TPMS Trigger Tool

TT02

User Guide

V0.2

Prepared by: Sysgration Inc. Cooperation

Outline

Button UI:

Screen state / Action	Power Off	Power On (display 2s)	Main Menu	TPMS CHECK (no sensor)	TPMS CHECK (searching)	TPMS CHECK (found sensor)
Long press Power key (USB plug out)	Power on		Power off	Power off	Power off	Power off
Short press UP key			Cursor up			
Short press Down key			Cursor down			
Short press OK key			No response for TPMS INFO item			
Short press Cancel key				Back to main menu	Cancel trigger	Back to main menu
Short press Trigger key				Start trigger		Start trigger

Screen state / Action	Settings menu	Enter combo box field	FW Upgrade screen	BT upgrade screen	USB upgrade screen (without USB plug in)	RESTORE screen	ABOUT screen
Long press Power key(USB plug out)	Power off	Power off	Power off	Power off	Power off	Power off	Power off
Short press UP key	Cursor up	Switch field data item	Cursor up				
Short press Down key	Cursor down	Switch field data item	Cursor down				
Short press OK key	Respond item: FW UPGRADE、RESTORE、ABOUT		Respond item: USB、BLUETOOTH			Reset to default settings then back to settings menu	
Short press Cancel key	Back to main menu		Back to settings menu	Back to FW upgrade menu	Back to FW upgrade menu	Back to settings menu	Back to settings menu
Short press Trigger key							
Short press Left key		Exit combo box field					
Short press Right key	Jump to combo box field item pointed by cursor.						
Plug-in USB			Enter USB DFU				

User Guide:

- Power on:

TT02 Screen
 Display TT02 information for 2 seconds when powering on.  Enter MAIN screen 

- Power off:

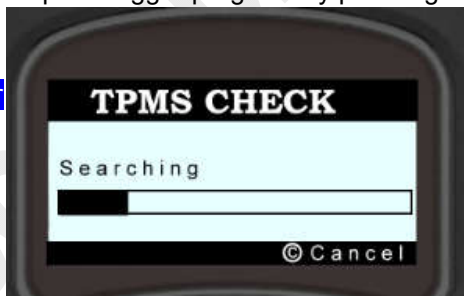
TT02 Screen
 Note:TT02 Will keep power on if under USB connection.

- Trigger Sensor:

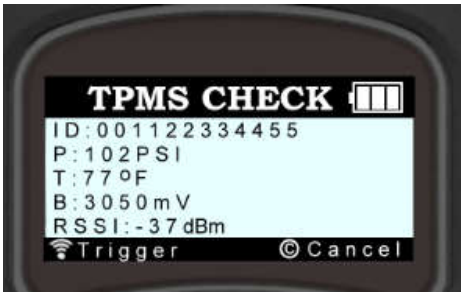
TT02 Screen
Press ▲ or ▼ to make the cursor move to "TPMS CHECK" , then press OK to enter the "TPMS CHECK" screen.

Press 📶 to trigger sensor

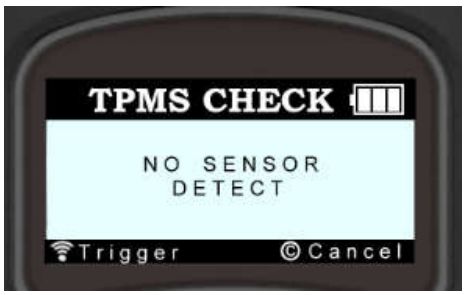
Start searching the sensor as below, or you can stop the trigger progress by pressing C.



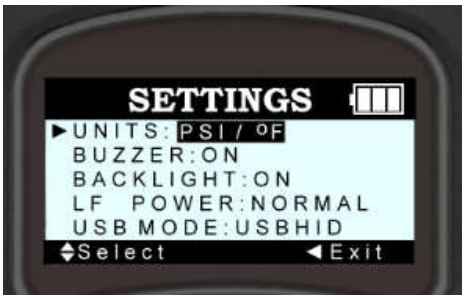
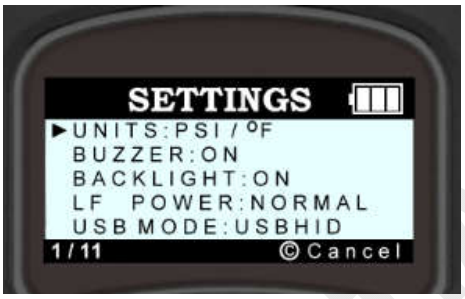
Found the sensor



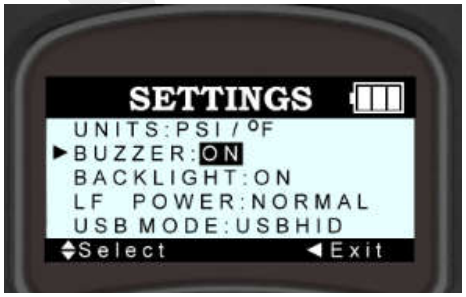
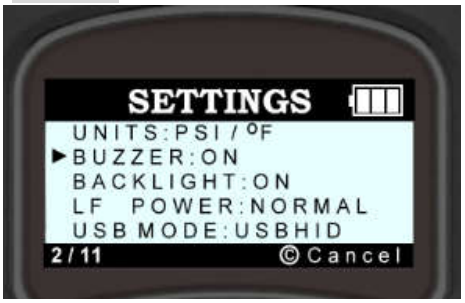
Fail to find the sensor



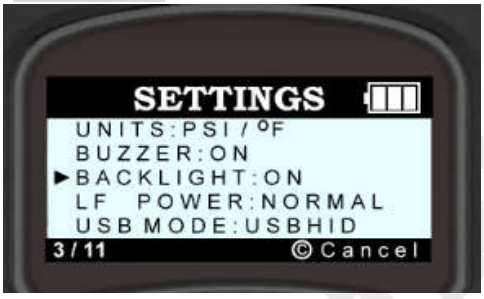
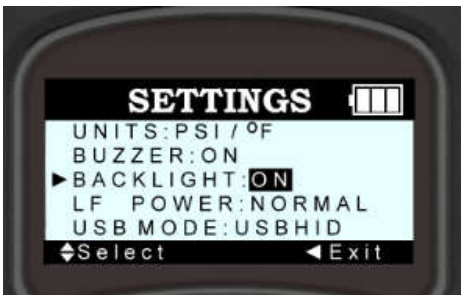
- Pressure / Temperature Units Setting:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS" , then press OK to enter the "SETTINGS" menu.       Press ▲ or ▼ to make the cursor move to "UNITS" , then press ▶ to enter the "UNITS" item.    Press ▲ or ▼ to switch the following options(PSI / °F → PSI / °C → kPa / °F → kPa / °C → Bar / °F → Bar / °C), then press ◀ to exit the "UNITS" item.

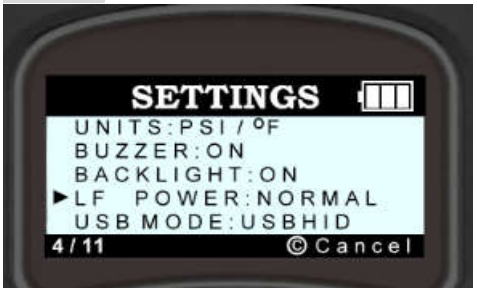
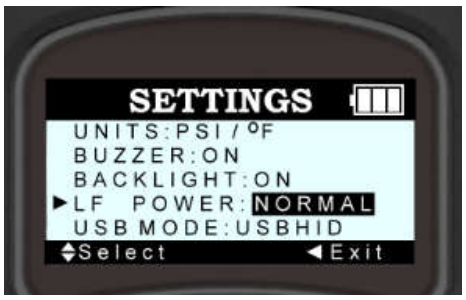
- Buzzer On/Off Setting:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.       Press ▲ or ▼ to make the cursor move to "BUZZER" , then press ▶ to enter the "BUZZER" item.    Press ▲ or ▼ to switch the following options (ON→ OFF), then press ◀ to exit the "BUZZER" item.

- Backlight On/Off Setting:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "BACKLIGHT", then press ▶ to enter the "BACKLIGHT" item.       Press ▲ or ▼ to switch the following options (ON → OFF), then can press ◀ to exit the "BACKLIGHT" item.

- LF Power Setting:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "LF POWER" , then press ▶ to enter "LF POWER" item.       Press ▲ or ▼ to switch the following options (HIGH → NORMAL → LOW), then press ◀ to exit the "LF POWER" item.

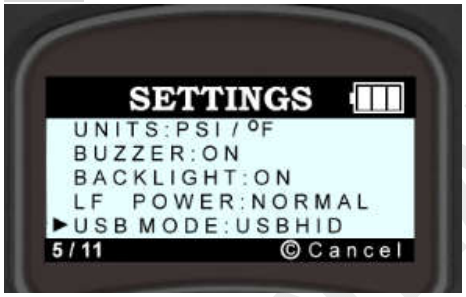
● USB Port Working Mode Setting (USB HID/ UART):

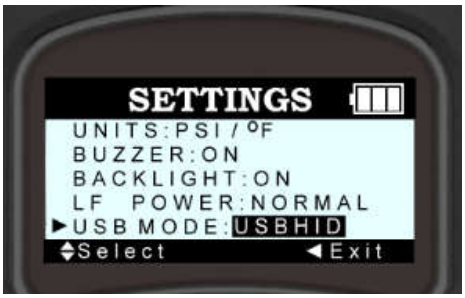
TT02 Screen

※Check if the USB is plugged out.

Press ▲ or ▼ to make the cursor move to "SETTINGS" , then press OK to enter the "SETTINGS" menu.

Press ▲ or ▼ to make the cursor move to "USB MODE" , then press ▶ to enter "USB MODE" item.





Press ▲ or ▼ to switch the following options (USBHID → UART), then press ◀ to exit the "USB MODE" item.

● Auto Power OFF Time:

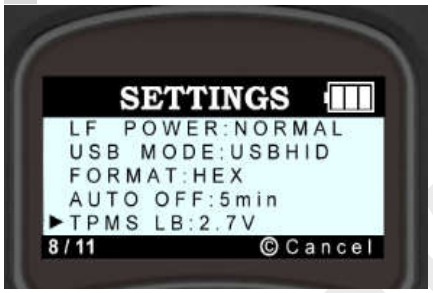
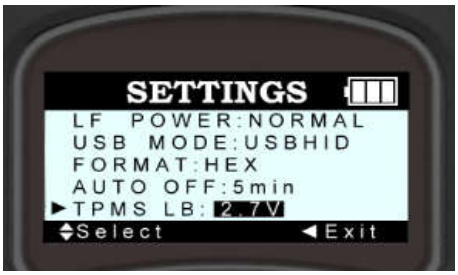
TT02 Screen

Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.

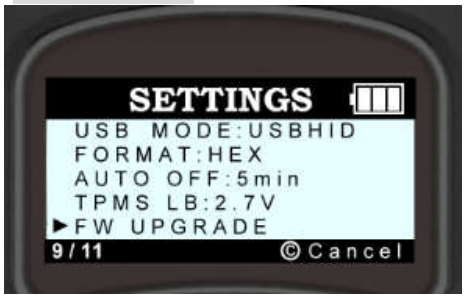
Press ▲ or ▼ to make the cursor move to "AUTO OFF", then press ▶ to enter the "AUTO OFF" item:

Press ▲ or ▼ to switch the following options (5 min → 3 min → 1 min → OFF), then press ◀ to exit the "AUTO OFF" item.

- TPMS Low Battery Alert:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "TPMS LB", then press ▶ to enter the "TPMS LB" item:       Press ▲ or ▼ to switch the following options (2.7V → 2.6V → 2.5V → 2.4V → 2.3V → OFF), then press ◀ to exit the "TPMS LB" item.

- FW Upgarde – Thru BLUETOOTH:

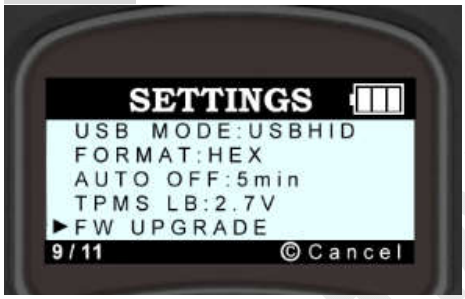
TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "FW UPGARDE", then press OK to enter the "FW UPGARDE" item.    Waiting for the connection with phone APP in 30s, otherwise it will exit "BLUETOOTH" screen automatically, or you can press C to exit below screen by manual within 30s.    Press ▲ or ▼ to make the cursor move to "BLUETOOTH", then press OK to enter the "BLUETOOTH" item: 

- FW Upgarde – Thru USB:

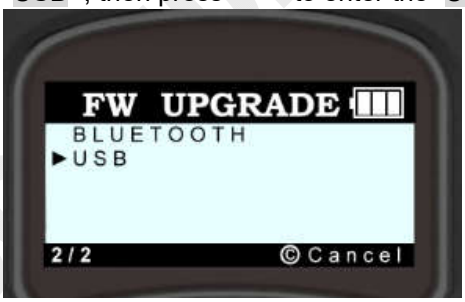
TT02 Screen

Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.

Press ▲ or ▼ to make the cursor move to "FW UPGARDE", then press OK to enter "FW UPGARDE" item.



Press ▲ or ▼ to make the cursor move to "USB" , then press OK to enter the "USB" item:



With USB plugged in

If connected with USB in 30s, the screen will switch to blank status which means TT02 have gone to DFU mode, waiting for the PC to download dos command for upgrade.

Without USB plug in

The screen as below will remind you to plug the USB in, if not plug into USB in 30s, it will exit automatically and back to "FW UPGARDE" screen.

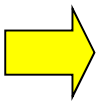
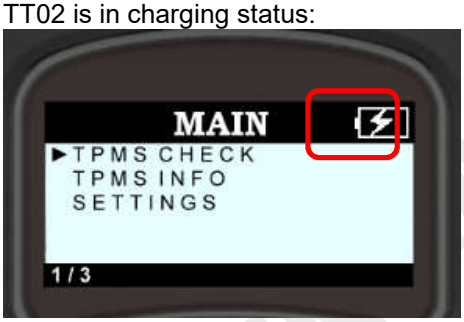
- Restore:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "RESTORE", then press OK to enter the "RESTORE" item:       (1) Press OK to reset to the default setting then it will exit "RESTORE" screen and back to "SETTINGS" screen automatically. (2) Press C to exit "RESTORE" screen.

- About screen:

TT02 Screen
Press ▲ or ▼ to make the cursor move to "SETTINGS", then press OK to enter the "SETTINGS" menu.    Press ▲ or ▼ to make the cursor move to "ABOUT" , then press OK to enter the "ABOUT" screen:       The screen will display below information about TT02, you can exit "ABOUT" screen by pressing C.

- USB Charging:

TT02 Screen
  The icon in the red box as below display that TT02 is in charging status: 

TT02 RS232 command settings

UART Setting: Baud rate 19200, Data bit 8, Stop bit 1, No Parity, ASCII

Activate Trigger

1. Activate by Button:

If Success:

TT02 --> COMPUTER: "BBBBBBBBBBBB" 12 bytes,

- BBBBBBBBBBBB: Bluetooth Address

If Fail,

TT02 --> COMPUTER: "$TFAIL#" 7 bytes,

2. Activate by UART:

COMPUTER --> TT02: "**$TXXXRR#**", 8 bytes

- $TXXXRR# = Command Code
- $TXXXRR# = Trigger Timer in seconds (HEX)
  Ex: XXX = 0x64, Trigger 100s.
- $TXXXRR# = RF received threshold in minus RSSI **(**min RSSI).
- Ex: RR = 0x4B, Receiving RF RSSI need above -75 dBm

If Success, for Sensor Format 2 (Advertising):

TT02 --> COMPUTER: "$TBBBBBBBBBBBBPPPPTTTTVVVV#" 27 bytes,

- BBBBBBBBBBBB: Bluetooth Address
  "$TBBBBBBBBBBBBPPPPTTTTVVVV#"

- PPPP: Pressure in PSI
  "$TBBBBBBBBBBBBPPPPTTTTVVVV#"
  Ex: PPPP = 1234, Pressure is 123.4PSI
  PPPP = -024, Pressure is -2.4PSI
  (2.4 PSI is 17 KPA, 83 KPA (Raw data) - 100 KPA = 17, more than the MIN limit 10 KPA , so will display negative character.)
  TTTT: Temperature in Fahrenheit
  "$TBBBBBBBBBBBBPPPPTTTTVVVV#"
  Ex: TTTT = +200, Temperature is 200F

- VVVV: Battery in mV
  "$TBBBBBBBBBBBBPPPPTTTTVVVV#"
  Ex: VVVV = 3200, Battery is 3200mV

If Success, for Sensor Format 1 (IBeacon):

TT02 --> COMPUTER: "$TBBBBBBBBBBBBMMMMNNNNRR#" 25 bytes,

- BBBBBBBBBBBB: Bluetooth Address
  "$TBBBBBBBBBBBBMMMMNNNNRR#"

- MMMM: IBeacon Major Field
  "$TBBBBBBBBBBBBMMMMNNNNRR#"

- NNNN: IBeacon Minor Field

"$TBBBBBBBBBBBMMMMNNNNRR#"

- RR: RSSI

"$TBBBBBBBBBBBMMMMNNNNRR#"

RSSI Value

Ex: RR = 0x64, Receiving RF RSSI = -100 dBm

If Fail,

TT02 --> COMPUTER: "$TFAIL#" 7 bytes,

Stop Trigger

COMPUTER --> TT02: "**$T0#**", 4 bytes

Read Last Trigger Result

COMPUTER --> TT02: "**$RR#**", 4 bytes

If Success, Sensor Format 2 (Advertising)

TT02 --> COMPUTER: "$RRBBBBBBBBBBBBPPPPTTTTVVVV#" 28 bytes,

- BBBBBBBBBBB: Bluetooth Address

"$RRBBBBBBBBBBBPPPPTTTTVVVV#"

- PPPP: Pressure in PSI

"$RRBBBBBBBBBBBBPPPPTTTTVVVV#"

Ex: PPPP = 1234, Pressure is 123.4PSI

PPPP = -024, Pressure is -2.4PSI

(2.4 PSI is 17 KPA, 83 KPA (Raw data) - 100 KPA = 17, more than the MIN limit 10KPA , so will display negative character.)

- TTTT: Temperature in Fahrenheit

"$RRBBBBBBBBBBBBPPPPTTTTVVVV#"

Ex: TTTT = +200, Temperature is 200F

- VVVV: Battery in mV

"$RRBBBBBBBBBBBBPPPPTTTTVVVV#"

Ex: VVVV = 3200, Battery is 3200mV

If Success, Sensor Format 1 (IBeacon):

TT02 --> COMPUTER: "$RRBBBBBBBBBBBBMMMMNNNNRR#" 26 bytes,

- BBBBBBBBBBB: Bluetooth Address

"$RRBBBBBBBBBBBMMMMNNNNRR#"

- MMMM: IBeacon Major Field

"$RRBBBBBBBBBBBBMMMMNNNNRR#"

- NNNN: IBeacon Minor Field

"$RRBBBBBBBBBBBBMMMMNNNNRR#"

- RR: RSSI

"$RRBBBBBBBBBBBBMMMMNNNNRR#"
RSSI Value
Ex: RR = “64”, 0x64 = 100 (Oct), Receiving RF RSSI = -100 dBm

If Fail, TT02 --> COMPUTER: "$RRFAIL#" 8 bytes

Read Last Trigger Bluetooth Address

COMPUTER --> TT02: "**$RM#**", 4 bytes

If Success,
TT02 --> COMPUTER: "$RMBBBBBBBBBBBB#" 16 bytes,
- BBBBBBBBBBBB : Bluetooth Address

"$RMBBBBBBBBBBB#"

If Fail,
TT02 --> COMPUTER: "$RMFAIL#" 8 bytes

Read Last Trigger Time

COMPUTER --> TT02: "**$RLT#**", 5 bytes

If Success,
TT02 --> COMPUTER: "$RLTAAA#" 8 bytes,
- AAA = Trigger Timer in seconds (HEX)
  Ex: AAA = 0x64, Trigger 100s.

If Fail,
TT02 --> COMPUTER: "$RLTFAIL#" 9 bytes

Reset to Default

COMPUTER --> TT02: "**$ZD#**", 4 bytes

If Success,
TT02 --> COMPUTER: "$ZDOK#" 6 bytes

If Fail,
TT02 --> COMPUTER: "$ZDFAIL#" 8 bytes

Read Pressure in PSI for Sensor Format 2 (Advertising)

COMPUTER --> TT02: "**$RP#**", 4 bytes

If Success,
TT02 --> COMPUTER: "$RPXXX.X#" 9 bytes
- XXX.X = pressure value(Oct)
- Ex: XXX.X = 123.4, Pressure is 123.4PSI
  XXX.X = -02.4, Pressure is -2.4PSI

(2.4 PSI is 17 KPA, 83 KPA (Raw data) - 100 KPA = 17, more than the MIN limit 10KPA , so will display negative character.)

If Fail,

TT02 --> COMPUTER: "$RPFAIL#" 8 bytes

Read Temperature in Fahrenheit for Sensor Format 2 (Advertising)

COMPUTER --> TT02: "**$RT#**", 4 bytes

If Success,

TT02 --> COMPUTER: "$RTVCCC#" 8 bytes

- V = positive/negative characters, '-' or '+'
- CCC = Temperature value(Oct)

Ex: VCCC = "+075", Temperature 75°F

VCCC = "-022", Temperature -22°F

If Fail,

TT02 --> COMPUTER: "$RTFAIL#" 8 bytes

Read Battery for Sensor Format 2 (Advertising)

COMPUTER --> TT02: "**$RB#**", 4 bytes

If Success,

TT02 --> COMPUTER: "$RBVVVV#" 8 bytes

- VVVV = Battery value(Oct)

Ex: VVVV=3220, Battery is 3220mv

If Fail,

TT02 --> COMPUTER: "$RBFAIL#" 8 bytes

Read X – Acceleration for Sensor Format 2 (Advertising)

COMPUTER --> TT02: "**$RAX#**", 5 bytes

If Success,

TT02 --> COMPUTER: "$RAXVOOOO.O #"12 bytes

- V = positive/negative characters, '-' or '+'
- OOOO.O = X- Acceleration value(Oct)

Ex: VOOOO.O = "-0002.5", X- Acceleration is -2.5G

If Fail,

TT02 --> COMPUTER: "$RAXFAIL#" 9 bytes

Read Z - Acceleration for Sensor Format 2 (Advertising)

COMPUTER --> TT02: "**$RAZ#**", 5 bytes

If Success,

TT02 --> COMPUTER: "$RAZVOOOO.O #"12 bytes

- V = positive/negative characters, '-' or '+'
- OOOO.O = Z- Acceleration value(Oct)

Ex: VOOOO.O = "-0002.5", Z- Acceleration is -2.5G

If Fail,

TT02 --> COMPUTER: "$RAZFAIL#" 9 bytes

Read Firmware Version

COMPUTER --> TT02: "**$RV#**", 4 bytes

If Success,

TT02 --> COMPUTER: "$RVOOO#" 7 bytes

- OOO = Firmware Version (Oct)

Ex:OOO =007 , Firmware Version is 0.0.7

If Fail,

TT02 --> COMPUTER: "$RVFAIL#" 8 bytes

Enter DFU Mode

COMPUTER --> TT02: "**$ZDFU#**", 6 bytes

If Success,

TT02 will reset to DFU bootloader mode, screen will clear.

Enter TEST Mode

COMPUTER --> TT02: "**$ZT#**", 4 bytes,

If Success, TT02 LED will display black screen.

Press TT02 TRIGGER button , TT02 --> COMPUTER: "$ZTT#" 5 BYTE
Press TT02 CANCEL button , TT02 --> COMPUTER: "$ZTC#" 5 BYTE
Press TT02 OK button , TT02 --> COMPUTER: "$ZTO#" 5 BYTE
Press TT02 POWER button , TT02 --> COMPUTER: "$ZTP#" 5 BYTE
Press TT02 UP button , TT02 --> COMPUTER: "$ZTU#" 5 BYTE
Press TT02 DOWN button , TT02 --> COMPUTER: "$ZTD#" 5 BYTE
Press TT02 LEFT button , TT02 --> COMPUTER: "$ZTL#" 5 BYTE
Press TT02 RIGHT button , TT02 --> COMPUTER: "$ZTR#" 5 BYTE

If want to exit test mode, can use "reset to default" command:

COMPUTER --> TT02: "$**ZD**#", 4 bytes

Read TT02 Battery Voltage (Test Mode only)

COMPUTER --> TT02: "**$ZTBAT#**", 7 bytes,

If Success,

TT02 --> COMPUTER: "$ZTBATVVVV#" , 11 bytes

- VVVV = Battery voltage (Oct)
  Ex:VVVV =8315 , TT02 battery voltage is 8315 mV

Set Backlight ON/OFF (Test Mode only)

COMPUTER --> TT02: "**$ZTBKLX#**", 8 bytes,

- $ZTBKLX# = Command Code
- $ZTBKLX# = Backlight ON or Backlight OFF, “$ZTBKL1#” : ON, “$ZTBKL0#” : OFF

If Success,

TT02 --> COMPUTER: "$ZTBKLOK#" , 9 bytes

Set Buzzer ON/OFF (Test Mode only)

COMPUTER --> TT02: "**$ZTBUZX#**", 8 bytes,

- $ZTBUZX# = Command Code
- $ZTBUZX# = Buzzer ON or Buzzer OFF , “$ZTBUZ1#” : ON, “$ZTBUZ0#” : OFF
-

If Success,

TT02 --> COMPUTER: "$ZTBUZOK#" , 9 bytes

Get Charging State (Test Mode Only)

COMPUTER --> TT02: "**$ZTCHA#**", 7 bytes,

If Success,

TT02 --> COMPUTER: "$ZTCHAX#" , 8 bytes

- $ZTCHAX# = Command Code
- $ZTCHAX# = Charging state, “$ZTCHA1#” : Is Charging, “$ZTCHA0#” : Not Charging.

Set LF Power Level (Test Mode Only)

COMPUTER --> TT02: "**$ZTLFX#**", 7 bytes,

- $ZTLFX# = Command Code
- $ZTLFX# = Level Value, “$ZTLFH#” : High Level, “$ZTLFN#” : Normal Level.

If Success,

TT02 --> COMPUTER: "$ZTLFOK#" , 8 bytes

FW Upgrade Operation Guide

Upgrade thru USB:

1 Computer needs install Python & nrfutil:

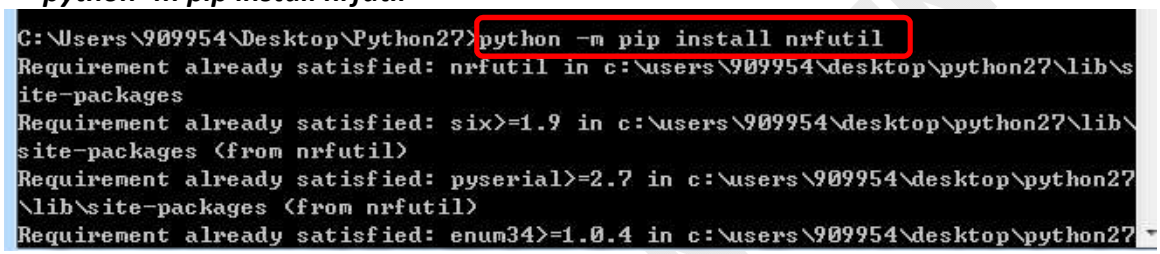
1-1. Download Python (python-2.7.13.msi) and install it to your PC

1-2. Enter the command-line mode of Windows-OS :

Please type “cd Python27\Scripts”and press Enter to go to C:\Python27\Scripts>

1-3. Type in the command line as below to install the nrfutil-tools to your PC.

=> ***python -m pip install nrfutil***



1-4. Note :

If jump out a screen like below to remind you something wrong happened during installing the nrfutil-tools which means you may need install the Visual-Studio in your PC.

If you are running nrfutil on Windows, the runtime libraries targeted when building the library must be present when running code using the library. The following errors indicate that the runtime libraries are not available:

- Missing `MSVC*120.DLL` or `MSVC*140.DLL`
- `RuntimeError: Could not load shared library <path>/pc_ble_driver_shared.dll : '[Error 193] %1 is not a valid Win32 application`

In this case, install the redistributable installer for Visual Studio 2013 or Visual Studio 2015, respectively. Make sure to install the version that corresponds to the architecture of your Python installation (x86 or x64).

2 How to use nrfutil tools to update the TT02’s FW through USB.

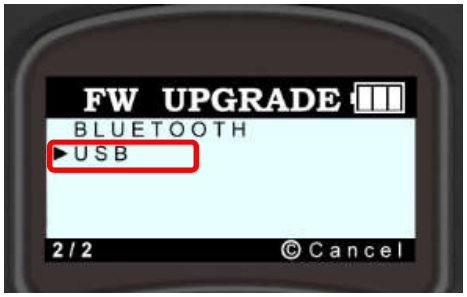
2-1. If you have already installed “nrfutil” tools in your computer. Please follow the steps as below :

Type “***c:***” and press Enter to go to C:\>

Type “***cd Python27\Scripts***”and press Enter to go to C:\Python27\Scripts>

Note :
If you haven't installed nrfutil-tools in your computer, please go to the section of page 20 about how to install Python & nrfutil for reference.

2-2. Turn on the TT02, confirm it works and USB is plugged in as well, then use the arrow buttons to navigate the UI menu and select the ROOT -> "SETTINGS"-> "FW UPGRADE" -> "USB" item then press the "OK" button.



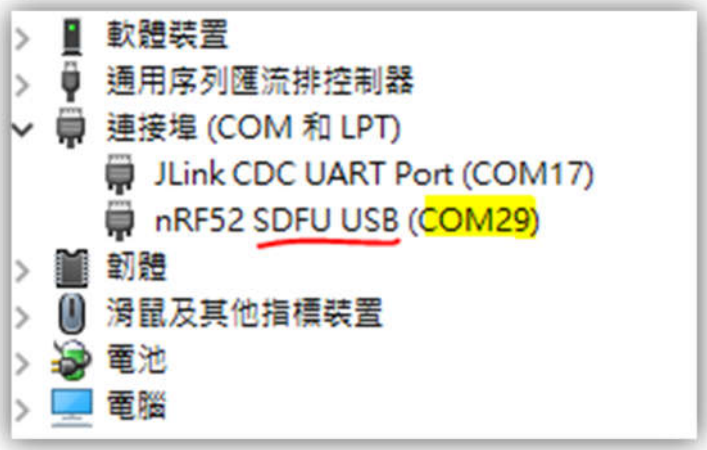
The display of TT02 will be in blank status when it enter into the DFU-mode.

2-3. Please connect TT02 with your computer via USB and typing the command line as below :
=> ***nrfutil dfu usb-serial -pkg nrf52840_app.zip -p COM29 -b 115200***

```
C:\Python27\Scripts>
C:\Python27\Scripts>nrfutil dfu usb-serial -pkg nrf52840_app.zip -p COM29 -b 115200
```

Yellow string is DFU file, you need put the updated firmware file under the route of C:\Python27\Scripts.
Pink string is DFU COM-Port, make sure TT02 is going into DFU Mode first and then check TT02's com-port number on computer, next input the com-port number you see into the command-line correspondingly.

For example: The COM29 means using number 29 of COM-Port as the picture showed on right.

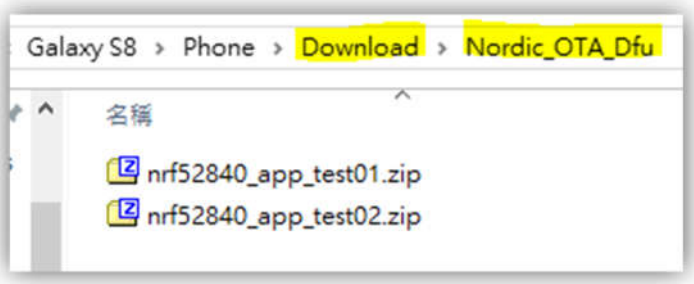


Note:
The display of TT02 will be in blank status when it enter into the DFU-mode. You can check the COM port number which shows on the PC monitor.

Upgrade thru Bluetooth (Cellphone):

1 How to use Android phone to update the firmware of TT-02

1.1. Please connect your smartphone to the PC, and then copy the TT-02 firmware file to your smartphone. You can create a new folder in your smartphone so that you can easily to find the firmware file.



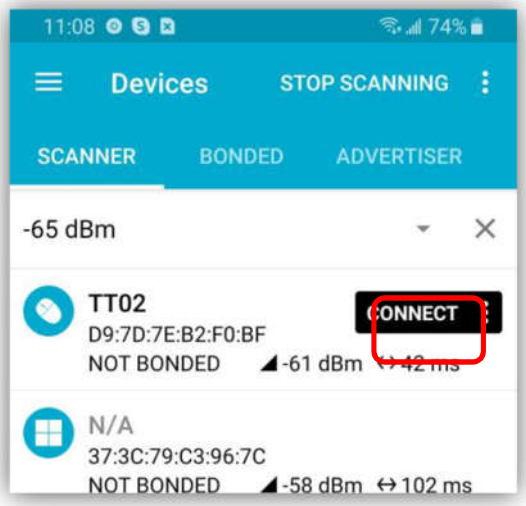
1.2. Please download the “nRF connect” APP to your smartphone and open it to run.
Next, turn on TT02, confirm it works and get it as close as possible to your smartphone.

1.3. Use the arrow buttons to navigate the UI menu and select the ROOT -> “SETTINGS”-> “FW UPGRADE” -> “BLUETOOTH” item, then press the "OK" button

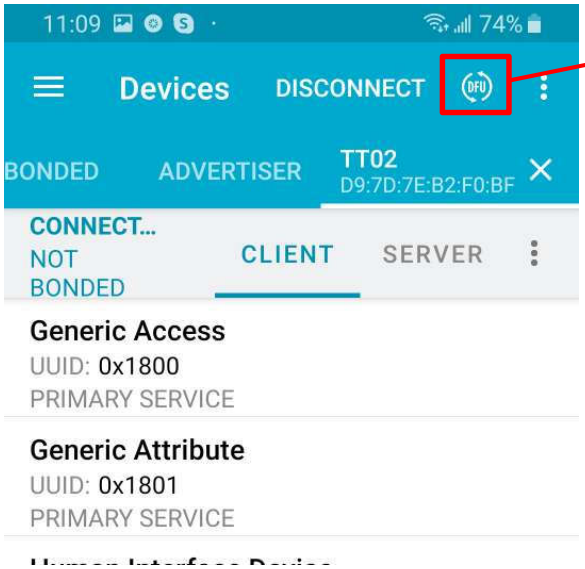
(Note : If you want to exit OTA mode just press the “C-button”.)

1.4. Execute the App of nRF Connect, go to the “SCANNER” page of the UI, then scroll-down the page to find the Bluetooth device name of TT02. (Note: The Bluetooth name will depend on the TT-02 such as "TT02")

1.5. Click the “CONNECT” icon to connect with the TT-02. (as picture showing on the right).

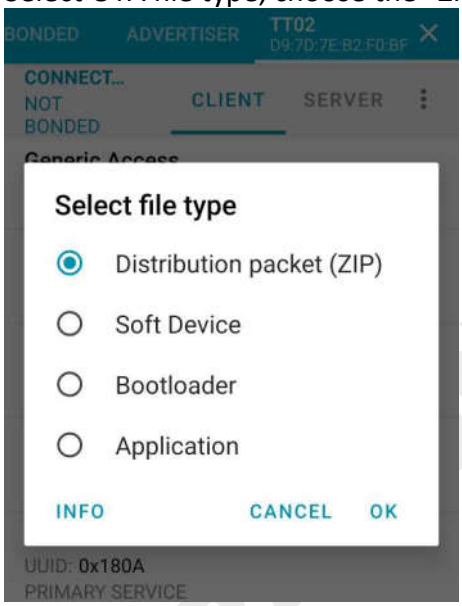


1.6. Click the DFU icon:



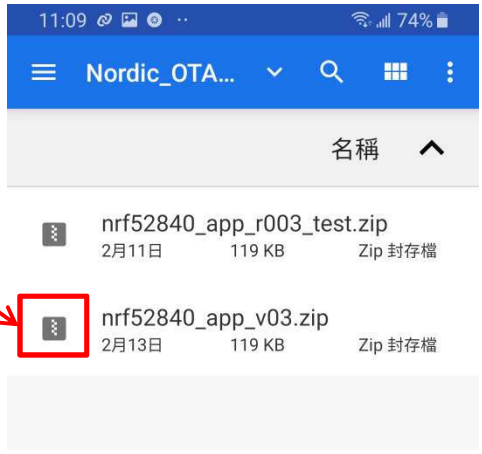
Click this icon to enter the DFU process

1.7. Select OTA file type, choose the “ZIP” then click “OK”:

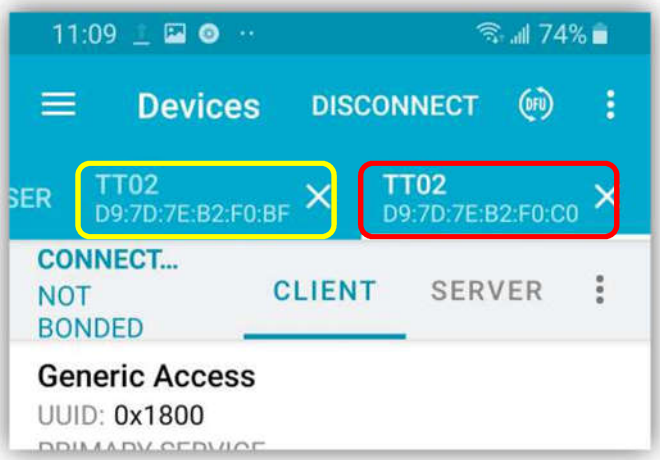


1.8. Select the updated OTA file, click the icon in red box as below if confirm the file is what you needed:

For example: If you want to select “nrf52840_app_v03.zip” , you can click the icon in red box.

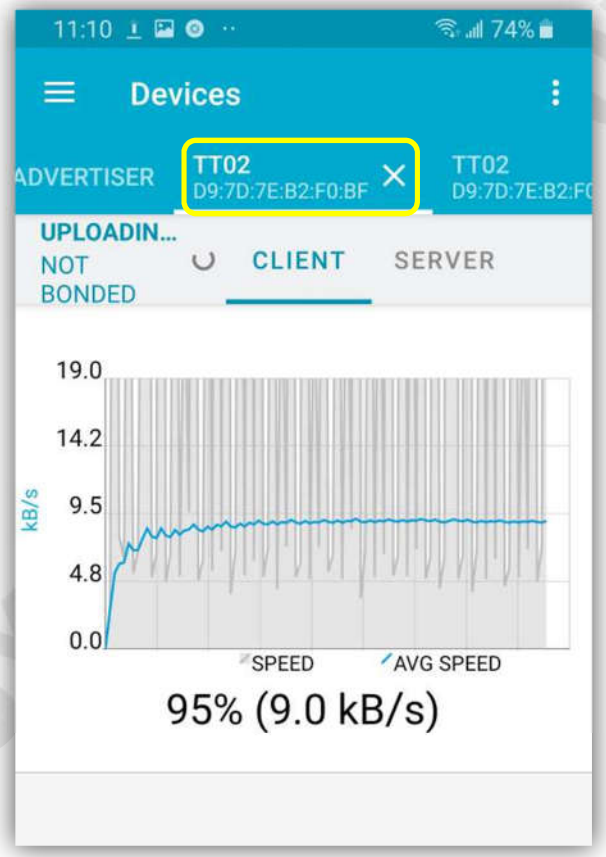


1.9. App start to run DFU now, you can see new TT02's information appeared on App screen which marked with red box, it means TT02 OTA mode is activated, the MAC-Address is also different:

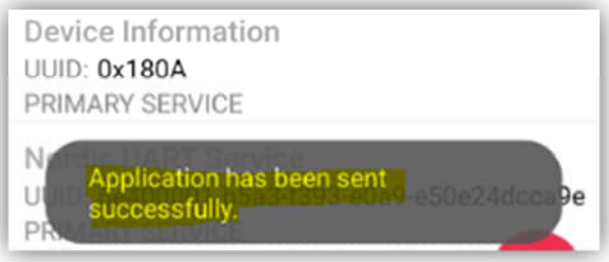


Yellow box : Original device
Red box: OTA mode active

1.10. Click the yellow box area to select the original connected device, you can see the OTA process status:



1.11. It will take a little time to update the OTA firmware, please wait for a while. The message will pop-up to notify when the firmware update is completed:



1.12. Please confirm that your TT-02 has completed the FW update and check your TT-02 can work as well.
For example: You can check the firmware-version of the TT-02. Whether it has been updated or not, and so on.

Federal Communication Commission Interference Statement
This equipment 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 to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to 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 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.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 0.5 centimeters between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 0.5 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

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.