

**CEM**

# 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

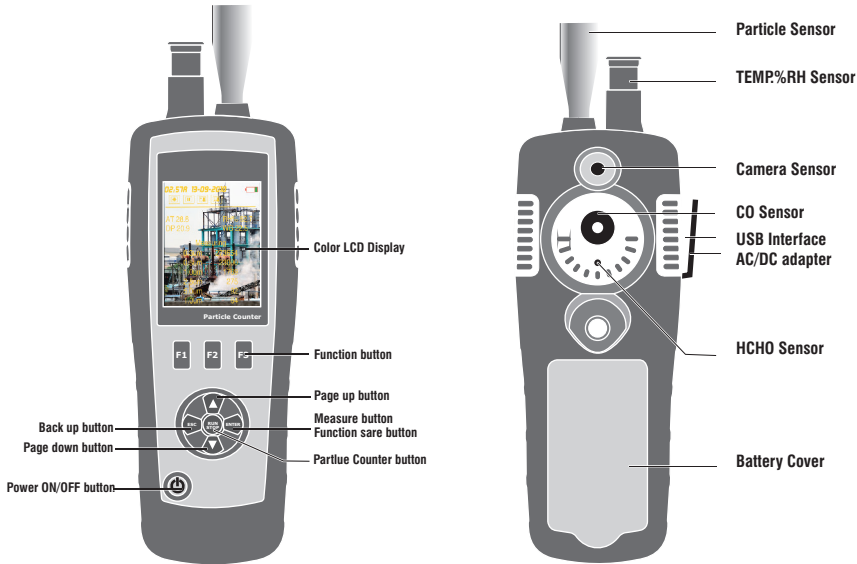
- 2.8" TFT Color LCD display
- 320\*240 pixels
- Images (JPEG) & Video (3GP)
- MicroSD (max, use 8GB) memory card
- Air temperature and humidity
- Dewpoint & Wetbulb temperature
- Simultaneously measure and display 6 channel of particle sizes.
- HCHO detectors
- CO detectors
- MAX, MIN, DIF, AVG record,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

## 3. Specifications

<b>Particle Counter</b>	
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,
<b>HCHO Measure</b>	
Range	0.01~5.00PPM
Basic Accuracy	±5%F.S
Display resolution	0.01ppm
<b>CO Measure</b>	
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 to122°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.

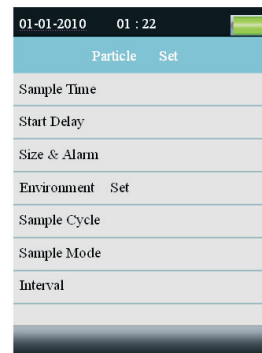
### 7.2 Take video function

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

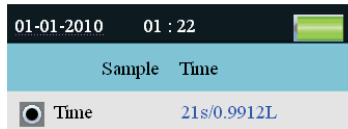
On the particle counter mode,you can see  icon,and these icon corresponding to F1,F2,F3,press F3 can enter the setup mode,on this mode,you can setup any parameter you want.Use the ▲ or ▼ button to select any option you want to setup.

Then press ENTER button to confirm the parameter.



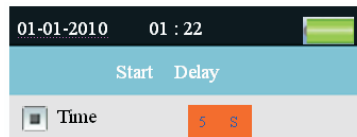
### Sample time

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



### Start Delay

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



### 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.



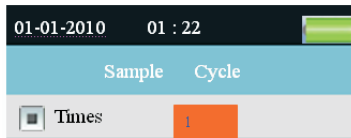


### Environment Set

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



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



### Sample Mode

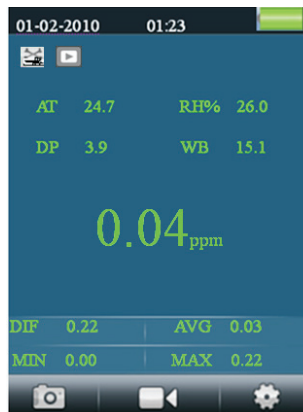
This setting is used to set the display mode of the particle counter. When you select the cumulative mode, the particle measure will display symbol. When you select the differential mode, the particle measure will display symbol. When you select the concentration mode, the particle measure will display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




### 8.1 Take picture function

On the HCHO mode, you can see  icon, and these icons 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 icons 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 starts to measure the HCHO and take video. It can auto save the file when press RUN/STOP button again. Press ESC button to exit this mode.

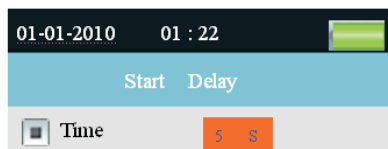
### 8.3 HCHO Setup mode

On the HCHO mode, you can see  icon, and these icons 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.



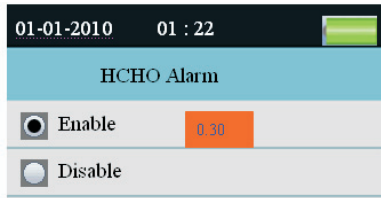
#### Start Delay

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



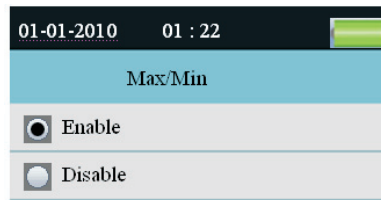
### HCHO Alarm

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



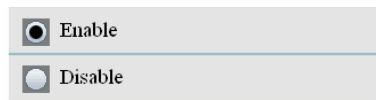
### Max/Min

Set whether to display the measured maximum, minimum.



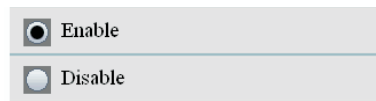
### Average/Dif

Set whether to display the value of average or different.



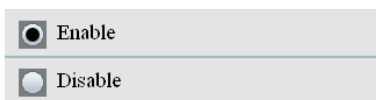
### Ambient Temp/%RH

Set whether to display the air temperature and relative humidity.



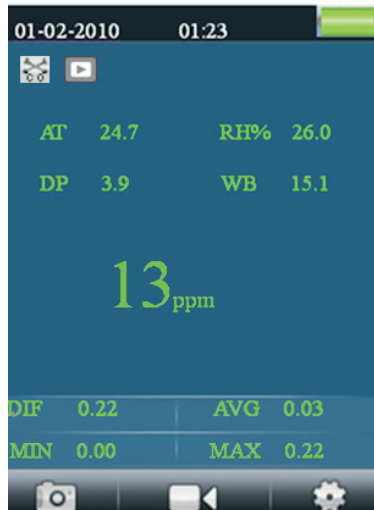
### Dewpoint/Wetbulb

Set whether to display the dewpoint and wetbulb.





## 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.

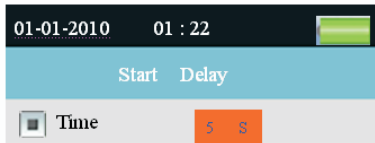
### 9.3 CO Setup mode

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.



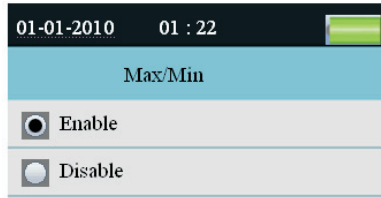
**CO Alarm**

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

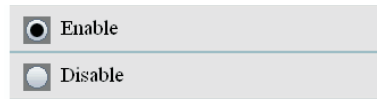


**Max/Min**

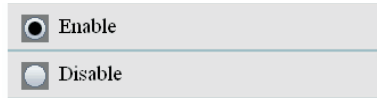
Set whether to display the measured maximum,minimum.

**Average/Dif**

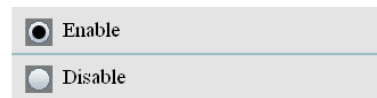
Set whether to display the value of average or different.


**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.

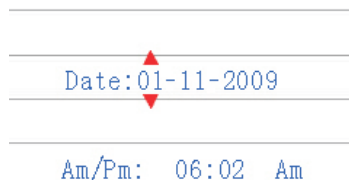


Items	Descriptions
Date/Time	Set date and time
Font Colour	Select the font colour
Brightness	Brightness adjustment
Auto Power Off	Select auto power off time
Display Timeout	Select display auto off time
Memory Status	Display the memory and MicroSD card capacity
Factory Setting	Restore factory settings
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.

- Orange
- Green
- Black
- Blue
- Gold
- Purple

### 11.3 Brightness

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

- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%

### 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.

- Disabled
- 3 Min
- 15 Min
- 60 Min



### 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
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### 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