UNO IAQ app indoor air quality monitor

Engineer Mode user guide

VER 1.0

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【Revision 】

Date	Version	Description
2021/ 05 / 20	0.1	Initial Version
2021/ 07 / 27	0.2	Correct typos
2021/ 08 / 02	0.3	Add the notice for iPhone user
2022/ 04 / 08	0.4	Add notice for MQTT congiuration
2022/ 11 / 22	0.5	Modify interface to Enable ENG mode
2022/ 11 / 30	0.6	Add new Product UNOlite
2023/ 05 / 05	0.7	Add bind view
2023/ 05 / 11	0.8	Modify eng mode enter method
2023/ 07 / 28	0.9	Add Max Speed Level, ENG Mode support list, PM, TVOC Calibration
2023/ 08 / 16	1.0	Add Delta for Temp. calibration

【Overview】

UNO IAQ app engineer mode is a tool to configure UNOnext/UNOlite. The functions include changing the default setting, doing calibration and others. In this document, we will use the Android UNO IAQ to demonstrate each functions.

The minimal required version for UNO IAQ app as below:

Name	Version
UNO IAQ app iOS	**1.4.18 (App Store)**
UNO IAQ app Android	**1.2.16 (Play Store or download APK)**

Note :

Please notice if the UNOnext is non-BLE/Wi-Fi model (i.e. UNO-6SR/UNO-7TR), you can't use ENG APP to configure it.

However, you still can upgrade the device firmware through recovery mode. Refer to the "Device Firmware Upgrade-Recovery Mode" section for more details.

【Getting Started】

We use an actual example to explain the UNO IAQ app (android 1.2.15 or later, iOS 1.4.17 or later) features in this document.

Step 1 : Enable ENG mode

Install the UNO IAQ app from the Playstore or App Store, quick tap the device list or icon (red circle) more than 5 times, a alert message will display, ENG mode is started;

Android:

Tap the text "Device List" for 5 times

iOS:

Tap the UNO icon for 5 times

or

1.4.17 or later: Tap the text "Device List" for 5 times
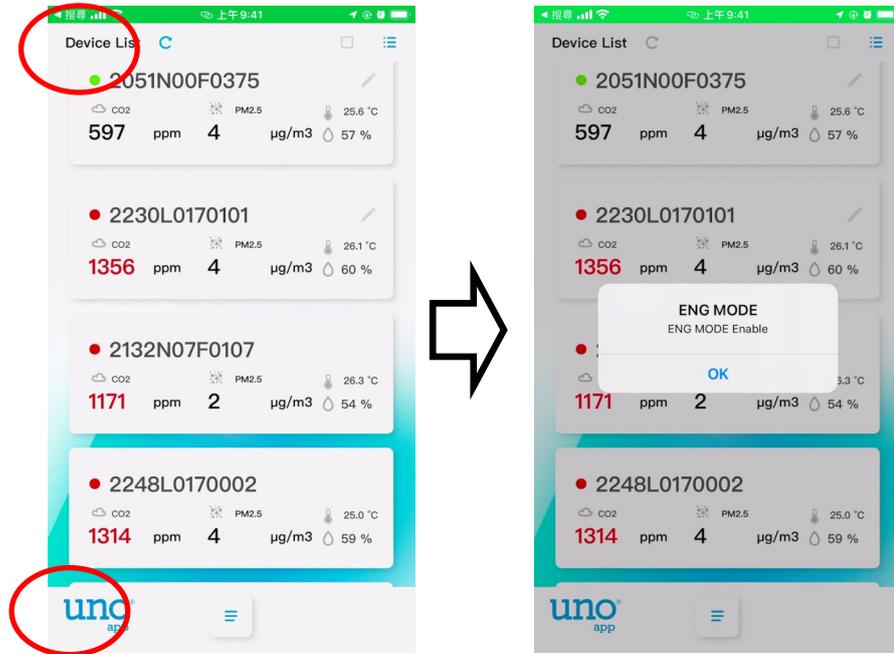
Step 2 : Select the UNO device

The UNOnext/UNOlite should be found in the list. If not, press the "cycle" button to rescan device.
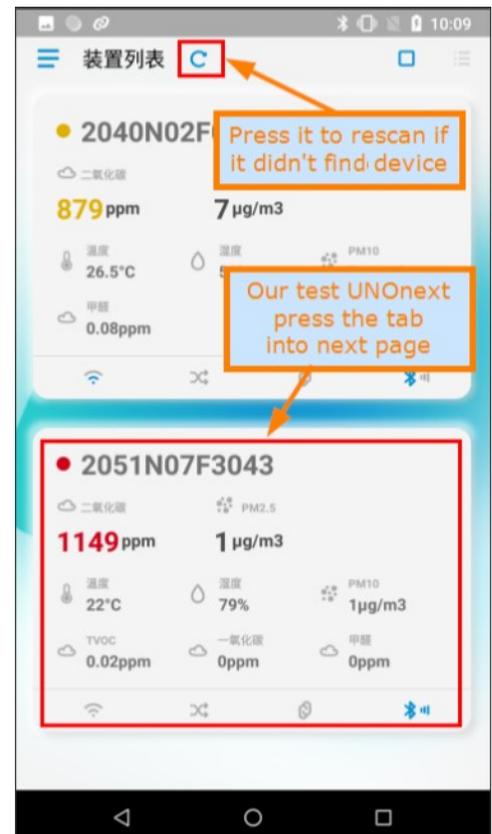
Step 3 : bind the device

If already bound, skip this step. In engineer mode, use "DIRECT BIND" to bind directly, or press the "Bind" and press the button on UNOnext/ UNOlite .

Step 4 : Into the device configuration page.

Step 5 : The device configuration page

The page list the supported features you can configure UNOnext/UNOlite. All items will be described in later section.
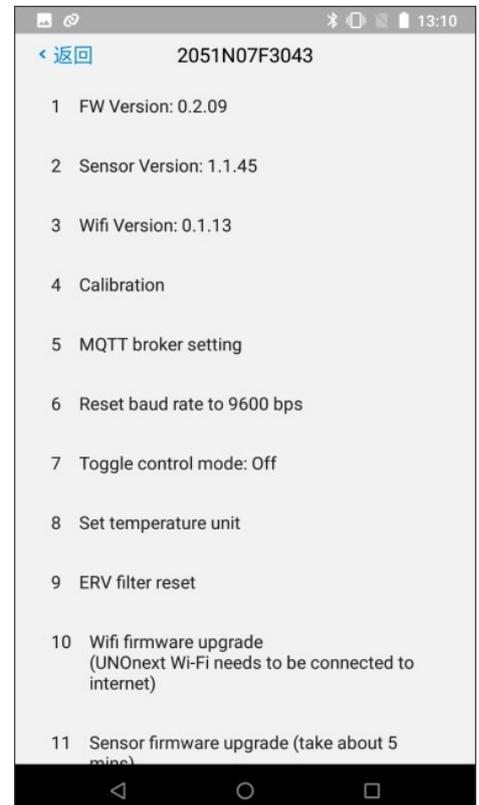
The ENG Mode menu varies depending on your Device:

	UNOnext	UNO-L	UNO-LW
FW Version	Yes	Yes	Yes
Sensor Version	Yes	Yes	Yes
Wifi Version	Yes	None	Yes
Max Speed Level	None, By DIP	None	Yes
Calibration	Temp, CO_2	Temp, CO_2, CO_2 ASC, TVOC, PM	Temp, CO_2, CO_2 ASC, TVOC, PM
MQTT Broker	Yes	None	Yes
Reset baud rate to 9600 bps	Yes	None	None
Toggle Control Mode	Yes	None	None, By DIP
Set Temperature Unit	Yes	None	None
ERV Filter Reset	Yes	None	Yes
Wi-Fi Firmware Update	Yes	None	Yes
Sensor Firmware Update	Yes	None	None
Device Firmware Update	Yes	Yes	Yes
IAQ LED threshold	Yes	Yes	Yes
Wi-Fi Error Code	Yes	None	Yes
Max Speed Levels	None, By DIP	None	Yes

【Device Configure Page】

【A. Firmware Version】

These items show the firmware version of the components in UNOnext. The version format is:

major_version.minor_version.build

The items as below:

    1. **FW Version :** The FW version UNOnext/ UNOlite.

    2. **Sensor Version :** The FW version of sensor sub-board.

    3. **Wi-Fi Version :** The FW version of Wi-Fi sub-board.
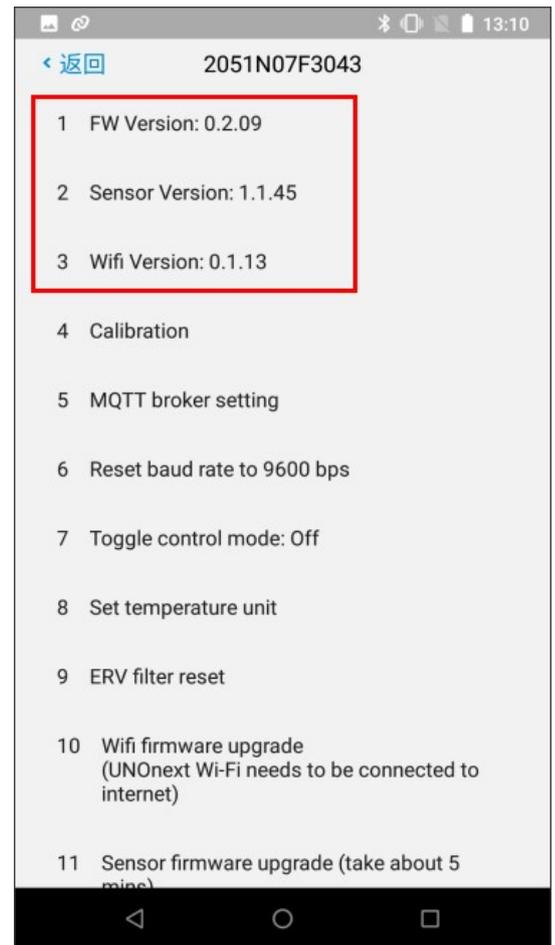
【B. Calibration】

You can do sensor calibration manually through eng mode. (CO_2 , temperature, PM, TVOC)
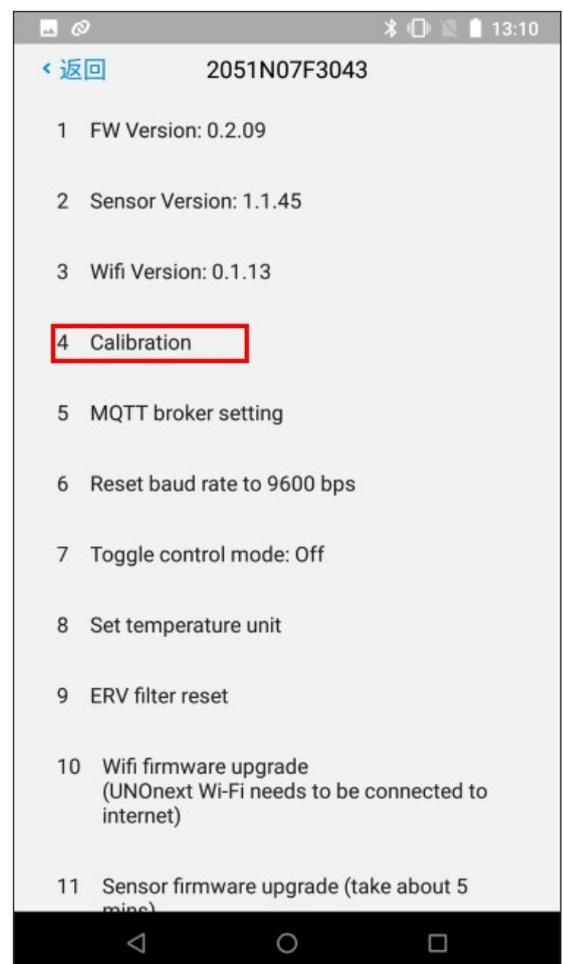
【B.1 CO2】

You can overwrite CO_2 measurement through this item. The calibration will work after a few seconds. Please notice the CO_2 auto-self-calibration feature still works after doing calibration manually.

The CO_2 ASC(CO_2 Auto-self-calibration) can be enable/disable (UNOlite Only).
The legal CO_2 calibration range is from 400 ppm to 2000 ppm in UNOnext, 400 to 1500 ppm in UNOlite.
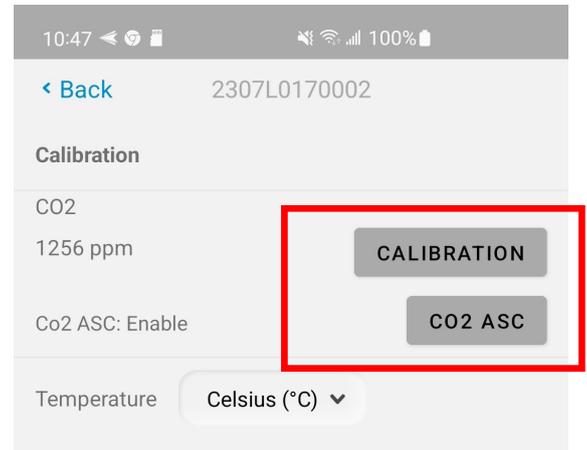
【B.2 TEMP】

You can overwrite the UNOnext/UNOlite temperature value here.

After setting the degree, press "CALIBRATION" to write the current temperature to UNOnext/UNOlite.

There is a legal range for temperature calibration.

The range will be shown on dialog and the value is variation based on actual measured temperature.

Please notice that UNOnext/UNOlite doesn't allow a big gap between the calibration value and the measured one.

You can also press "RESET" button to recover the default value calibrated in factory, And your manual setting will be lost.

The value delta is calibration offset of temperature, the default value in UNOnext is 440, UNOlite is 0. the Calibration range in UNOnext is current temperature $\pm$ 4.5, UNOlite 0~50.

The delta offset represents 1 degree Celsius every 100iterations.
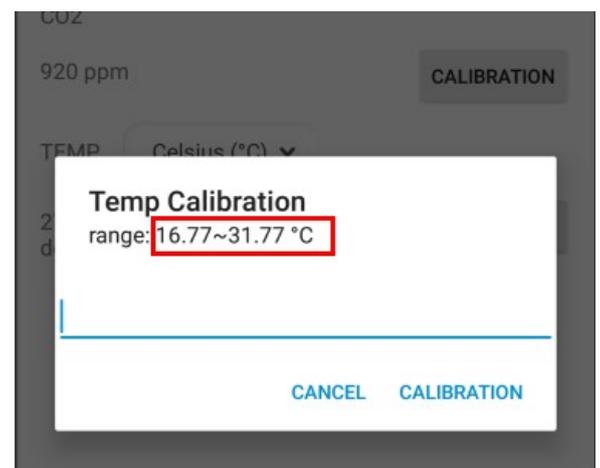
IMPORTANT NOTICE :
 Before performing temperature calibration, please make sure the device has already been powered up at least 60 minutes.

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【B.3 PM】

You can overwrite the PM(particulate matter) measurement through this item.

There is a legal range for pm calibration. The range will be shown on dialog and the value is variation based on actual particulate matter.

Since the PM values fluctuate based on the environment, the program will autonomously determine suitable calibration values and ranges to assist users in completing the calibration process. It should be noted that if the disparity between values is too significant, the calibration procedure cannot be completed, and further confirmation from the authorized dealer is necessary.

There are 3 type of pm calibration response:

1. Calibration has been completed and calibration parameters have been updated

2.Verification has been completed and is within specification, retaining calibration parameters

3.The pm coefficient is too large, which may cause the reading to be abnormally

You can also press "RESET" button to recover the default value calibrated in factory.

And your manual setting will be lost.

【B.4 TVOC Baseline】

TVOC calibration involves reinitializing the module and collecting data based on the environment for recalibration. This process typically takes around 24 hours, and calibration process is completed once it is issued the command through the app, users do not need to wait for 24 hours.

The TVOC baseline value is an internal parameter of the module, intended for use by developers to assess issues. Installation vendors should ignore this value
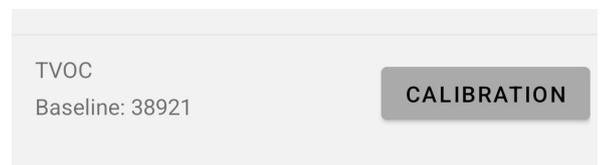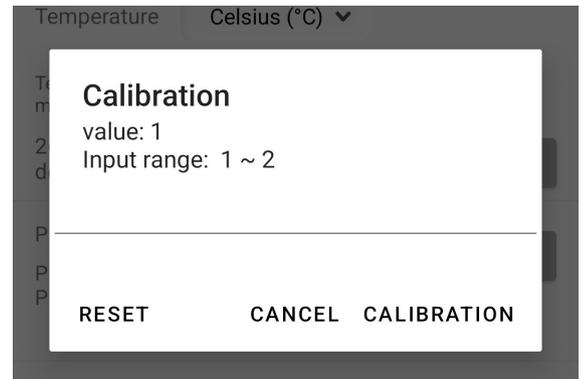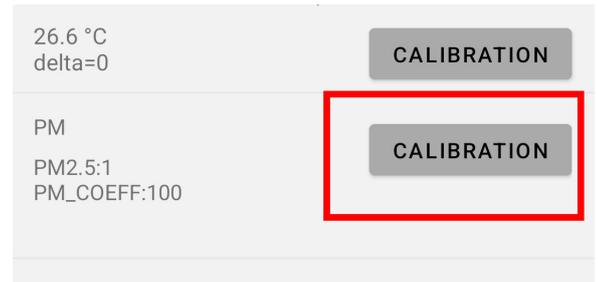
【C. MQTT】

You can change the MQTT setting through this item. If you need to receive the MQTT data from UNOnext/UNOlite, you need to modify the UNOnext/UNOlite's default MQTT broker. Then you can receive data from the specific MQTT broker. You also can change the UNOnext/UNOlite mqtt data format to Flatten or Nested mode.

If the MQTT's broker was changed, the URL value in this page also will be changed after a few seconds. You can stay in this page to ensure the modification is workable.

Refer to another document **"UNOnext MQTT user guide"** for more information.

> **IMPORTANT NOTICE** :
> If the UNOnext/UNOlite need to connect to UNOcentral, please make sure the "Data struct" is selected to "Nested mode"
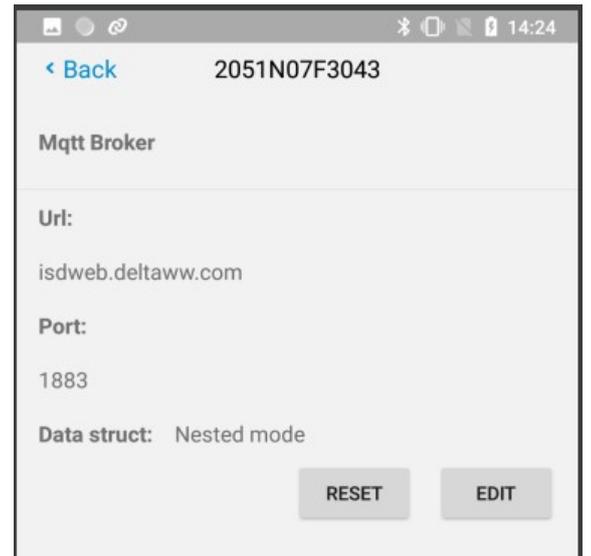
【D. Reset baud rate】

UNOnext/UNOlite's Modbus baudrate can be

changed from command. This item will clean the

baudrate modification and set the it to default val-
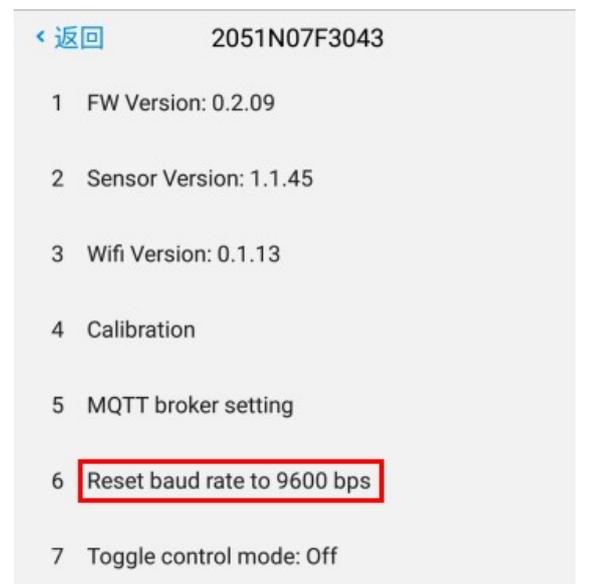
【E. Control Mode】

If the UNOnext need to control ventilation fan, the control mode should be enabled. You can use this item to switch the function. The state in the line end is the current state. Press this line to switch the state. Please notice the state changing will let UNOnext reboot. You need to wait 5~6 seconds for UNOnext's reconnection.

You can check the OLED monitor to ensure if the state is changed.
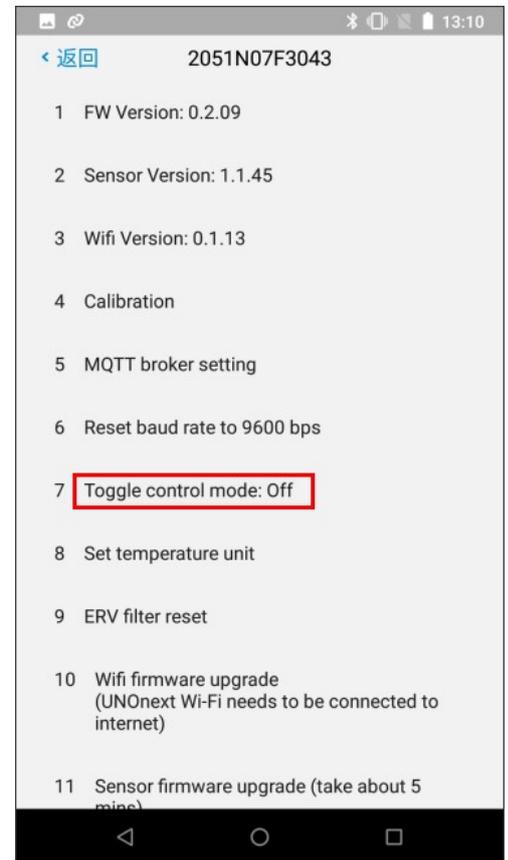
【F. Temperature unit】

You can change the temperature degree that is displayed in OLED monitor by this item. UNOnext support Celsius or Fahrenheit. Please notice this setting only for UNOnext's OLED panel but not UNO IAQ app.
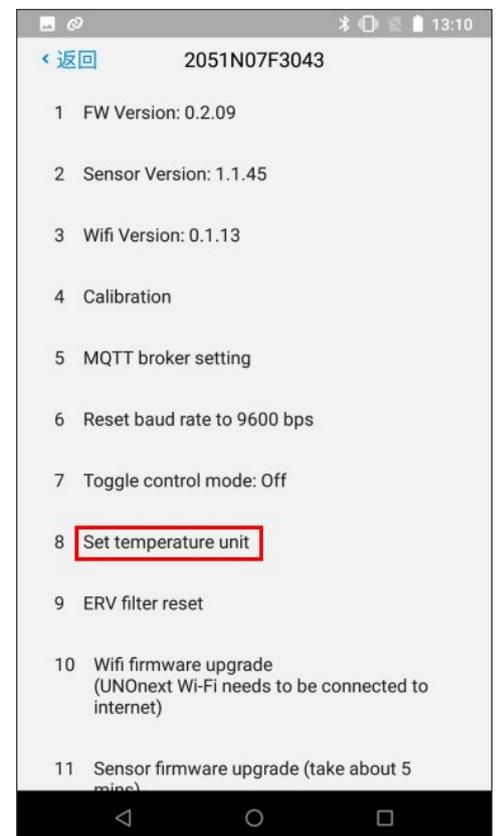
【G. ERV filter】

If the control mode is enabled, the ventilation fan's filter count will be calculated automatically to check whether the filter need to renew. Press this item can clean the counter from start.

You need to use this item if the ventilation fan's filter was renewed.
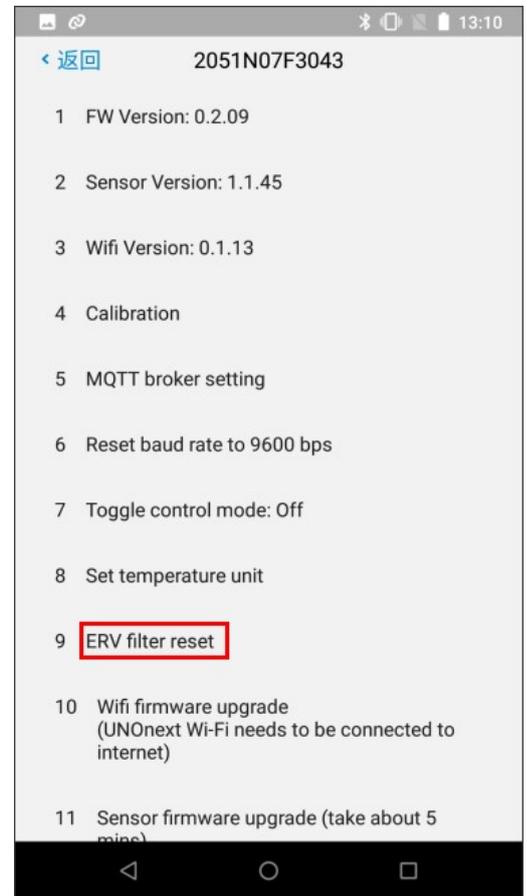
【H. Firmware Upgrade】

There are three kinds of firmware in UNOnext : device firmware, sensor firmware and Wi-Fi firmware. Besides, UNOnext has the recovery mode to force update device firmware. Check the following sections for more information.
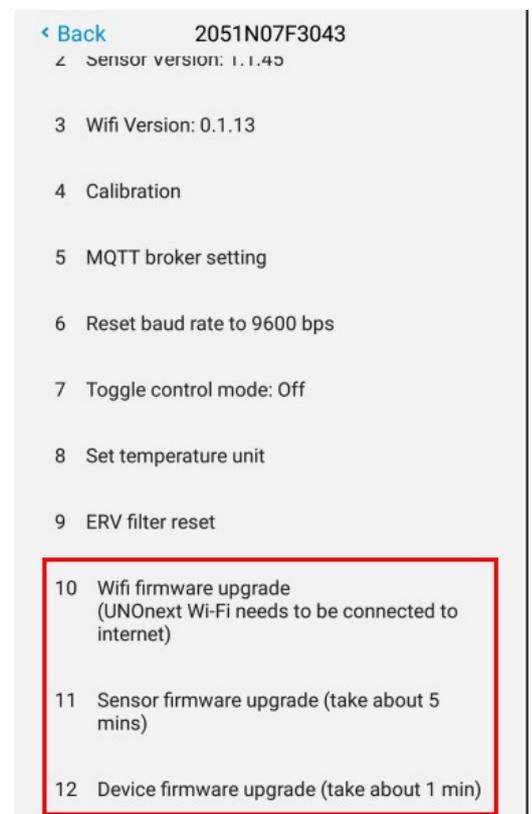
【H.1 Wi-Fi firmware upgrade】

Follow the steps to do Wi-Fi firmware upgrade:

1. **Make sure the UNOnext/UNOlite has been connected to internet.**
2. Press the "Wi-Fi firmware upgrade"
3. Wait 10 seconds
4. Check if the "Wifi Version" has been update to the newest one.

> **IMPORTANT NOTICE :**
> Do NOT power off UNOnext/UNOlite when firmware
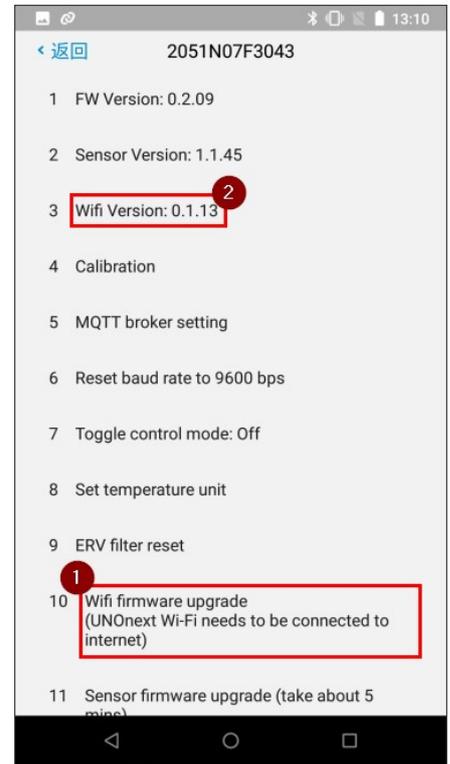
【H.2 Sensor firmware Upgrade】

Follow the steps to upgrade sensor firmware:

1. Got the sensor firmware file from vendor. The file name should be: **UNOSNR_vX_XX_XX**.bin

2. Press the "Sensor firmware upgrade" button and select the right binary file.

3. ENG mode start to transfer firmware to UNOnext/ UNOlite. The LEDs will keep blinking until sensor firmware upgrading successfully.

   The whole process may take **5~7 minutes**.

4. Check if the sensor version has been updated to the newest one.
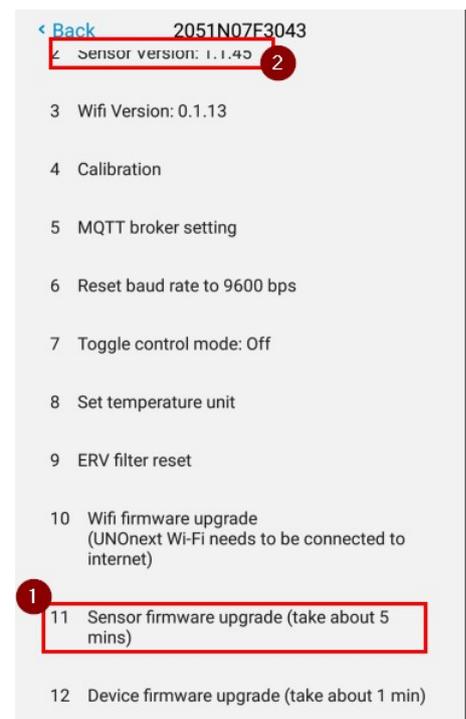
> **IMPORTANT NOTICE :**
> Do NOT power off UNOnext or close ENG APP when firmware upgrading

Blinking when firmware upgrade
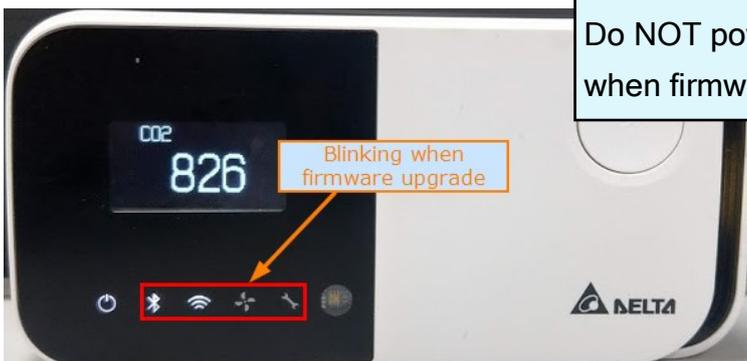
【H.3 Device firmware upgrade】

Follow the steps to do Device firmware upgrade:

1. Get the device firmware from vendor. The file name should be

   UNOFL_vX.XX.XX_bxx_app.zip

2. Press the "Device firmware upgrade" and select your UNOnext/UNOlite's model name.

3. ENG mode will show a dialog to introduce you which firmware should be adopted.

4. Choose the firmware file

5. Press upgrade and wait 1 minutes

6. Check if the firmware version has been updated to the newest

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IMPORTANT NOTICE :

Do NOT power off UNOnext/UNOlite or close ENG APP

‹ 返回   2051N07F3043

1   FW Version: 0.2.09   **2**

2   Sensor Version: 1.1.45

3   Wifi Version: 0.1.13

4   Calibration

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9   ERV filter reset

10   Wifi firmware upgrade
(UNOnext Wi-Fi needs to be connected to internet)

11   Sensor firmware upgrade (take about 5 mins)

1

12   Device firmware upgrade (take about 1 min)
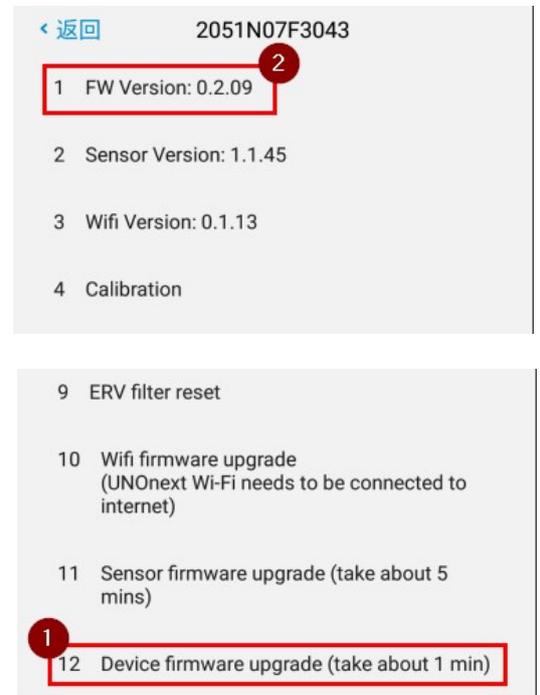
【Device firmware upgrade - Recovery Mode】

This section describes how to flash device firmware through recovery mode.
You should use recovery mode to flash UNOnext/UNOlite firmware **ONLY IF**:

1. UNOnext without RF function. The model name is ending with the character "R" (EX: UNO-6S**R**/UNO-7T**R**).
2. The device firmware was failed to upgraded before. And you can't find the device in ENG mode after power cycle UNOnext/UNOLite several times.

Follow the steps below to upgrade device firmware in recovery mode:

1. Use a paperclip or a needle to press the function hole in the back of UNOnext/UNOLite. After that, power on device.

2. Open the ENG mode and find a device with the name "Boot mode", and press" Refresh" button on the top. Then into device configured page and select the corresponding model to flash firmware.
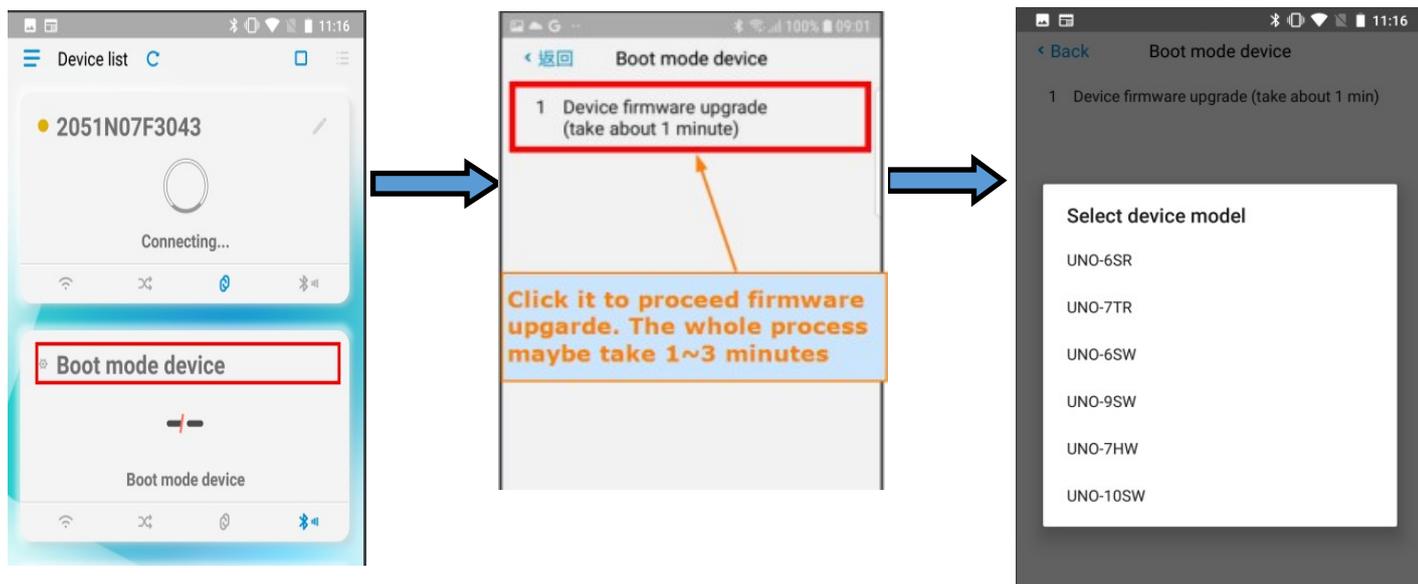
IMPORTANT NOTICE :

Do NOT power off UNOnext/UNOlite or close app when firmware upgrading

【I. Max Speed Levels】

The UNO-LW ERV control module can select number of ERV speed levels in ENG Mode,

Max 1 Speed: High

Max 2 Speeds: Low, High,

Max 3 Speeds: Low, Medium, High.

Your choose will result in ERV control view

‹ Back   2230L0170101

1   FW Version: 0.2.07

2   Sensor Version: 1.0.11

3   Wifi Version: 0.1.12

Max Speed Levels

Choosing the ventilation equipment airflow range and number of fan speed settings can affect the available control modes on the ventilation equipment control interface.

| **3 LEVEL** | 2 LEVEL | 1 LEVEL |

高速   中速   低速

CANCEL   OK

9   IAQ LED Threshold

10   WI-FI Error Code

11   Max Speed Levels

‹ Back   2230L0170101

1   FW Version: 0.2.07

2   Sensor Version: 1.0.11

3   Wifi Version: 0.1.12

Max Speed Levels

Choosing the ventilation equipment airflow range and number of fan speed settings can affect the available control modes on the ventilation equipment control interface.

| 3 LEVEL | 2 LEVEL | **1 LEVEL** |

高速   中速   低速

CANCEL   OK

9   IAQ LED Threshold

10   WI-FI Error Code

11   Max Speed Levels

‹ Back   2230L0170101

1   FW Version: 0.2.07

2   Sensor Version: 1.0.11

3   Wifi Version: 0.1.12

Max Speed Levels

Choosing the ventilation equipment airflow range and number of fan speed settings can affect the available control modes on the ventilation equipment control interface.

| 3 LEVEL | **2 LEVEL** | 1 LEVEL |

高速   中速   低速

CANCEL   OK

9   IAQ LED Threshold

10   WI-FI Error Code

11   Max Speed Levels

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Appendix：Direct bind device

If the UNO IAQ app has enable ENG mode, the device can be bound without press button on the UNOnext/UNOlite device.

請先靠近此 UNO 裝置, 再按下[配對]以啟動配對流程

(ENG) DIRECT BIND

取消　　配對

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