

AT188N

User guide



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1 Révision

Description	Date	Version	Author	Check
First release	2019/02/26	1.0		
Second release	2020/06/11	2.0	CLO	

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2 Before Beginning

The objective of user guide is to pass the basic contents related with AT188's maintenance and smooth uses.

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3 Product Overview

AT188 is both subminiature barcode and RFID reader which can grasp with just one hand. As the device that meets the basic function for industrial product such as IP54 in water & dust test and 1.2 m drop specification, it can take an active as data collector in the various kinds of part in medicine, stock and product management and logistics shipping/tracking, access control. 1D/2D Barcode, UHF/HF RFID Tag information and GPS information can be collected by just one AT188 and collected data can transfer to Bluetooth and USB through real time process / batch process mode. This device is designed to handle the data by the equipment which has the windows, Android, iOS as an operating system.

4 Strength of Product

AT188 is the smallest product among the existing RFID Barcode Scanner-Reader product. Its device as durable industrial PDA meets IP54 standard for the dust & waterproof and 1.2m drop to concrete

- UHF RFID Tag can be read and written quickly since Impinj R500 module is installed in the product
- In case of that HF RFID module is installed, Various HF RFID tag can be read and written.
- Its device equipped with GPS ANT can record the barcode data and collecting site of RFID Tag data at the same time.
- Mode of Batch Process and Real Time Process can work for device
- It device can be connected with PC and charged up itself through USB Cable
- It can be charged up without exclusive adapter through normal smartphone charger
- Read data through LCD Display can be directly checked
- Battery changes is easily available and its device can change the battery in case of battery shortage while using it.

- Exclusive charging package for only battery charging will be offered (Option: To be Offered in the near future)

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5 H/W Specification

Performance Characteristics

Processor	ARM7 Core
Support Operating System	Windows, Android, iOS (BLE Only)
Memory	128Kbyte
Display	LCD & LED Indicator
Weight	160g (with Battery & UHF Option, without GPS)
Operation Temperature	-20~60°C
Storage Temperature	-30~70°C
Humidity	95% non-condensing
Drop specification	1.2M Drop to concrete
Dust & Water Proof	IP65

Physical Characteristics

Audio	Buzzer
Standard I/O Port	Bluetooth 3.0 or BLE, Micro USB
Notification	LED, Buzzer, LCD, vibrator
Dimensions(L x W x H)	115 x 50 x 35mm

Battery Supply

Main Battery	1,100mAH Li-Ion Rechargeable Battery
Power Adapter	Battery Charger (Option) & DC5V, 800mA

Network Characteristics

Bluetooth	Bluetooth 3.0 HID/SPP (BLE Option)
USB	USB 1.1 SPP/HID
GPS	Internal GPS (Option)

Barcode Data Processing Device

Barcode Engine	1D Laser or 2D Image Scanner
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UHF 900MHz RFID Reader/Writer (Option)

Chips set	Impinj R500
Frequency	860~960MHz (Support Global Frequency)

Reading Range	0M~1M (According to Tag & Environment)
Writing Range	0M~0.5M (According to Tag & Environment)
Max. RF output	26dBm, Circular
Protocol	EPC Gen2, ISO/IEC 18000-6C
Special Function	Anti-Collision

HF 13.56MHz RFID Reader/Writer (Option)

Frequency	13.56MHz
Reading/Write Range	0Cm ~ 5Cm (According to Tag & Environment)
Protocol	ISO 15693, MIFARE, ISO 14443A/B & etc.

Accessories

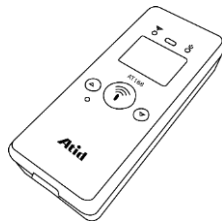
Basic Accessories	Neck strap, USB Cable
Optional Accessories	AC-DC Adapter, Battery Charger

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6 Product Composition

6.1 Product Composition

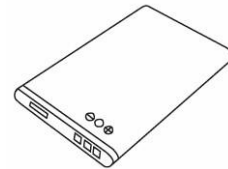
The basic package for AT188 is shown as below



<Device Body>



<Micro USB Cable>



<Battery>
User Guide



<Hand strap or Neck strap>



<Adapter (Optional)>

6.2 Composition of Each Product's parts

6.2.1 Front Side



- SCAN Lamp: blue lamp will be lit in case of reading the barcode and RFID Tag information
- Communication State Display Lamp: Show the connection state of GPS, Bluetooth, USB
- Power Lamp: Show the state-of-charge (Red under charging battery, Green after charging battery at full)

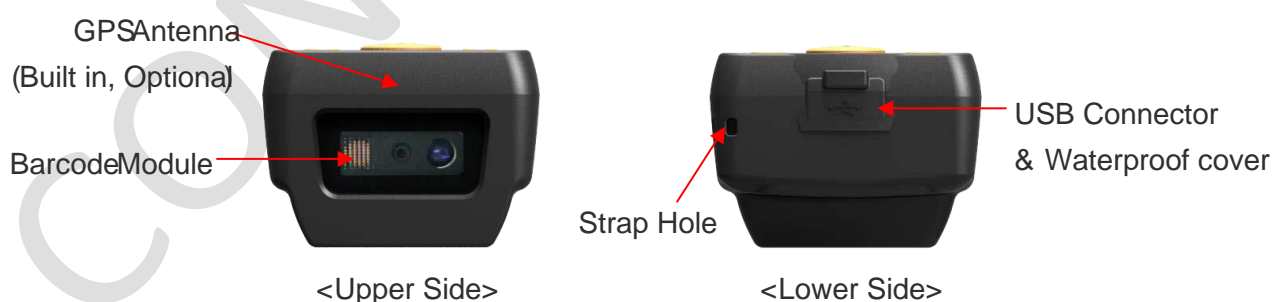
- LCD Display: Show the collected data and current state of device
- Operation Button: Use its button in case of selecting the barcode and RFID Tag reading and various menu
- Reset Button: Restart the device by force.

6.2.2 Right and Left of Back Side



- RFID Antenna: HF and UHF RFID Antenna are built in the device and the radio is emitted through RFID Antenna when reading the Tag
- Battery Cover: Battery can be changed after getting rid of cover
- Locking Part for Battery: Prevent the breakaway of battery by fixing the cover

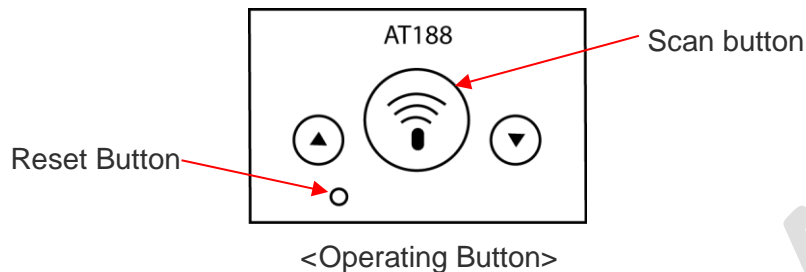
6.2.3 Up and Down Side of Device



- GPS Antenna: GPS information can be collected by this device since the GPS antenna is built in the device. This is optional one and it should be assembled in the level of production.
- Barcode Module: Barcode scanner is built in the device and 1D or 2D barcode module will be selectively applied. Please note that it should be careful to use since it is one of the most important part to read the barcode
- USB Connector & Waterproof Cover: If the Waterproof Cover opens up, Micro USB connector is located in it. User can charge the device through USB Cable and adapter or can transmit the saved data in the device to PC. Please do lock the cover in case of keeping or using the device.

- Strap Hole: The portability of device can be improved by connecting the Hand
- Strap or Neck strap with strap hole

6.3 Function of Each Button

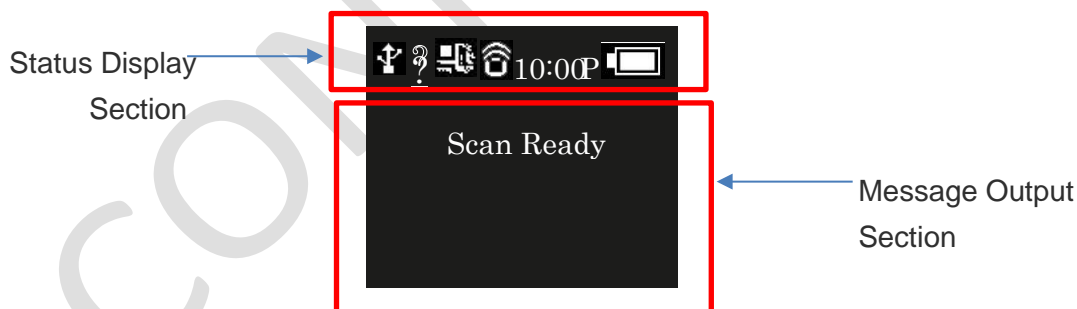


- ▲ Button: Scroll the screen upward or select the next item. The function of Barcode and UHF RFID will be converted each other whenever user pushes its button in the scan ready
- Scan Button: Collect the Barcode or RFID data and act a role to enter the menu of selected item
- ▼ Button: Scroll the screen downward or select the next item. If user pushes this button for a long time, it will be turned off
- Reset Button: Restart the device

6.4 Screen

AT188 shows the various kinds of item through compact LCD such as the current state of device and read data

The screen is separated as state display section and message display section







6.4.1 State Display Section

Its section shows the present time, battery remains and operating set-up state.

, Indication of connection mode: Show the USB connection mode () or Bluetooth connection mode ()


H, S : Show the connection state with the Host.

Disconnection State(?), HID Mode(H), Serial Mode(S)


: Show the Scanner Mode and show the activated state of Barcode
 and RFID  through the ICON

(Bright Condition: ON, Dark Condition: OFF)

10:00P: Show the set time. (There is a possibility to be different with the present time) It can be reset up at the system configuration menu

 Battery State: Show the battery remains as a four level

6.4.2 Message Output Section

This section shows the read barcode and RFID Tag information.

7 Basic Function of Device

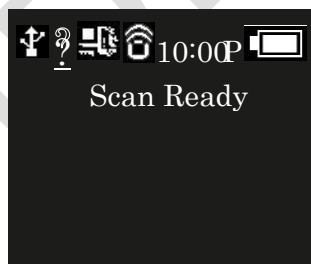
AT188 supports the reading function for basic barcode and RFID without host after turning on the device. Please acquire the basic function in accordance with the below step.

7.1 Basic Function of Device

AT188 is basically worked as three kinds of different mode

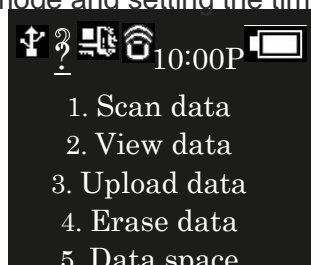
7.1.1 Scan Mode

This is the screen shown at the first when turning on the device and It acts a role in collecting the barcode and RFID data.



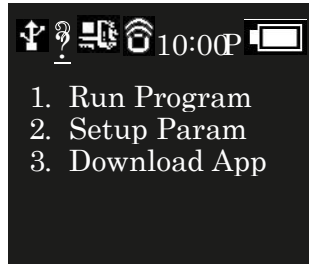
7.1.2 Scan Configuration Menu

User can adjust the basic setting of device through this menu such as confirmation of read data, memory management, communication mode and setting the time to turn off the device



7.1.3 System Configuration

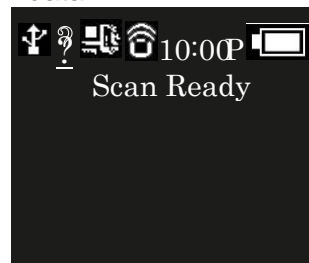
User can adjust the relation settings with whole function of device, barcode symbol settings, Barcode/RFID operation and communication



7.2 Power ON and OFF

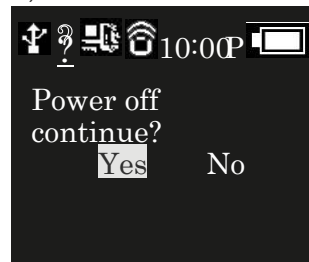
7.2.1 Power ON

- ① Press the scan button for 2 seconds.
- ② After “Booting...” message is come out at the screen, please move the hand from scan in case of that “Wait...” message is come out
- ③ If the “Scan Ready” message is come out as below, device can read the Barcode or RFID data



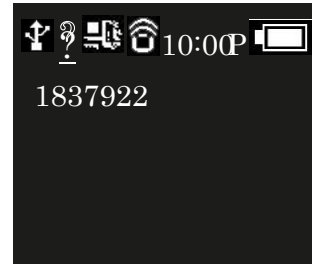
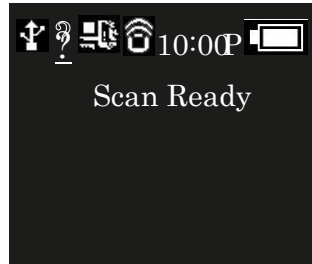
7.2.2 Power OFF

- ① Press ▼ button for 2 seconds in the Scan Ready
- ② Select the “Yes” through either ▲ button or ▼ button and then, turn off the power by pressing the scan button
- ③ If “No” is selected, user can return back to the scan mode



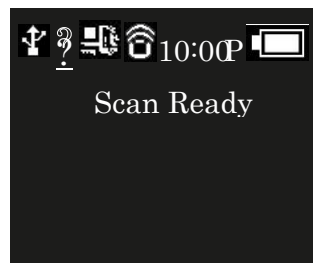
7.3 Barcode Data Reading (Scan)

- ① Convert to the barcode mode by pressing the ▲ button and making the barcode (📊) ICON bright with device on (Bright Condition: ON, Dark Condition: OFF)
- ② User can read the barcode after “Scan Ready” message



7.4 RFID Tag Data Reading (Scan)

- ① Convert to the RFID mode by pressing the ▲ button and making the RFID (RFID) ICON bright with device on (Bright Condition: ON, Dark Condition: OFF)
- ② User can read the RFID tag after "Scan Ready" message "Scan Ready"



7.5 Scan Configuration

Contents for reading history & operation of Barcode/RFID Tag, Auto Power Off might be changed by the scan configuration

6.5.1 Entry for Scan Menu

Please refer to the chapter 8. Settings & Changes in regard to detailed information on scan menu.

- ① Turn on the device
- ② The scan menu will be shown up after pressing the ▲ button for a second
- ③ Select the preferred item by using either ▲ button or ▼ button and then, press the Scan button to check the detailed information on selected item
- ④ Select the "1. Scan data" for returning back to Scan mode

7.6 System Configuration

It has to be controlled in the system configuration menu for changing the operating direction of device, settings for communication function, settings of barcode symbol and scan mode

6.6.1 Entry for System Configuration

- ① Turn on the device

- ② Show the system configuration menu if user press the ▲ button and Scan button for several seconds.
- ③ Select the “2. Setup Param” by using either ▲ button or ▼ button and then, enter the configuration menu through scan button
- ④ If the user does not want to change the settings, please go back to scan mode with “1. Run Program”
- ⑤ User can check the detailed information on selected item through the scan button after selecting the preferred item with either ▲ button or ▼ button in the system configuration menu.
- ⑥ For restarting it to scan mode after completing the whole settings and storing the contents, user has to select the “Save & Exit” after selecting the “8. Exit”. If user selects the “No Save & Exit”, it will be restarted to scan mode without storage of adjusted contents.

Please refer to the chapter 8. Settings & Changes regarding detailed information on system configuration menu.

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8 Settings & Changes

8.1 Scan Configuration

8.1.1 "Scan data"

After scan configuration, AT188 gets back to either barcode or RFID scan

8.1.2 "View data"

View Data shows the stored data located in the internal memory, in case of Batch Process Mode.

Check the next or previous item through either ▲ button or ▼ button

8.1.3 "Upload data"

Stored data in the internal memory are transferred to Host's USB or Bluetooth Data of memory will be remained after transferring.

8.1.4 "Erase data"

Stored data in the internal memory can be wholly deleted

If user wants to erase the data, please select "Yes"

8.1.5 "Data space"

Show the amount used of internal memory



8.1.6 "Comm & Mode"

Comm & Mode is set up the communication measures and data transferring way between device and host.

"*" is marked at the present settings.



- ① Realtim-BTH: Transfer the read data to device connected with Bluetooth in real time.

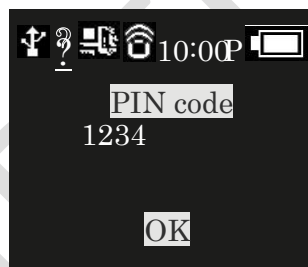
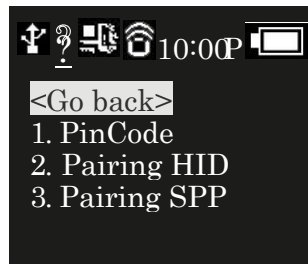
Realtime-USB: transfer the read data to the equipment connected with USB in real time

- ② Batch-BTH: Transfer the read data to equipment connected with Bluetooth in a lump (Batch Process mode)
- ③ Batch-USB: Transfer the read data to equipment connected with USB in a lump (Batch Process mode)

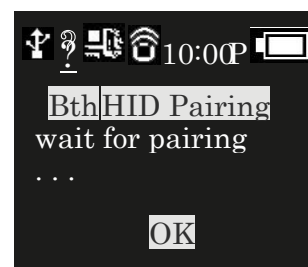
8.1.7 "Bluetooth Pairing"

If the connection mode is Bluetooth, it will offer the function for pairing with host

"PinCode": Check the Pincode



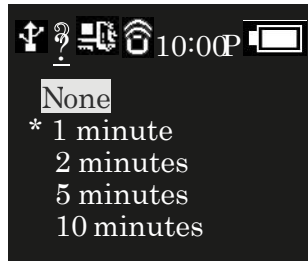
"Pairing HID": Show up the device name to host as a HID Service and wait for the pairing establishment



"Pairing SPP": Show up the device name to host as a SPP Service and wait for the pairing establishment.

8.1.8 “Power down”

The time to automatically turn off the device can be selected as 1 minute, 2 minutes, 5 minutes, 10 minutes, 30 minutes, 60 minutes, 120 minutes, None. The device will be automatically turned off itself after designated time. “*” is marked at the present settings.



8.2 System Configuration

8.2.1 “Barcode”

User can choose to read the barcode symbol or not. The item that can be set will be changed in accordance with the type and supportive function of module. The “*” is marked at the Enable item.

8.2.2 “UHF RFID” (UHF Only)

Set up the operating order of RFID and Barcode Reader and basic function of RFID Module

8.2.2.1 “READER”

Set up the barcode and RFID operating mode



“**BARCODE**”: Set up the exclusive barcode mode and read the only barcode when user pushes the scan button

“**UHF RFID**”: Set up the exclusive RFID mode, read the only UHF RFID Tag when user pushes the scan button.

“**BARCORDE-RFID**”: Set up either barcode mode or RFID mode at the scan ready. These two modes can be converted by pressing the ▲ key.

“**BARCORDE+RFID**”: Set up the both barcode mode and RFID mode

8.2.2.2 "MODE"

Set up the tag Reading Mode of RFID among Multi Tag / Single Tag / Multi Repeat



"**MULTI**": Set up Multi Tag Reading mode to read all the nearby tags.

"**SINGLE**": Set up Single Tag mode to read only one Tag data.

"**Multi Repeat**": Set up Multi Repeat mode to read all the tags nearby but does not read same tags twice.

8.2.2.3 "TYPE"

Set up to TYPE C/B for UHF RFID. (Currently only Type C is supported)

8.2.3 "HF RFID" (HF Only)

Set up basic operation of RFID and Barcode Reader

8.2.3.1 "READER"

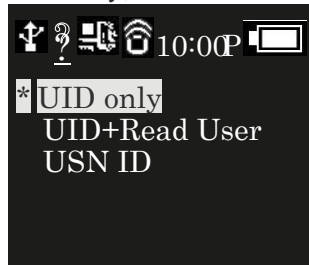
Set up the mode for Barcode and RFID.



- "**BARCODE** ": Set up the exclusive barcode mode and, read the only barcode when user pushes the scan button
- "**HF RFID**": Set up the exclusive RFID mode, read the only HF RFID Tag when user pushes the scan button.
- "**BARCORDE-RFID**": Set up either barcode mode or RFID mode at the scan ready. These two modes can be converted by pressing the ▲ key. "**BARCORDE+RFID**": Set up the both barcode mode and RFID mode.

8.2.3.2 "MODE"

Set up Tag Reading Mode of RFID to one of UID only, UID+Read User, USN ID.



"**UID only**": Output the UID (Unique Identification Number) of HF RFID Tag

"**UID+Read User**": Additionally, output the user data behind the UID

"**USN ID**": Output the USN ID of HF RFID tag

8.2.3.3 "UD START"

Set up the start value of the user data to be outputted

8.2.3.4 "UD LENGTH"

Set up the length of user data to be outputted

8.2.4 "Scan time"

8.2.4.1 "Barcode"

Set up the time to operate the barcode sensor when pushing the scan button. Set up as None, 3secs, 5secs, 7secs

8.2.4.2 "RFID"

Set up the time to operate the RFID sensor when pushing the scan button. Set up as None, 3secs, 5secs, 7secs

8.2.5 "Comm & Mode"

AT188 can connect with host through Bluetooth and USB. Both Bluetooth and USB support the two kinds of protocol



8.2.5.1 BTH Protocol

Select the communication protocol to be used when connecting with Bluetooth

- **BTH HID:** It will connect through Human Interface Device and the data to be transferred will be inputted in accordance with the contents typed through Keyboard at the place where the cursor is located. User has to require more attention for using this mode since between the data where the cursor is located and actual reading data can be differently shown up with the keyboard language settings of host.
- **BTH SPP:** It will connect through serial port profile and the data to be transferred will be transferred to serial port (COM port) of host. The host has to make the separate program for utilizing the transferred data.

8.2.5.2 USB Protocol

Select the communication protocol to be used when connecting with USB Cable.

- **USB HID:** It will connect through Human Interface Device and the data to be transferred will be inputted in accordance with the contents typed through Keyboard at the place where the cursor is located. User has to require more attention for using this mode since between the data where the cursor is located and actual reading data can be differently shown up with the keyboard language settings of host.
- **USB VCP:** It will connect through the Virtual Serial Port offered from USB and the data to be transferred will be transferred to serial port (COM port) of host. The host has to make the separate program for utilizing the transferred data.

8.2.5.3 Com Mode

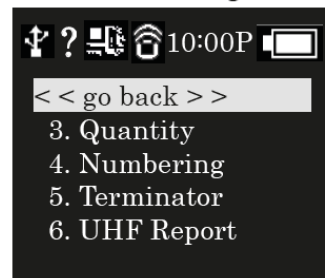
Set up the data transferring mode and communication protocol between AT118N and host. “*” is marked in selected item.



- **Realtim-BTH:** The read data will be transferred to the equipment that connects with its device through Bluetooth in real time
- **Realtim-USB:** The read data will be transferred to the equipment that connects with the its device through USB in real time.
- **Batch-BTH:** The read data will be transferred to the equipment that connects with its device through Bluetooth (Batch Process mode)
- **Batch-USB:** The read data will be transferred to the equipment that connects with its device through USB (Batch Process mode)

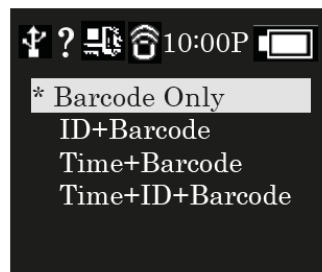
8.2.6 “Data”

The contents of this mode are explained on the basis of a situation that device can read the barcode. The operation can be different when reading the RFID Tag



8.2.6.1 "Record"

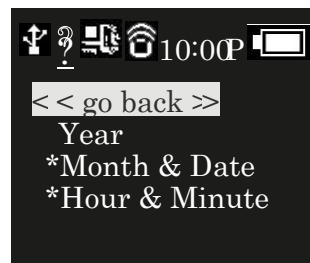
After reading the barcode, user can decide to use the barcode type ID or time to be appended when storing or transferring the data "*" is marked in selected item.



- **Barcode Only:** The only read barcode data will be stored or transferred
- **ID+Barcode:** ID of barcode and read barcode data will be stored or transferred
- **Time+Barcode:** Time data and read barcode will be stored or transferred
- **Time+ID+BarcodeMode:** Time data, ID of barcode and read barcode data will be stored or transferred

8.2.6.2 "Time format"

In case of that the time will be stored or transferred with the read barcode, user can set up the time format "*" is marked in selected item



- **Year:** Choose to use the year data or not at the time data (YYYY)
- **Month & Date:** Choose to use Month & Date or not at the time data (MMDD)
- **Hour & Minute:** Choose to use Hour & Minute or not at the time data(HHMM)

8.2.6.3 “Quantity”

Choose to input tag quantity. Quantity settings can be operated in the only barcode mode and its settings might be possible after reading the barcode tag. User can get AT188 to input quantity from 1 to 9999 and it cannot read another tag before inputting applicable tag quantity. “*” is marked in default settings

8.2.6.4 “Numbering”

Store or transfer the data index when reading the barcode and RFID tag. If the memory is vacated, it will be started from 1

8.2.6.5 “Terminator”

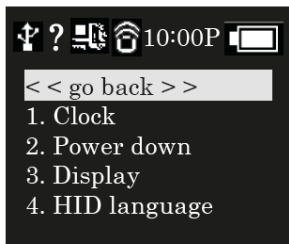
Select which letter will be attached at the end of data among LF, CR, CR&LF, Tab, Space, Semicolon when transferring the data via host

8.2.6.6 “UHF Report” (UHF Only):

Select whether only EPC data is sent or both the EPC data and PC data is sent when transferring the UHF RFID Tag Data

8.2.7 “System”

Set up to use the time, sound, vibrator, LCD and ETC are needed or not



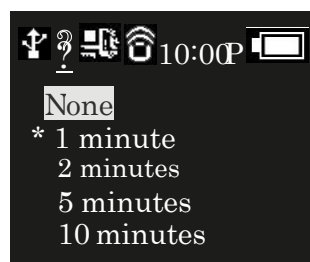
8.2.7.1 “Clock”

Set up the current time. Designated time can be used with RFID tag information and barcode.

★ Please do set up the time in regularly since time error can be occurred

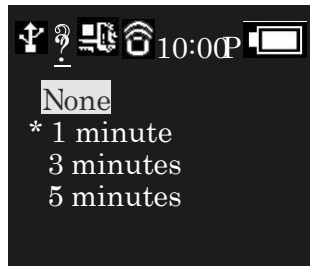
8.2.7.2 “Power down”

Select the time to automatically turn off the power when not in use. User can select the time among 1 minute, 2 minutes, 5 minutes, 10 minutes, 30 minutes, 60 minutes, 120 minutes and None. The device will be automatically turned off the its power after the designated time from LCD power off. “*” is marked in default settings



8.2.7.3 “Display”

Set up the time to turn off the LCD for saving battery and LCD will be automatically turned off in accordance with the designated time



8.2.7.4 “HID language”

Set up the language type in case of HID mode. User can select the preferred one among the UNIVER-SAL, FRENCH, UK, US

8.2.7.5 “Scan button”

Select the basic operation after turning on the device

8.2.7.6 “Notification”

Set up the operation when pressing the button or placing the Alert situation

1. Button notify

Set up whether beep, vibrate, light is being operated when pressing the button.

2. Alert notify

Set up whether beep, vibrate, light is being operated when placing the Alert situation such as connection success/failure with remote or booting up. The time to operate can be different in accordance with situation

3. Button mode

Select the holding time of Button notify among None, Short, Long. In case of None settings, there is no reaction, but in case of Short settings, it will operate for 0.3 seconds. In case of Long settings, it will operate until user detaches the button

8.2.7.7 “F/W version”

Show the installed firmware version. User cannot change the firmware for changing the basic function and improvement of device. Please make an inquiry on the firmware to manufacturer or distributor

8.2.8 “Default”

Return all settings to default

8.2.9 “Exit”

Terminate the system configuration.

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9 Firmware Update

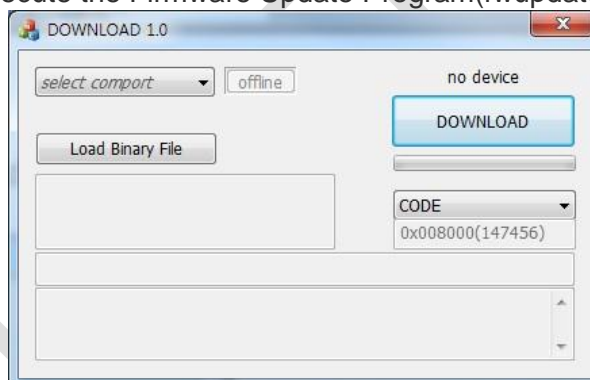
Firmware for AT188 can be updated for improvement of its device. If user does not have a proper knowledge on software and hardware, please ask distributor or manufacturer to handle the issue since the recovery of device cannot be possible, in case of that the problem comes up in doing update.

9.1 Preparation for Firmware

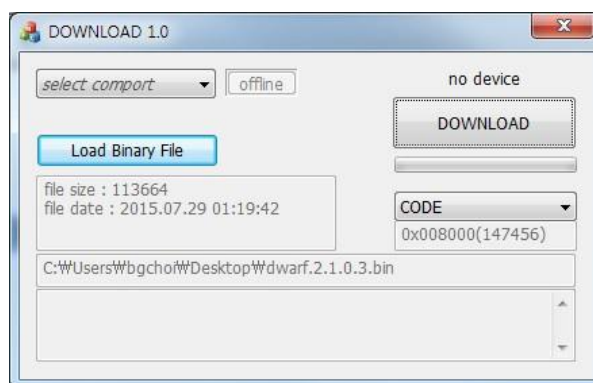
- Computer with over Windows 7 OS
- 1pc of USB 2.0 Port
- AT188. Micro USB Cable (with Device sold)
- Firmware File(.bin)
- Firmware Updater Application
- (SetupUpdater.msi, it will be supplied from manufacturer or distributor)

9.2 Firmware Update Start

- ① Install the SetupUpdater.msi into the PC (With Double-click)
- ② Save the Firmware File to specific folder
- ③ Execute the Firmware Update Program(fwupdate.exe)



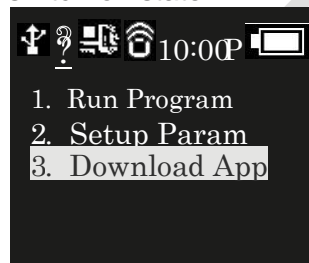
- ④ Click the “Load Binary File” button and then, select the stored Firmware File in the specific folder



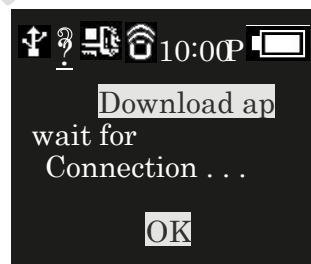
- ⑤ Connect AT188 with PC through USB cable



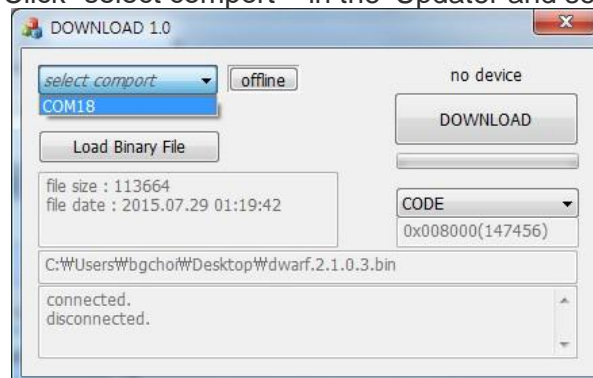
- ⑥ Enter the Firmware Download Modem in AT188`s configuration menu and move to the configuration mode by pushing the ▲ button and Scan button at the same in the switch-off state.



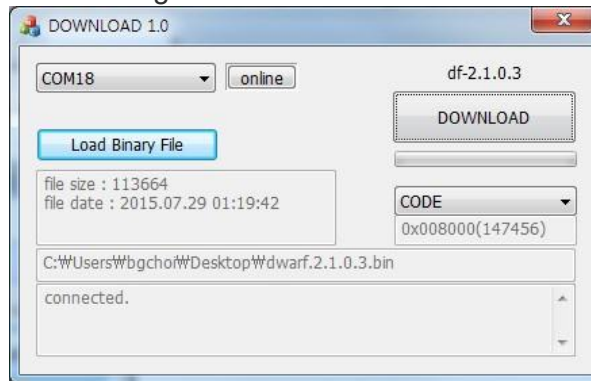
Push the either ▲ button or ▼button and then, push the scan button at the “3.Download App”



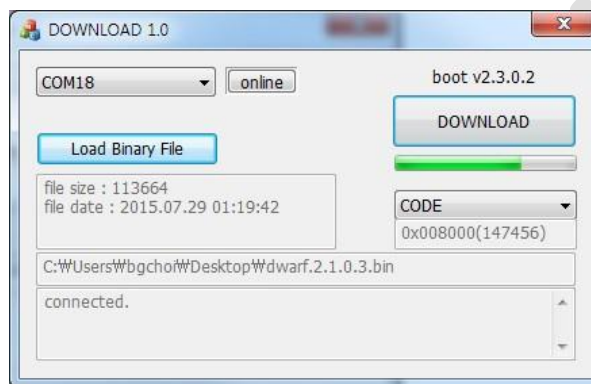
- ⑦ Click “select comport” in the Updater and select the assigned COM port



“Online” will be appeared when clicking “off line” and Firmware version will be displayed as well.



Start the download for Firmware by clicking the download button



After completion of download, new firmware will be automatically restarted

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10 Warranty and Technical Supports

All of ATID products have one-year warranty from date of manufacture

However, there is a principle in ATID that the customer will be charged for the repairs, in case of the damage caused by customer even if it is under warranty period

We recommend requesting the warranty and technical support.

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