MONROE ISOPROBE 244A

Electrostatic voltmeter that measures surface potential in the range of ±3000 volts without contacting the measured surface.

The Monroe Isoprobe® 244A is an electrostatic voltmeter that features high accuracy (0.1%) drift-free measurements that are almost fully independent of probe-to-surface separation. It enjoys a proven record and long, successful history in both laboratory and manufacturing environments. Side- and end-viewing probes accommodate various mounting requirements. Specialty high-resolution probes allow the Monroe 244A to resolve spot diameters as small as 1 mm. Probes include air purge capability to prevent ingress of particulate.

PRODUCT HIGHLIGHTS

- ±3kV range
- Measurement without physical contact
- Short-circuit protected for equipment protection
- Accuracy betterthan 0.1% at almost any probe-to-surface spacing
- Full complement of state-of-the-art high ferquency probes
- Provision for master/slave operation

TYPICAL APPLICATIONS

- Electrophotographic and xerographic measurements
- Radiation effect on insulators and semiconductors
- Electret research
- Static electrification and electric field studies
- Process monitoring and control
- Integrated circuit manufacturing and handling

AT A GLANCE

Range

±3000 volts, auto polarity

Accuracy

0.1%, ±0.003%/°C over +20 to +40°C range (at recorder output).

Speed of Response (10% to 90%)

For typical input step: <3 ms
For 1kV step: <2½ ms
For 2kV step: <3½ms
For 3kV step: <4ms

TECHNICAL DATA

Performance Specifications		
Range	±3000 volts, auto polarity	
Accuracy[1]	0.1%, ±0.003%/°C over +20 to +40°C range (at recorder output). Useable to +50°C.	
Speed of Response[1]	For typical input step:	<3ms (10% to 90%)
	For 1kV step:	<2½ms (10% to 90%)
	For 2kV step:	<3½ms (10% to 90%)
	For 3kV step:	<4ms (10% to 90%)
Settling Time:	Less than ±2 V	
Frequency Response	Small signal frequency response, typically ±3db to >300Hz	
Drift[1]	<0.01V/hr after 1 hr warm-up (0.003V/hr typical). Not measurably affected by 10°C temperature variation or changes between 10% and 90% relative humidity.	
Noise[1]	<0.3V rms or 2 volts peak-to-peak wide band (bandwidth restricted to<1kHz) referred to input.	
Surface Resolution	Determined by probe aperture size and surface-probe separation. Standard type 1017AE and AE probes with 0.07" (1.75mm) aperture will resolve a 0.10" (2.5mm) spot at 0.02" (0.5mm) separation.	

Mechanical Specifications	
Dimensions (H x W x D)	10 x 21.8 x 35.6 cm (4 x 8½ x 14 in), 1.75" rack mounting available (1 or 2 per rack).
Weight	3.2 kg (7 lb)
Output Filter	Bessel low pass filter with 0.7 ms constant delay

Electrical Specifications	
Power Requirement	100, 115, 230 VAC, ±10%, 50/60Hz, 15 watts
Recorder Output	Compressed analog output is input divided by 1000 (optional Model 244AK has divide by 200) for external loads greater than 1KΩ. Output connector is BNC.

[1] Dependent on specific probe model, probe-surface separation and environment. Specifications shown are for standard Type 1017AE or AS probes in a normal laboratory atmosphere. Separation for accuracy and response speed tests is 1/8" (3mm) and for noise and drift tests, 0.13mm (0.005"). Performance generally improves in controlled environments and may be degraded under exceptional dirty or dusty conditions or in ambiance of unstable gaseous constituents.

MONROE 1017A SERIES PROBES

Monroe 1017AE (end-viewing) or 1017AS (side-viewing) (probes are 0.35" [9mm] x 0.35" [9mm] x 2.85" [72.5mm] in length. Add 0.8" [20mm] length for cable at minimum bend radius.) Contains 1kHz tuning fork chopping driver and onboard hybrid microcircuit preamp. Useable from -50 to +80°C. Optional probe configurations are available for high or low resolution and transparent probes for light decay measurements. Length of probe cable is 10 ft. (3.0 meters). Provision has been made for air or inert gas purging of probe. Unit is calibrated independent of probe and includes certificate of NIST traceability. Interchangeable Model 1017A probe (type specified by customer) is sold separately. See Monroe probes data sheets for more details and options.

HIGH PERFORMANCE WITH A PROVEN TRACK RECORD

Manufactured with the same care and attention that have made Advanced Energy Isoprobe® electrostatic voltmeters the industry standard, the Monroe 244A measures surface potential of insulating, semiconductive or conductive materials on a small 0.04" (1mm) diameter spot or over a large area using patented techniques which assure high-accuracy drift-free measurements almost independent of probe/surface separation.

Monroe 244A takes advantage of Advanced Energy's years of experience in design of reliable instruments for NON-CONTACTING measurement of electrostatic potential combined with modern semiconductor technology. A full spectrum of proven-design interchangeable probes exposes broad new areas for exploratory research as well as providing a precision instrument for routine applications in electrostatic measurements.

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE

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