



PM 10 - Desk



PM 10 -Wall

Features

- Built in professional sensor with optical IR LED sensing method. Real time indoor monitor PM 10 concentration
- Built in high accuracy temperature & rH sensor, monitors indoor air temperature & rH
- Using our unique technology of compensating method, up to nine calibration points, to guarantee PM 10 Monitor measurement accuracy in different environments
- LCD displays the current and average values of PM 10, as well as current values for temperature and humidity
- Design with six backlit LCD for six levels of PM 10, clearly visible
- RS485 interface with Modbus protocol
- Users are accurately informed of the indoor PM 10 concentration, and can easily select an air purifier/air cleaner.

Technical Data

Power supply	5Vdc with power adapter, PM Desk 24Vac/dc, PM Wall
Work Consumption	1.2W
Warm-up time	60s (first use or reuse after a long-time power off)
Monitor parameters	PM 10, air temperature, air relative humidity
LCD displaying six levels of PM 10 concentrations and one hour moving average value.	Green: Top Quality - Grade I Yellow: Good Quality - Grade II Orange: Mild level poll. - Grade III Red: Medium level poll - Grade IV Purple: Serious level poll. Grade V Maroon: Severe pollution - Grade VI
Storage	0°C to 60°C / 5 to 95% r.H
Dimensions	85mm×130mm×36,5mm
Housing materials	PC+ABS material
Net weight	198 g
IP Protection class	IP30
Temperature/humidity sensor	Built-in high precision digital integrated temperature humidity sensor
Temperature measuring range	-20° C to 50°C
Relative humidity measuring range	0 - 100% r.H
Display resolution	Temperature: 0.01°C Humidity: 0.01% r.H
Accuracy	Temperature: <±0.5° C@30°C Humidity: <±3.0% r.H (20% to 80% r.H)

Cont'd p.2

Improving air quality in your homes and offices

- The first thing you need to do is monitoring your indoor air quality everyday. The monitoring information will let you evaluate the indoor air quality.
- The PM 10 Monitor will let you know if the steps you are taking to improve your air quality are really working or not. This will really help you save money.
- The concentration of PM 10 probably differs due to the different purposes of the rooms. The most effective way of improving indoor air quality is detecting each room and treatment of air purification for the important rooms, such as living rooms and bedrooms.
- The PM 10 Monitor will supply you with real time and accurate information.
- Please make sure the filters of indoor HVAC systems are clean. Otherwise you need to clean or replace filters. Unclean filters can be one of the sources of indoor particle pollution.
- Please notice that the location of air purifiers is very important.

Ordering Codes

PM 10 - Desk	PM 10 Monitor with temperature & rH, 6 colors backlit LCD.
PM 10 - Wall	PM 10 Monitor with temperature & rH, 6 colors backlit LCD.

Technical data (cont'd)

Stability	Temperature: <0.04°C per year Humidity: <0.5% r.H per year
Built-in sensor	Dust particle sensor
Sensor Type	Optical with an IR LED and a photo-sensor
Coverage	30 - 40m ²
Mounting height	1.5 m above floor
Measuring range	0 to 800µg/m ³
Display resolution	0,1µg/m ³
Measuring accuracy (1h average)	±15µg + 10% of reading @ 20°C to 35°C, 20% to 80% r.H
Working life	>5 years (avoid closing lampblack, dust and excessive light)
Stability	<10% measurement decline in five years
RS485 interface	MODBUS protocol, 15kV antistatic protection 4800 bps 9600 bps 14400 bps 19200 bps 38400


LCD backlit colour LCD

Air Quality Levels			PM 10, 24h Average concentration	Health Effects
LCD Colour	Level	Air Type	µg/m ³	
Green	I	Very good	0 - 50	Good air quality, almost no air pollution
Yellow	II	Good	51 - 150	Acceptable air quality, but some pollutants may have a slightly negative effect on the health of a handful of highly sensitive people.
Orange	III	Light pollution	151 - 250	Vulnerable people will experience some degree of discomfort.
Red	IV	Medium pollution	251 - 350	Vulnerable people will suffer a high degree of discomfort. It may also affect otherwise healthy people's hearts, lungs and respiratory systems.
Purple	V	Heavy pollution	351 - 420	Vulnerable people will suffer even further from discomfort. Many people will suffer severe symptoms.
Brown	VI	Serious pollution	> 421	Healthy people will suffer severe symptoms.

General information

Particulate matter (PM) means particle pollution, which is produced in a great number of ways that can be classified into either mechanical or chemical processes. Traditionally, the environmental sciences have divided particles into two main groups PM 10 and PM 2.5.

PM 10 stands for particles between 2.5 and 10 microns (micrometers) in diameter (a human hair is about 60 micron in diameter).

PM 2.5 stands for particles smaller than 2.5 microns. PM 2.5 and PM 10 have different material compositions and can come from different places. The smaller the particle the longer it can remain suspended in the air before settling.

One part of the PM 10 particles comes from the direct emissions of pollution sources, eg. chimneys and vehicles, another part is from the fine particulate matter formed by SOx, NOx, VOCs and other compounds.

The chemical and physical constitution of PM 10 will be quite different depending on location, weather and season.

PM 10 always come from vehicles on the road or from garages/parking houses. It has no pitch or cement on it, or the grinding processing of materials, or dust.

PM 10 particles are so small that they in fact act as a gas. When inhaled they penetrate deep into the lungs.

Exposure to high concentrations of PM 10 can result in a number of health problems ranging from coughing and wheezing to asthma attacks and bronchitis to high blood pressure, heart attacks, strokes

and premature death.

The main effects associated with exposure to particulate matter may include:

- premature mortality
- aggravation of respiratory and cardiovascular disease (indicated by increased hospital admissions and emergency room visits
- school absences
- loss of work days
- restricted activity days
- aggravated asthma
- acute respiratory symptoms
- chronic bronchitis
- decreased lung function
- increased myocardial infarction

There are many varieties of particulate pollutants in our homes and offices.

The ones from outside include industrial sources, construction sites, combustion sources, pollen, and numerous others.

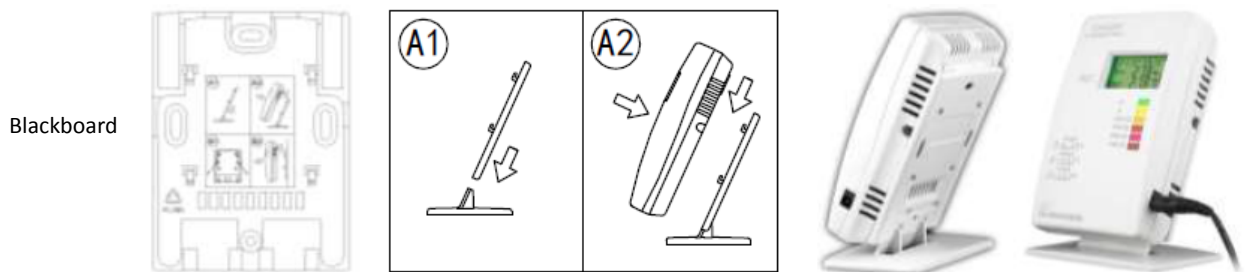
Particles are also generated by all kinds of normal indoor activity ranging from cooking, walking across the carpet, your pets, sofa or beds, air conditioners etc.

Any movement or vibration can create airborne particles!

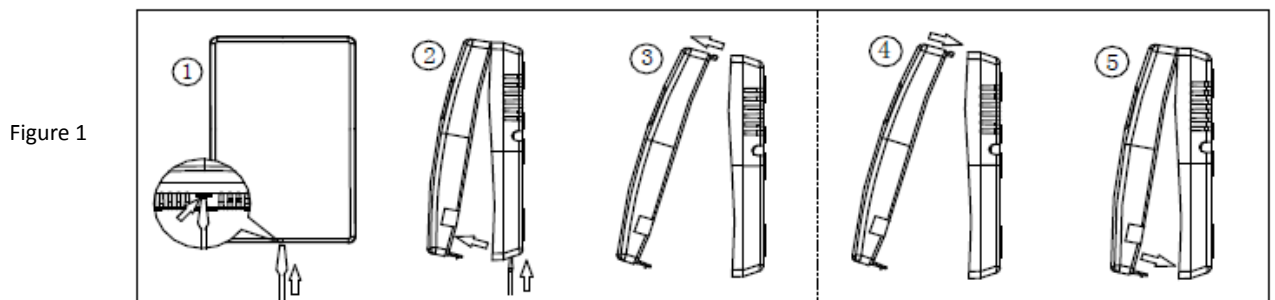


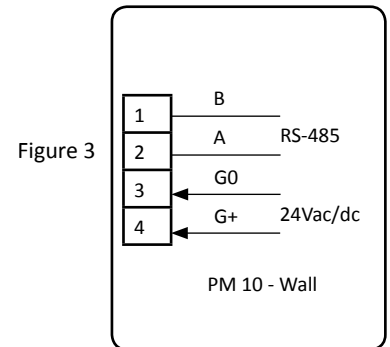
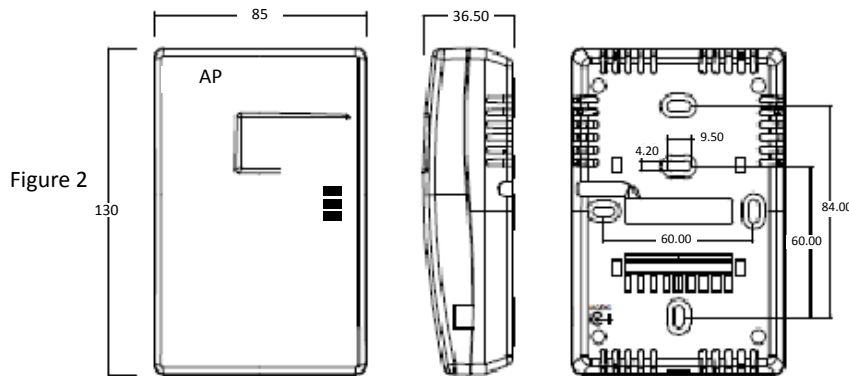
Installation

- Do not place the PM 10 monitor beside windows, aisle ventilated space, other heating and humidifying equipment. Avoid direct and strong sunshine. Place it in a central and shady part of the room.
- The supply power voltage of PM 10-Desk is 5Vdc. Connect one end of power the adapter into the lateral power socket of PM 10. Connect the other end into the 110V/230V power socket.
- The power supply of PM 10-Wall is 24Vac/dc.
- Please turn off power before mounting, removing, and cleaning the monitor. Avoid getting water droplets into in the enclosure.
- For PM 10 - Desk, there is a set of bracket accessories, including a backboard and a desktop base. As shown in Picture A1, put the backboard into the desktop base to create a desktop bracket. There are four clips on the backboard and four rectangular holds on the back of the monitor. Put the clips on the four holds to fix the monitor on the desktop bracket, which is shown in Picture A2.

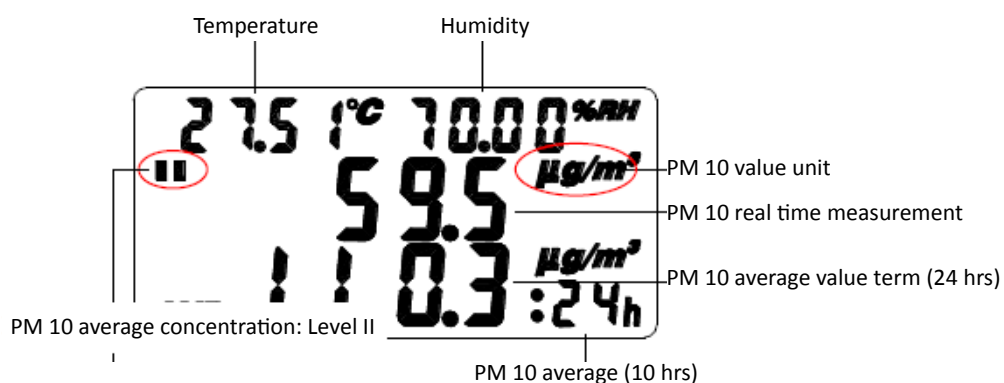


- For PM 10 - Wall, see the dimension in figure 2. Follow the steps 1-3 in figure 1, power off and put the screwdriver into the groove at the bottom of the transmitter, press the lock lightly, separate the face cover from the back cover. Fix the mounting board on the wall with the bolt. Connect the electricity wire to the terminal (see figure 2 and figure 3). Make sure the connection is correct. Follow the steps 4 and 5 in figure 1 to close the cover.





- After switching on the power, the LCD screen will display a self-check with all characters displayed on the LCD screen. The backlight color is green. The self-check state of the LCD screen will last 10 seconds.
- As shown on the figure to the right, a countdown begins after the LCD self-check. Then the actual measurements of temperature and humidity will show on the top line. The second line displays the countdown time. The last line displays 00.0.
- The countdown time is 50 seconds in total with the LCD screen being six colors. The countdown time and LCD color changes are as follows: yellow from 49s to 40s, orange from 39s to 30s, red from 29s to 20s, purple from 19s to 10s, maroon from 9s to 0.
- When the countdown has come to an end, the LCD screen will display PM 10 measurements.



- The six backlight colors of the LCD indicate six concentration levels corresponding to six average PM 10 measurements. See table 1 on page 2.

The six levels of the PM 10 monitor is in accordance with WHO transition period target -1.

If you need the LCD backlit colors and PM 10 levels of this monitor based on your local territory standard, please contact AP.