

Date/Time

2.8" TFT

HCHO

USB

RH%

Air Temp.

Contact :

EASTERN ENERGY CO.,LTD. (HEAD OFFICE)

40/4 Vitoondumri Rd., Banbueng, Banbueng, Chonburi 20170

Tel: 0-3844-6117 Fax: 0-3844-6200 Email: info@ete.co.th

Particle Counter User Manual



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

www.ete.co.th

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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. Providing fast, easy and accurate readings for particle counter, air temperature & relative humidity, most surface temperature measurements. It would be the best instrument for environment protection and energy save. The dew-point 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 memory. The user can be back in office to analyze the measured air quality under the support of software.

1.1 PM2.5 fine particulate matter that is

Fine particles known as fine particles, fine particles, PM2.5. It refers to fine particulate matter in ambient air aerodynamic equivalent diameter less than or equal to 2.5 micron particles. It can be more time suspended in the air, the higher its content concentration in the air, on behalf of the more serious air pollution. Although the Earth's atmospheric composition PM2.5 only a few components in the content, visibility and air quality but it has important influence. Compared with coarse atmospheric particulate matter, PM2.5 particle size is small, large, active, easy shipped hazardous substances (for example, heavy metals, microorganisms, etc.), and the length of stay in the atmosphere, transmission distance, thus greater impact on human health and the atmospheric environment.

1.2 PM10 particles can be inhaled

PM10 called inhalable particles or particulates, respirable coarse particulate matter refers to the ambient air aerodynamic equivalent diameter of less than 10 micron particles, PM10 ambient air very long duration, human health and visibility Atmospheric effects are great. Part of the particulate matter emissions from direct sources, such as unpaved, cement road motor vehicles, crushing grinding process material and the dust raised by the wind and the like. Others are fine particles from the ambient air of sulfur oxides, nitrogen oxides, volatile organic compounds and other compounds interact to form, their chemical and physical composition according to location, climate, season of the year varies greatly changed.

1.3 The standard index

Fine particulate matter standards, proposed by the United States in 1997, mainly to more efficient monitoring with increasing industrialization and the emergence of well-developed, the old standard was ignored harmful fine particles. Fine particulate matter has become an important index for monitoring air pollution index of the degree.

Until 2010, except the United States and some EU countries, the fine particles included in the GB and mandatory restrictions, most of the world countries have yet to carry out monitoring of fine particulate matter, mostly by PM10 monitoring.

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2.Features

- 2.8" TFT Color LCD display
- 320*240 pixels
- Simultaneously measure and display 3 channel of particle sizes.
- Air temperature and humidity
- Dew-point & Wet-bulb temperature
- MAX, MIN, DIF, AVG record, Date/time setup controls
- Auto Power Off

3.Specifications

| Mass Concentration | |
|---|--|
| channels | PM2.5/PM10 |
| Mass Concentration Range | 0~2000ug/m ³ |
| Display Resolution | 1ug/m ³ |
| Particle Counter | |
| channels | 0.3,2.5,10um |
| Flow Rate | 2.83L/min(0.1ft ³) |
| Counting Efficiency | 50%@0.3µm; 100% for particles >0.45µm |
| Coincidence Loss | 5% at 2,000,000 particles per ft ³ |
| Data Storage | 5000 sample records(SD Card) |
| Count Modes | Cumulative, Differential, Concentration |
| Air temperature and Relative humidity measurement | |
| Air Temperature Range | 0 to 50°C(32 to 122°F) |
| Dewpoint Temperature Range | 0 to 50°C(32 to 122°F) |
| Relative Humidity Range | 0 to 100%RH |
| Air temperature Accuracy | ±1.0°C(1.8°F) 10 to 40°C |
| Dewpoint temp. Accuracy | ±2.0°C(3.6°F) others |
| Relative Hum. Accuracy | ±3.5%RH@20% to 80% ±5%RH 0% to 20% ro 80% to 100% |
| Operating Temperature | 0 to 50°C(32 to 122°F) |
| Storage Temperature | -10 to 60°C(14 to 140°F) |
| Relative Humidity | 10 to 90%RH non-condensing |
| Display | 2.8"320*240 Color LCD with Backlight |

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| | |
|---------------------|-------------------------------|
| Power | |
| Battery | Rechargeable battery |
| Battery Life | About 4 hours continuous use |
| Battery Charge Time | About 2 hours with AC adapter |
| Size(H*W*L) | 240mm*75mm*57mm |
| Weight | 570g |

4.Front Panel And Bottom Description



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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 two modes

On the power on mode, the unit will display the two 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 | Symbol | Description |
|---|------------------------------|---|--------------------|
|  | Particle Counter measurement |  | Cumulative mode |
|  | Memory Set |  | Concentration mode |
|  | System Set |  | Differential mode |
|  | Help file |  | HOLD |
| | |  | Scan |

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7. Particle Counter measurement mode

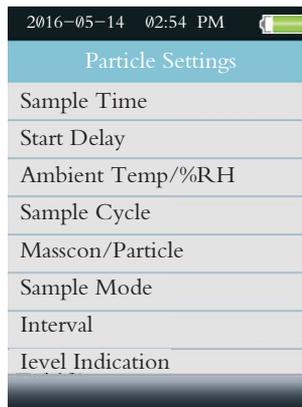
On the power on mode, you can use the ▲ or ▼ button to select , then press the ENTER button to enter the Particle Counter mode, Start to measure and display temperature and humidity.

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.



7.1 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 wan. Use the ▲ or ▼ button to select any option you want to setup. Then press ENTER button to confirm the parameter.



Contact :

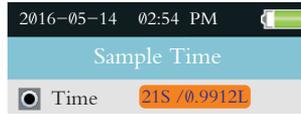
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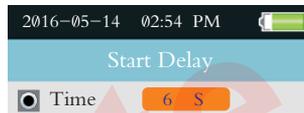
7.1.1 Sample time

You can adjust the sample time use the ▲ or ▼ button to control the volume of measured gas. It can be set to 60s/2.83L.



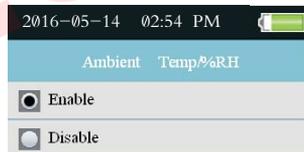
7.1.2 Start Delay

You can adjust the time use the ▲ or ▼ button to control start time. The delay time of up to 100 seconds.



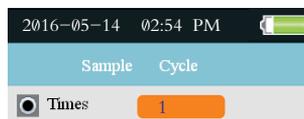
7.1.3 Ambient Temp/%RH

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



7.1.4 Sample Cycle

This option is used to set the sampling period.



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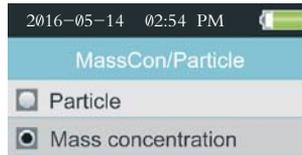
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7.1.5 Mass Concentration/Particle

This setting is used to select the particle or mass concentration measurement mode, the use of the keys to select the next.



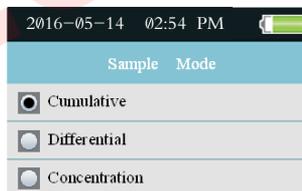
7.1.6 Sample Mode

This setting to set the display mode of particle counter.

When You select the cumulative mode, the particle measure will display  symbol and the meter work in the cumulative mode.

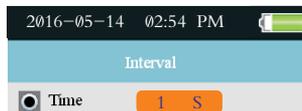
When you select the differential mode, the particle measure will display  symbol and the meter work in the differential mode.

When you select the concentration mode, the particle measure will display  symbol and the meter work in the concentration mode.



7.1.7 Interval

Set the time between samples for the sampling period is greater than one times. The longest interval is 100 seconds.



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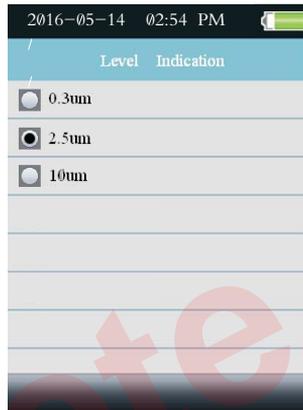
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7.1.8 Level Indication

Select the alarm level of the corresponding particle size in the measurement, when the selected particle size exceeded, the instrument measuring interface will have exceeded the prompt.



8.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.

9.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.



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| Items | Descriptions |
|-----------------|---|
| Date/Time | Set date and time |
| Language | Select Language |
| Auto Power Off | Select auto power off time |
| Display Timeout | Select display auto off time |
| Alarm | Select Alarm ON or OFF |
| Memory Status | Display the memory and SD card capacity |
| Factory Setting | Restore factory settings |
| Units(°C/°F) | Select the temperature unit |
| Version: | Display Version |

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

9.1 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.

Date: 01-11-2009

Am/Pm: 06:02 Am

9.2 Language

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

English

Chinese

9.3 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

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9.4 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 checked="" type="radio"/> | Disable |
| <input type="radio"/> | 90s |
| <input type="radio"/> | 2 Min |
| <input type="radio"/> | 4 Min |

9.5 Alarm

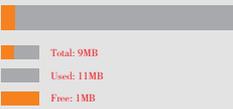
Choose the alarm is enable or disable.

| | |
|----------------------------------|---------|
| <input checked="" type="radio"/> | Enable |
| <input type="radio"/> | Disable |

9.6 Memory Status

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

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



Total: 9MB
Used: 11MB
Free: 1MB

NOTE: If SD card inserted, SD card will be selected by default.

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

9.7 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 |

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9.8 Units(°C/°F)

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



10.Help File

This is 4 in 1 Particle Counter with 2.8" color TFT LCD display. Proving fast, easy and accurate readings for particle counter, 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 dew-point temperature measurement will be very visible for wet and dry proof. It is a good hand industrial measurements and data analyzing, Any memory readings can be recorded in SD card. The user can be back in office to analyze the measured air quality under the support of software.

10.1 Particle Counter instruction

- 1.Particles that scattered in the dust in the air, dust or smoke. They mainly come from automobile exhaust, power plant,garbage incineration furnace and so on.Relative diameter less than 2.5um particles known as PM2.5, this particle is smaller than human cells, not be drained, but directly into the lungs and blood, the harm to human body is larger.
- 2.This meter with a simple key operation to achieve a particle counter measurement, real-time monitoring the value of environmental particles concentration, six channel data measured simultaneously, and at the same time displayed on the screen, also can be a separate display. Joined the exceed the standard grade alarm indication, and accompanied by different buzzer, more direct master of environmental quality.
- 3.Due to particulate matter measurements need to start the pump, will be dust inhalation, is recommended for daily use less as far as possible, to reduce the pollution on the sensor, thereby increasing the service life of the instrument, such as the average daily use 5 times, the instrument can be used for 5 years.

Attention: in the foggy there will be fine mist as dust!

11.Product Maintenance

- 1.Maintenance or service is not included in this manual, the product must be repaired by professionals.
- 2.It must use the required replacement parts in maintenance.
- 3.If the operating manual is changed, please instruments prevail without notice.

12.Cautions

- 1.Do not use in over dirty or dusty environment. Inhalation of too many particles will damage the product.
- 2.To ensure the measure accuracy, please do not use in an over fogged environment.
- 3.Do not use in explosive environment.
- 4.Follow the instructions to use the product, privately take apart the unit is not allowed.

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Attach1:

| Air quality new standards | | |
|---------------------------|---|----------------------------|
| Air quality levels | 24 hours average of the standard values | |
| | PM2.5(ug/m ³) | PM10(ug/m ³) |
| Good | 0 ~ 10ug/m ³ | 0 ~ 20ug/m ³ |
| Moderate | 10 ~ 35ug/m ³ | 20 ~ 75ug/m ³ |
| Lightly Polluted | 35 ~ 75ug/m ³ | 75 ~ 150ug/m ³ |
| Moderately Polluted | 75 ~ 150ug/m ³ | 150 ~ 300ug/m ³ |
| Heavily Polluted | 150 ~ 200ug/m ³ | 300 ~ 400ug/m ³ |
| Severely | >200ug/m ³ | >400ug/m ³ |

| World Health Organization(WHO)2005 year < air quality guidelines > | | | | |
|--|---------------------------|-----------------------|--------------------------|----------------------|
| Prject | PM2.5(ug/m ³) | | PM10(ug/m ³) | |
| | Annual average | Daily average | Annual average | Daily average |
| Transition period goals 1 | 35ug/m ³ | 75ug/m ³ | 70ug/m ³ | 150ug/m ³ |
| Transition period goals 2 | 25ug/m ³ | 50ug/m ³ | 50ug/m ³ | 100ug/m ³ |
| Transition period goals 3 | 15ug/m ³ | 37.5ug/m ³ | 30ug/m ³ | 75ug/m ³ |
| Guideline value | 10ug/m ³ | 25ug/m ³ | 20ug/m ³ | 50ug/m ³ |

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Date/Time

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HCHO

USB

RH%

Air Temp.



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