

Model 210HS-3

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



Trek's Charge-to-Mass Ratio System (Model 210HS-3) is a portable Q/m analyzer which utilizes the "draw-off" toner transfer method to provide repeatable high accuracy toner charge measurements.

The TREK Model 210HS-3 Charge-to-Mass Ratio (Q/m) Test System is used to quickly and accurately determine the charge-to-mass ratio characteristics of both single and dual component electrophotographic toners and other charged particulates. Interchangeable mesh filters accommodate various sizes of charged particles. The system is highly portable for use directly on the production line as well as in the laboratory.

The TREK Model 210HS-3 system employs a unique specimen separation and transfer technique which avoids the creation of measurement errors due to the undesired additional charging of the toner as caused by the rapid air movement associated with "blow-off" type measurement systems.

The TREK Model 210HS-3 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).

For additional information regarding the TREK Model 210HS-3 Electrophotography Toner/Powder Charge-to-Mass Ratio (Q/m) Test System, please visit our web site at: www.trekinc.com.

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

An Industry First

A Q/m analyzer which avoids the creation of measurement errors associated with traditional "blow-off" measurement techniques

Accurately determines the charge-to-mass ratio characteristics of electrophotographic toners

Designed to handle single and dual component toners

Employs a unique specimen separation and transfer technique

Can be configured to different application requirements

Lightweight and portable

CONTROL WITHOUT COMPROMISE



Model 210HS-3 Specifications

Performance

Measurement Range

0 to ± 2 microcoulombs full scale.
(other ranges optionally available)

Measurement Resolution

0.001 μC (1 nC).

Accuracy

Monitor Output

Better than $\pm 2\%$ of full scale

DPM Display Output

Better than 0.25% of full scale
(± 5 nC).

Stability

Drift with Time

Less than ± 0.005 nC/s.

Drift with Temperature

Less than 200 ppm/ $^{\circ}\text{C}$,
over the range of 15°C to 35°C .

Vacuum Pressure

10 kPa.

Pump

At 60 Hz Line Frequency

Maximum Draw-off Pressure

1.0 ± 0.2 MPa ($10.2 \text{ kg}_f/\text{cm}^2$).

Maximum Draw-off Rate

9.8 ± 1.5 liters/minute.

Maximum Suction Pressure

0.067 MPa ($0.67 \text{ kg}_f/\text{cm}^2$).

At 50 Hz Line Frequency

Maximum Draw-off Pressure

1.0 ± 0.2 MPa ($10.2 \text{ kg}_f/\text{cm}^2$).

Maximum Draw-off Rate

10.2 ± 1.5 liters/minute.

Maximum Suction Pressure

0.067 MPa ($0.67 \text{ kg}_f/\text{cm}^2$).

Absorption (Nozzle Unit) Volume

170.0 mL³.

Features

Front Panel Features

Pump Selection Switch

Selects either Normal pressure
setting or High pressure setting.

Features (cont.)

Front Panel Features (cont.)

Input 1 Connector

A BNC connector for connecting the
Absorption Nozzle Unit to the Main
Indicator Unit.

Input 2 Connector

A BNC connector for connecting the
Sample Cell Case to the Main
Indicator Unit.

Air Connector

A connector for connection of the
air hose of the Absorption Nozzle
Unit.

Reset 1 Switch

A switch to reset the coulombmeter
for the Absorption Nozzle Unit to
zero.

Reset 2 Switch

A switch to reset the coulombmeter
for the Sample Cell Case to zero.

Display 1

A display to indicate the charge
transfer to the Faraday cage in the
Absorption Nozzle Unit.

Display 2

A display to indicate the charge
transfer from the Faraday cage in
the Sample Cell Case.

Rear Panel Features

Output 1

A voltage output monitor which
indicates the charge transfer to
the Faraday cage in the Absorption
Nozzle Unit.

Scale Factor

1 V/ μC .

Accuracy

Better than $\pm 2\%$ of full scale.

Output 2

A voltage output monitor which
indicates the charge transfer from
the Faraday cage in the Sample
Cell Case.

Scale Factor

1 V/ μC .

Accuracy

Better than $\pm 2\%$ of full scale.

Air Outlet

Exit path for air.

Ground Connector

Threaded ground screw.

General

Main Indicator Unit

Dimensions

235 mm H x 285 mm W x 390 mm D
(9.25" H x 11.2" W x 15.4" D).

Weight

10 kg (22 lb).

Power Requirements

Factory set for one of three voltage
ranges: 100 V AC, 115 V AC, or
230 V AC at 48 to 63 Hz
(specify when ordering).

Sample Cell Case

Dimensions

40 mm H x 120 mm W x 120 mm D
(1.57" H x 4.72" W x 4.72" D).

Weight

0.5 kg (1.1 lb).

Stainless Steel Mesh (supplied)

Plain Woven No. 400

28.7 mm diameter,
33 μm opening,
27.8% opening ratio.

Absorption Nozzle Unit

Dimensions

1600 mm L (63" L).

Weight

350 g (0.8 lb).

Operating Conditions

Temperature

5°C to 40°C .

Included Accessories

Screw driver, plastic wrench, extra
silicon tubes, Type #2 filter papers
(H6001), extra number 400 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.

RoHS compliant (EU).

CE compliant.

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