Temtop

LKC-1000 Series
Air Quality Monitor
User Manual

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Factory Affecting Air Quality

PM2.5 (Particulate Matter 2.5) refers to fine particles with diameter of 2.5 micrometers or less. Due to its tiny size, PM2.5 can be absorbed into bloodstream and the lungs, so that long-term exposure to high concentration of PM2.5 environment may cause eye and nose irritation, cough, asthma, emphysema, lung disease, heart attacks, cancer and etc.

PM10 (Particulate Matter 10) refers to particulates with a diameter of 10 micrometers or less. Due to the larger size, it's inhalable but penetrates no further than bronchi as larger particles can be filtered out by cilia and mucus of nose and throat. It usually considered as less harmful to health than PM2.5.

HCHO (Formaldehyde) is a colorless and strong-smelling chemical with formula CH_2O or H-CHO, which has been classified by IARC as Group 1 carcinogen due to its significant dangers to human health. Long-term exposure to just low doses could cause chronic respiratory diseases, nasopharyngeal cancer, colon cancer, brain tumors, nuclear gene mutations and etc.

TVOC (Total Volatile Organic Compounds) refers to various common VOCs including benzene, toluene, styrene, formaldehyde and etc. Due to their volatility as well as toxicity, irritability and carcinogenicity, long-term exposure to TVOCs can cause damage to the skin, liver, kidneys, central nervous system and etc.

Temperature & Humidity may often be ignored however they do have a significant impact on individual's well-being, comfort, health and safety as well as your property. High humidity may lead to an increase in household air pollutants especially the biological contaminants such as molds, bacteria, viruses and dust mites; cold, low humidity may cause nosebleeds, skin and respiratory irritations, dyspnea, static electricity and etc.

AQI (Air Quality Index) is a quick guide on air quality levels. It aims to indicates how clean or polluted the air is in a way that's easy to understand. It ranges from 0 to 500 that higher values indicate higher air pollution levels and more adverse for health. AQI assessment can indicated for PM2.5, PM10, O_3, SO_2, NO_2, CO etc. Temtop follows EPA Standards to calculate and focus only for AQI of PM2.5 & 10.

Important!

★ It is usual for the detector to show higher values when first switched on or not used for an extended period. Please place it in a ventilated area and turn it on for around 30 minutes before testing.

★ Do not use detector in humid places or environments with strong odor to maintain accuracy.

★ Do not cover the vents of the detector and keep lint out of the detector, as the particle sensor may not work correctly.

★ Do not come into contact with organic solvents, which include silica gel and other adhesives, paintings, drugs, oil, and high-concentration gases.

★ Children should only use this device under adult supervision. Keep packaging materials, such as plastic bags and plastic wrap, out of the reach of children as they present a choking hazard.

★ Do not dismantle the unit yourself. In the event of a defect, contact your dealer instead, who will liaise with the service center and, if necessary, send the device in for repair.

Overview
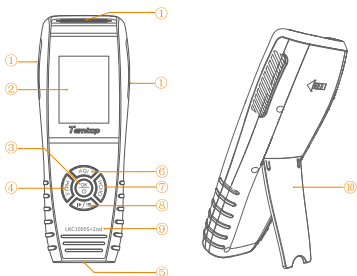
① Air Inlet/Outlet　② LCD Screen　③ Power/OK Button
④ PM2.5/PM10/Particles Button　⑤ USB Port
⑥ AQI/TEMP/HUM/Up Button　⑦ HCHO/TVOC Button
⑧ Running/Hold/Setting/Down Button
⑨ Model (LKC1000S+2nd or LKC1000S 2nd)
⑩ Bracket

Function

Function \ Model	LKC-1000S+ 2nd	LKC-1000S 2nd
PM2.5	√	√
PM10	√	√
HCHO	√	√
Particle Count	√	√
AQI	√	√
TVOC	√	
TEMP & HUM	√	√
Histogram	√	
Data Export	√	√

Specifications

Model	LKC-1000 Series
Dimensions	177*65.5*32mm (6.9*2.6*1.2 in)
Battery Capacity	3000mAh
Battery Life	15-18h @ Backlight Level 2 (Approximately 25°C)
Input	DC5V, 1A
Display	TFT color LCD screen
Weight	About 219g (0.48lb)
Operating Environment	Temperature: 0~50°C (32~122°F) Humidity: 0~90%RH
PM2.5	Measuring range: 0-999.9ug/m³ Resolution: 0.1ug/m³ Accuracy: ±10µg/m³(0-100µg/m³) ±10%(100-500µg/m³)
PM10	Measuring range: 0-999.9ug/m³ Resolution: 0.1ug/m³ Accuracy: ±15µg/m³(0-100µg/m³) ±15%(100-500µg/m³)
HCHO	Measuring range: 0-2mg/m³ Resolution: 0.01mg/m³
TVOC*	Measuring range: 0-5mg/m³ Resolution: 0.01mg/m³

*For LKC-1000S+2nd Only
Note: The above data are from Temtop Laboratory.
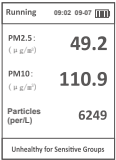
Operation

> ### ⚠ Warning!
>
> ★ Indoor use: Keep the room/area airtight for 10 minutes to obtain more accurate results.
> ★ If battery level shows ▭ , please charge the detector promptly to avoid effects during use (also chargeable when turned off).
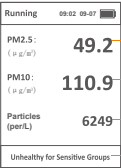
1.Switch On/Off

Press and hold ⊙ button for 2 seconds to turn on/off the detector.
After initialization, the instrument enters the default interface.

Temtop	Notice	Running 09:02 09-07
		PM2.5 : (μg/㎥) **49.2**
Temtop	**Notice**	PM10 : (μg/㎥) **110.9**
	Do not place detector in heavily polluted environments for a long time, or it may cause damages to the sensor.	Particles (per/L) **6249**
Air quality detector	15%	Unhealthy for Sensitive Groups

2.Detection

2.1 PM2.5 Button

Please click the ◊ button to view the following four interfaces.

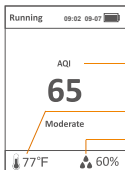| Running 09:02 09-07 🔋	
PM2.5 : (μg/㎥) **49.2**	→ PM2.5 Concentration
PM10 : (μg/㎥) **110.9**	→ PM10 Concentration
Particles (per/L) **6249**	→ Particle Count (For Ref)*
Unhealthy for Sensitive Groups	→ Air Quality Indicator
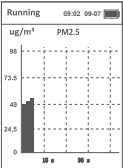
PM2.5 Graph View
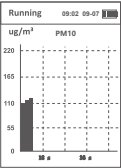
PM10 Graph View
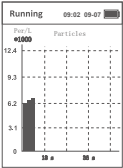
Particle Graph View

* The particle counts are for reference only. For accurate particle counts please choose a professional particle counter from Temtop.
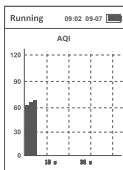
5

2.2 AQI Button

Please click the ⬭ button to view the following four interfaces.
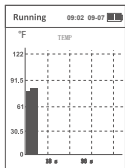Press and hold ⬭ button for 2 seconds to switch between °C or °F.

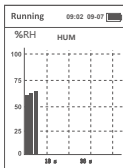| Running	09:02 09-07 🔋
AQI	— AQI Concentration
65	
	— Temperature
Moderate	
	— Humidity
🌡77℉	💧60%

Running	09:02 09-07 🔋
	AQI
120	
90	
60	
30	
0	10 s 30 s

AQI Graph View

Running	09:02 09-07 🔋
°F	TEMP
122	
91.5	
61	
30.5	
0	10 s 30 s

TEMP Graph View

Running	09:02 09-07 🔋
%RH	HUM
100	
75	
50	
25	
0	10 s 30 s

HUM Graph View

2.3 HCHO Button

Please click the ⬭ button to view the following three interfaces.
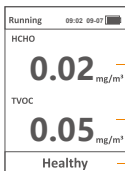
Running	09:02 09-07 🔋
HCHO	
0.02 mg/m³	— HCHO Concentration
TVOC	
0.05 mg/m³	— TVOC Concentration (LKC-1000S+ 2nd)
Healthy	— Air Quality Indicator
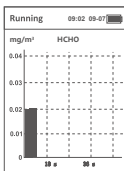
HCHO Graph View

TVOC Graph View
(LKC-1000S+ 2nd)

Note:
1) Please click "▶/≡" button to switch between running mode and holding mode.
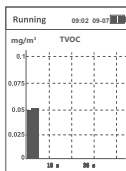In running mode, the detector always displays currently detected data.
In holding mode, the detector paused the detection function and will stop updating data on the screen.
2) Data updates every 3 seconds when x axis value is within 72 seconds.
Data updates every 1 minute when x axis value is within 24 minutes.
Data updates every 5 minutes when x axis value is within 120 minutes.
Data updates every 30 minutes when x axis value is within 12 hours.

3.Settings Menu

Buttons

Button	Setting Function
⬬	Up/Increase
⬬	Down/decrease
◖	Left
◗	Right
⊙	Confirm

Press and hold the ⬬ button for 2 seconds in the main display of "PM2.5, AQI, HCHO" to enter the system settings.

- Date and Time —— 3.1
- Power Saving —— 3.2
- Calibration —— 3.3
- History —— 3.4
- Reset —— 3.5
- System Info —— 3.6
- Exit

7
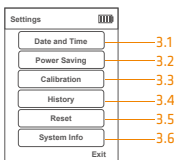
3.1 Date and Time (Example Of Button Operation):

Press the ➥ or ➥ button to scroll up or down and press the ⊚ button to confirm.

Press the ⦵ or ⦴ button to switch to the item you want to set.

Press the ➥ or ➥ button to increase or decrease the current value.

Then press the ⦵ or ⦴ button to switch to save or exit, and press ⊚ button to save the setting or exit the interface.

Settings	
Date and Time	
Power Saving	
Calibration	
History	
Reset	
System Info	
	Exit

Date and Time	
2020-01-01	
09: 30: 00	
Press the AQI or ▶ / ≡ button to set the current value, press the PM2.5 or HCHO button to switch to the next item.	
Save	Exit

3.2 Power Saving

In this interface, you can see figure below.

Power Saving	
☐Auto Off(min)	001
☑Screen Off(min)	030
Backlight Level	5
Press the AQI or ▶ / ≡ button to set the current value, press the PM2.5 or HCHO button to switch to the next item.	
Save	Exit
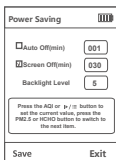
Note: 1. " ☐Auto Off(min) " : Auto power off function is not switched on.

2. " ☑Screen Off(min) " : The screen will automatically switch off after 30 minutes.

3. The "Backlight Level" are divided into 0, 1, 2, 3, 4 and 5.

3.3 Calibration

In this interface, you can see figure below.

Calibration	
PM2.5	— 3.3.1
HCHO	— 3.3.2
TEMP&HUM	— 3.3.3
	Exit
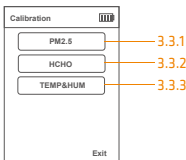
3.3.1 PM2.5 Calibration

You can calibrate the PM2.5 value by adjusting the "Target PM2.5" value.

Calibration 🔋	Calibration 🔋
PM2.5	**PM2.5**
0%	100%
Start calibration	Calibrating
Make sure the instrument is in a stable environment!	Calibration in progress, please wait.
Press the PM2.5 or HCHO button to switch to the next item.	Press the PM2.5 or HCHO button to switch to the next item.
Exit	Exit

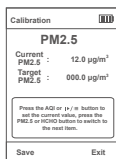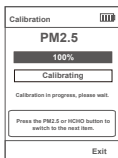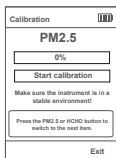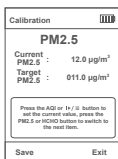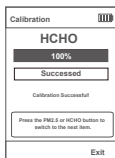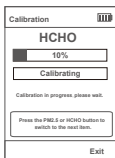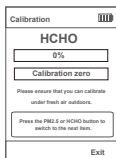| Calibration 🔋	Calibration 🔋
PM2.5	**PM2.5**
Current PM2.5 : 12.0 μg/m³	Current PM2.5 : 12.0 μg/m³
Target PM2.5 : 000.0 μg/m³	Target PM2.5 : 011.0 μg/m³
Press the AQI or ▶/≡ button to set the current value, press the PM2.5 or HCHO button to switch to the next item.	Press the AQI or ▶/≡ button to set the current value, press the PM2.5 or HCHO button to switch to the next item.
Save Exit	Save Exit

Adjust the "Target PM2.5" value to 11.0.

Note: The 'Target PM2.5' value is the specific value you are adjusting.

3.3.2 HCHO Calibration

Press the 🔼 or 🔽 button to switch to the "Calibration zero" and press ◉ button to calibrate.

Calibration 🔋	Calibration 🔋	Calibration 🔋
HCHO	**HCHO**	**HCHO**
0%	10%	100%
Calibration zero	Calibrating	Successed
Please ensure that you can calibrate under fresh air outdoors.	Calibration in progress, please wait.	Calibration Successful
Press the PM2.5 or HCHO button to switch to the next item.	Press the PM2.5 or HCHO button to switch to the next item.	Press the PM2.5 or HCHO button to switch to the next item.
Exit	Exit	Exit

Note:
1. Please ensure that you can calibrate under fresh air outdoors.
2. During the calibration process, please do not perform other operations until the calibration is successful and you return to the previous level screen.

3.3.3 TEMP & HUM Calibration

You can calibrate the temperature and humidity by modifying the "OFFSET" value.

Formula :
OFFSET(TEMP target value) = TEMP(target value) - TEMP(current value) + OFFSET(TEMP current value).
OFFSET(HUM target value) = HUM(target value) - HUM(current value) + OFFSET(HUM current value).
Example :
If TEMP target value is 25.0, current value is 23.0, current value of OFFSET(TEMP) is -0.2.
Then "OFFSET(TEMP target value)=25.0-23.0+(-0.2)=+1.8".
If HUM target value is 36.0, current value is 33.0, current value of OFFSET(HUM) is +1.5.
Then "OFFSET(HUM target value)=36.0-33.0+(+1.5)=+4.5".

Increase "OFFSET(TEMP)" to +1.8°C
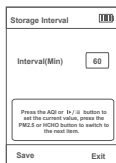Increase "OFFSET(HUM)" to +4.5%rh
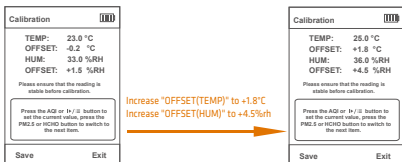
3.4 History

In this interface, you will see the figure below.
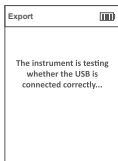

3.4.1 Storage Interval

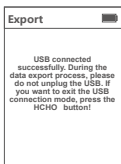In this interface, you will see the following tips.

Note: The recording intervals are divided into 01, 05, 10, 30, and 60 min.

10

3.4.2 Data Export

In this interface, you will see the figure below.


```
Export                    🔋

The instrument is testing
whether the USB is
connected correctly...
```

If connected to the computer successfully by the USB cable, the detector will pop up a tip USB connection successful; If not, it will remind you of the failure (See the figures below).

```
Export                    ▬

USB connected
successfully. During the
data export process, please
do not unplug the USB. If
you want to exit the USB
connection mode, press the
HCHO  button!
```

```
Export                    ▬

No USB connection
detected!
```

After successful connection, the detector creates a removable storage device "TEMTOP" on the computer, which contains a folder named "HISTORY". This history folder contains a history file named after the time, e.g. "20230601". The history file is in CSV format and lists information such as date, PM2.5, PM10, PARTICLES, AQI, HCHO, TVOC, Temperature, Humidity, etc. (see figure below). Please save it to your computer for viewing.

DATE	PM2.5 (μg/m³)	PM10 (μg/m³)	PARTICLES (per/L)	AQI	HCHO (mg/m³)	TVOC* (mg/m³)	TEMP	HUMI (%RH)	TEMPUNIT
2023/6/19 01:40	34.6	56.3	5277	98	0.04	0.17	26	61.4	C
2023/6/19 02:40	36.6	61.6	5228	103	0.03	0.14	26	61.4	C
2023/6/19 03:40	34.1	56.6	5218	97	0.04	0.16	26	61.4	C
2023/6/19 04:40	35	56.8	5288	99	0.04	0.16	26	61.4	C
2023/6/19 05:40	35.3	57.7	5341	93	0.04	0.17	26	61.4	C

* For LKC-1000S+ 2nd only.
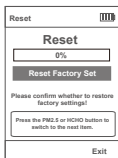Note: In the exported data, C represents °C and F represents °F.

After copying and viewing historical data, please press ⏻ to exit (see figure below).

```
Export                  ▥

      Successfully exit the USB
      connection, return to the
        menu, please wait!
```

3.5 Reset
In this interface, you will see the figure below.

```
Reset                   ▥

            Reset
      [ 0% ]
      Reset Factory Set

      Please confirm whether to restore
            factory settings!

      Press the PM2.5 or HCHO button to
          switch to the next item.

                          Exit
```

3.6 System Info
In this interface, you will see the figure below.

```
System Info             ▥

    Model: LKC-1000XXXX
    Serial Number: TQXXXXXXXXXX
    Firmware Version: VX.X
    Brand: Temtop

                          Exit
```

Air Quality Parameter for Reference

Status / Pollutant	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy	Hazardous
PM2.5 (µg/m³)	≤9	9.1–35.4	35.5–55.4	55.5–125.4	125.5–225.4	≥225.5
PM10 (µg/m³)	≤54.9	55–154.9	155–254.9	255–354.9	355–424.9	≥425
AQI*	≤50	51–100	101–150	151–200	201–300	≥301

Status / Pollutant	Healthy	Unhealthy
HCHO (mg/m³)	≤0.1	>0.1
TVOC (mg/m³)	≤0.5	>0.5

*Refers to EPA standards, with PM2.5 as the main responsible pollutant.

What's Included

LKC-1000 Series Detector x 1
Calibration Certificate x 1
User Manual x 1
USB Cable x 1

FAQ

Q: Why data reading is unstable?

A: If the airflow in the current sampling space is in an unstable state, such as strong wind, the concentration of particulate matter in the air will be unevenly distributed, and will vary greatly with the surrounding airflow, resulting in large differences in measured values.

Q: Why humidifiers can cause rising particulate matter readings?

A: Our sensors use the principle of light scattering. When using a humidifier, the humidifier will spray many small droplets of water. Excessive humidity and moisture in the air will cause dust particles to absorb water and swell, which will affect the scattering of light and cause deviations in sensor readings.

Q: Why is the data high after booting?

A: The reason why the data is high when you first turn on the sensor is that when the sensor starts to work, the fan will run at full speed, and it will take a while (about 1-2 minutes) for the fan to run stably. At this time, the airflow in the air duct will be stable, and the data will gradually become stable.

Q: AQI/ PM2.5 and other values, why the measured value is inconsistent with the official announcement?

A: The AQI/PM2.5 shown on the display is a measurement

of the space where the device is located. The measured value published on the Internet or official websites is the average value of several monitoring points, and each measurement point will be different. At the same time, according to the regulations of EPA and WHO, the AQI value is calculated based on the highest value among the five pollutants in the atmosphere on that day. In the past ten years, the local AQI in the United States has basically been calculated with the value of PM2.5/10, and sometimes with the value of O_3.

Q: Which the HCHO reading inaccurate or overestimated at some points?

A: As Temtop uses a high-precision electrochemical HCHO sensor, its electrochemical reaction characteristics could also respond to other gases besides formaldehyde.This table lists the most common gases that interfere with relative sensitivities of HCHO sensor.

Interference Gas	Relative Sensitivity (%)
Carbon monoxide(CO)	1
Hydrogen (H_2)	0.1
Ethyl alcohol	50
Phenols	7
Sulphur dioxide(SO_2)	12
Ammoniak (NH_3)	0

Warranty

Temtop warrants the included detector for 1 year from the date of original purchase. The item can be exchanged or returned within 30 days if the defect is not caused by artificial damage.

Item	Warranty Period
Detector	1 year included
Accessories	N/A

Before return or delivery for repair, please check if the following √ items are ready:

	Detector & Accessories	Complete Package	Proof of Purchase*	Gift (if any)
Return	√	√	√	√
Exchange	√	√	√	
Repair	√		√	

* Including invoice, order number and etc.

Temtop warranty does NOT include:
•Malfunction or damages caused by artificial damage or modification.
•Other deliberate damages.
•Damage caused by natural events.

V1.7
Made in China