Multifunction IAQ Monitor
— Better Sensing, Better Life

■ Introduction
The standard monitor has below two models
✓ Carbon dioxide(CO\textsubscript{2})+CO\textsubscript{2} average + Temperature+ Humidity (Model:DPM-1003)
✓ Carbon dioxide(CO\textsubscript{2})+CO\textsubscript{2} average +VOC +Temperature+ Humidity (Model:DPM-1004)
Two unique extended functions (Optional)
✓ RF short-distance wireless transmission & reception
✓ USB data logging
The product can be worked together with our wireless controller to control a ventilator, air cleaning device, or humidity device, based on the real-time measurements and the presetting values of the monitor.

■ Application
✓ In all the areas where real time monitoring of indoor air quality such as residence, offices, kindergartens, classrooms in schools, hospitals, shopping malls, restaurants, cinemas and other open areas.
✓ Indicating and alarm for poor ventilation.
✓ Sound alarm for high concentration to avoid poisoning
✓ Used to control a ventilator, air cleaner or humidifier/dehumidifier
✓ Decrease air pollution and cross-infection for relative closed rooms.
✓ With the optional RF short distance wireless module inside, it can be connected to the telecom operating platforms, or other systems. Also realize the remote control
✓ With the wireless coordinator together, the IAQ monitors can be connected with a PC
✓ USB data logging, record measurement data.

■ LCD and display
With large 7” LCD and 16:9 display, it can be hung easily on the wall or placed on the desk.
With the special self-adaptive brightness design, the LCD can be adjusted its brightness itself based on the light of indoor.
Three-color backlit of the LCD displays the clear and intuitionistic measurements of CO\textsubscript{2}, VOC, and temperature, relative humidity.
The three-color backlit LCD indicates and alarm different air quality levels:
GREEN-for optimal air quality, YELLOW-for moderate air quality, RED-for poor air quality
self-adjusted brightness LCD, selectable 3-color backlit switch mode
Detection and Displays:

**DPM1003**: Carbon dioxide (CO₂), CO₂ average level (in setting time range: 1~24h), Temperature, Humidity, Clock and Time.

**DPM1004**: Carbon dioxide (CO₂), CO₂ average level (in setting time range: 1~24h), VOC, Temperature, Humidity, Clock and Time.

Wall-mounted or put on the desk.

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**LCD display Model: DPM1003**

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**LCD display Model: DPM1004**

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**Monitoring Focus**

- **Carbon Dioxide (CO₂)**

  Indoor CO₂ level is a universal accepted parameter for the condition of indoor ventilation and air quality.
A time period can be preset from 1 to 24 hours, e.g., 5 hours, then the monitor can display CO₂ average level during this period, which provides an objective and true data for the measurement of the air quality in a certain space.

- Non-dispersive infrared (NDIR) CO₂ sensor with more than 10-year lifetime
- ABC self-calibration technology guarantees reliable CO₂ measurement
- CO₂ range: 0~2000ppm/0~5000ppm optional
- Rapid response, high stability and consistency

✓ **Mix Gases (VOC-Volatile organic compound)**

VOC emitted from building materials, decoration materials and furniture, includes toluene, ammonia, H2S, formaldehyde and other harmful gases. It is necessary to real time detect these harmful gases. But it’s costly to use the professional instruments to detect each single gas. Also it’s possible to monitor for daily use. These gases exit in air for a long time and their volatilization level are different in different temperature and humidity, the reliability of such detection by a professional instrument for a single gas is very limited.

This multifunction IAQ monitor uses a mix gas sensor. It has high sensitive to kinds of volatile pollutant gases (VOC) such as ammonia, toluene, formaldehyde and cigarette smoke, alcohol, H2S, and carbon monoxide. So it is very suitable to monitor the general indoor air quality in real time and long term. The mix gases sensor responds quickly to any change of the concentration of such gases. Not only you may open windows for fresh air coming but also the monitor can control a ventilator/air-cleaning devise based on the indication and alarm.

- Built in the semi-conductor mix gases sensor
- 5~7 years life time
- High sensitive to volatile gases like ammonia, toluene, formaldehyde, sensitive to cigarette smoke, alcohol, H2S, etc.
- Small volume, lower consumption

✓ **Temperature and humidity**

Switzerland digital temperature/humidity sensor built in with high accuracy and stability. It also has compensation to CO₂ and VOC which makes the measurements more accurate by minimizing environmental effects.

■ **Optional functions**

✓ **Short-distance wireless**: built-in the optional short distance wireless module which can receive or transmit measurements, connect to a devise for remote control such as a ventilator, dehumidifier/humidifier, air-cleaning and etc. Also more than 120 units IAQ monitors to be connected to a PC via a wireless router.

✓ **Data logging**: provide the USB data-logger with internal data-logging module, record real-time measurements, preset the sampling interval time, and can record maximum 60 days data if sampling interval time is 1 minute. Using the special software with the USB data logger, the record parameters can be preset and the data in the monitor can be copied to a USB disk and displayed in PC.
# Specifications

<table>
<thead>
<tr>
<th>Monitoring parameters</th>
<th>CO₂</th>
<th>VOC</th>
<th>Temperature</th>
<th>Relative humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing element</td>
<td>Non-Dispersive Infrared Detector (NDIR)</td>
<td>Semiconductor mix gases sensor</td>
<td>Digital combined temperature and humidity sensor</td>
<td></td>
</tr>
<tr>
<td>Measuring range</td>
<td>0~5000ppm</td>
<td>0~30ppm</td>
<td>-20~60℃</td>
<td>0~99%RH</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>1ppm</td>
<td>5ppm</td>
<td>0.1℃</td>
<td>0.1%RH</td>
</tr>
<tr>
<td>Accuracy@25℃(77℉)</td>
<td>±50ppm + 3% of reading</td>
<td>±10%</td>
<td>±0.5℃</td>
<td>±3%RH</td>
</tr>
<tr>
<td>Life time</td>
<td>15 years (normal)</td>
<td>5~7 years</td>
<td>10 years</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>&lt;2%</td>
<td>——</td>
<td>&lt;0.04℃ per year</td>
<td>&lt;0.5%RH per year</td>
</tr>
<tr>
<td>Calibration cycle</td>
<td>ABC Logic Self Calibration (No client separate calibration)</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt;2 minutes for 90% change</td>
<td>&lt;1 minute (for 10ppm hydrogen, 30ppm ethanol)</td>
<td>&lt;5 minute (for a cigarette) in 20m² room</td>
<td>&lt;10 seconds to reach 63%</td>
</tr>
<tr>
<td>Warm up time</td>
<td>2 hours (first time)</td>
<td>2 minutes (operation)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Electrical Characteristics

**Power supply**: 5VDC, Power adapter connected directly to 100VAC~220VAC.

**Consumption**: 3.5W max; 2.5 W average

## Display and Alarm

**Screen**: 7-inch 16:9 LCD display: 152mmX84.5mm
For other customized size LCD screen, please contact us directly.

**self-adjusted brightness and selectable 3-color backlit switch mode**

- **Green**: CO₂<1000ppm (optimal air quality)
  VOC<10ppm (low pollution)
- **Yellow**: CO₂>1000ppm (moderate air quality)
  VOC>10ppm (medium pollution)
- **Red**: CO₂>1400ppm (poor air quality)
  VOC>20ppm (heavy pollution)

Two switch modes selectable:
both CO₂ and VOC over the setpoints(default)
any one over the setpoint

**Backlight brightness**: Automatically adjust the brightness according to the environment

**Real-time display**: Year, month, day, week, clock
**Temperature, RH, CO₂, CO₂ average level, VOC**

## Conditions of Using and Installation

**Operation conditions**: -10~50℃(14~122℉); 0~95%RH, non condensing

**Storage conditions**: -40~70℃(-40~158℉)

**Weight**: 450g
Dimensions | 230mm(W)×160mm(H)×35mm(D)
---|---
Installation | Desktop or Hanging
Housing IP class | PC/ABS, protection class: IP30.

### Optional Functions

**USB data logging** *(optional)*
- USB2.0 host mode: support the regular collection, sampling cycle selectable.
- Preset selected sampling measurements.
- Support U disk offline or online record.
- Built-in 16MBit data memory

**Short-distance wireless** *(optional)*
- ZigBee (2.4G IEEE 802.15.4) protocol available, as well as another appointed protocol.
- Automatic buildup network, 16 channels, automatically select a reliable channel based on the environment.
- The reliable transmission is up to 1000 meters in the visible range.

### Correlative wireless controller

This wireless controller has internal wireless transmission/access two-way module, with the IAQ monitor together; it can control a ventilator, temperature & humidity device, air-cleaning device, etc.

Easy installation and wiring.

The specifications of the controller is as below

<table>
<thead>
<tr>
<th>Power supply</th>
<th>220VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>1.5W</td>
</tr>
<tr>
<td>Wireless</td>
<td>ZigBee(2.4G IEEE 802.15.4) application protocol, and another asked protocol available. Automatic buildup network, 16 channels, and auto selection a reliable channel based on the environment. Reliable transmission up to 1000 meters in the visible range</td>
</tr>
<tr>
<td>Output</td>
<td>one dry contact output in max. 12A load</td>
</tr>
<tr>
<td>Operation condition</td>
<td>-10<del>50 ℃ (14</del>122 ℉); 0~95%RH, no condensing</td>
</tr>
<tr>
<td>Storage condition</td>
<td>-40<del>70 ℃ (-40</del>158 ℉)</td>
</tr>
<tr>
<td>Weight</td>
<td>210g</td>
</tr>
<tr>
<td>Dimensions</td>
<td>85mm(L)X100mm(W)X51mm(D) Excluding the antenna, wires, waterproof connectors</td>
</tr>
<tr>
<td>Installation</td>
<td>Wall mounting. Mounting hole width: 120mm</td>
</tr>
<tr>
<td>Housing IP class</td>
<td>PC/ABS fireproof plastic material, protection class: IP60</td>
</tr>
</tbody>
</table>

### Models Guide

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
</table>
### Multi-function IAQ Monitor (with USB Data Logging)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPM1183</td>
<td>Detect and Monitoring indoor Temp.+RH+CO2+CO2 average. USB data logger. Zigbee wireless communication for CO2 control.</td>
</tr>
<tr>
<td>DPM1184</td>
<td>Detect and Monitoring indoor Temp.+RH+CO2+CO2 average as well as VOC. USB data logger. Zigbee wireless communication for CO2 control.</td>
</tr>
</tbody>
</table>

### Wireless Multi-function IAQ Monitor

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPM1103</td>
<td>Detect indoor Temp.+RH+CO2+CO2 Average with Zigbee wireless communication</td>
</tr>
<tr>
<td>DPM1104</td>
<td>Detect indoor Temp.+RH+CO2+CO2 Average + VOC with Zigbee wireless communication</td>
</tr>
</tbody>
</table>

### Wireless Coordinator

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAC-L</td>
<td>ZigBee wireless coordinator, can be used with DPM-11 to connect with a PC. Reliable transmission is up to 1000 meters in the visible range</td>
</tr>
</tbody>
</table>

### Wireless Controller

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCW111A</td>
<td>Work with the IAQ monitor together with ZigBee wireless. 1Xdry contact output to control a max. 12A load. (ventilator, air cleaning equipment, etc) Power supply: 230VAC</td>
</tr>
<tr>
<td>TCW111C</td>
<td>Work with the IAQ monitor together with ZigBee wireless. 1Xdry contact output to control a max. 12A load. (ventilator, air cleaning equipment, etc) Power supply: 24VAC/VDC</td>
</tr>
</tbody>
</table>

### Figures of applications

**Connection with a PC**

![Connection with a PC](image)

**Control a device**

![Control a device](image)