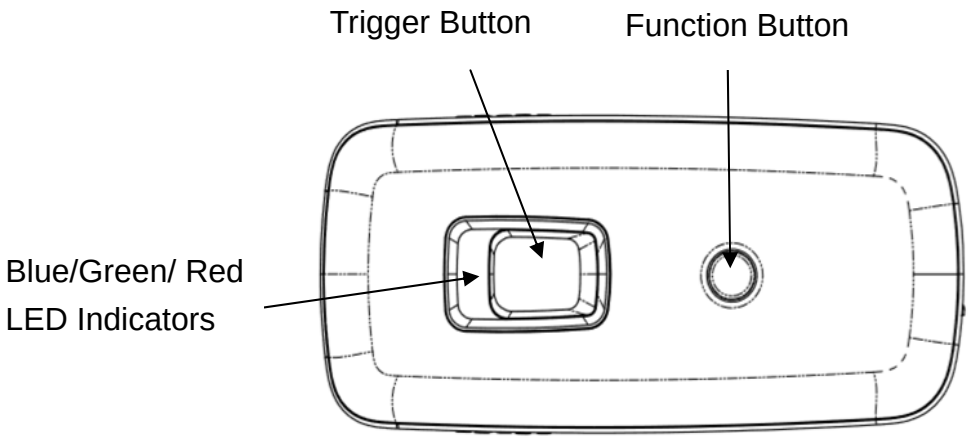
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.4.7 Clearing the Bluetooth® Pairing Record

The RP901 will save its Bluetooth® pairing records and, when disconnected, will automatically attempt to restore previous connections. The following methods will clear RP901's Bluetooth® pairing record, facilitating new connections. After clearing its Bluetooth® pairing record the RP901 will break off all Bluetooth® connections, entering Bluetooth® Disconnected status.

Step 1:
To clear the pairing record from Host, please enter Bluetooth® application, and remove/forget the "UHF RFID reader" in the device list.

Step 2:
To clear the pairing record from RP901, press and hold the RP901's Function button without releasing for about 5 seconds and the RP901 will emit 3 short beeps and its Blue LED will start flashing as confirmation that it has cleared its Bluetooth® pairing record.



CAUTION !

1. Please make sure both Step 1 & 2 are done as instructed before establishing new connection with RP901 from the new/old Host. If either of Step 1 or 2 is skipped, your new connection with RP901 might be requested for a pincode, which is unable to be input from RP901 (as it does not have a numeric keypad). To fix this, redo Step 1 & 2, restart your Host device and try establishing new connection with RP901 again.

2. After clearing the Bluetooth® connection record the RP901 will enter Bluetooth® Disconnected status and continuously flash its blue LED indicator. If the blue LED indicator does not flash, it means RP901's Communication Interface is not in Bluetooth® Mode. Please refer to Section 3.7 Communication Interface.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.4.8 Retrieving/Deleting Memory Data

When the Communication Interface is set to Memory (refer to 3.7 Communication Interface), data obtained from RFID Tag read operations will be stored in RP901's memory. The following steps will store or delete the data within.

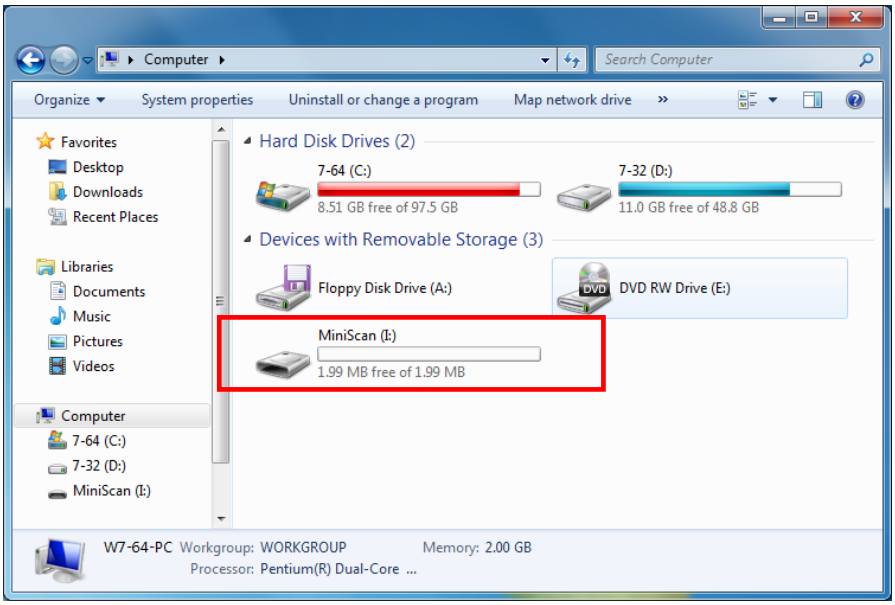
A. Retrieving the Data in Memory

Step 1:

After completing an RFID Tag read operation, use a micro USB cable and connect the RP901 to a PC/NB.

Step 2

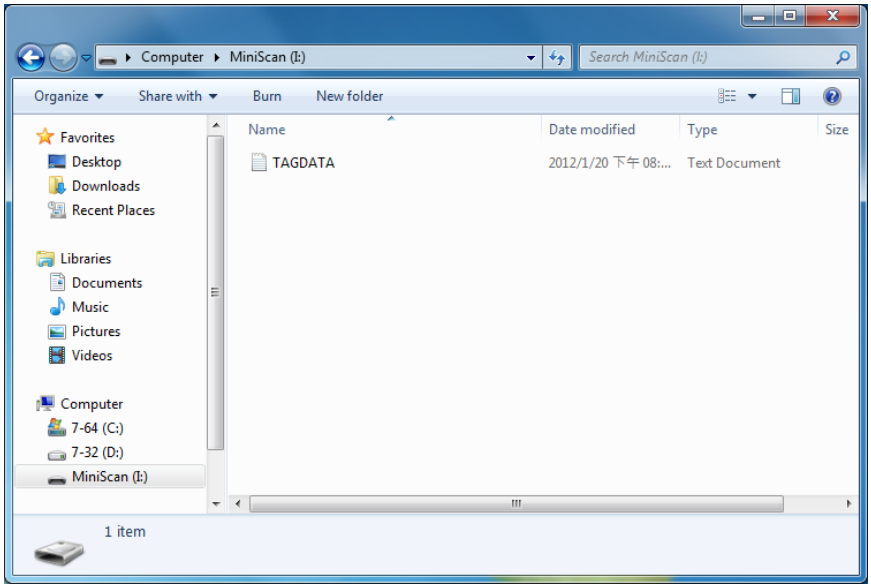
Open the My Computer window and enter the removable storage device "MiniScan".



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 3:

Copy the file TAGDATA.TXT, found in the removable storage device “MiniScan”, to the PC/NB.



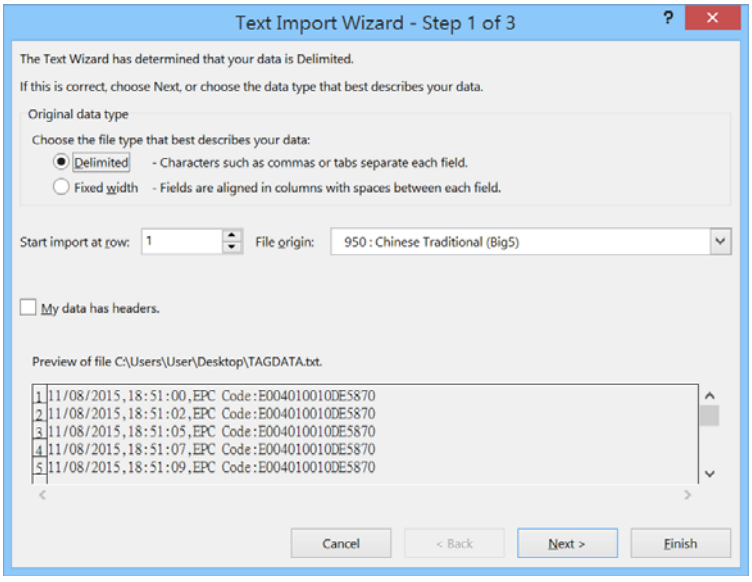
Step 4:

Skip the following steps if you accept memory data stored in *.txt format.

Step 5:

Open TAGDATA.TXT using Excel.

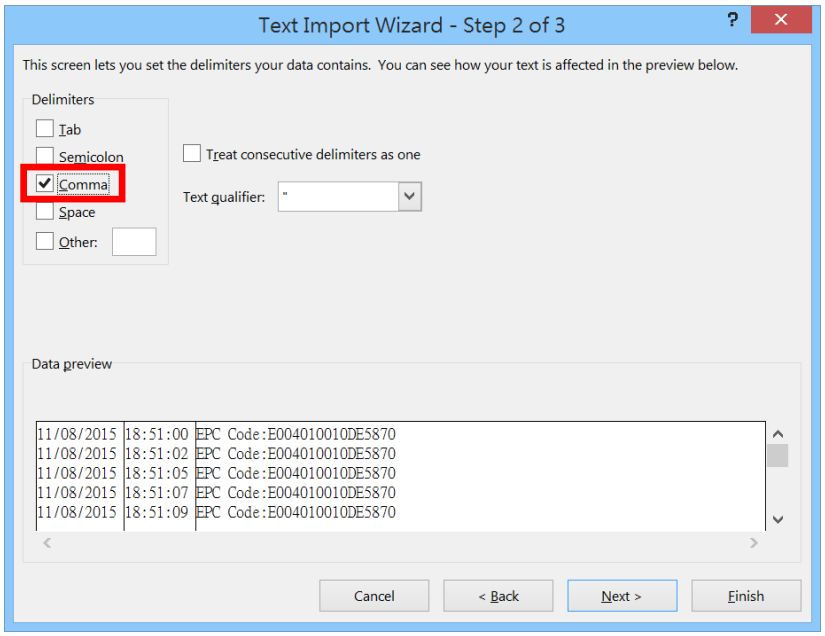
In the Text Import Wizard, Step 1 of 3 dialogue box, choose Delimited, and click Next.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

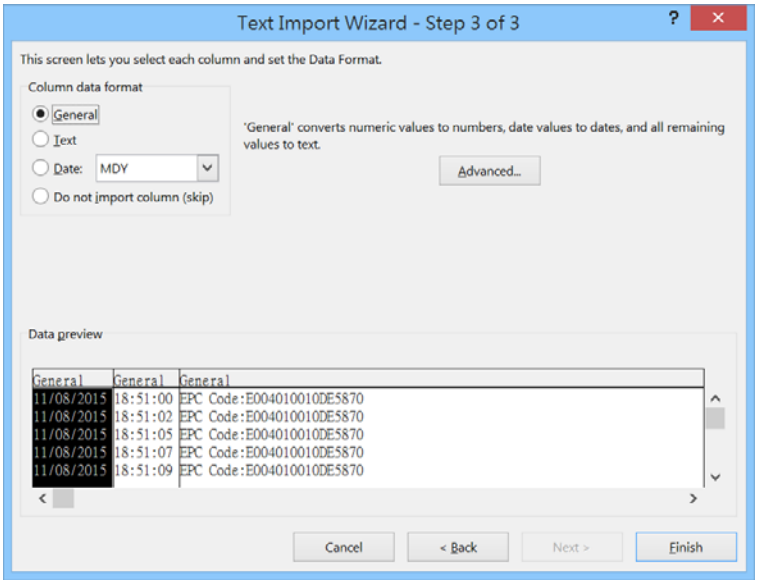
Step 6:

In the Text Import Wizard - Step 2 of 3 dialogue box, select Comma, and click Next.



Step 7:

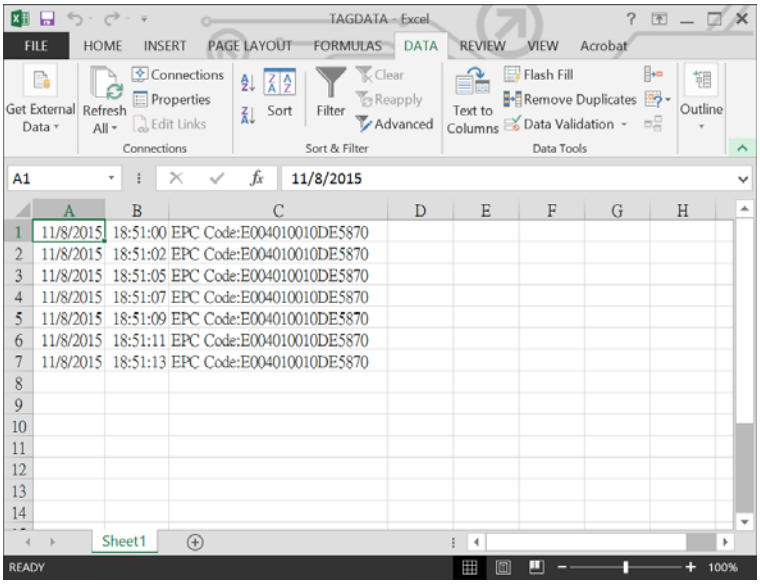
In the Text Import Wizard - Step 3 of 3 dialogue box, if there are no special requirements, directly click Finish.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 8:

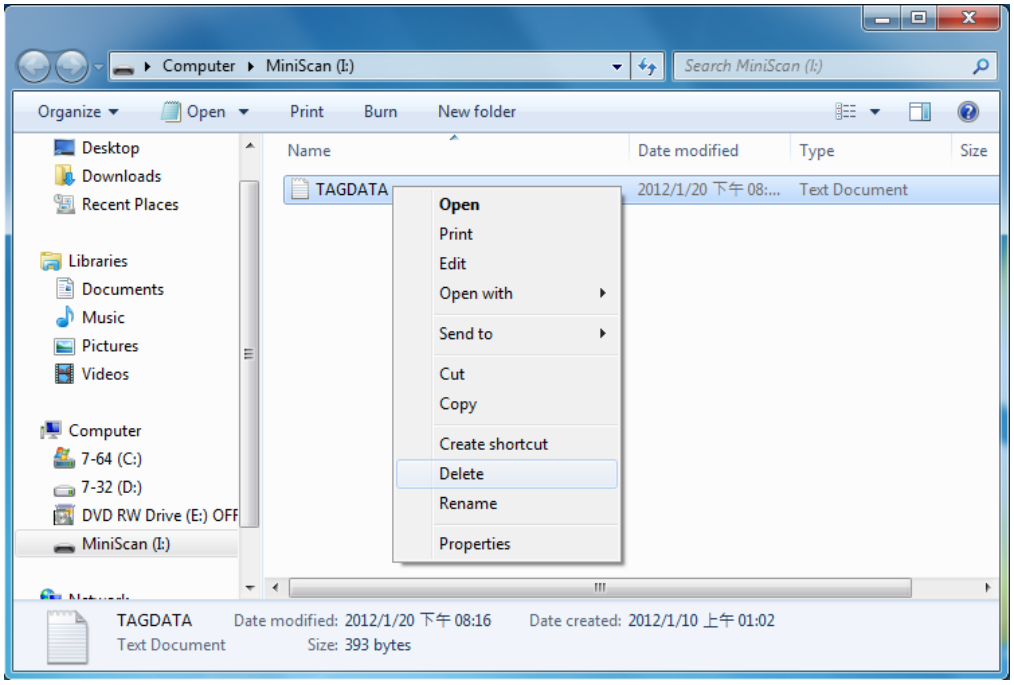
The Memory data will appear in the form of an Excel spreadsheet. If required to change the data format, please refer to sub-section Memory 3.7 Communication Interface.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

B. Deleting the Data in Memory

To delete the data on RP901's Memory, please directly delete the file TAGDATA.TXT in the removable storage device "MiniScan". In about 5 seconds the RP901 will emit 2 short beeps, indicating a successful delete.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

1.5 LED Indicator / Beeper Sequence

RP901's LED indicators use three colors: blue, green and red.
In combination with the buzzer they indicate different conditions in Configuration Mode.

Status	Blue LED	Green LED	Red LED	Buzzer
Power up			lit 1 second	1 long beep
Good Read		lit 1 second		1 short beep*
Bluetooth® Disconnected (Discoverable)	flashing			
Bluetooth® Connected		2 flashes		2 short beeps
Deletes Pairing Record		3 flashes		3 short beeps
Data Transfer Failure (Offline)		lit 1 second		3 short beeps
Data Storage Failure (Memory Full)		1 flash		3 short beeps
Data Transfer Failure (Poor Connection Quality**)		Lit 1 second		4 short beeps (Hi-Lo-Hi-Lo)
Enters Configuration Mode (BT Disconnected/ USB /Memory Mode)		Stay On		2 short beeps
Enters Configuration Mode (BT Connected)		Stay On		3 short beeps
Exits Configuration Mode				2 short beeps
Low Power			flashing	
Charging			Stay On	

* Please refer to **3.12.2 Beep Time** for beep length configuration.

** It can be that an obstacle between RP901 and host device has interfered with the data transmission , or RP901 is too far away from the host device. To fix this, please get back in effective transmission range.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Chapter 2 –Configuration General

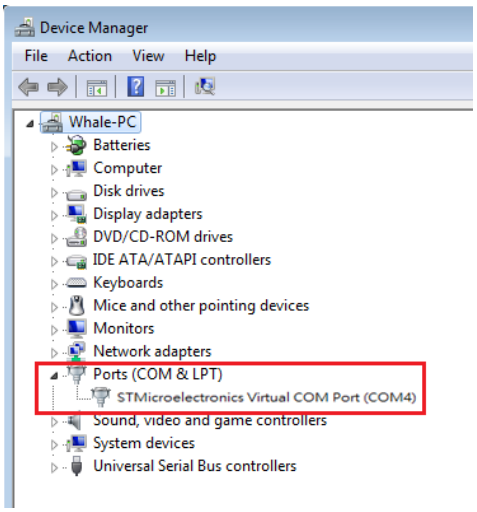
2.1 Entering Configuration Mode

Under normal circumstances, the RP901 enters the Normal Operation Mode upon power-up. The following steps will switch the RP901 to Configuration Mode and connect it to the Host PC's RFID Utility.

Step 1:
Use a micro USB cable and connect the RP901 to the Host PC.

Step 2:
Press and hold RP901's Function button first without releasing, then press and hold the Trigger button. After pressing both buttons for about 5 seconds, the RP901 will emit two short beeps, turn on Green LED indicator, and enter Configuration Mode. At the same time it will switch its Communication Interface to USB Virtual COM.

Step 3:
Check the Host PC's Device Manager window to see if the USB Virtual COM device has been detected.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 4:
Open the RFID Utility from the Host PC and complete the connection.

The above steps will switch the RP901 to Configuration Mode and connect it to the Host PC's RFID Utility. The User may begin setting parameters on the RP901.

2.2 Canceling / Exiting Configuration Mode

Once the RP901 enters Configuration Mode, if there are no communications instructions with the Host PC within the Wait Time, or if **Exit** is selected within the RFID Utility, it will automatically exit Configuration Mode and return to Normal Operation Mode. When the unit exits Configuration Mode it will emit 2 short beeps and turn off the Green LED indicator.

While within Wait Time, pressing RP901's Function button and then the Trigger button, holding both buttons for about 5 seconds, will also exit Configuration Mode.

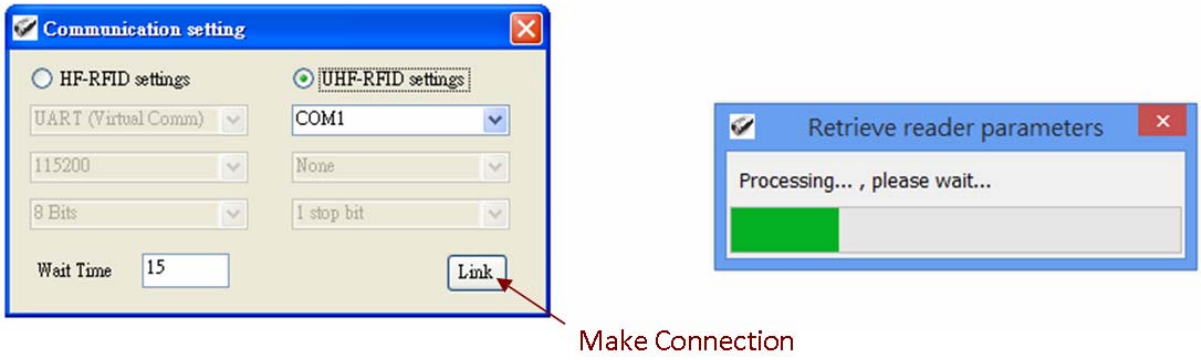
CAUTION ! Prior to entering Configuration Mode, the RP901 will record the Communication Interface in use. Therefore if the Communication Interface was BT-HID prior to entering Configuration Mode, upon exiting Configuration Mode the Communication Interface will be restored to BT-HID; if the Communication Interface setting gets changed while in Configuration Mode, for example changed to USB-HID, then upon exiting Configuration Mode the Communication Interface will become the newly designated one, in this case USB- HID.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

2.3 Operating the RFID Utility

Execute RFID Utility 

and enter the program; choose the COM port to connect with, and click the “Link” button. Once connected, you will enter the Program’s Main Window.

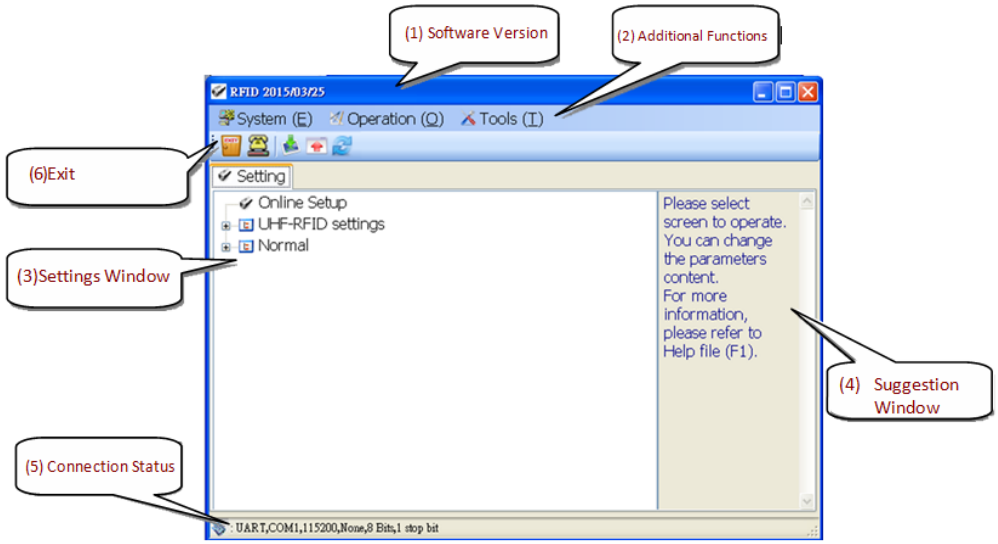


© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

2.3.1 Introduction to Main Window

Once connected, enter the Program Operation main window and explained below.

1. The Title Bar (upper-most area) shows the firmware version of the connected RP901.
2. Additional Functions area:
   - Communication: Disconnect or change the COM port.
   - Retrieve: Read RP901's operation parameters.
   - Update: Upload presently configured operation data, etc.
3. Settings Window: provides System Parameters and Settings.
4. Notifications Window: Shows currently selected parameters and simple explanations.
5. Status Bar (lower-most area): shows RP901's current connection state.
6. Exit: Exit the Utility program and inform RP901 as to the program termination. The RP901 will return to Normal Operation Mode.

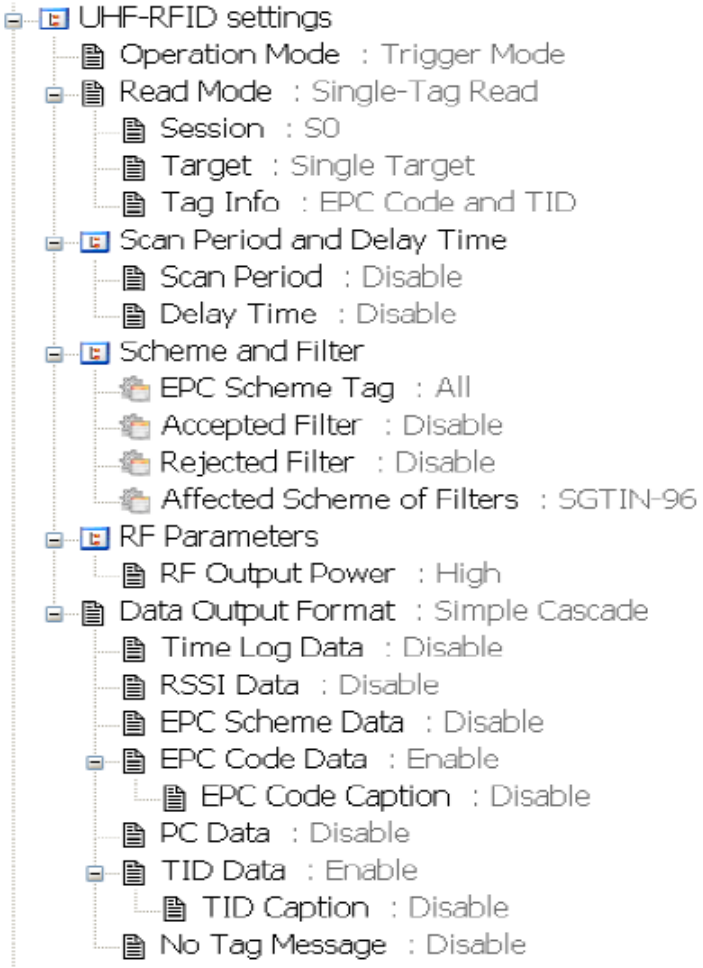


© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Chapter 3 – Command Setting

3.1 RFID Parameters Setup

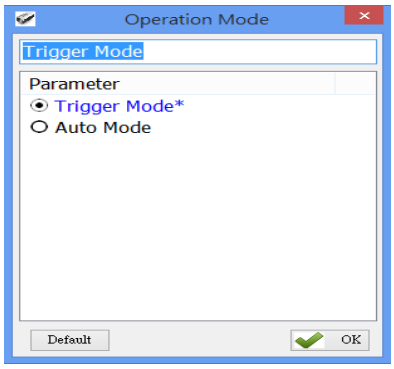
All options of RFID Parameters setup displayed in tree vide as below :



Choose the item to configure, then double click the left mouse button or press Enter to enter the desired parameters setting window.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.1.1 Operation Mode



Configure the Operation Mode for either Trigger Mode or Auto Mode.

Configuration Method:

Select one of the two options then click OK to send the new parameter to the RP901.

Default Setting: Trigger Mode

Detailed explanations of Trigger Mode and Auto Mode are as following:

(1) Trigger Mode Operation Method:

<A> Press the Trigger button to start a tag scan operation. Upon successful tag scan (Good Read) the Scan operation will stop.

<B> In Single-Tag Read mode, if the Trigger button is pressed but no successful tag scan occurred within the scan operation, the scan operation will terminate. In any case, releasing the Trigger button will terminate the scan operation.

<C> In Multi-Tag Read mode, If the Trigger button is pressed but the number of tags read is smaller than Tag-List Counter within the scan operation, the scan operation will be paused. Pressing the Trigger button again will continue the scan operation. In any case, releasing the Trigger button will pause the scan operation.

<D> In Sleep Mode, pressing the Trigger button will automatically reactivate Trigger Mode.

(2) Auto Mode Operation Method:

<A> The Auto Mode follows the same rules of operation as the Trigger Mode, except that scan operation start automatically, without pressing the Trigger button.

<B> Scan Operation is repeated and do not terminate unless the RP901 enters Sleep Mode.

<C> In Sleep Mode, Pressing the Trigger button will automatically reactivate Auto Mode.

CAUTION ! Auto Mode is more power-consuming.

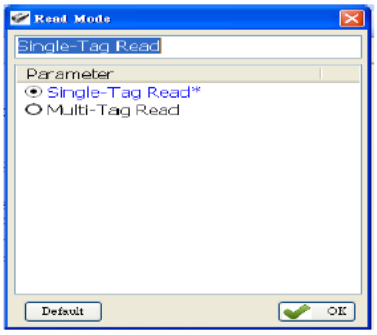
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.1.2 Read Mode

RP901 supports Single-Tag Read mode or Multi-Tag Read mode. Different Memory Bank can be read according to Read mode selected. Session and Target can be set for determining how often a tag will respond to a query from the reader.

3.1.2.1 Single-Tag Read or Multi-Tag Read

Configure the Read Mode for either Single-Tag Read mode or Multi-Tag Read mode.



Configuration Method:

Select one of the two options then click 

to send the new parameter to the RP901.

Default Setting: Single Tag

Detailed explanations of Read Tag Modes are as following:

(1) Single-Tag Read Mode:

In Single-Tag Read mode, only one tag will be read within the Scan Period.

(2) Multiple-Tag Read Mode:

In Multiple-Tag Read mode, multiple tags will be read, with each tag being read once, within the Scan Period.

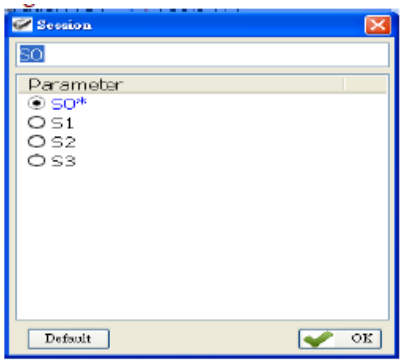
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.1.2.2 Sessions and Target

Session and Target can be set for determining how often a tag will respond to a query from the reader and allowing for multiple readers to conduct independent inventories.

- **Session**

  There are four Sessions,S0,S1,S2 and S3 can be selected.



Configuration Method:

Select one of the sessions, then click OK to send the new parameter to the RP901.

Default Setting: S0

- **Target**

  There are two Targets: Single Target and Dual Target. RP901 will read flag A if Single Target is selected, and will read A first then read B if Dual Target is selected.



Configuration Method:

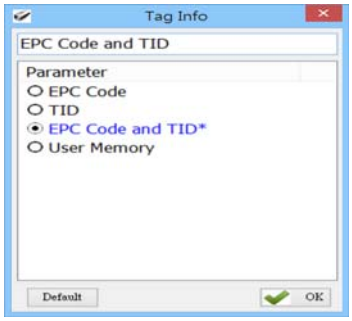
Select one of the Targets, then click OK to send the new parameter to the RP901.

Default Setting: Single Target

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

- **Tag Info - Memory Banks in Single-Tag Read mode**

  In Single-Tag Read mode, Both EPC Code and TID data of tag's Memory Bank can be read. USER Memory of tag's Memory Bank can also be read.



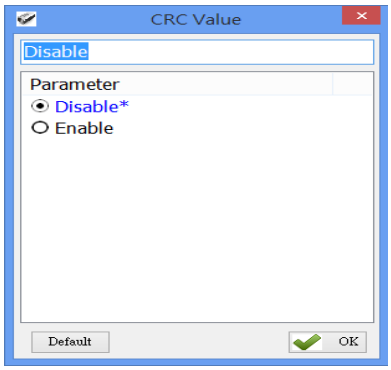
Memory Bank in Single-Tag Read:

Configuration Method: Multiple Memory Bank can be selected, once confirmed then click OK to send the new parameter to the RP901.

Default Setting: EPC Code and TID

3.1.2.3 CRC Value

In Single-Tag Read mode and only EPC Code of tag's Memory Bank to be read, CRC Value can be Enabled.



Configuration Method:

Select Enable or Disable, then click OK to send the new parameter to the RP901.

Default Setting: Disable

- **Multi-Tag Read mode:**

In Multi-Tag Read mode, Multiple tags will be read simultaneously and the Tag-List Counter will decide how many tags can be read within the Scan Period. The same tag data will be only outputted once within one Scan Period.

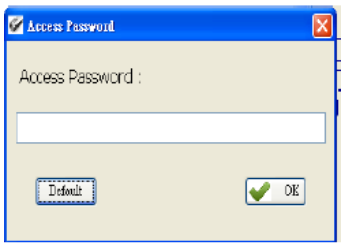
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.1.2.4 User Memory - Memory Bank in Single-Tag Read mode

In Single-Tag Read mode, Access Password, Starting Pointer and Data Length must be set when User Memory is selected.

- Access Password

Up to 8 digits of hexadecimal value can be entered if Access Password is required.



Configuration Method:
Set Access Password, once confirmed then click OK to send the new parameter to the RP901.

Default Setting: None

- Starting Pointer and Data Length



Configuration Method:
Set Starting Pointer and Data Length, once confirmed then click OK to send the new parameter to the RP901.

Default Setting:
The maximum Data Length is 512 words when Starting Pointer is set to 0. Starting Pointer : 0~511, default:0 Data Length (words):1~512,default:1

CAUTION ! 1.Only the Block 0 of File 0 of User Memory is supported.
2.Invalid parameters of USER Memory may cause an Error-Message.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.1.2.5 Tag Info - Memory Bank in Multi-Tag Read mode

In Multi-Tag Read mode, Either EPC Code or TID data of tag's Memory Bank can be read.



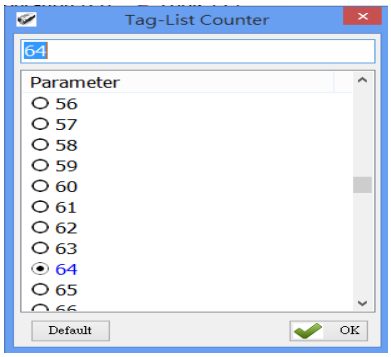
Memory Bank in Multi-Tag Read:

Configuration Method: Select one of the Memory Banks, then click OK to send the new parameter to the RP901.

Default Setting: EPC Code

3.1.2.6 Tag-List Counter

In Multi-Tag Read mode, the Tag-List Counter will decide how many tags can be read within the Scan Operation.



Configuration Method:

Select one of the numbers (1~ 128), then click OK to s send the new parameter to the RP901.

Default Setting: 64

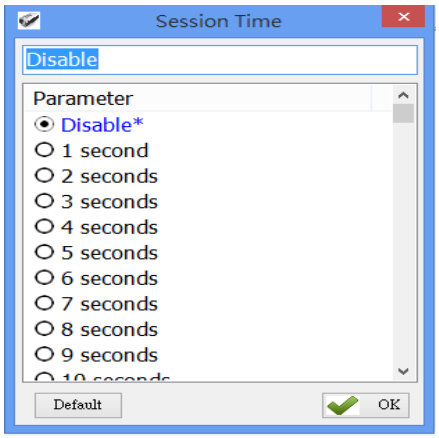
CAUTION ! The result of Multi-Tag Read mode operation will vary because of the different placement of tags as well as the type of tags.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.2 Scan Operation and Delay Time

Sets the Scan Operation and the Delay Time between tags scan.

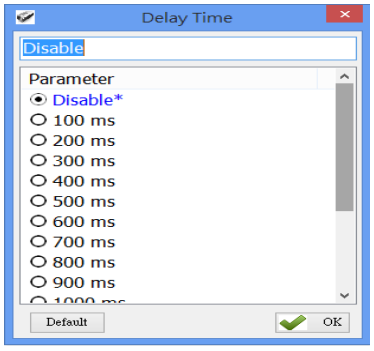
3.2.1 Scan Operation



In Trigger Mode, if the Trigger button is pressed and no successful tag scan is completed within the Scan Operation, the Scan Operation terminates. This feature may be disabled by setting Scan Operation to 0 (Disabled).

Configuration Method: Select a value (0~255 seconds) then click OK to send the new parameter value to the RP901.
Default Setting: Disable

3.2.2 Delay Time



Sets the Delay Time between every tag scan. This feature may be disabled by setting Delay Time to 0 (Disabled).

Configuration Method:
Select a value (0 ~ 1500ms) then click OK to transfer the new parameter value to the RP901.
Default Setting: Disable

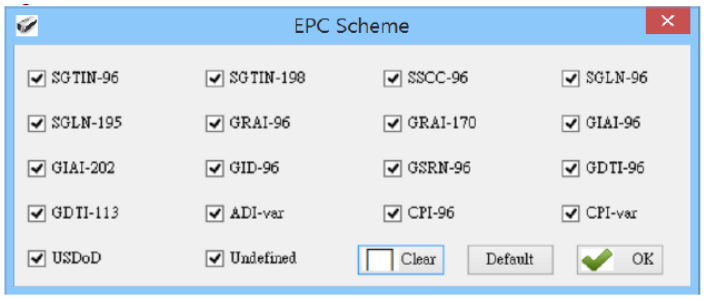
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.3 Scheme and Filter

Scheme and Filter is effective only when EPC Code of Tag Info is selected.

3.3.1 EPC Scheme

This function will define which kind of tags can be read according to the EPC Scheme of tags.

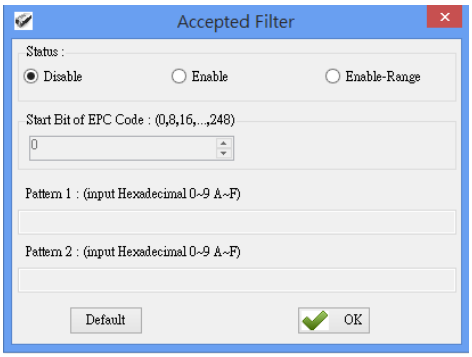


Configuration Method:
Multiple types of EPC Scheme can be selected. Once confirmed, click OK to send the new parameter values to the RP901.

Default Setting: All Schemes are selected.

3.3.2 Accepted Filter

Accepted Filter defines a pattern or a range (2 patterns) of EPC Code. A Tag can be accepted if the selected part of its EPC Code is equal to Pattern 1 or Pattern 1≦the selected part of its EPC code≦Pattern 2.



Configuration Method:
Enable or Disable Included Filter. Input the Start Bit of EPC Code by 4 bits (0,4,8...) and the pattern string of Accepted Filter in hexadecimal then click OK to send the new parameter values to the RP901.

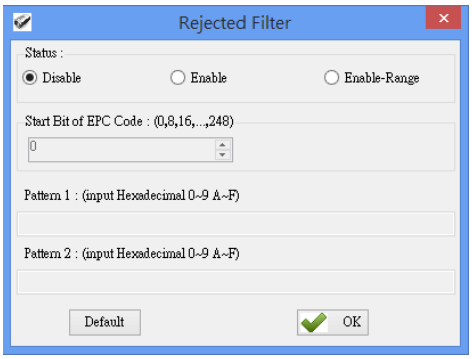
Default Setting: Disable
Start Bit of EPC Code: 0
Pattern 1 :""
Pattern 2 :""

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Status:
Enable or Disable the Accepted Filter function. Pattern 1 must be defined if Enable is selected while two patterns (Pattern 1 and Pattern 2) must be defined if Enable-Range is selected.
Start Bit of EPC Code:
The start point (by 4 bits, from 0,4,8... to 248) of EPC Code to be compared.
Pattern 1 or Pattern 2:
the pattern string of Accepted Filter in hexadecimal. The length of Pattern 1 and Pattern 2 must be same and equal to the length of those numbers of EPC code to be compared.

3.3.3 Rejected Filter

Rejected Filter defines a pattern or a range (2 patterns) of EPC Code. A Tag can be Rejected if the selected part of its EPC Code is equal to Pattern 1 or Pattern 1≦the selected part of its EPC code≦Pattern 2.



Configuration Method:
Enable or Disable Rejected Filter. Input the Start Bit of EPC Code by 4 bits (0,4,8...) and the pattern string of Rejected Filter in hexadecimal then click OK to send the new parameter values to the RP901.
Default Setting: Disable
Start Bit of EPC Code: 0
Pattern 1 :""
Pattern 2 :""

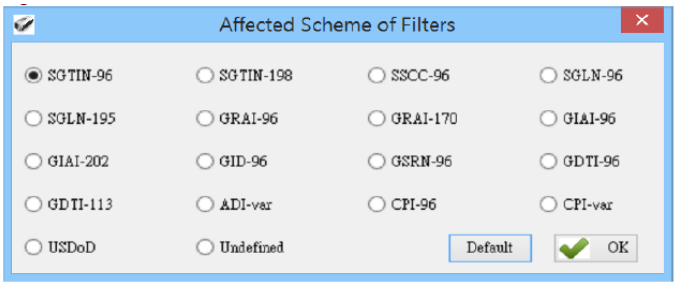
Status:
Enable or Disable the Rejected Filter function. Pattern 1 must be defined if Enable is selected while two patterns (Pattern 1 and Pattern 2) must be defined if Enable-Range is selected.
Start Bit of EPC Code:
The start point (by 4 bits, from 0,4,8... to 248) of EPC Code to be compared.
Pattern 1 or Pattern 2:
the pattern string of Rejected Filter in hexadecimal. The length of Pattern 1 and Pattern 2 must be same and equal to the length of those numbers of EPC code to be compared.

Note: The Accepted Filter will be processed first when both Accepted Filter and Rejected Filter are enabled at the same time.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.3.4 Affected Scheme of Filters

This function will define which kind of tags can will be affected by Accepted Filter and Rejected Filter according to the EPC Scheme of tags.



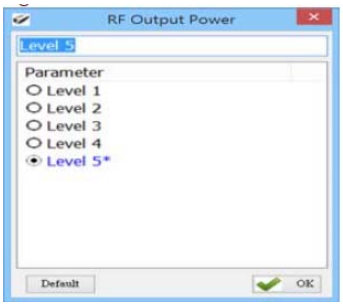
Configuration Method:
Select one EPC Scheme then click OK to send the new parameter value to the RP901.
Default Setting: SGTIN-96

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.4 RF Parameters

3.4.1 RF Output Power

This function will set the RF output power of RP901. Lower output power will result in shorter reading distance as well as more power saving.

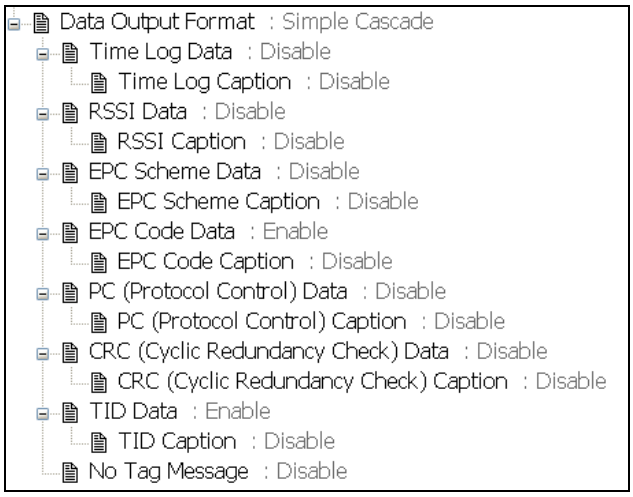


Configuration Method: Select one RF output power level then click OK to send the new parameter value to the RP901.

Default Setting: Level 5 (max)

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5 Data Output Format



The Data Output Format options include settings for Time Log, RSSI, EPC Scheme, EPC Code, PC (Protocol Control), CRC (Cyclic Redundancy Check) and TID data.

Each parameter of data output can be set: simply choose one of either Disable or Enable then click 

to send the new parameter values to the RP901.

There are two output formats available, one Full Description another Simple Cascade. In Simple Cascade format, the caption is neglected even it is enabled. For example:

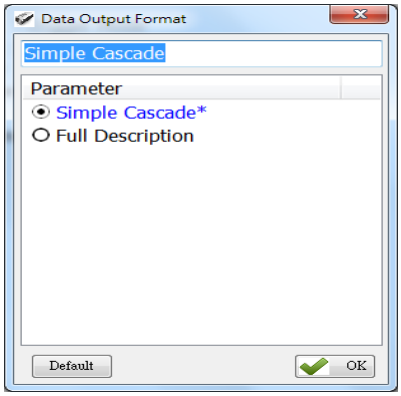
Full Description Format:
Time Log: 2014/12/19 12:30:59
RSSI:3A
EPC Scheme:STGIN-96
EPC Code:301122334455667788990011
PC: 3000
CRC: ABCD
TID: 123456789012

Simple Cascade Format: (TID is disabled in this example)
2014/12/19 12:30:59,3A,STGIN-96,301122334455667788990011,3000,ABCD

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.1 Output Format

Select the Simple Cascade format or Full Description format.



Configuration Method:
Choose one of the two formats then click OK to send the new parameter values to the RP901.

Default Setting: Simple Cascade Format

3.5.2 Data Content

Whether to output UHF tag data in hexadecimal format or character format.



Configuration Method:
Choose one of the two formats then click OK to send the new parameter values to the RP901.

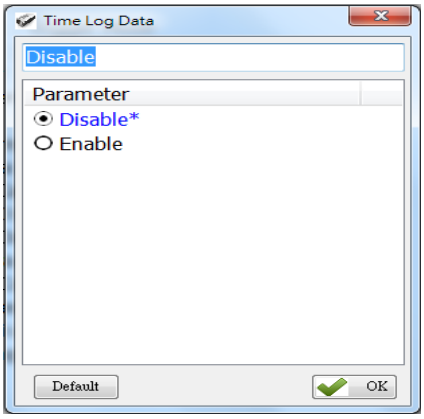
Default Setting: Hexadecimal

**Note: Please note that the Character conversion is only applicable for data ranging from 0x20 (space) to 0x7F(delete). The other data, from 0x00(NUL) to 0x1F(US),and from 0x80(Undefined) to 0xFF(ÿ), will simply not show up in the output result.*

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.3 Time Log

Whether to output the Time Log for tag scanned. For date and time formats please refer to 3.6.1 Date Format and 3.6.2 Time Format.

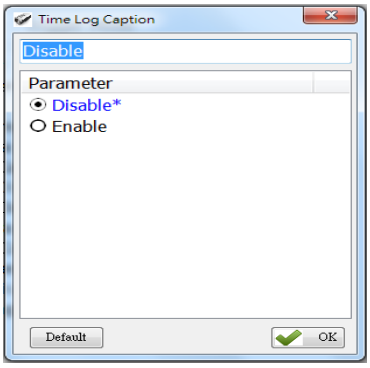


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output Time Log is enabled, the following may also be configured:

3.5.3.1 Output Time Log's caption "Time Log:"



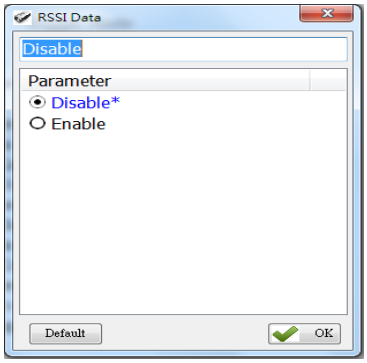
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.4 RSSI (Received Signal Strength Indicator)

Whether to output tag's RSSI value.

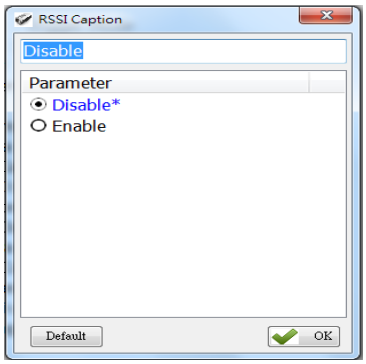


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output RSSI is enabled, the following may also be configured:

3.5.4.1 Output RSSI 's caption “RSSI: ”



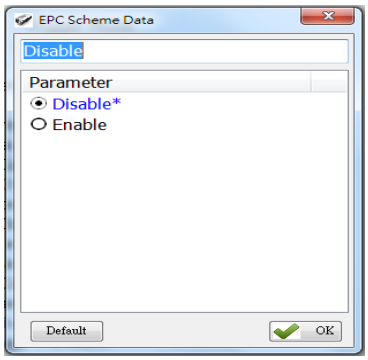
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.5 EPC Scheme

Whether to output EPC Scheme. This function is available when the EPC Code of Tag Info is selected. Please see 3.1.2.2 Tag Info.

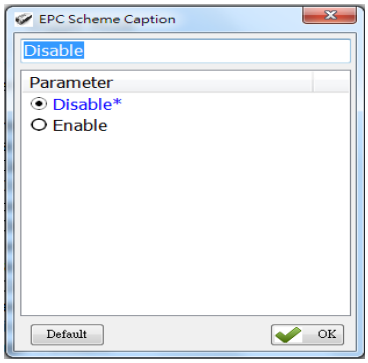


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output EPC Scheme is enabled, the following may also be configured:

3.5.5.1 Output EPC Scheme caption “EPC Scheme:”



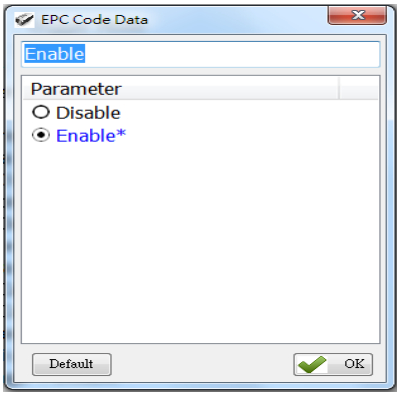
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.6 EPC Code

Whether to output EPC Code. This function is available when the EPC Code of Tag Info is selected.

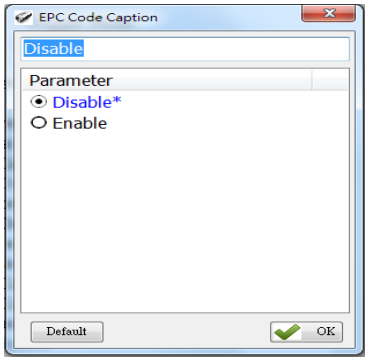


Configuration Method: Choose Disable or Enable.

Default Setting: Enable

If Output EPC Code is enabled, the following may also be configured:

3.5.6.1 Output EPC Code’s caption “EPC Code:”



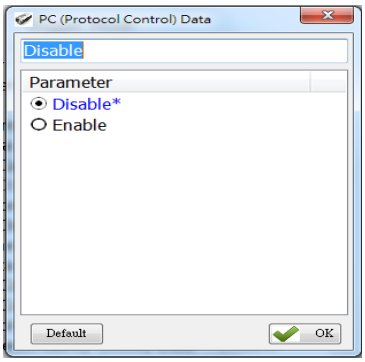
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.7 PC (Protocol Control)

Whether to output tags' PC data. This function is available when the EPC Code of Tag Info is selected.

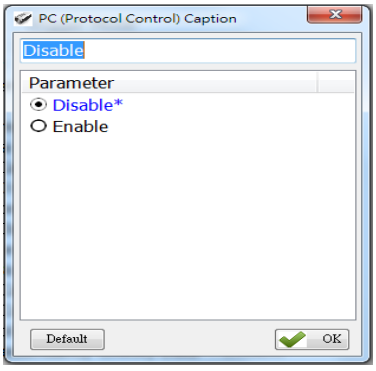


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output PC data is enabled, the following may also be configured:

3.5.7.1 Output PC data's caption "PC:"



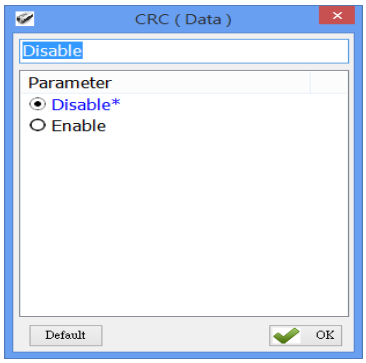
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.8 CRC (Cyclic Redundancy Check)

Whether to output tags' CRC value. This function is available when the EPC Code of Tag Info is selected.

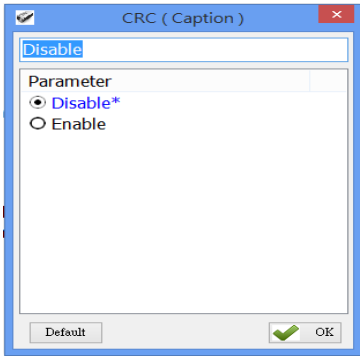


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output CRC value is enabled, the following may also be configured:

3.5.8.1 Output CRC value's caption "CRC:"



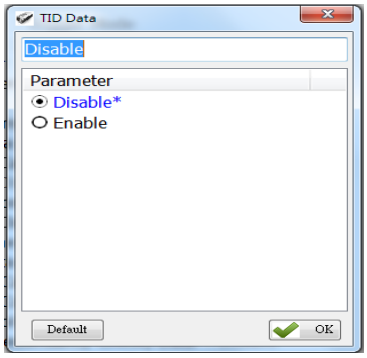
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.9 TID data

Whether to output tag's TID data. This function is available when the TID data of Tag Info is selected.

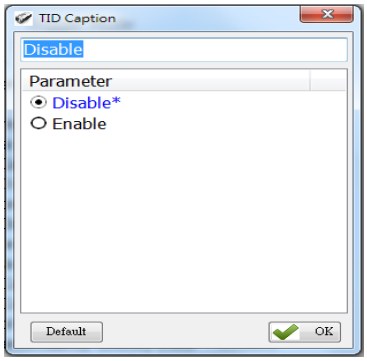


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If Output TID data is enabled, the following may also be configured:

3.5.9.1 Output TID data's caption “TID:”



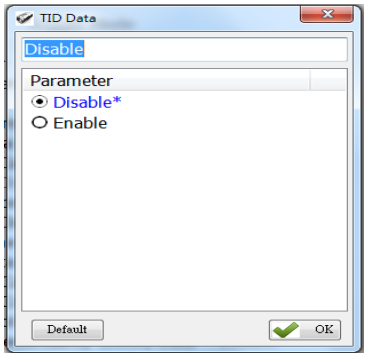
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.10 USER memory

Whether to output tag's User memory. This function is available when the User memory of Tag Info is selected.

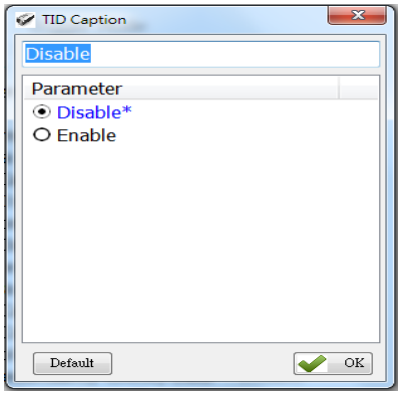


Configuration Method: Choose Disable or Enable.

Default Setting: Disable

If output User memory is enabled, the following may also be configured:

3.5.10.1 Output User memory 's caption “USER memory:”



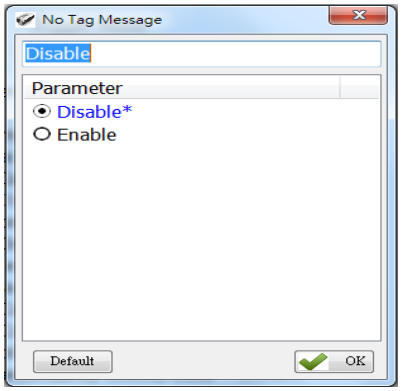
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.5.11 No-Tag-Message

Whether to output No-Tag-Message. No-Tag-Message is a preset message such as “No Tag” that displays when no Tag could be read successfully upon terminating a Scan Operation. No-Tag-Message is applicable only for Trigger Mode and Single-Tag Read Mode.



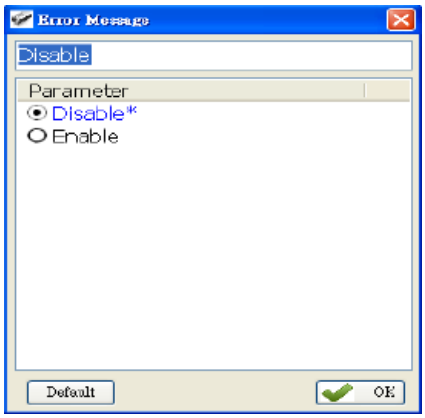
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

3.5.12 Error-Message

Whether to output Error-Message. Error-Message displays when there is an error encountered during a scan operation. An Error-Message will be followed by an Error-Code.
For Example:
Error-Message: 0A

Error-Message is applicable only for Trigger Mode and Single-Tag Read Mode.



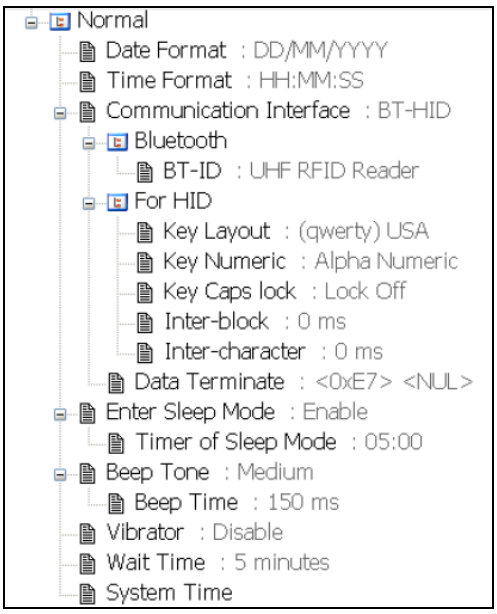
Configuration Method: Choose Disable or Enable.

Default Setting: Disable

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

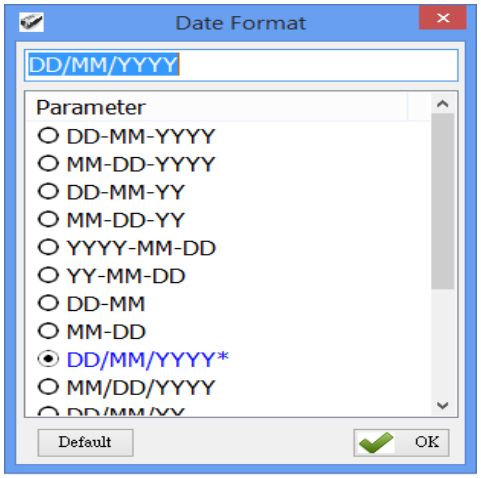
3.6 Other Parameters Setup

RP901 has other parameters not related to RFID, such as Date Format, Time Format, Communication Interface, Sleep Mode etc.



3.6.1 Date Format

Date format of memory data's date mark.
Set how date format is arranged: D means Date, M means Month, Y means Year. 16 choices are available.



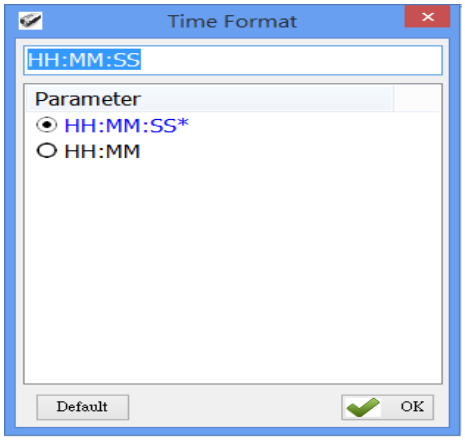
Configuration Method:
Choose one among the 16 then click  to transfer the parameter setting to the RP901.

Default Setting: DD/MM/YYYY

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.6.2 Time Format

Time format of memory data's time mark.
Set how time format is arranged: H means Hour, M means Minute, S means Second. 2 choices are available.



Configuration Method:
Choose one of the two then click OK to transfer the parameter value to the RP901.

Default Setting: HH:MM:SS

3.6.3 Communication Interface

Set the communication interface between the RP901 and the Host PC, meaning the communication interface for RP901's data output.
Five choices are available.



Configuration Method:
Choose one of the five then click OK to transfer parameter values to the RP901.

Default Setting: BT-HID

Each Communication Interface is described in details as below:

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

(1) USB-VCP

Use USB Virtual COM as communication interface.

(2) USB-HID

Use USB HID Keyboard as communication interface.

(3) Memory

When using Memory as the communication interface, the RP901 will not output data scanned, will store them within its internal memory as a file (about 2MB in size). To access that file, a connection with the Host PC is required.

(4) BT-HID

Use Bluetooth® HID Keyboard as communication interface.

(5) BT-SPP

Use the Bluetooth® SPP (BT Virtual COM) as communication interface. During BT-SPP connection, RP901 can be programmed via command strings sent from the Host. RP901 also can be triggered to start/stop scanning tags via BT-SPP connection without using the physical trigger button. The details are described in the RP901 BT-SPP Command Manual, please download the manual from: http://w3.tw.ute.com/pub/cs/manual/rp901/RP901_BT_SPP_Commands_Manual.pdf

NOTE:

No matter what interface is selected, Tag data will be sent in ASCII format. For example, tag data <0x03> is sent to the host as <0x30><0x33>, 2 bytes in total.

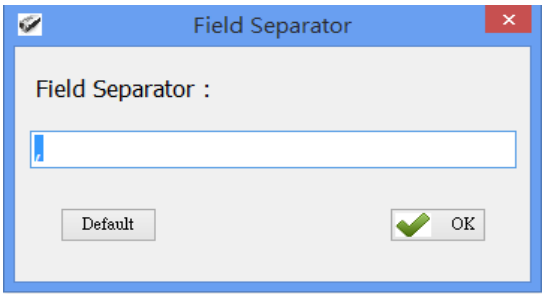
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.7 Memory Communication Interface Options

When the Memory Communication Interface is chosen, each scanned data is marked with date and time, and then stored in the internal memory. When the memory is full with data, Tag reading will elicit a warning signal in the form of 3 short beeps and a one second lighting of the red LED indicator, and no reading will actually occur. Only when the data inside the memory has been received and deleted by the Host PC may the Scan Operation resume. Choosing Memory as the Communication Interface enables the Field Separator.

3.7.1 Field Separator

Set the symbol used to separate each field of data formatting.



Configuration Method:
Directly input the symbol, maximum 1 Byte in size then click 

to transfer the parameter value to the RP901.

Default Setting: Comma (,)

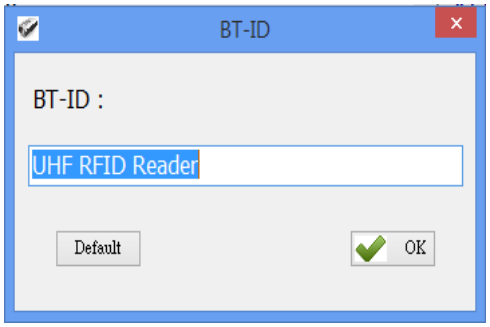
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.8 BT-HID and BT-SPP Communication Interface Options

When BT-HID or BT-SPP is chosen as the Communication Interface, the BT-ID and BT-Pin-Code options become available.

3.8.1 BT-ID

Set the Bluetooth®-ID name, for Host-PC display purposes.

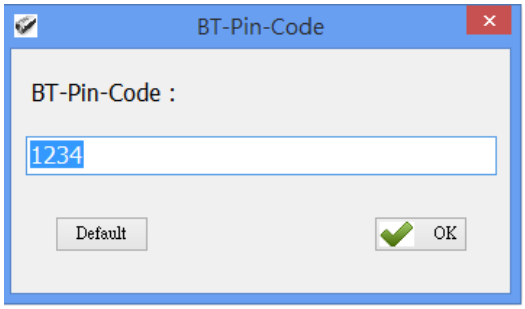


Configuration Method:
Choose a desired phrase, maximum 16 Bytes.
Once chosen, click OK to transfer the parameter value to the RP901.

Default Setting: UHF RFID Reader

3.8.2 BT-Pin-Code

Set the Pin-Code used when connecting to the Host-PC via BT-SPP.



Configuration Method:
Enter the Pin-Code value, maximum 8 Bytes.
Once chosen, click OK to transfer the parameter value to the RP901.

Default Setting: 1234

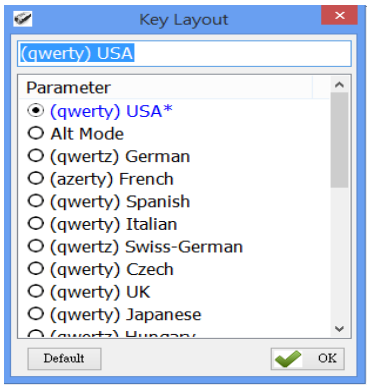
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.9 USB-HID and BT-HID Communication Interface Options

When USB-HID or BT-HID are chosen as the Communication Interface, additional options become available. These include Key Layout, Key Numeric, Key Caps lock, Inter-block, and Inter-character.

3.9.1 Keyboard Layout

Set the language used for RP901's data output to the Host- PC. 24 choices are available.

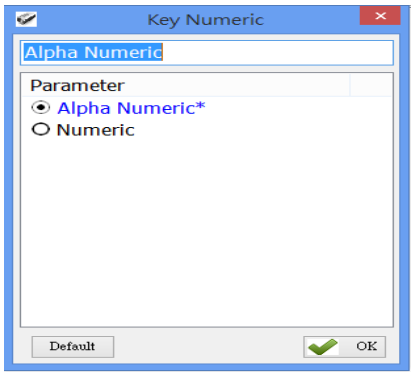


Configuration Method:
Choose one of 24, then click OK to transfer the parameter setting to the RP901.

Default Setting: (qwerty) USA

3.9.2 Key Numeric

Set the keyboard used for RP901's Scan Code output.



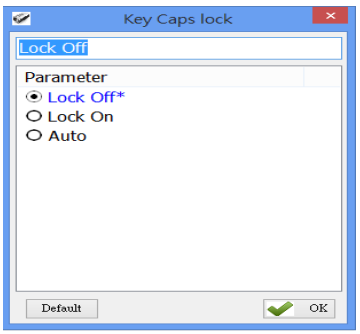
Configuration Method:
Choose one, then click OK to transfer the parameter setting to the RP901.

Default Setting: Alpha Numeric

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.9.3 Key Caps Lock

Set the keyboard's Caps Lock state to On, Off or Auto.

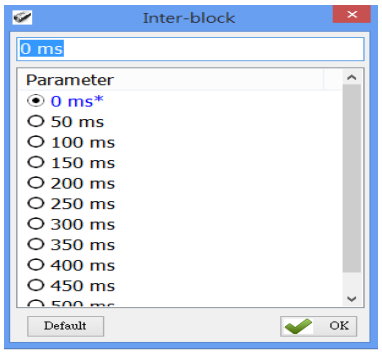


Configuration Method:
Choose one, then click OK to transfer the parameter setting to the RP901.

Default Setting: Lock Off

3.9.4 Inter-block Interval Time

Sets the Interval Time between each packet of data (including the separator symbol) and the next.

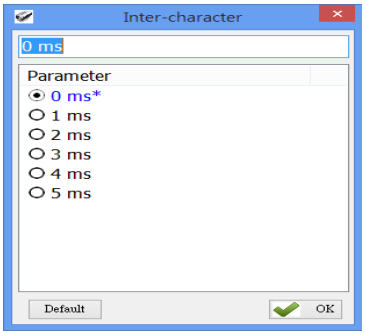


Configuration Method:
Choose one (value range 0 ~ 500 ms), then click OK to transfer the parameter setting to the RP901.

Default Setting: 0 ms

3.9.5 Inter-character Interval Time

Set the Interval Time between one character and the next within each packet of data.



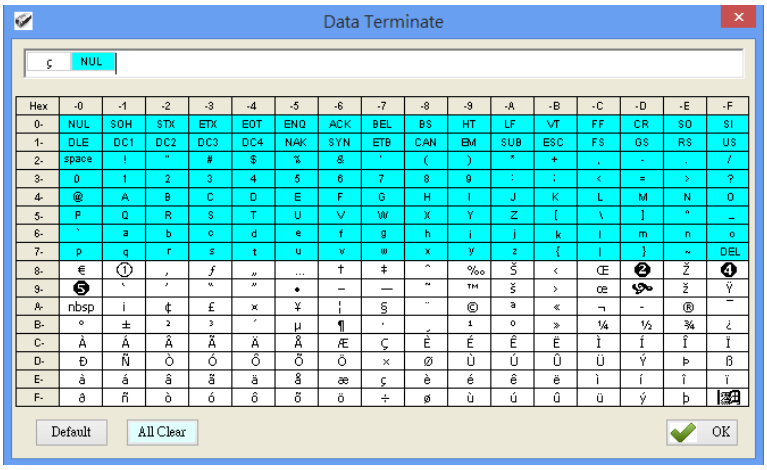
Configuration Method:
Choose one, then click OK to transfer the parameter value to the RP901.

Default Setting: 0 ms

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.10 Data Terminator

Set the terminator symbol used when uploading RP901's data to the Host-PC. It can be 1 or 2 Bytes depending on the Communication Interface.



Configuration Method: Choose or type in a symbol using the special keyboard shown in photo. Show 1 or 2 Bytes. Then click OK to transfer the parameter value to RP901.

(1) Data Terminator of USB-HID / BT-HID interface:

Default: ç NUL (<0xE7><0x00>). Totals 2 Bytes.

(2) Data Terminator of USB-VCP / BT-SPP interface:

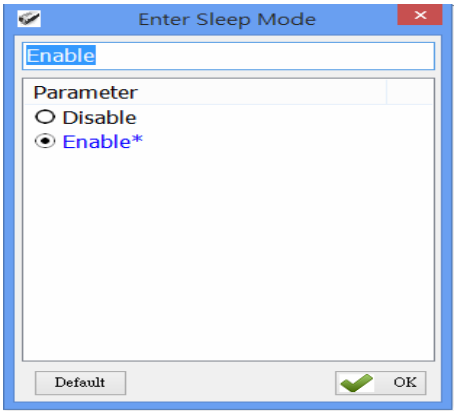
Default: CR LF (<0x0D><0x0A>). Totals 2 Bytes.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.11 Sleep Mode /Timer

Set the activation status for Sleep Mode and the Timer value used for entering Sleep Mode. The RP901 will enter Sleep Mode to conserve power if there is no successful Tag scanned after a period of time.

3.11.1 Enter Sleep Mode

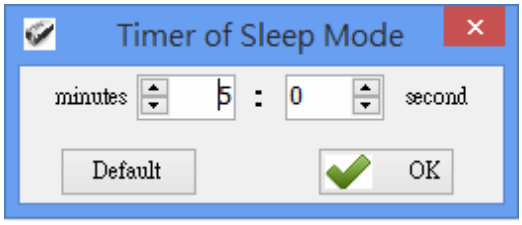


Set whether to activate Sleep Mode.

Configuration Method:
Choose one, then click OK to transfer the parameter setting to the RP901.

Default Setting: Enable (activate)

3.11.2 Timer of Sleep Mode



Set the waiting time for entering Sleep Mode.

Configuration Method:
Choose a value (range 00:10 ~ 60:00 mm:ss), then click OK to transfer the parameter value to the RP901.

Default Setting: 05:00

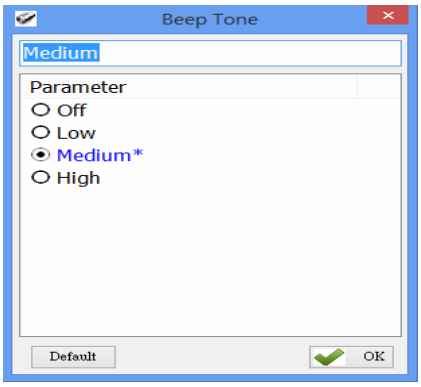
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.12 Buzzer

Beep tones serve as an indication of operation status. For Example, one short beep signifies a Good Read within a Scan Operation and 3 short beeps warn an error.

3.12.1 Beep Tone

Set the beep volume or disables beeping.

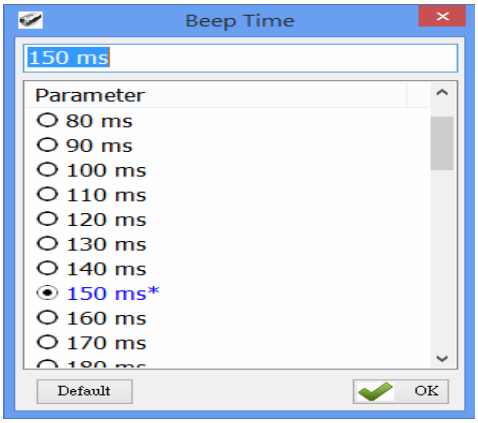


Configuration Method:
Choose one, then click OK to transfer the parameter setting to the RP901.

Default Setting: Medium

3.12.2 Beep Time

Set the beep length for the short beep used to signify a Good Read.



Configuration Method:
Choose a value between 50 ~ 500 ms, using 10 ms intervals.
Then click OK to transfer the parameter value to the RP901.

Default Setting: 150 ms

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.13 Vibrator

Enable or Disable the Vibrator which may be used to signify a Good Read during a Scan Operation.



Configuration Method:
Choose one of the options, then click 

to transfer the parameter setting to the RP901.

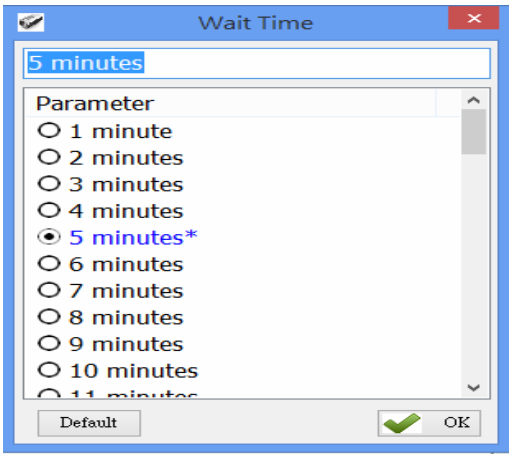
Default Setting: Disable (deactivated)
***Note:** The duration of vibration is fixed at 200 ms.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.14 Wait Time

Set the Wait Time used prior to automatically exiting RP901's Configuration Mode.

When the RP901 is in Configuration Mode, if there are no communication instructions between it and the Host PC within a Wait Time, it will automatically exit Configuration Mode and return to Normal Operation Mode. Or, while within Wait Time, if the RP901's Function button is pressed, followed by the Trigger button, and both buttons are held for about 5 seconds, it will also exit Configuration Mode.



Configuration Method:

Select a value between 1 ~ 60 minutes, using 1 minute intervals. Then click OK to transfer the parameter value to the RP901.

Default Setting: 5 minutes

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

3.15 System Time

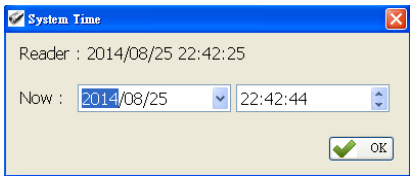
Set the RP901's System Time.

Date format: Year (4 digits), Month (2 digits), Date (2 digits).

e.g. Date: 2014/12/19

Time format: Hour (2 digits), Minute (2 digits), Second (2 digits).

e.g. Time:09:50:30



Configuration Method:

Input the year, Month, Day, Hour, Minute, Second within their respective value ranges. Then click OK to transfer the parameter value to the RP901.

Default Setting: Synchronized as Host-PC's System Time

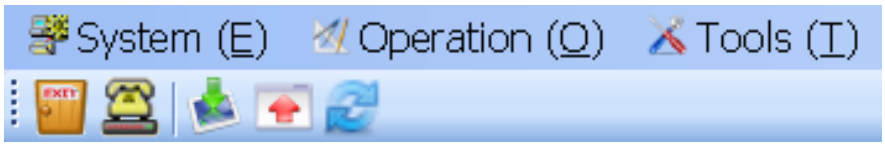
CAUTION ! Removal of battery or full drain of battery may cause the reader's System Time to desynchronize.

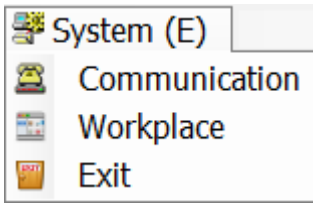
© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Chapter 4 – Additional Function

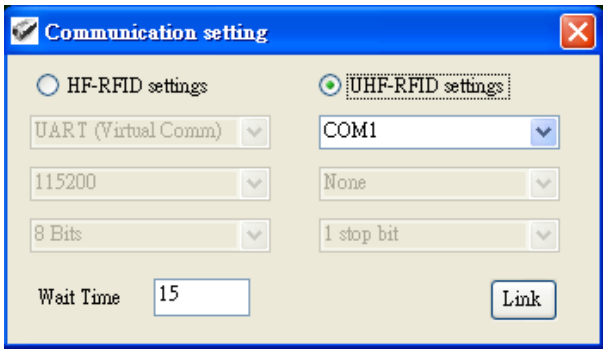
4.1 System Time

RFID Utility's additional functions include System, Operation and Tools, described as below:





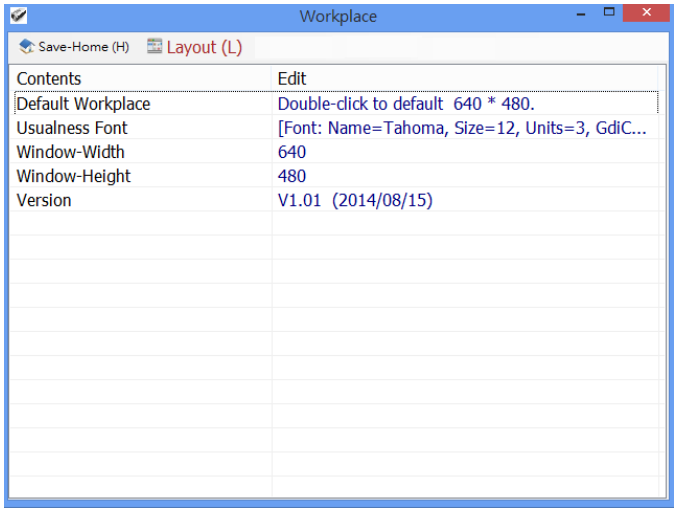
A> Communication: When connected, you may click "Stop" to get disconnected then change COM port and initiate another connection



CAUTION ! When terminating a connection, the system will force RP901 to terminate the configuration process.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

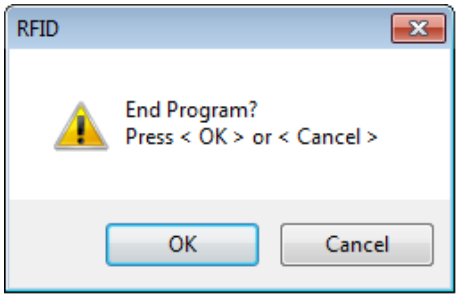
<B> Workplace: Functions such as Reset to Default Window, Window Size, Fonts …etc, are configurable in the Workplace Window.



In the lower part of selection window, choose the item you wish to adjust, then double click on it with your mouse or press the ENTER key to start adjusting.

1. Default Workplace: Restores all defaults, including window size, font style, font size, etc.
2. Usualness Font: Mostly used for adjusting fonts for the Main Menu. The user determines its use.
3. Window-Width, Height: Adjusts window size only for the Main Window.

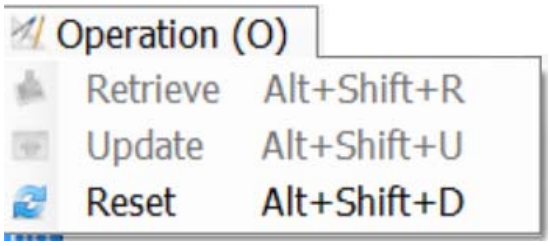
<C> Exit: When exiting the RFID Utility, the system will ask whether to terminate all configuration operation.



CAUTION ! When exiting from the RFID Utility is confirmed, the system will instruct the RP901 to terminate the configuration process.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

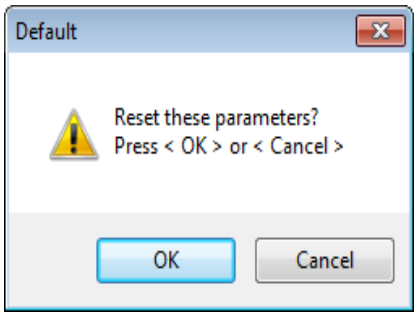
4.2 Operation



Retrieve: Read parameter values from the connected RP901.
Update: Upload the current parameter values.
** Only when connected to an RP901 may Retrieve and Update be used.*

Reset: Restore all parameters to their Default settings.

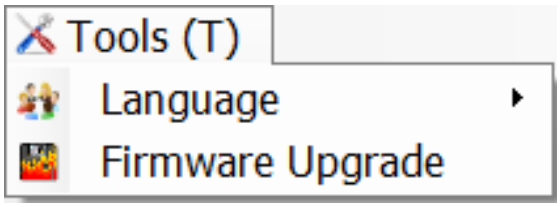
When the RP901 is connected to the Host-PC, User can restore all parameter inside the RP901 to their factory Default settings (Reset Reader's Parameter to Default).



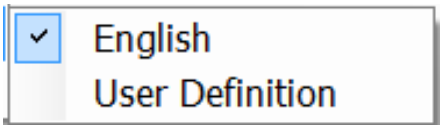
CAUTION! Reader's Communication Interface and the Memory Data saved in TAGDATA.txt will not be affected by Reset. To configure Communication Interface, please follow instruction of Communication Interface; to remove Memory Data, please refer to Retrieving / Deleting Memory Data.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

4.3 Tools



<A> Language: Set the display language.



<B> Firmware Upgrade: Update the firmware on RP901.

Please refer to Chapter 5. Updating Firmware on RP901.

© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

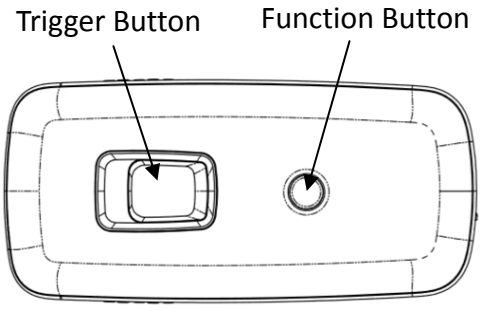
Chapter 5 – Updating Firmware

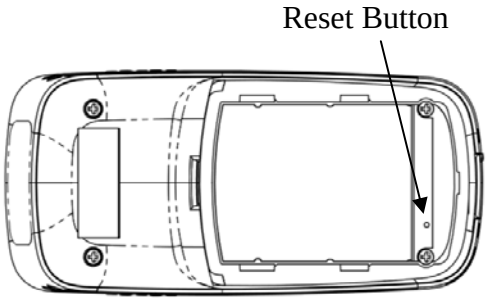
5.1 Entering Firmware Update Mode

Under normal circumstances, the RP901 boots into the Normal Operation Mode. The following steps will move the RP901 to Firmware Update Mode and connect it to the Host PC's RFID Utility to facilitate firmware upgrade through USB Virtual COM communication. There are three steps to enter firmware update mode.

Step1:
Make sure that the RP901 is disconnected from the Host PC.
Connect the RP901 to the Host PC using the Micro USB Cable.

Step 2:
Press the Function button and the Trigger button on the RP901 simultaneously. Hold both buttons, do not release, and use a pin or a straightened paperclip to press the Reset button on the bottom. Only release the reset button. Hold on both buttons over 10 seconds.

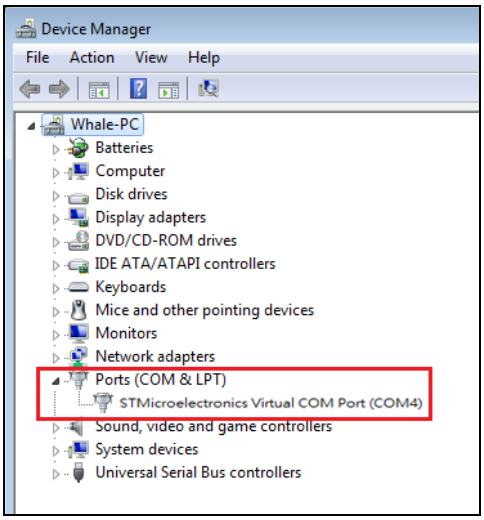




© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

Step 3:

Check the Device Manager on the Host PC to see if a USB Virtual COM has appeared. Now release the Function button and the Trigger button. When the RP901 enter the Firmware Update Mode successfully, the LED will light "**red>green>red>green**".



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

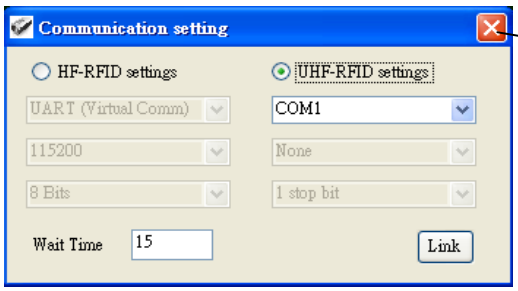
5.2 Executing Firmware Update

Step 1 :

Execute the 

program. Do not establish a connection.

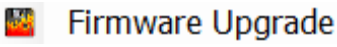
Press  to cancel the connection process and enter the program.



Cancel Connection

Step 2:

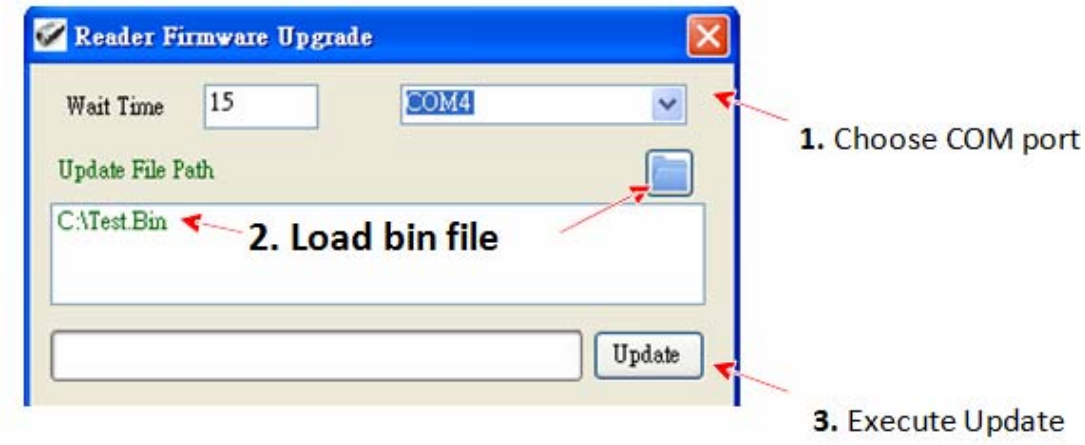
Choose 

and execute 

Please refer to 4.3 Tools

Step 3:

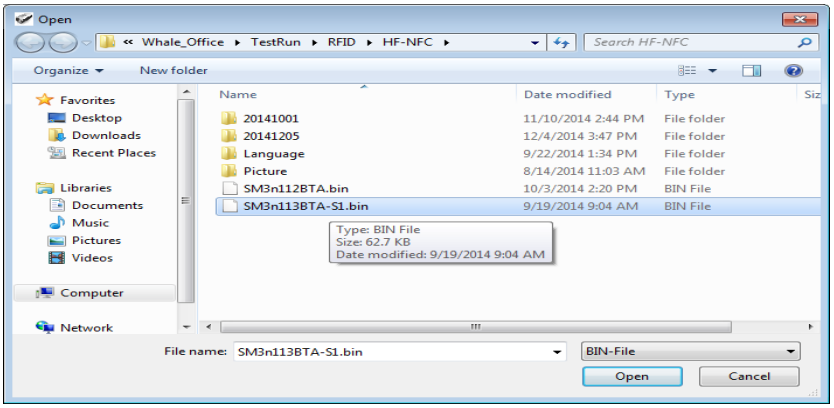
Choose the COM port.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd

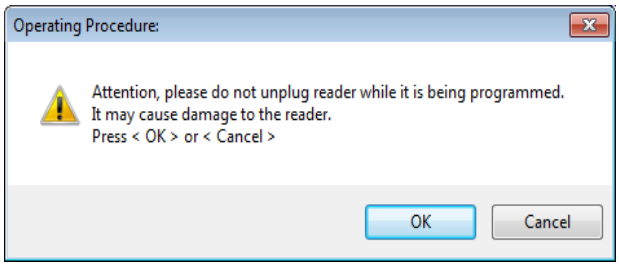
Step 4:

Load  the bin file



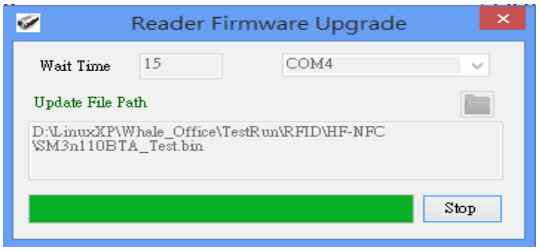
Step 5:

Click  to execute firmware upgrade. The system will ask whether to confirm execution.



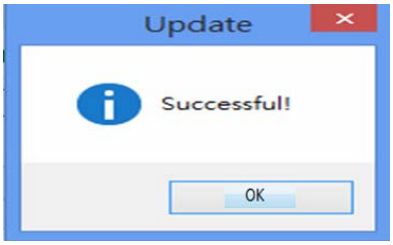
CAUTION !

While the RP901 is updating its firmware , please avoid unnecessary errors and do not unplug the cable. Incomplete firmware update may cause damage to RP901.



Step 6:

When update is complete, click “OK”to finish the update program. The RP901 will reboot and return to Normal Operation Mode automatically.



© 2016 unitech Electronics Co., Ltd. All rights reserved.
unitech is a registered trademark of unitech Electronics Co.,Ltd