

# Model 212HS

## Charge-to-Mass Ratio (Q/m) Test System



Trek's Charge-to-Mass Ratio System (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 TREK 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 and then saved more permanently to a personal computer.

*NOTE: Measuring toner/powder mass requires the use of a weigh scale which is not included with this Charge-to-Mass Ratio Test System.*

- A Q/m analyzer that avoids the creation of measurement errors associated with traditional "blow-off" measurement techniques
- Accurately determines the charge-to-mass ratio characteristics of electrophotographic toners or other powders
- Designed to handle single and dual component toners
- Employs a unique specimen separation and transfer technique
- Measurement Data memory function equipped
- Able to store data to a PC through the USB terminal
- RoHS compliant (EU)
- CE compliant



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# Model 212HS Specifications

## Performance

### Measurement Range

0.000 to  $\pm 1.999$  microcoulombs.  
(other ranges available as options)

### Measurement Resolution

0.001  $\mu\text{C}$  (1 nC).

### Accuracy

**Monitor Output**  
Better than 0.2% of full scale.

### DPM Display Output

$\pm 0.25\%$  of full scale.

### 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

## 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 (2) 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.

## Features (cont.)

### 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/ $1\mu\text{C}$ .

### 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/ $1\mu\text{C}$ .

### 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

### Main Indicator Unit

#### Dimensions

280mm H x 220mm W x 280mm D  
(11.0" H x 9.0" W x 11.0" D).

#### Mass

8 kg (18 lb).

### Power Requirements

Factory set for one of three ranges:  
100 V AC, 115 V AC, or 230 V AC at  
48 to 63 Hz (all  $\pm 10\%$ )

### Cell Case Unit

#### Dimensions

45mm H x 70mm W x 54mm D  
(1.70" H x 2.75" W x 2.13" D).

## General (cont.)

### Mass

150 g (5.29 oz).

### Stainless Steel Mesh (supplied)

#### Plain Woven No. 400

28.7 mm diameter,

33 mm opening,

27.8% opening ratio.

### Absorption Nozzle Unit

#### Dimensions

1700 mm L, including tube.

(66.93" L, including tube).

#### Mass

350 g (12.34 oz).

### Operating Conditions

#### Temperature

5°C to 35°C.

### Included Accessories

Type #2 filter papers (H6001), extra #400 stainless steel mesh screens, line cord, and manual.

### Nozzle Filter Section

Nozzle Filter set (filter case, nozzle hose, filter case stopper, and silicon tubes).

### Cell Case Section

Sample Cell Case (with cell case, cell case stand, and cell case stopper).

### Optional Accessory

Carrying case.

## Certification

TREK, INC. certifies that every Model 212HS Q/m Test System is tested and calibrated to specifications using measurement equipment traceable to the National Institute of Standards and Technology or traceable to consensus standards.



TREK, INC. 190 Walnut Street • Lockport, NY 14094 • USA • 800-FOR TREK  
716-438-7555 • 716-201-1804 (fax) • [www.trekinc.com](http://www.trekinc.com) • [sales@trekinc.com](mailto:sales@trekinc.com)

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