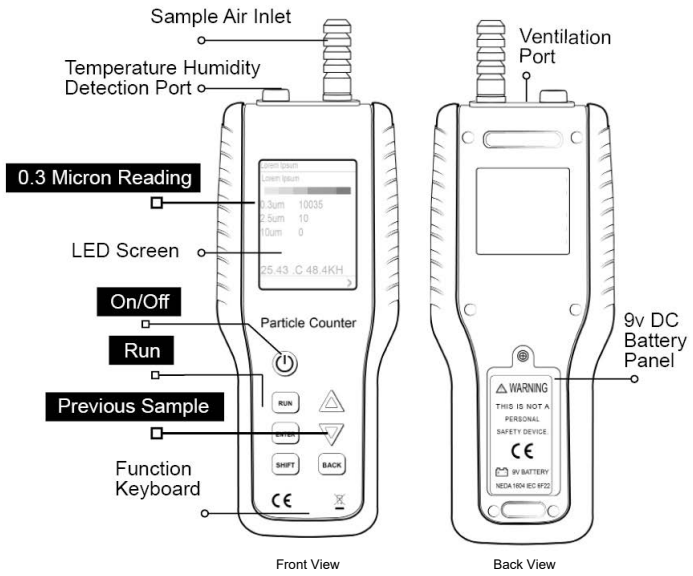
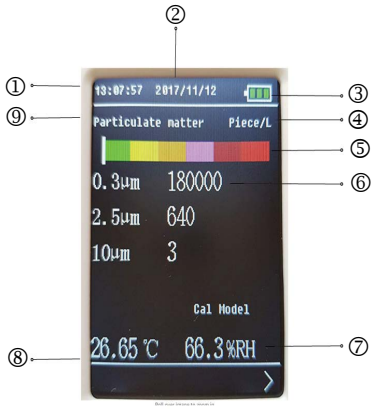
Air Quality Measurement Instructions : AQ9600



LCD screen display descriptions



Display description

1	Hour/Minute/Second
2	Year/Month/Day
3	Battery level indication (9v DC)
4	Counting unit
5	Schematic diagram of concentration grade
6	Display area of particle counting
7	Humidity
8	Temperature
9	Measuring object

Using the Particulate Counter for Client Presentations

1. Locate room no larger than 15'x15'x10'. No open hallways or open windows.
2. Roll the SAM400 into as close to the middle of space with cord reaching any standard electrical outlet. Plug in the SAM400. ***DO NOT*** turn on the SAM400 yet. Be sure the door is closed.
3. Place Particulate Counter Screen facing up on desk, or similar desk height location. DO NOT place counter on top of the SAM400 unit, this may cause faulty readings.
4. Turn Particulate Counter ON and push RUN. Wait 50 seconds for automatic reading and auto stop. (Count down of 50 seconds will appear on screen)
5. Note 0.3um read count (as in 180000 screen example above) write this reading down and be sure client sees this first read number, prior to turning SAM unit on.
6. Power up SAM400 to high (rheostat switch pointing up just after OFF location). If client comments on sound (like high room fan) this is the initial Cleaning Mode - not usual maintenance speed which is at the mid-point on rheostat switch.
7. With SAM400 on high speed, leave the room and close door. Let SAM400 run for 15 minutes or more.
8. This is a good time to go over pathogen killing aspects of SAM with client (see next page).
9. Re-enter room with client (be sure to enter quickly - and close door immediately).
10. Turn Particulate Counter ON again, push RUN again, wait 50 seconds for auto read out and stop, this will give you the new 0.3um particulate air count "after SAM" second reading.
11. Compare the initial reading with the second so the client can see the percentage of reduction in air particulates. See following page.

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What just happened?

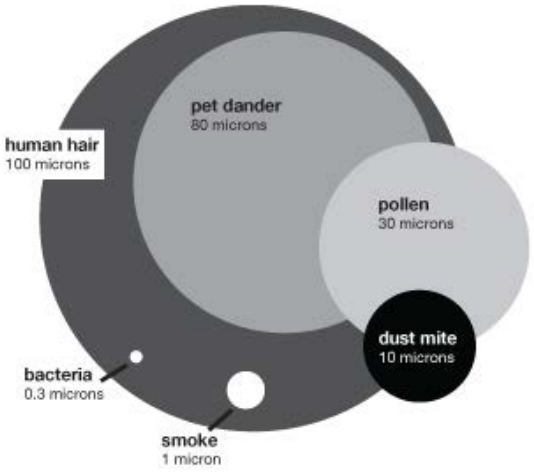
The SAM400 just reduced the room's airborne particulates, down to .03 microns, by as much as 50% (or more). Average reduction readings can range from 50-75% depending on room size, particulate concentration, and time SAM400 was running.

While this demonstration is certainly impressive; there is much more to the story. SAM uses first phase HEPA filters. As much as 95% of Healthcare facilities use the same HEPA filtration. Germs attach to airborne particulates therefore HEPA filtration was considered a partial airborne solution in hospitals for decades. Today, modern facility management recognizes that germs (much smaller than 0.3 microns) either become detached from particulates in the HEPA filter and/or simply pass effortlessly through HEPA re-emerging back into the room. HEPA pre-filter is only the ***first phase*** of SAM's powerful air disinfection action. Remember many of the most harmful bacteria and virus pass right through HEPA!

The same volume of air that was processed through SAM's HEPA pre-filter passed into our patented UV-C kill chamber where everything smaller that 0.3 microns (germs) is completely destroyed. Refer to Certified Laboratory Testing documentation and see the following chart of bacteria and virus much smaller than 0.3 Microns. This exercise shows the minimal time yet maximum amount of room air the SAM400 treated for pathogens - ***not just particulates.***

"Why this particulate test and not a full microbial test?" There is technology to perform on-site microbial tests for airborne pathogens, however on location tests are cost prohibitive and time consuming. On-site airborne microbial tests can cost $2500+ and take weeks+ for results. SAM has performed much more comprehensive airborne pathogen and particulate testing in two full room size EPA guideline 10'x10'x8' laboratory chambers.

The main take-away from this demonstration is on-site validation of the air volume a SAM400 can process in parallel relationship to the two laboratory certified full room tests for eliminating airborne germs.



How small is 0.3 microns?

As you can see by the illustration, 0.3 microns is VERY small. Most germs that cause HAI's and contamination problems are smaller than 0.3 microns.

Here is a partial list of common problematic germs (bacteria and virus) that go through HEPA effortlessly but are laboratory certified destroyed by the SAM400. More bacteria and virus sizes are listed on the next page.

Airborne Pathogen	Microbial	Disease	Source	Micron Size
Mycoplasma pneumoniae	Bacteria	Pneumonia	Humans	0.25
Rhinovirus	Virus	Common Cold	Humans	0.075
Varicella zoster	Virus	Chicken Pox	Humans	0.16
Bordetella pertussis	Bacteria	Whooping Cough	Humans	0.25
Klebsiella pneumoniae	Bacteria	Opportunistic Infection	Environmental	0.4
Pseudomonas aeruginosa	Bacteria	Opportunistic Infection	Environmental	0.57
Staphylococcus aureus	Bacteria	Opportunistic Infection	Humans	0.1
Streptococcus pneumoniae	Bacteria	Pneumonia Otitis Media	Humans	0.9

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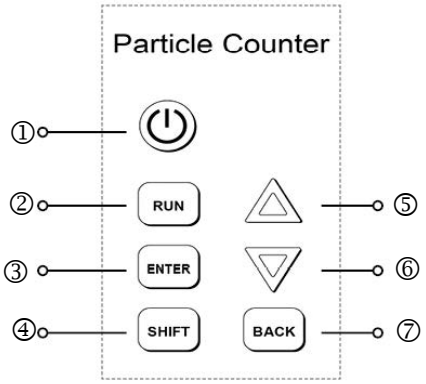
Bacteria and Virus Micron Sizes

Table 1: Communicable Respiratory Pathogens					
AIRBORNE PATHOGEN	MICROBIAL GROUP	DISEASE	SOURCE	Diameter microns	Notes
Adenovirus	VIRUS	colds	Humans	0.08	
Arenavirus	VIRUS	hemorrhagic fever	Rodents	0.18	F
Coronavirus	VIRUS	colds	Humans	0.11	
Coxsackievirus	VIRUS	colds	Humans	0.027	
Echovirus	VIRUS	colds	Humans	0.028	
Morbillivirus	VIRUS	measles (rubeola)	Humans	0.12	F, N
Influenza	VIRUS	flu	Humans, birds	0.1	F, N
Parainfluenza	VIRUS	flu	Humans	0.22	N
Paramyxovirus	VIRUS	mumps	Humans	0.23	F, N
Parvovirus B19	VIRUS	fifth disease, anemia	Humans	0.022	F
Reovirus	VIRUS	colds	Humans	0.075	
Respiratory Syncytial Virus	VIRUS	pneumonia	Humans	0.22	F, N
Rhinovirus	VIRUS	colds	Humans	0.023	
Togavirus	VIRUS	rubella (German measles)	Humans	0.063	N
Varicella-zoster	VIRUS	chickenpox	Humans	0.16	N
Chlamydia pneumoniae	BACTERIA	pneumonia, bronchitis	Humans	0.3	N
Mycobacterium tuberculosis	BACTERIA	TB	Humans	0.86	F, N
Yersinia pestis	BACTERIA	pneumonic plague	Rodents	0.75	F

See more information with
Laboratory Tests and Field Studies

www.ScientificAirManagement.com

Full Factory Instructions : AQ9600



Measurement

The instrument should be placed in an open space before measurement to avoid blocking of the sensors. Press the power key to switch on. Press [RUN] key at the main interface and the instrument will enter the sampling state of 50 seconds. At the moment, do not operate the instrument first. After completion of sampling, the measurement result will be displayed on the display screen finally. Users may enter “functional parameter" interface to set the particle unit so as to realize the switching of measurement mode (counting mode/weighing mode). Note: don’t carry out measurement at the time of charging in order to achieve a more accurate measurement result.

IV. Function setting operation

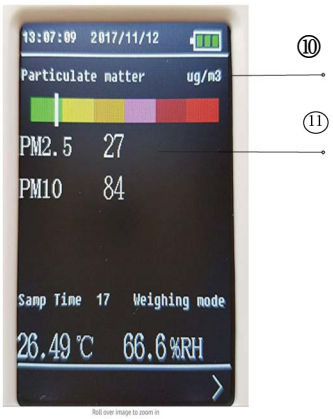
Function type	Function items	Function setting operation
Historical record	Page number: Unit’s place/ten’s place/hundred’s place	Check historical record: at the main interface, press [▼] key to enter historical record mode; press [ENTER] key and the current page is selected. At the moment, press [▲] key or [▼] key to go through the data. If you want to skip to certain page directly, input the page number directly. Press [SHIFT] key to select the unit’s place, ten’s place and hundred’s place of the page number. Press [▲] key to increase the value by 1 (+1) and press [▼] key to decrease the value by 1 (-1).
Functional parameters	Particle unit: piece/L, ug/m^3	Change the particle unit: at the main interface, press [▼] key twice to enter the functional parameter mode, press [ENTER] key to enter the change state. Press [SHIFT] key to select piece/L or ug/m^3. At the moment, press [▲] key or [▼] key to select your desirable unit and press [ENTER] key to confirm. Press [BACK] key to return to the main interface.
	Time change	At the main interface, press [▼] key twice to enter the functional parameter mode, press [ENTER] key to enter the change state. Press [SHIFT] three times to select “No” in the item of “changing time”. Press [▲] key or [▼] key to select “Yes”. Press [ENTER] key to enter time change interface. Press [SHIFT] key to select the items to be changed. Press [▲] key to increase the value by 1 (+1) and press [▼] key to decrease the value by 1 (-1). Press [ENTER] to confirm. Press [BACK] key to return to the main interface.
	Temperature unit: °C/°F	At the main interface, press [▼] key twice to enter the functional parameter mode, and press [ENTER] key to enter the change state. Press [SHIFT] key six times to select the items to be changed in “temperature unit”. Press [▲] key or [▼] key to select “degree centigrade” or “Fahrenheit degree”. Press [ENTER] key to confirm. Press [BACK] key to return to the main interface.
	Restore factory-set value	At the main interface, press [▼] key twice to enter the functional parameter mode, and press [ENTER] key to enter the change state. Press [SHIFT] key seven times to select the items to be changed in “Restore factory-set value”. Press [▲] key or [▼] key to select “Yes”. Press [ENTER] key to confirm. The screen displays “restoring factory set value…”. After completion, press [BACK] key to return to the main interface. (Users may also use the method to delete data record).

Key number	Key name and brief function
1	Power key [⏻]: press to power on/off.
2	Operating measurement key [RUN] (1) At the main interface, press to start data sampling. (2) During the sampling period of 50s, other keys are disabled and cannot operate. Only power key can function.
3	Enter key [ENTER] (1) At the mode of historical record, press--confirm the page number of the selected pages. (2) At the mode of functional parameters, press—confirm to enter function change. (3) At the mode of functional parameters, press—confirm the saved items after change.
4	SHIFT key [SHIFT] (1) At the mode of historical record, press—select the unit’s place, ten's place and hundred’s place of page number. (2) At the mode of functional parameters, press—select the functional parameter items to be changed.
5	Page up key [▲] (1) At the mode of historical record, used to increase by 1 (+1) and page up by one page. (2) At the mode of functional parameters and at the change state: used to increase by 1 (+1); switching unit and select “yes” or “No”.
6	Page down key[▼] (1) At the main interface, press in order to enter the historical record→ the functional parameter. (2) At the mode of historical record, used to decrease by 1 (-1) and page down by one page. At the mode of functional parameters and at the change state: used to decrease by1 (-1); switching unit and select “yes” or “No”.
7	Back key [BACK] (1) At the mode of historical record and functional parameters, press—back to the main interface. (2) At the mode of historical record, when to change a parameter, press—exit from the change.

Principle of PM2.5 Sensors	Optoelectronic type
Sampling method	Pumping type
Light sources	Laser diode
Grain size channels	0. 3um 2.5um 10 um
Flowrate	1L/min
Measurement range	0-1000ug/m3
Resolution ratio	1 ug
Test method	Manual
Sampling time	50s
Sampling method	Pumping type
Typical precision	<20%
Concentration unit	Piece/L	ug/m3
Temperature range	0 ～ 50°C
Typical precision	± 1°C
Humidity range	0 ～ 99%RH
Typical precision	±2%RH
Work temperature	-10～50°C
Working humidity	10 ～ 90%RH
Stored data	999 sets
Automatic power off	2 minutes(no key operation)
Technical specification of adapter	Input: AC100～240V -50/60Hz; output: 9VDC, 500mA
Power supply	7.4V chargeable lithium battery
USB	May provide power (unable to download data)
Startup current	120mA
Working current	200mA
Display method	LCD value display. Color backlight
Screen size	2.8 inches
Screen resolution	320*240
Reset	325g (battery included)
Dimension	245× 85×40mm

Device must be kept away from water, fire, inflammable oil and gas (ATEX) or sites with strong electromagnetic interference
Prevent dropping or heavily impacting the device

Do not block or blow hot air/strong air to the air inlet during air sampling.
Cleaning: Use a dry cloth to wipe the device, do not use a wet clothe or cleaning agent



Display description

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7	Humidity
8	Temperature
9	Measuring object
10	Weight unit
11	Display area of particle weight calculation

The device is provided with the function of display of battery level. When the battery level symbol is displayed as low please change battery.

Schematic diagram of concentration grade	Air quality level	Average standard value of PM2.5 in 24 hours.
	Excellent	0-35
	Good	35-75
	Slight pollution	75-115
	Moderate pollution	115-150
	Heavy pollution	150-250
	Serious pollution	>250