



DELTA UNO Sensor Multi In One Air Quality Detector User Manual

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DELTA UNO Sensor Multi In One Air Quality Detector User Manual



Delta Electronics, Inc.

UNOKIT2

2nd Generation UNO Sensor Calibration System
User Manual v1.0



DELTA ELECTRONICS, INC.



Smarter. Greener. Together.

[Revision History]

Date	Version	Description
2024/01/05	1.0	Release the first version.

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Overview

UNOKIT is the official calibration tool for the UNO Sensor (multi-in-one air quality detector) devices. It allows for the calibration of sensor module readings on the test UNO Sensor device by comparing them with the readings of the UNO Sensor benchmark, ensuring the accuracy of the sensor readings.

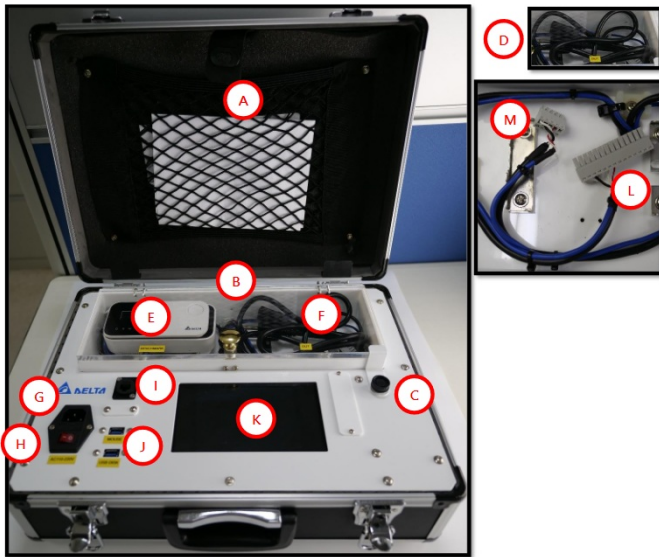
The UNOKIT supports the following models of UNO Sensor devices: UNOnext series and UNOlite series. The sensor modules can be calibrated are listed.

- Carbon Dioxide (CO2)
- Particulate Matter (PM1/PM2.5/PM10)
- Total Volatile Organic Compounds (TVOC)
- Carbon Monoxide (CO)
- Formaldehyde (HCHO)

* The calibration of the test device will be performed based on the sensor combination of the benchmark, typically UNO-9SW, which includes carbon dioxide (CO2), particulate matter (PM2.5/PM10), total volatile organic compounds (TVOC), carbon monoxide (CO), and suspended, formaldehyde (HCHO).

* After calibration, sensor readings of the test device will be within the valid range of sensor readings of the benchmark but may not be identical totally.

Contents



- A. Storage Bag
- B. Calibration Chamber
- C. Safety Clasp *
- D. Power Cord *
- E. Benchmark Installation *
- F. Test Device (DUT) Installation *
- G. Power Supply: AC100V-240V
- H. Power Switch
- I. Ethernet Port for Engineering Use
- J. USB Port: MOUSE / USB DISK
- K. Display LCD

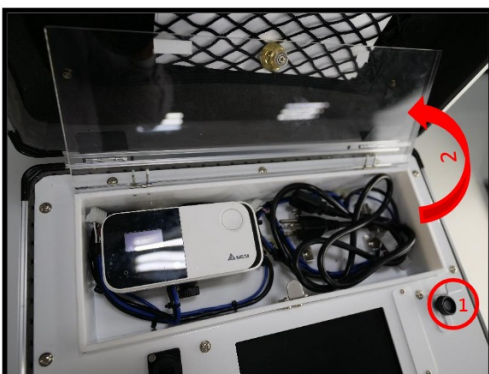
* The power cord is recommended to be stored inside the calibration chamber when not in use.

* The safety clasp can be used to quickly detach terminal connectors.

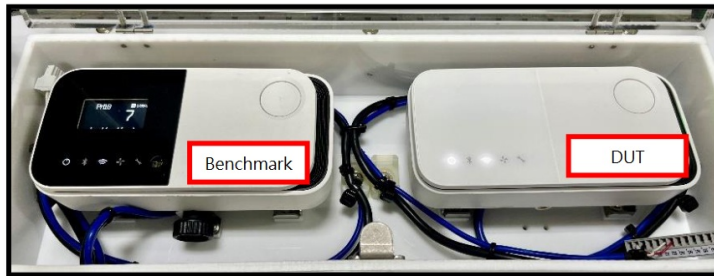
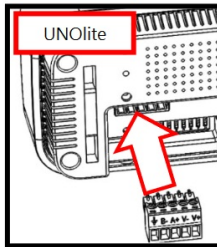
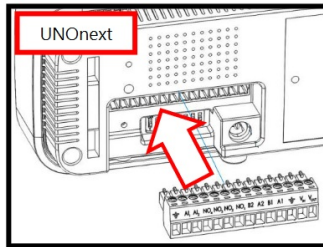
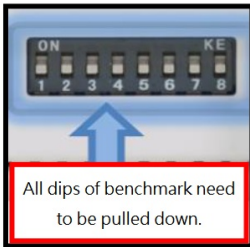
* There are two sets of terminal cables for both benchmark and the test device. The 14-pin cable is for use with the UNOnext series (L), while the 5-pin cable is for use with the UNOlite series (M).

Installation Guide

1. Counter-clockwise release the safety clasp and open the calibration chamber.



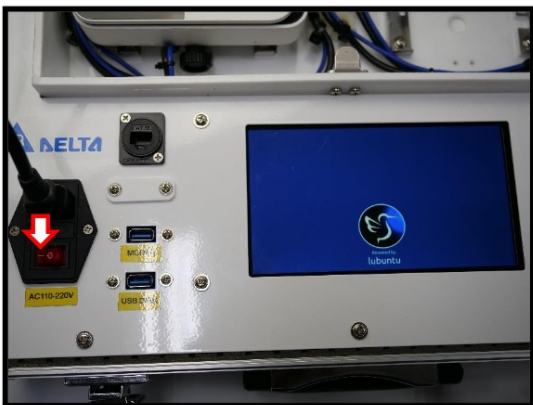
2. Ensure all dip switches on the Benchmark are down, then install it on the left and the test device (DUT) on the right. Connect the UNOnext with the 14-pin cable and the UNOlite with the 5-pin cable. Close the chamber to complete the installation.



3. Connect the power cord, and then connect the USB mouse. *** Please prepare your own USB mouse.**



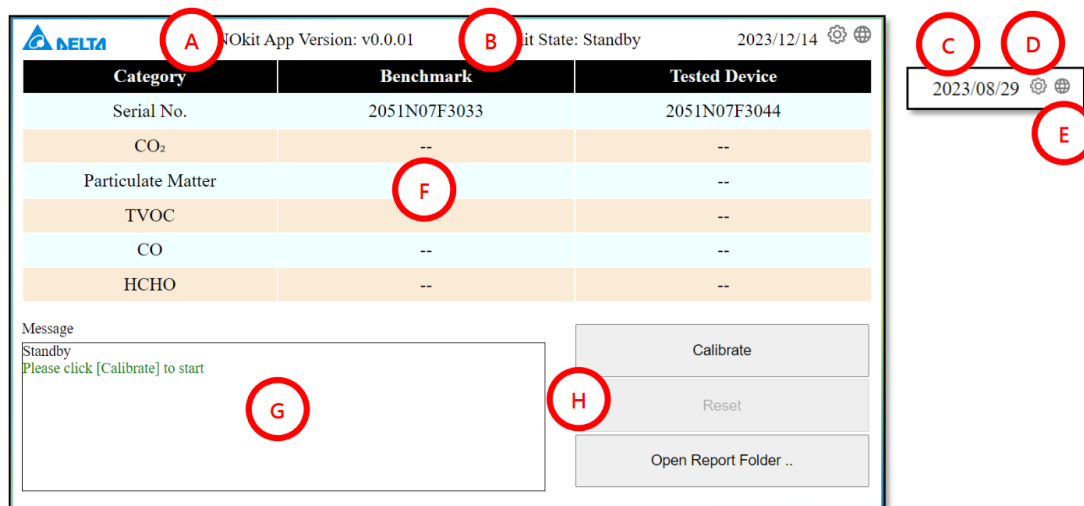
4. Power on.



* The benchmark does not need to be removed after installation unless there is a need for replacement.

* After installing the benchmark, please go to [System Settings] and update the [Time Zone] and [Benchmark Calibration Date] for the first-time use.

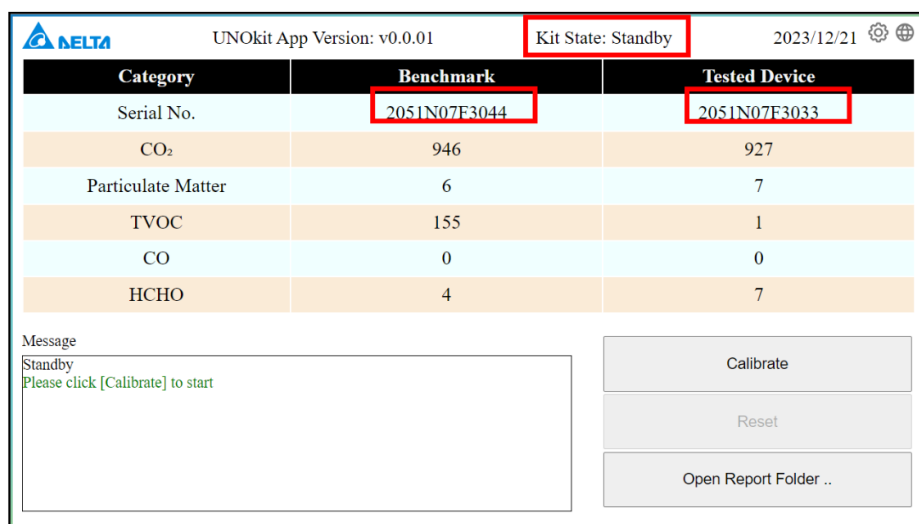
User Interface Guide



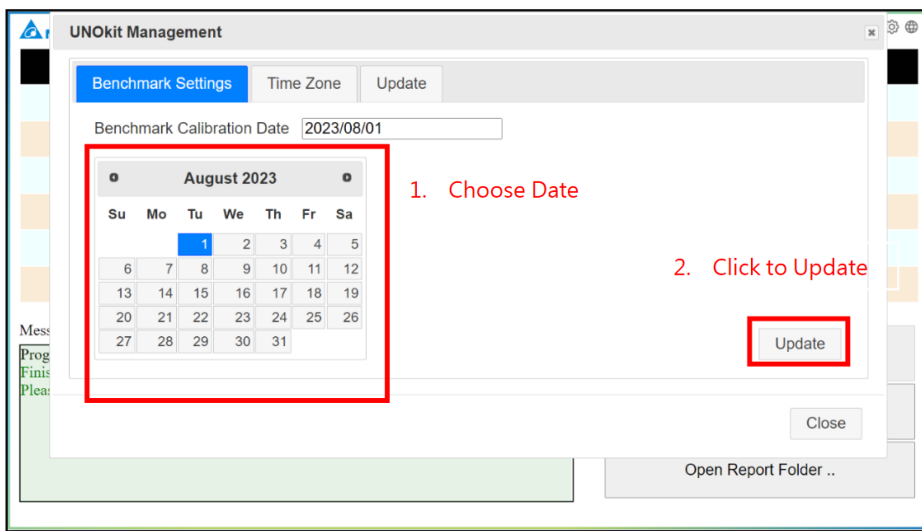
- A. UNOKIT App Version
- B. UNOKIT Status
- C. Current Date
- D. UI Language Settings
- E. System Settings
- F. Connection Status and Sensor Values of Benchmark and Test Device
- G. Message Box
- H. Buttons of Calibrate / Reset /Open Report

Calibration Process

1. Follow the installation guide to set up the benchmark, test device and mouse and power UNOKIT on. After the system starts up, the UNOKIT status will display 'Standby,' and the serial numbers of the benchmark and test device and sensor readings of mounted sensors should both be displayed correctly. *** If there is an error message, please follow the instructions.**

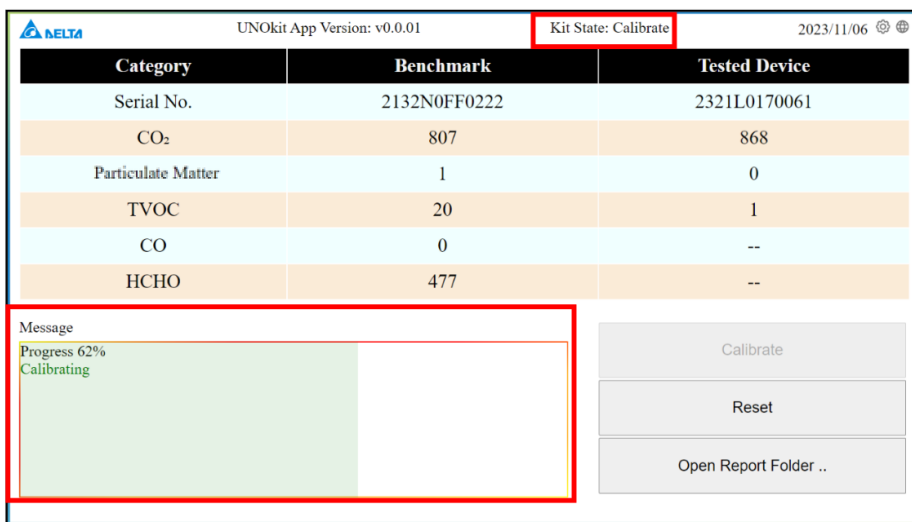


2. For the first-time use or when replacing the standard machine, please set the [Benchmark Calibration Date] according to the benchmark information.



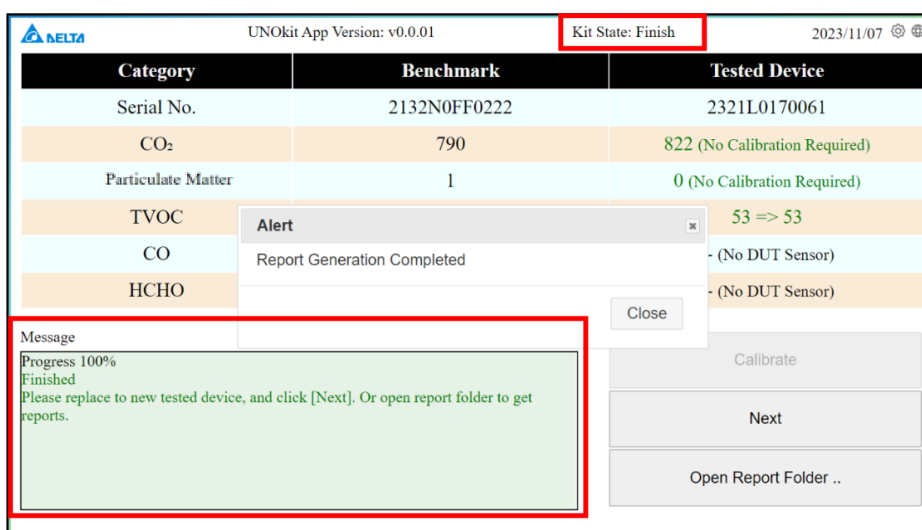
3. After the sensor readings mounted on benchmark and test device are displayed (not —), click on [Calibrate], and UNOKIT will start the calibration process.

UNOKIT will perform the following actions: [Warmup] → [Analyze] → [Calibrate] → [Finish]. The message block will also be keeping update according to the progress.



Note: If the sensor readings persistently do not display, it may indicate that the benchmark or test device **lacks this module, or the module is malfunctioning.**

4. When the calibration process is finished, the UNOKIT status will display [Finish], and the information for the benchmark and test device will be updated to their final states. At this point, the report has been generated.



5. If any **errors** occur during the process, the message block will display a red warning. **Please follow the**

message instructions to resolve the issue, then click [Reset] / [Next] or reboot UNOKIT.

UNOKit App Version: v0.0.01 Kit State: Finish 2023/11/06

Category	Benchmark	Tested Device
Serial No.	2132N0FF0222	2321L0170061
CO ₂	5109	5055
Particulate Matter	17	13
TVOC	20	0
CO	0	--
HCHO	195	--

Message
Progress 60%
Finished (w ERR)
Bad environment for calibration, change place and then recalibrate

Calibrate
Reset
Open Report Folder ..

Note: In some case, errors are discovered after [Finish] stage, a fail-calibration report also be generated.

6. After calibrating the test machine, you can refer to the [Installation Guide] to replace it with the next one and click [Reset] or [Next]. Then, repeat steps 1 to 4 for a new round of calibration. Or refer to [Retrieve Report] to get report. *** No need to restart UNOKIT power after replacing the next test device.**

UNOKit App Version: v0.0.01 Kit State: Finish 2023/11/07

Category	Benchmark	Tested Device
Serial No.	2132N0FF0222	2321L0170061
CO ₂	790	822 (No Calibration Required)
Particulate Matter	1	0 (No Calibration Required)
TVOC	20	53 => 53
CO	0	-- (No DUT Sensor)
HCHO	550	-- (No DUT Sensor)

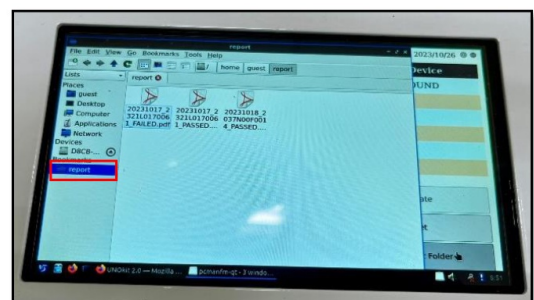
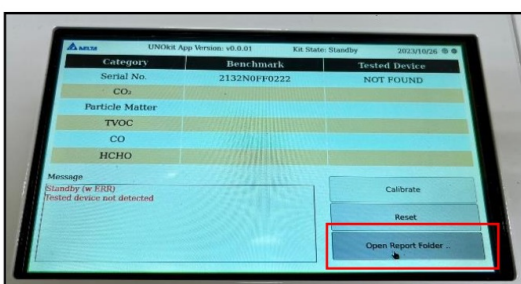
Message
Progress 100%
Finished
Please replace to new tested device, and click [Next]. Or open report folder to get reports.

Calibrate
Next
Open Report Folder ..

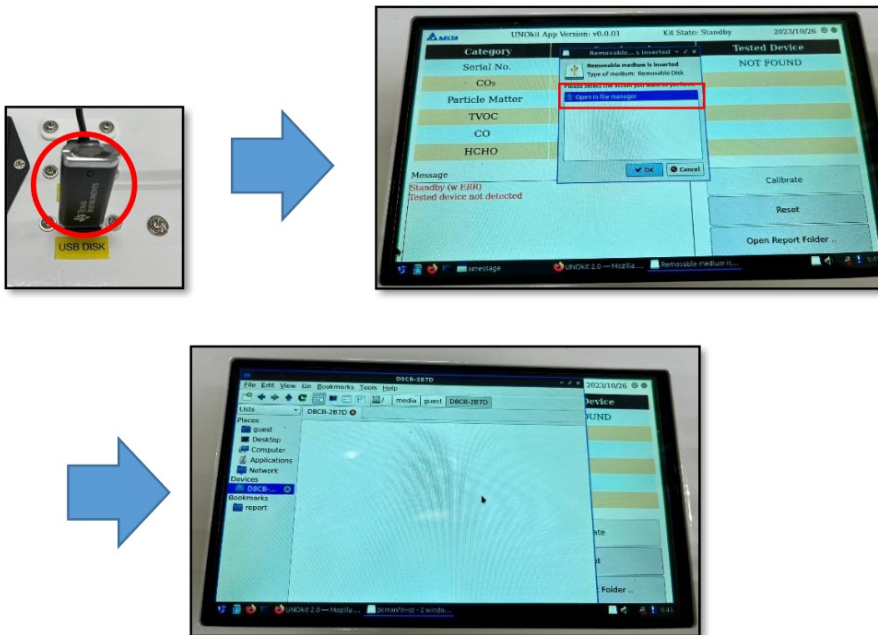
7. After completing all calibrations and retrieving the reports following the next section, please remove the test device, turn off the power, and store the power cord.

Retrieve Report

1. Click on [Open Report Folder ...], and the screen will display the report storage directory. All calibration reports are PDF file, the filename format is [Calibration Date]_[SN of Test Device]_[PASSED/FAILED].pdf. e.g., 20231215_2321L0170099_PASSED.pdf.



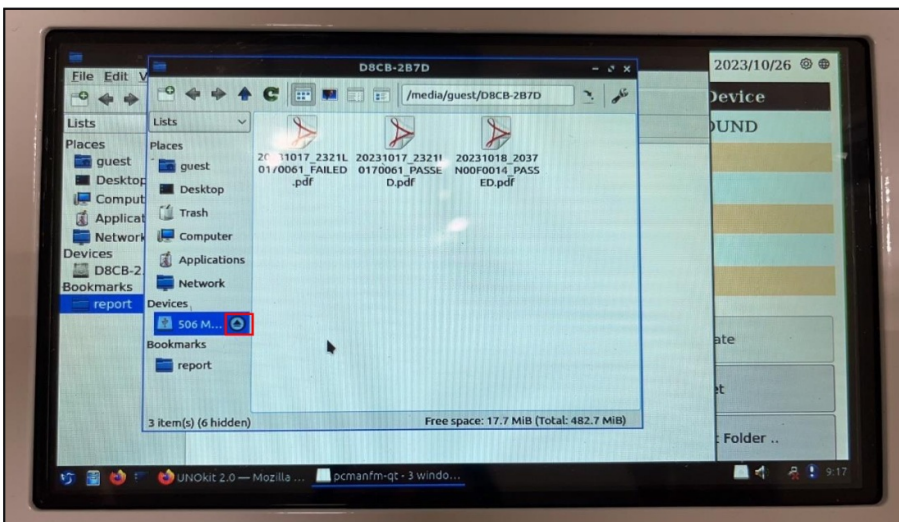
2. Insert the USB flash disk into [USB DISK], and the LCD will display a permission allow window. Select [Open File Manager], click [OK], and the USB flash disk directory will appear.



3. Move the PDF file from the report directory to the USB flash disk directory. Select the PDF file, right-click, choose [Cut], and then go to the flash disk directory, right-click, and select [Paste].

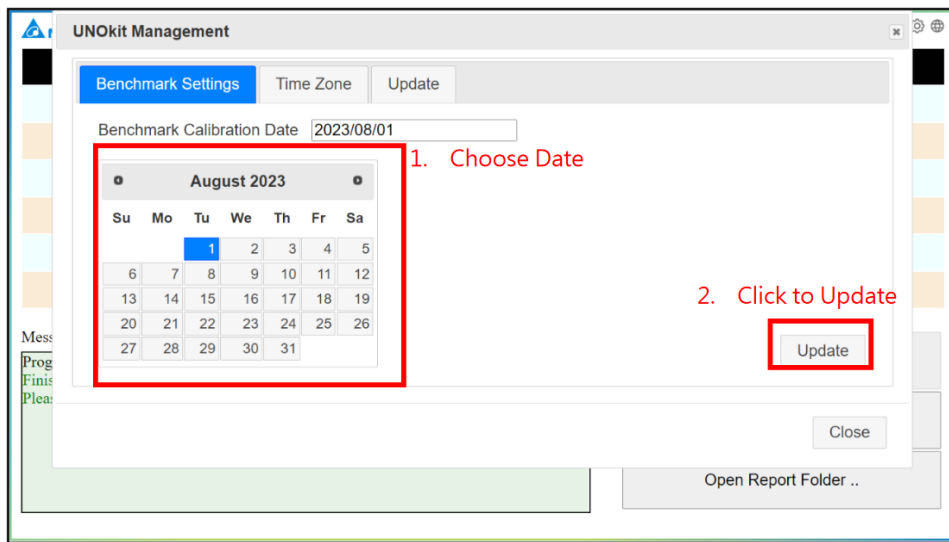


4. Click the [Eject USB Drive] button and eject the USB flash disk.

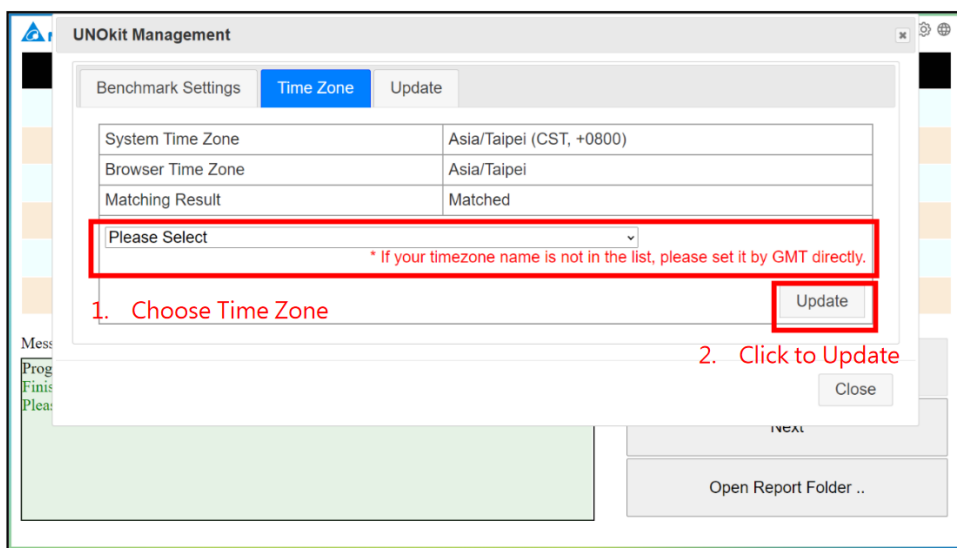


System Settings (UNOKit Mangement)

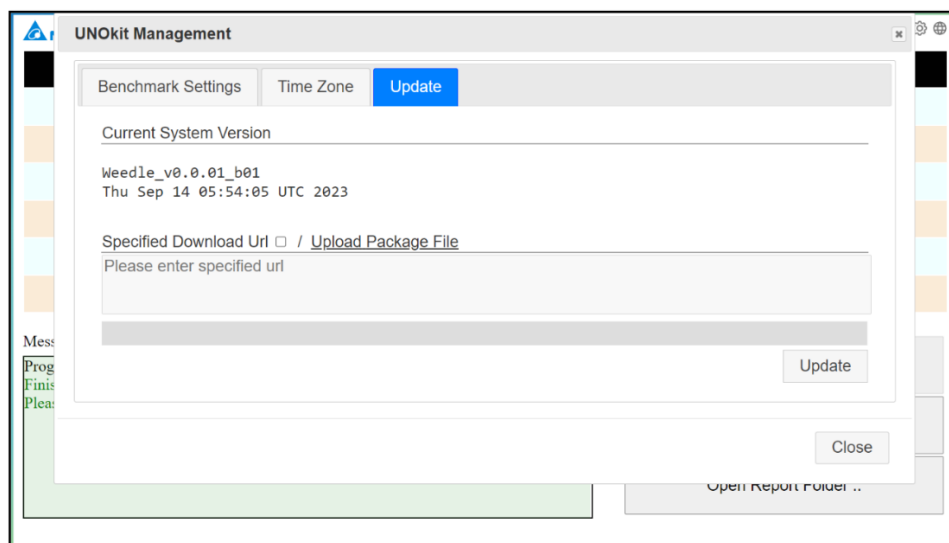
■ **Benchmark Calibration Date:** If a benchmark replacement is performed, please update the calibration date according to the information of the new benchmark.



■ Time Zone: Please set the time zone correctly to ensure the accuracy of the report date. (e.g. +0800 → Taiwan).




■ System Update: When UNOKIT is connected to the internet and can access the external network, it can perform system updates. *** This operation should be carried out as instructed by an engineer .**



Common Errors

Error	Description
alert_check_fail	Calibrate fail, please re-calibrate
alert_cmd_fail	Unknown failure, please re-calibrate
alert_dut_decline	Sensor offset is too large, reset or replace it
alert_dut_err	Sensor error, reboot or replace it
fatal_alert_bad_env	Bad environment for calibration, change place and then recalibrate
fatal_alert_bench_err	Benchmark sensor error, please reboot or replace Benchmark
fatal_alert_bench_offline	Benchmark is offline, please re-connect and reset
fatal_alert_disk_full	Disk is full, please delete extra reports
fatal_alert_dut_changed	Tested device is changed, please reset
fatal_alert_dut_offline	Tested device is offline, please re-connect and reset
fatal_alert_modbus_fail	COM port error, try to reboot UNOkit
fatal_alert_no_bench	Benchmark not detected (0xDO)
fatal_alert_no_dut	Tested device not detected
fatal_alert_no_target	No target item
fatal_alert_unknown_dut	Unknown Test device (SN, Model, Ver)
fatal_alert_bench_invalid_fw	Please update the benchmark firmware
fatal_alert_dut_invalid_fw	Please update the test device firmware

Documents / Resources

	<p>DELTA UNO Sensor Multi In One Air Quality Detector [pdf] User Manual UNOnext series, UNOlite series, UNO Sensor Multi In One Air Quality Detector, UNO Sensor, Multi In One Air Quality Detector, Air Quality Detector, Quality Detector, Detector</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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