QUATEK

Charge-to-Mass Ratio Test System
212HS

Model 212HS is a portable Q/m analyzer that utilizes the “draw-off” toner transfer method to provide repeatable, highly accurate toner/powder charge measurements. Due to its small size and weight, the instrument is highly portable, making it an excellent choice for use directly on the production line or in the laboratory. The Model 212HS system employs a unique specimen separation and transfer technique that avoids the creation of measurement errors due to the undesired additional charging of test specimens sometimes caused by the rapid air movement associated with "blow-off" type measurement systems. The unit is configured as a separate main indicator unit, a plug-in sample cell unit, and a plug-in absorption nozzle unit to allow for different configurations in response to various user applications. A two position switch selects pump strength for normal or high application needs, such as for measuring charge on single component toners (when stronger suction is required).

All measurement data is displayed on a front panel read-out and is available as analog voltage data on output 1 (absorption nozzle data) and output 2 (sample cell data) rear panel BNC connectors. Data can be temporarily stored to on-board system memory with the push of a button.

Application Scenarios

- Laser printing:
  212HS can be used to measure the electric charge of toner adhering to the development roller and photosensitive drum, as well as the electric charge of two-component developer toner. These data can be used to optimize the core components and printing process of printers.
- Pharmaceuticals industry:
  212HS can be used to measure the electric charge of drugs adhering to the inner wall of capsules and the electric charge of drugs adhering during the tabletting process. These data can be used to optimize the pharmaceutical process and improve product quality.
- Inorganic materials/Metals/Chemistry:
  212HS can be used to measure the electric charge of powder during powder transfer, measure the electric charge of powder scattered in the air, measure the electric charge of powder adhering to the inner wall of mixers, and measure the electric charge of powder to study charge control. These data can be used to optimize the manufacturing process, improve material quality and charge control.
- Powder coating:
  212HS can be used to measure the electric charge of powder coating adhering to the coated object and the electric charge of the coating sprayed from an electrostatic gun. These data can be used to optimize the coating application process and improve product quality.

Product Features

Inhalation nozzle design avoids measurement errors associated with traditional "blow-out" measurement techniques

Accurately determines the charge-to-mass ratio characteristics of single-component and two-component toners or other powders

With the measurement data storage function, data can be stored to the PC through the USB interface

Built-in air pump for easy customer use

One-click switch for adjusting the suction power of the air pump, convenient for operation

Performance

Measurement Range
0.000 to ±1.999 microcoulombs.
(other ranges available as options)
Measurement Resolution
0.001μC（1nC）
Accuracy Monitor Output
Better than 0.2% of full scale.
DPM Display Output
±0.25% of full scale.
Test capacitance
1μF±1%
Input impedance
Better than 1000Mohm
Output interface
Analog voltage *2; USB

Features

Front Panel Features
Display Operation Touch Screen
Displays measured values and saved data. The Reset functions and the Pump ON/OFF function are accessed through this screen.
Reset Function 1
Used to reset the coulombmeter for the Absorption Nozzle Unit to zero.
Reset Function 2
Used to reset the coulombmeter for the Sample Cell Case to zero.
Display Function 1
A display to indicate the charge transfer to the Faraday cage in the Absorption Nozzle Unit.
Display Function 2
A display to indicate the charge transfer from the Faraday cage in the Sample Cell Case.
Power Switch
Power ON/OFF
USB Connector
Two USB ports (one active: one reserved for future use) to connect the main unit to a personal computer.
Rear Panel Features
Fuse Holder
Houses the AC line fuse (250V/3A).
AC Input
Connects the AC line cord that provides AC power to the unit.
Ground Terminal
Must be connected to a common ground point.
Flow Rate Adjustment
Adjusts air flow rate on the vacuum suction.
Air Outlet
Expels internal air pump exhaust.
Analog Output Connector 1
BNC connection to output the analog data of channel 1 to an oscilloscope or other external device. Scale factor is 1 V/1uC.
Analog Output Connector 2
BNC connection to output the analog data of channel 2 to an oscilloscope or other external device. Scale factor is 1 V/1uC.
Side Panel Features
Air Inlet
Receptacle used to connect the socket of the absorption needle unit.
Analog Input Connector 1
Accepts the BNC connector from the absorption needle unit.
Analog Input Connector 2
Accepts the BNC connector from the cell case unit.
Switch Input Connector
Receptacle used to connect the switch connector from the absorption needle unit.
Nozzle Holder
Receptacle used to hold the nozzle casing of the absorption nozzle unit.
Cell Case Holder
Used to hold the cell case unit.

General

Dimension
22.0cm W*28.0cm H*28.0cm D
Weight
8.0 kg
Suction regulation
Standard/High
Vacuum Pressure
10 kPa.
Normal Absorption (Nozzle Unit)
50 Hz: 6.0 to 6.5L / minute
60 Hz: 6.0L/ minute
Maximum Absorption (Nozzle Unit)
50Hz: 11.6L/ minute
60 Hz: 10.6L/ minute

212HS ordering information

212HS main unit

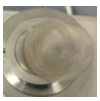
212HS Nozzle

212HS Cell carrierbox
45mm*70mm*54mm

Filter paper

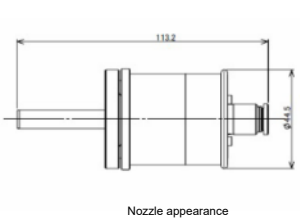
3um/5um/11um , etc

Stainless mesh

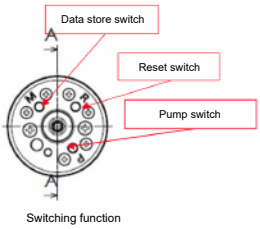


34um 400 mesh

Suction nozzle one key control switch function



Nozzle appearance



Switching function

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