

Model 368A

High-Speed, DC Stable Noncontacting Electrostatic Voltmeter




Trek's Model 368A High-Speed Electrostatic Voltmeter provides precision noncontacting measurement of the surface voltages associated with electrostatic imaging processes as employed by the electrophotographic reproduction and laser printing industries. Highly accurate electrostatic voltage measurements are also associated with applications such as photoreceptor research and semiconductor processing. The 368A is used in research and development applications and to measure electrostatic potentials on objects or surfaces such as polymer, film, fabric, and paper.

The miniature sensor probes utilize a patented dual chopper design. This design provides high-speed, DC stable measurements with exceptional low noise and drift performance in wide temperature range conditions, under high humidity, and even in the presence of contaminating particulates. Sensor probe options include standard or high-temperature probes with either an end-viewing or side-viewing orientation.

The voltage of moving or stationary surfaces can be easily measured with high accuracy over a wide range of sensor probe to measured surface spacings. The noncontacting measurement ensures that no charge transfer will take place to modify or destroy the actual data.

A user selectable dual range precision voltage monitor provides a low-voltage replica of the measured electrostatic voltage for external monitoring purposes or for use as a feedback signal in a closed loop control system.

Rack mount options are available to permit up to four independent measurement channels in a standard full rack or for compact bench top operation.

- Noncontacting measurement range
0 to ± 2 kV or peak AC
- Speed of Response
less than 200 μ s for a 1 kV step
- Accuracy better than
0.1% of full scale
- Easy to read 3½ Digit LED display
- Superb noise and drift performance
- Miniature probes
- Precision voltage monitor provides low-voltage replica of measured voltage
- Up to four independent channels in full rack mountable configuration
-  compliant



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Model 368A Specifications

All specifications are with a probe to surface separation of 2 mm.

Performance

Measurement Range

0 to ± 2 kV DC or peak AC.

Measurement Accuracy

Voltage Monitor Output

Better than $\pm 0.1\%$ of full scale.

DPM Voltage Display

Better than $\pm 0.15\%$ of full scale, ± 1 digit referred to the voltage monitor.

Speed of Response (10% to 90%)

Less than 200 μ s for a 1 kV step change.

Stability

Drift with Time

Less than 100 ppm/hour, noncumulative.

Drift with Temperature

Less than 200 ppm/ $^{\circ}$ C.

Probe-to-Surface Separation

2 mm \pm 1 mm (recommended).

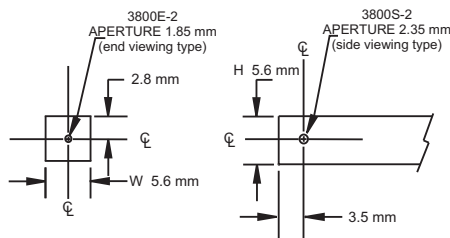
Probe (standard)

Aperture Size

3800E-2 end viewing
1.85 mm diameter.
3800S-2 side viewing
2.35 mm diameter.

Cable Length

3 m (10 ft), nominal.



Note: The probe body is driven to match the measured voltage value and must be insulated from ground.

Features

Zero Control

A 10-turn control to null offsets that may be present at the voltage monitor output when the Model 368A is measuring zero volts.

Voltage Display

3 $\frac{1}{2}$ digit LED display.

Range

0 to ± 1999 V.

Resolution

1 V.

Zero Offset

Better than or equal to ± 1 count, referred to the voltage monitor.

Sampling Rate

2.5 readings per second.

Voltage Monitor Output

A BNC provides a low-voltage replica of the measured voltage.

Scale Factors

1/200th or 1/1000th of the measured voltage (switch selectable). Calibration potentiometers for both scales are accessible from the front panel.

Output Noise

Less than 25 mV rms (measured using the true rms feature of the Hewlett Packard Model 34401A digital multimeter).

Output Impedance

Less than 0.1 Ω .

Power ON/OFF

Two position toggle switch.

General

Voltage Monitor Connector

BNC connector.

General (cont.)

Dimensions

Stand-Alone Instrument

133 mm H x 113 mm W x 341 mm D (5.3" H x 4.5" W x 13.5" D).

Half Rack (holds up to two channels)

133 mm H x 271 mm W x 353 mm D (5.3" H x 10.7" W x 13.9" D)

Full Rack (holds up to four channels)

133 mm H x 483 mm W x 353 mm D (5.3" H x 19" W x 13.9" D).

Weight

Stand-Alone Instrument

2 kg (4.4 lb).

Half Rack

1.5 kg (3.3 lb), add 1.5 kg (3.3 lb) per channel.

Full Rack

2.5 kg (5.5 lb), add 1.5 kg (3.3 lb) per channel.

Ground Receptacle

Banana jack.

AC Line Cord Receptacle

Standard IEC 320 three-prong AC line connector with an integral fuse holder.

Power Requirements

Line Voltage

Factory set for one of two ranges: 90 to 127 V AC or 180 to 250 V AC, at 50/60 Hz (specify when ordering).

Power Consumption

35 VA, maximum.

Operating Conditions

Temperature

0 $^{\circ}$ C to 35 $^{\circ}$ C.

Relative Humidity

To 85%, noncondensing.

Altitude

To 2000 meters.

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Model 368A Ordering Information

Model 368A

Item	Part No.*
Stand-Alone Instrument	368ASU
Half-Rack, One Channel	368ASX
Half-Rack, Two Channels	368ADX
Full-Rack, One Channel	368AS
Full-Rack, Two Channels	368AD
Full-Rack, Three Channels	368AT
Full-Rack, Four Channels	368AQ

*Add the suffix L for 90 to 127 V AC operation and the suffix H for 180 to 250 V AC operation.

Probes

Item	Part No.
Standard	
Model 3800E-2 (end viewing)	17351
Model 3800S-2 (side viewing)	17350
High-Temperature (up to 60 $^{\circ}$ C)	
Model 3870ET-2 (end viewing)	17379
Model 3870ST-2 (side viewing)	17380
Optional	
Model 3800EC-2 Probe Extension Cable	17385



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