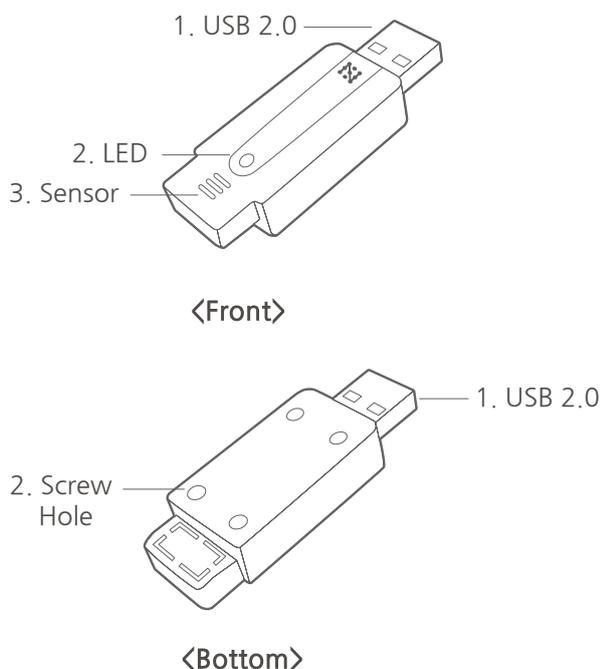# RADIONODE®

The most innovated data logger

# UA50-A

- Real-time tVOC & CO2eq Transmitter
- Mono metal oxide gas sensor embedded
- Long Lifetime of Sensor
- Operating On Windows / Linux / MacOS
- AT Command Support
- PC Recording Software (Tapaculo Lite)
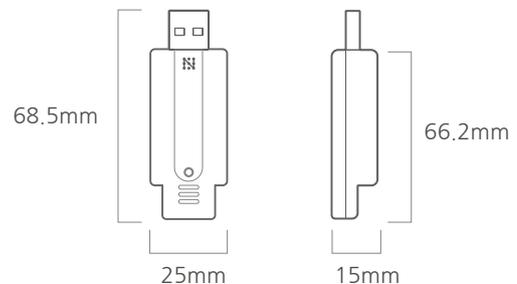- Android Recording App. (Tapaculo Mobile)

The UA50A device is designed to measure TVOC (Total Volatile Organic Compounds) and CO2eq and transmit them in real-time via the USB connector. Embedded mono metal oxide sensor allows more accurate measuring and faster response time than others. It is suitable for checking Indoor Air Quality.

The UA Series is automatically recognized as a serial port on the operating system and accessed using the AT command. Multiple USB connections of the UA device could compose the multi-channel sensor. The sensor data is not stored in the UA, but recording in PC and Android device. 128CH real time monitoring software on pc, Tapaculo Lite is downloadable on our website(www.radionode365.com). And android real time recording application is also available from google play store.

## Hardware

1. USB 2.0
2. LED
3. Sensor

〈Front〉

1. USB 2.0
2. Screw Hole

〈Bottom〉

## Dimensions

68.5mm
66.2mm
25mm
15mm

## ⚠ CAUTION!

- During the warm-up period, the sensor must be driven from clean air.
- The longer the operation time, the better the measurement accuracy. So avoid frequent power-offs.
- CO2eq value is not from actual CO2 sensor but calculated from Ethanol and Hydrogen. So it is highly recommended only for air ventilation purpose.
- Avoid contact with conductors. Static electricity can cause distorted values.

## Contact Information

- www.radionode365.com
- master@dekist.com
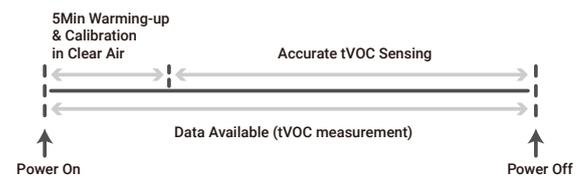
## tVOC Transmitter via USB

### UA50-A Specifications

| | |
|---|---|
| Sensor Channel Info. | • CH1: TVOC<br>• CH2: CO2eq OR Absolute humidity |
| Gas Sensor Type | Mono Metal Oxide sensor |
| Body Material | PC(Polycarbonate) |
| Measurement Range | • tVOC: 0 ~ 60 ppm<br>• CO2eq: 400 ~ 10000 ppm<br>• Absolute humidity: 0 ~ 256 g/m3 |
| Measurement Unit (Selection using SW) | • tVOC [ppm(Default) or ppb]<br>• CO2eq [ppm(Default) or %]<br>• Absolute humidity [g/m3] |
| Measurement Cycle | 1 sec |
| Sensor Resolution | • TVOC: 0.01ppm<br>• CO2eq: 1ppm |
| Sensor Accuracy (Repeatability) | • tVOC: ±15% of measured value<br>• CO2eq: ±10% of measured value |
| Compensation Logic | Humidity |
| Long-term Drift | • TVOC: < 1% of measure value/ month<br>• CO2eq: < 2% of measure value/ month |
| Gas Response Time | T90 < 5mins |
| Warming up Time | 5mins after power-on |
| Operating Condition | • Temperature: -40 ~ 85°C  (-40 ~ 185°F)<br>• Humidity: 10 ~ 95%RH |
| Lifetime | < 8 Years |
| Power Consumption | 5V (Max. 315mW) |
| Calibration Method | Offset adjustment |
| USB Port | USB 2.0 Type A Plug |
| Output Mode (Selection using SW) | Default mode: MODE2<br>• Mode 1 : [TVOC, Absolute humidity]<br>• Mode 2 : [TVOC, CO2eq] |
| Output Signal | USB digital, CDC Device (AT Command) |
| LED | Device Status Indicator<br>• BLINK RED & GREEN : Warming-up<br>• RED KEEP ON: USB Connection Failed<br>•  BLINK GREEN : Measuring |
| Software Support | • Tapaculo Mobile<br>2CH recording software on Android devices<br>Download: Google play store<br>• Tapaculo Lite<br>128CH recording software on PC<br>Download: www.radionode365.com<br>• Calibration Software<br>Calibrator that compensates measuring error.<br>Download: www.radionode365.com |

\* **CO2eq** : CO2 concentration estimate based on H2 measurement in air.
It is only for a Ventilation purpose

### UA50-A Major detectable Gases

| | |
|---|---|
| n-Hexane | α-Pinene |
| n-Nonane | n-Pentanal |
| n-Decane | n-Hexanal |
| n-Undecane | Iso-propanol |
| 1-Octane | 2-Butanol |
| 1-Decene | 2-Butanone |
| Cyclohexane | 3-Methyl-3-butanone |
| m-Xylene | 4-Methyl-2-pentanone |
| Ethylbenzene | n-Butylacetate |
| 1,2,4-Trimethylbenzene | Ethoxyethylacetate |
| n-Propylbenzene | 1,2-Dichloroethane |

### Operating Guide



5Min Warming-up & Calibration in Clear Air — Accurate tVOC Sensing
Data Available (tVOC measurement)
Power On — Power Off

• On power up, UA50 will be in the warming-up state during 5 minutes. the accuracy of UA50 would be unstable at this moment.
• Since the internal software algorithm keep calculating parameters for a better accuracy, the long running time could make the better measurement accuracy.

### Application

• Indoor air quality measurement

### Product Components

| Model | Component |
|---|---|
| UA50 | • UA50(1EA)<br>• Type A USB Extension Cable 1.5 m(1EA) |

### Optional Accessories

| Type | Model Number | Spec. |
|---|---|---|
| Sensor data transmitter via Ethernet | RN171 WC | • Supports cloud monitoring<br>• Supports MODBUS TCP/HTTP data transmission<br>• Power: PoE 48V, IEEE802.3af/at, DC6V, 1.9W |
| Sensor data transmitter via WiFi | RN172 WC | • Supports cloud monitoring<br>• Supports MODBUS TCP/HTTP data transmission<br>• Power: DC6V, 2.4W |