



# Particle Counter User Manual



Please read this manual before switching the unit on.  
Important safety information inside.

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## 1.Introduction

Thank you for purchasing this 4 in 1 Particle Counter instrument. This instrument is Particle Counter with 2.8" color TFT LCD display & a MicroSD memory card for capturing images(JPEG) or video (3GP) for viewing on your PC. Providing fast, easy and accurate readings for particle counter, GAS (HCHO, CO) detectors, air temperature & relative humidity, most surface temperature measurements. It is the first combination of these measurements in global. Would be the best instrument for environment protection and energy save. The dewpoint temperature measurement will be very visible for wet and dry proof. It is a good hand industrial measurements and data analyzing, the real scene and time can be displayed on color TFT LCD. Any memory readings can be recorded in MicroSD card. The user can be back in office to analyze the measured air quality under the support of software.

## 2.Features

- 2.8" TFT Color LCD display
- 320\*240 pixels
- Images(JPEG) & Video(3GP)
- MicroSD(max, use 8GB) memory card
- Air temperature and humidity
- Dewpoint & Wetbulb temperature
- Simultaneously measure and display 6 channel of particle sizes.
- HCHO detectors
- CO detectors
- MAX, MIN, DIF, AVG record, Date/time setup controls
- Auto Power Off

## 3. Specifications

| Particle Counter    |                                               |
|---------------------|-----------------------------------------------|
| Channels            | 0.3, 0.5, 1.0, 2.5, 5.0, 10um                 |
| Flow Rate           | 0.1ft <sup>3</sup> (2.83L/min)                |
| Counting Efficiency | 50% @ 0.3 μm; 100 % for particles > 0.45 μm   |
| Coincidence Loss    | 5% at 2,000,000 particles per ft <sup>3</sup> |
| Data Storage        | 5000 sample records (MicroSD card)            |
| Count Modes         | Cumulative, Differential, Concentration,      |
| HCHO Measure        |                                               |
| Range               | 0.01~5.00PPM                                  |
| Basic Accuracy      | ±5%F.S                                        |
| Display resolution  | 0.01ppm                                       |
| CO Measure          |                                               |
| Range               | 10~1000PPM                                    |
| Basic Accuracy      | ±5%F.S                                        |
| Display resolution  | 1ppm                                          |

| <b>Air temperature and Relative humidity measurement</b> |                                      |
|----------------------------------------------------------|--------------------------------------|
| Air Temperature Range                                    | 0°C to 50°C(32°F to 122°F)           |
| Dewpoint Temperature Range                               | 0°C to 50°C(32°F to 122°F)           |
| Relative Humidity Range                                  | 0 to 100%RH                          |
| Air temperature Accuracy                                 | ±0.5°C(0.9°F) 10°C to 40°C           |
|                                                          | ±1.0°C(1.8°F) others                 |
| Dewpoint temp. Accuracy                                  | ±0.5°C(0.9°F) 10°C to 40°C           |
|                                                          | ±1.0°C(1.8°F) others                 |
| Relative Hum. Accuracy                                   | ±3%RH 40% to 60%                     |
|                                                          | ±3.5%RH 20% to 40% and 60% to 80%    |
|                                                          | ±5%RH 0% to 20% and 80% to 100%      |
| Operating Temperature                                    | 0°C to 50°C(32°F to 122°F)           |
| Storage Temperature                                      | -10°C to 60°C(14°F to 140°F)         |
| Relative Humidity                                        | 10 to 90%RH non-condensing           |
| Display                                                  | 2.8"320*240 Color LCD with backlight |
| <b>Power</b>                                             |                                      |
| Battery                                                  | Rechargeable battery                 |
| Battery Life                                             | About 4 hours continuous use         |
| Battery Charge Time                                      | About 2 hours with AC adapter        |

## 4. Front Panel And Button Description



## 5. Power on or Power off

On the power off mode, press and hold  button, until the LCD is on, then the unit will power on.  
On the power on mode, press and hold  button, until the LCD is off, then the unit will power off.

## 6. Measurement Mode

This instrument has three modes

On the power on mode, the unit will display the three measure modes, and display three setup options. You can use  or  button to select any measure mode you need, and use function button F1, F2, F3 to enter the system interface.



| Items                                                                                      | Description                  |
|--------------------------------------------------------------------------------------------|------------------------------|
|  PARTICLE | Particle Counter measurement |
|  HCHO     | HCHO Detector measurement    |
|  CO       | CO Detector measurement      |
|           | Memory Set                   |
|           | System Set                   |
|           | Help file                    |

## Symbols

| Symbol                                                                              | Description        | Symbol                                                                              | Description         |
|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|---------------------|
|    | Cumulative mode    |    | Differential mode   |
|    | Concentration mode |    | Scan                |
|  | HOLD               |  | Alarm working       |
|  | CAM mode           |  | CO detection mode   |
|  | Video mode         |  | HCHO detection mode |

## 7. ParticleCounter measurement mode

On the power on mode, you can use the ▲ or ▼ button to select , then press the ENTER button to enter the Particle Counter mode, Start to measure and display temperature and humidity.

Press RUN/STOP button to start detection of particles, when the sample time is up, the particle measurement will automatically stop, and the data will automatically save. You can also, press RUN/STOP button to stop the measurement when the sample time is not up. This mode can take picture and take video



### 7.1 Take picture function

On the particle counter mode, you can see  icon, and these icon corresponding to F1, F2, F3 button, press F1 button can enter picture taking,  icon will appear, you can press F2 button to take picture. Press "ESC" button to exit this mode.

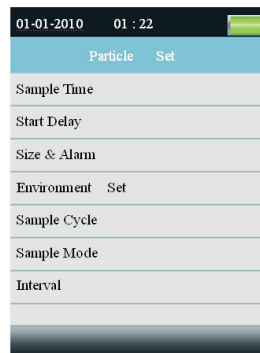
### 7.2 Take video function

On the particle counter mode, you can see  icon, and these icon corresponding to F1, F2, F3 button. Press F2 button can enter video taking mode, Press the RUN/STOP button to start the particle measurement, the instrument start to measure the particle and take video. It can auto to save the file when the measure finished. Press ESC button to exit this mode.

### 7.3 Particle Setup mode

On the particle counter mode, you can see  icon, and these icon corresponding to F1, F2, F3, press F3 can enter the setup mode, on this mode, you can setup any parameter you want. Use the ▲ or ▼ button to select any option you want to setup.

Then press ENTER button to confirm the parameter.



### Sample time

You can adjust the sample time use the ▲ or ▼ button to control the volume of measured gas.

|                                       |             |  |
|---------------------------------------|-------------|--|
| 01-01-2010 01:22                      |             |  |
| Sample Time                           |             |  |
| <input checked="" type="radio"/> Time | 21s/0.9912L |  |

### Start Delay

You can adjust the time use the ▲ or ▼ button to control start time.

|                               |     |  |
|-------------------------------|-----|--|
| 01-01-2010 01:22              |     |  |
| Start Delay                   |     |  |
| <input type="checkbox"/> Time | 5 S |  |

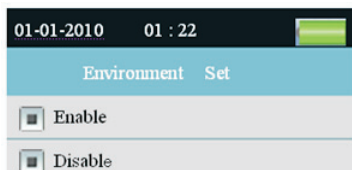
### Size & Alarm

This setting to select the channel is being displayed and the alarm set value channel. Use the ▲ or ▼ button to select channel and use ENTER button to confirm.

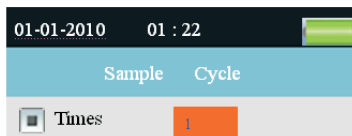
|                                |       |  |
|--------------------------------|-------|--|
| 01-01-2010 01:22               |       |  |
| Start Delay                    |       |  |
| <input type="checkbox"/> 0.3um | 10000 |  |
| <input type="checkbox"/> 0.5um | 10000 |  |
| <input type="checkbox"/> 1.0um | 10000 |  |
| <input type="checkbox"/> 2.5um | 10000 |  |
| <input type="checkbox"/> 5.0um | 10000 |  |
| <input type="checkbox"/> 10um  | 10000 |  |
|                                |       |  |
|                                |       |  |
|                                |       |  |

### Environment Set

Choose this setting if the Air temperature and humidity are displayed.



**Sample Cycle:** This option is used to set the sampling period.



### Sample Mode

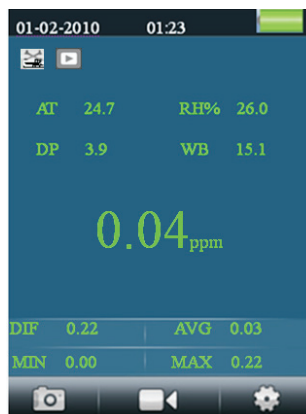
This setting is used to set the display mode of the particle counter. When you select the cumulative mode, the particle measure will display a symbol. When you select the differential mode, the particle measure will display a symbol. When you select the concentration mode, the particle measure will display a symbol.

### Interval

Set the time between samples for the sampling period is greater than one time.

## 8. HCHO Measurement mode(The DT-9881 has the unique function)

On the power on mode, you can use the ▲ or ▼ button to select, then press ENTER button to enter the HCHO measure mode. Start to measure HCHO, air temperature and humidity after clearing a few seconds. Press RUN/STOP button to stop or open the measurement. This mode can take pictures and take videos.



### 8.1 Take picture function

On the HCHO mode, you can see  icon, and these icon corresponding to F1, F2, F3 button, press F1 can enter picture taking mode.  Icon will appear, you can press F2 button to take picture. Press ESC button to exit this mode.

### 8.2 Take video function

On the HCHO mode, you can see  icon, and these icon corresponding to F1, F2, F3 button, press F2 can enter video taking mode, Press the RUN/STOP button to start the HCHO measurement, the instrument start to measure the HCHO and take video. It can auto to save the file when press RUN/STOP button again. Press ESC button to exit this mode.

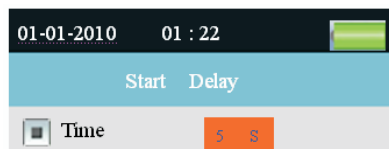
### 8.3 HCHO Setup mode

On the HCHO mode, you can see  icon, and these icon corresponding to F1, F2, F3 button, press F3 can enter the Setup mode, on this mode, you can setup any parameter you want. Use the ▲ or ▼ button to select any option you want to setup. Then press ENTER button to confirm the parameter.



#### Start Delay

Set the waiting time before the start of measurement. Press ENTER button to select the time and adjust the time with the ▲ or ▼ button.



### HCHO Alarm

Set the alarm value of HCHO. Optional alarm off and turn the alarm function. You can set the size of the alarm parameters.

01-01-2010 01:22

HCHO Alarm

☒ Enable 0.30

☐ Disable

### Max/Min

Set whether to display the measured maximum, minimum.

01-01-2010 01:22

Max/Min

☒ Enable

☐ Disable

### Average/Dif

Set whether to display the value of average or different.

☒ Enable

☐ Disable

### Ambient Temp/%RH

Set whether to display the air temperature and relative humidity.

☒ Enable

☐ Disable

### Dewpoint/Wetbulb

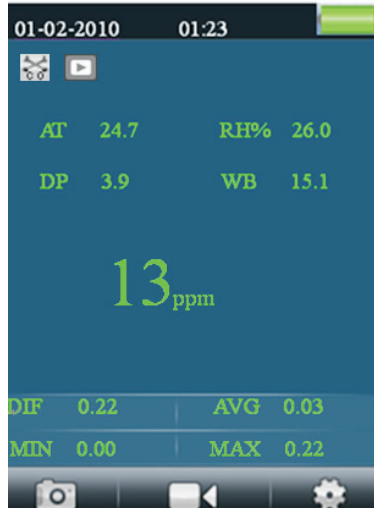
Set whether to display the dewpoint and wetbulb.

☒ Enable

☐ Disable

## 9.CO Measurement mode(The DT-9881 has the unique function)

On the power on mode,you can use the ▲ or ▼ button to select ,then press ENTER button to enter the CO measure mode, Start to measure CO,air temperature and humidity after clearing a few seconds.Press RUN/STOP button to stop or open the measurement. This mode can take picture and take video.



### 9.1Take picture function

On the CO mode,you can see  icon,and these icon corresponding to F1, F2,F3 button,press F1 can enter picture taking mode.  icon will appear,you can press F2 button to take picture.Press ESC button to exit this mode.

### 9.2 Take video function

On the CO mode,you can see  icon,and these icon corresponding to F1, F2,F3 button,press F2 can enter video taking mode,Press the RUN/STOP button to start the CO measurement,the instrument start to measure the CO and take video.It can auto to save the file when press RUN/STOP button again.Press ESC button to exit this mode.

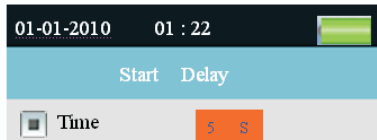
### 9.3 CO Setup mode

On the CO mode,you can see  icon,and these icon corresponding to F1, F2,F3 button,press F3 can enter the Setup mode,on this mode,you can setup any parameter you want.Use the ▲ or ▼ button to select any option you want to setup.Then press ENTER button to confirm the parameter.



### Start Delay

Set the waiting time before the start of measurement. Press ENTER button to select the time and adjust the time with the ▲ or ▼ button.



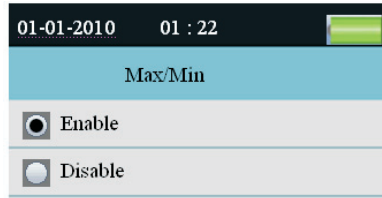
### CO Alarm

Set the alarm value of CO. Optional alarm off and turn the alarm function. You can set the size of the alarm parameters.



**Max/Min**

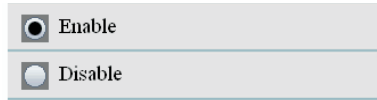
Set whether to display the measured maximum,minimum.

**Average/Dif**

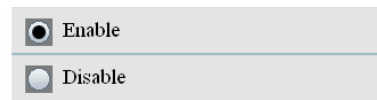
Set whether to display the value of average or different.

**Ambient Temp/%RH**

Set whether to display the air temperature and relative humidity.

**Dewpoint/Wetbulb**

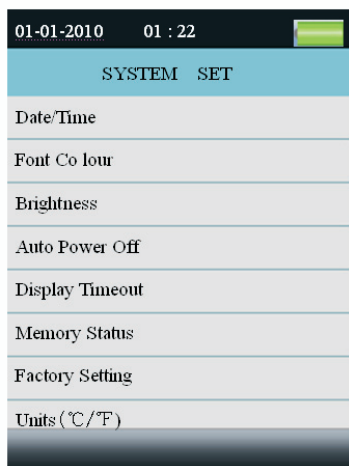
Set whether to display the dewpoint and wetbulb.

**10.Storage File Browser**

Turn the instrument on,below the LCD has a bar icon.  Click on the  icon to enter the data memory via the F1 button.on the Memory set mode,there are three options, press  or  button to select one and press ENTER button to enter this option.and then you can view the recorded data,images,and video information.If you do not save the information,it shows no file.

## 11. System Settings

Turn the instrument on, below the LCD has a bar icon. Click on the    icon to enter the  System Set Mode via the F2 button.

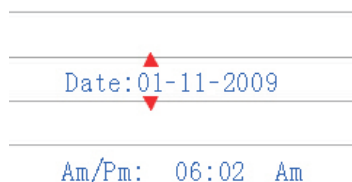


| Items           | Descriptions                                 |
|-----------------|----------------------------------------------|
| Date/Time       | Set date and time                            |
| Font Colour     | Select the font colour                       |
| Brightness      | Brightness adjustment                        |
| Auto Power Off  | Select auto power off time                   |
| Display Timeout | Select display auto off time                 |
| Memory Status   | Display the memory and MicroSD card capacity |
| Factory Setting | Restore factory settings                     |
| Units(°C/°F)    | Select the temperature unit                  |

Press the ▲ or ▼ button to select the items, Then press the ENTER button to enter

### 11.1 Date/Time

Press the ▲ or ▼ button to select the value, press ENTER button to set the next value, press ESC button to exit and save the date and time.



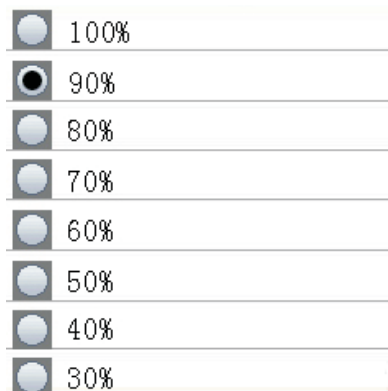
## 11.2 Font Colour

Press the ▲ and ▼ button to select the color, press the ESC button to esc and save.



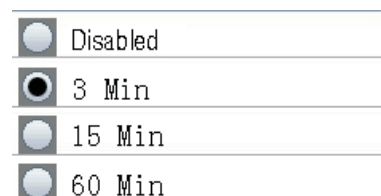
## 11.3 Brightness

Press the ▲ and ▼ button to select the backlight brightness, press the ESC button to esc and save.



## 11.4 Auto Power off

Press the ▲ and ▼ button to select the auto power off time or never auto power off, press the ESC button to esc and save.



### 11.5 Display Timeout

Press the ▲ and ▼ button to select the Display auto off time or never Display auto off, press the ESC button to esc and save.

|                                  |          |
|----------------------------------|----------|
| <input type="radio"/>            | Disabled |
| <input checked="" type="radio"/> | 30s      |
| <input type="radio"/>            | 1 Min    |
| <input type="radio"/>            | 2 Min    |

### 11.6 Memory Status

Press the ▲ and ▼ button to select the memory (flash or microSD). Press the ESC button to esc and save.

|                                  |               |
|----------------------------------|---------------|
| <input checked="" type="radio"/> | Device Memory |
| <input type="radio"/>            | SD Card       |

|        |                |
|--------|----------------|
| Total: | [ 49]MB        |
| Used:  | [ 0]MB         |
| Free:  | [ 49]MB (100)% |

NOTE: If MicroSD card inserted, MicroSD card will be selected by default

Press the ENTER button to format the flash or MicroSD card, press **F3** button to cancel format, press **F1** button to confirm format.

|                                  |               |
|----------------------------------|---------------|
| <input checked="" type="radio"/> | Device Memory |
| <input type="radio"/>            | SD Card       |

|        |                |
|--------|----------------|
| Total: | [ 49]MB        |
| Used:  | [ 0]MB         |
| Free:  | [ 49]MB (100)% |

|         |    |
|---------|----|
| CONFIRM | NO |
|---------|----|

### 11.7 Factory Setting

Press the ▲ and ▼ button to select yes or no restore factory settings. Press the ESC button to esc and save.

|                                  |     |
|----------------------------------|-----|
| <input type="radio"/>            | No  |
| <input checked="" type="radio"/> | Yes |

### 11.8 Units(°C/°F)

Press the ▲ and ▼ button to select the unit, press the ESC button to esc and save.

|                                  |     |
|----------------------------------|-----|
| <input type="radio"/>            | ° C |
| <input checked="" type="radio"/> | ° F |