

# MINI APC

## Airborne Particle Counter - mini



### Main Features

- 4.2kg/9.26lbs (without battery)
- Long life laser - 10 year warranty
- Sealed 316L stainless steel enclosure, resistant to disinfectants commonly used in cleanrooms
- Dual flow model is available (28.3LPM&100LPM)
- 8" LCD capacitive touch screen
- Multi-level authority management, featured with audit trail
- Complies with FDA 21 CFR Part 11

## Sampling

The screenshot displays the Sampling interface with two main components:

- Real-time Concentration Curves (1):** A line graph showing concentration levels over time for two different units:  $\Sigma\#(x100)$  and  $\Sigma\#(x1000)$ . The x-axis represents time from 14:20:00 to 14:20:00.
- Data Table (2):** A table listing particle sizes in  $\mu\text{m}$  and their corresponding  $\Sigma/\#$  values.
 

$\mu\text{m}$	$\Sigma/\#$
0.3	9988234.0
0.5	9988234.0
1.0	9988234.0
3.0	9988234.0
5.0	9988234.0
10.0	9988234.0
- Sampling Parameters (3):** A panel on the right showing settings for 'Standard' mode at 'LOCATION 005'.
  - Delay: 12 : 50 : 45
  - Interval: 00 : 00 : 20
  - Volume / Air: 9999
  - Cycle: 25
  - Additional Delay: 00 : 00 : 06

- 1 Real-time concentration curves allow for a better understanding of the environmental particle condition
- 2 Clearly view all locations within a selected zone
- 3 Easily and quickly switch between the three sampling modes

## Setup

The screenshot shows the 'New zone' setup screen with the following fields and options:

- Zone Name: Room\_201
- Zone Area: 140 m<sup>2</sup>
- Gas Type: Air
- Association Method: Select Existing / Create Recipe
- Associated Recipes (8):
 

Recipe Name	Recipe Type	Details	Disassociate
SCM_002345670099	Monitor	>	✕
SCM_002345670826	Classify	>	✕
SCM_002345670099	Monitor	>	✕
SCM_002345670826	Classify	>	✕

- Comprehensive sampling setup functions
- Multiple sets of personalized sampling schemes
- can be customized for each zone.
- One-click system software upgrade

## Data

The screenshot displays the 'Data' interface with an 'Audit Trail' table:

No.	Date/Time	Group	Zone	Operator	Result
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●
9992	2020-09-15 09:29:57AM	Group01	Room201	Supervisor05	●

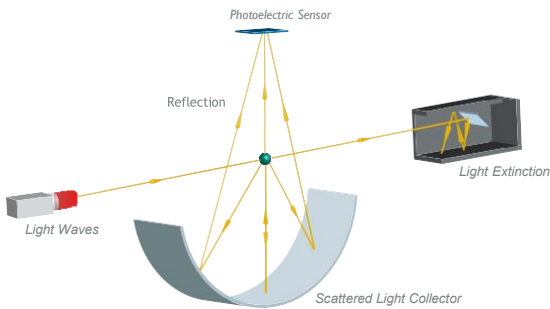
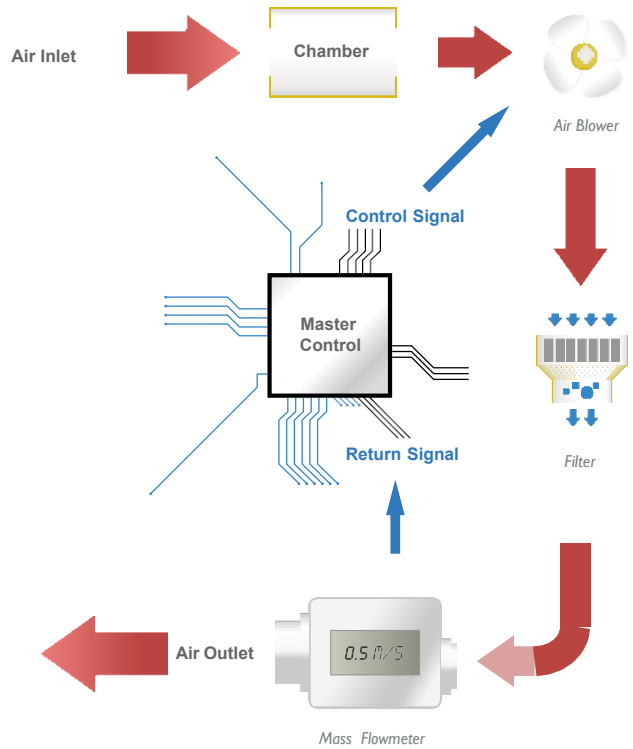
Summary: Current Page, All Page, Samples: 99999, Used space: 3.16/3.526(99.2%)

- Standard report: generate ISO/EU GMP / CHINESE GMP/Fed Std reports.
- Data review and export:
  1. Sum up data by zone.
  2. Switch counting unit between  $\#/\text{ft}^3$ ,  $\#/\text{m}^3$ .
  3. Automatically generate UCL and average values.
  4. Search for sample records precisely by time, zone and operator.
- Data integrity: featured with audit trail.

# Technical Principle

## System Air Flow

Air flow is monitored by a mass flow meter. The PID controller automatically adjusts the blower speed. A reaction speed of 100m/s ensures stable flow and flow rate accuracy  $\pm 3\%$ .



The simulation curve of wavelength varying with temperature

## Optical System

PMT's Airborne Particle Counter laser temperature control system ensures the laser temperature remains fixed, extending the working life of the laser and keeping the output wavelength stable. This ensures the monitoring process is not affected by external temperature and readings remain reliable. The surface of the scattered light collector is gold plated for corrosion resistance and reliability.

## Data Management

- 5 million data records can be stored
- 20,000 zones and 200,000 sites can be stored
- Pre-set zone settings, sampling schemes can be export via USB and imported into other mini APC units
- Three-level authority management, featured with audit trail
- Complies with FDA 21 CFR Part 11
- Communication methods: WIFI, USB, RJ45 and Sensor-HUB can be realized
- Sample data can be exported in PDF and db. files
- Generate ISO/EU GMP/CHINESE GMP/Fed Std reports


Data communication and process modes	
<p>USB Port</p>	<p>WIFI</p>
<p>Ethernet Port (Internal LAN or Internet)</p>	<p>PDF File</p>

## Specification Sheet

Specification	Airborne Particle Counter - mini I mini APC	Specification	Airborne Particle Counter - mini I mini APC
Flow Rate	ambient air: A230: 28.3LPM±3%, A220: 50LPM±3%, A210: 100LPM±3%, A240: 28.3LPM/100LPM±3% compressed gas: A230: 28.3LPM±5%, A220: 50LPM±5%, A210: 100LPM±5% (Do not support CO <sub>2</sub> ) A240: 28.3LPM±5%, 100LPM±5% (Do not support CO <sub>2</sub> )	Sampling Mode	Manual, auto, beep
Size Range	A220&A230: 0.3µm to 25µm A210&A240: 0.5µm to 25µm	Sampling Time	1 second to 168 hours
Size Channel	A210&A240: 0.5, 1.0, 2.0, 3.0, 5.0, 10.0µm A220: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0µm A230: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0µm	Cycles	1-1000 on one location
Size Resolution	<15% @ 0.5µm (meets ISO 21501-4:2018)	Communication	RJ45/USB/SENSOR-HUB/WIFI
Count Efficiency	A210&A240: 50%±20% for 0.5µm, 100%±10% for >0.75 µm (meets ISO 21501-4:2018 and JIS B9921:2010) A220: 50%±20% for 0.3µm, 100%±10% for >0.45µm (meets ISO 21501-4:2018 and JIS B9921:2010 ) A230: 50%±20% for 0.3µm, 100%±10% for>0.45µm (meets ISO 21501-4:2018 and JIS B9921:2010 )	Data Storage	2.5GB, 5 million sample records
Concentration Limit	A210&A240: >360,000 particles/ft <sup>3</sup> @10% coincidence loss A220: >420,000 particles/ft <sup>3</sup> @10% coincidence loss A230: >590,000 particles/ft <sup>3</sup> @10% coincidence loss	Alarm	Audible built-in alarm, external sound and light alarm
Laser Source	Long life laser	Display	8"LCD capacitive touch screen
Zero Count	<1 count/5 minutes	Languages	English, Chinese
Exhaust	Internal HEPA Filter(>99.999% @ 0.3µm)	Data Security	Authority management, default authority include admin, supervisor and operator, customized authority available
Zone/Location	20,000 zones and 200,000 locations	Data Reliability	Compliant with FDA 21 CFR Part 11
Max power consumption	AC 90W	Reports	Compliant with ISO/EU GMP/CHINESE GMP/Fed Std
Safety	FCC Part 15, Subpart B, EN 61010-1: 2010+A1:2019, EN 61326-1:2013, EN 61326-2-2:2013, EN 61000-6-1:2007, EN 61000-6-3:2007+A1, EN 60825-1:2014	Printer	Built-in thermal printer, support external printer
		Enclosure	316L Stainless Steel
		Power	AC 100-240V, 50 Hz/60 Hz
		Battery	10.8V, 9000mAhx2 rechargeable lithium battery Working endurance: A210: 4 hours of sampling time, A220: 8.5 hours of sampling time, A230: 6.5 hours of sampling time, A240: 4 hours of sampling time for 100LPM, 12 hours of sampling time for 28.3LPM
		Operation Condition	5-35°C(41-95°F), 5-90% RH non-condensing
		Storage Condition	0-40°C(32-104°F), 5-95% RH non-condensing
		Dimensions(HxWxD) /Weight	9.37 x 6.69 x 8.66 in/238 x 170 x 220 mm, 4.2kg/9.26lbs (without battery) 5.2kg/11.46lbs (with 2 batteries)
		Warranty	24 months (calculated from the date of product activation or six months after the date of manufacture, whichever comes first)

## Ordering Information

Name	Model	Order No.	Flow rate
Airborne Particle Counter - mini   mini APC	A230	MACHA230	28.3LPM±3%
Airborne Particle Counter - mini   mini APC	A220	MACHA220	50LPM±3%
Airborne Particle Counter - mini   mini APC	A210	MACHA210	100LPM±3%
Airborne Particle Counter - mini, Dual Flow   mini APC-DF	A240	MACHA240	28.3LPM/100LPM±3%

Certified with: 



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