EOS/ESD Series

Model PD06078 Four [4] Channel Electrostatic Voltmeter

Trek Model PD06078 Electrostatic Voltmeter (ESVM) is a four channel voltage measuring instrument ideally suited to monitor critical operations associated with semiconductor, LCD, electronic assembly, and other processes where static charge accumulation poses a threat to yield rates or product quality.

The Model PD06078 contains four (4) Electrostatic Voltmeters in a single enclosure. Each channel features a measurement range of 0 to ±10 kV and accuracy better than 5% reading plus ±0.2% of full scale over the probe to surface separation distance of 15 to 30 mm.

Each channel of the Model PD06078 ESVM utilizes a DC stable electrostatic field chopper probe which can be remotely located and easily positioned within process equipment to provide highly accurate, noncontacting, spacing independent, voltage measurements in either ionized or non-ionized environments.

Two types of probes are available with the Model PD06078: a side viewing type probe and a 45 degree orientation type probe. One digital panel meter display (DPM) provides monitoring of individual channels through a switchable rotary switch. A holding fixture (customer supplied) is used to position the probes sensing aperture relative to the measured surface. Trek's patented probe design significantly improves noise and drift performance, both in the presence of contaminating particulates and under conditions of high humidity and wide temperature ranges. A voltage output monitor and an 4-20 mA current loop output can provide additional signal interfacing to facility monitoring equipment.

- **Four Electrostatic Voltmeters in a Single Enclosure**
- **Measurement Range for Each Channel: ±10 kV DC or peak AC**
- **Voltage Output Monitors and 4-20 mA Current Loop outputs provide accurate and concise measurement results for each ESVM channel**
- **Front Panel LED provides visual monitoring for each channel (switch selectable)**
- **Two Types of Probes Available: A Side View Probe and a 45° Angle probe**
- **Chopper probes are DC stable with or without incident air ion flow**
- **Drift-Free Measurements**
- **CE compliant**

Model PD06078 Electrostatic Voltmeter Specifications

Performance

The Trek Model PD06078 Electrostatic voltmeter provides four (4) independent channels of accurate noncontacting measurement of electrostatic surface voltage for ESD/EOS sensitive processes in either ionized or nonionized environments. The probes are chopper stabilized for drift-free operation.

For Each Individual Channel:

Measurement Range
0 to ±10 kV DC or peak AC.

Speed of Response (10% to 90%)
Less than 50 ms for a 1 kV step.

Accuracy
Better than ±5% of reading, ±0.2% of full scale over a probe-to-surface separation of 15 mm to 30 mm.

Drift with Time
Less than ±1% of full scale, noncumulative.

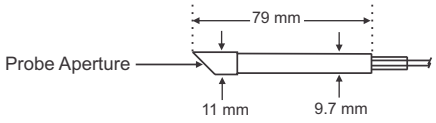
Probes

The probes are chopper stabilized for drift-free operation.

Probes*

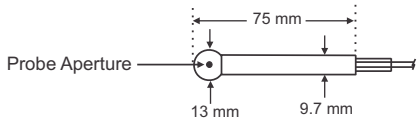
45° Orientation (Model 542P-45D)
Aperture size of 3.8 mm (0.15") diameter.

Dimensions
11 mm dia. x 79 mm L (0.43" dia. x 3.1" L).



Side Orientation (Model 542P-S)
Aperture size of 4 mm (0.156") diameter.

Dimensions
13 mm dia. x 75 mm L (0.51" dia. x 3" L).



**Vacuum application probes are available.*

Probes (cont.)

Probe Cable Length
5 meters (16 ft), nominal [up to 10 meters (32.8 ft) optional on side-view probe].

Probe-to-Surface Separation
15 mm to 30 mm (recommended).

Features

Four (4) Position Channel Switch
Selects one of the four channels outputs for display on the DPM.

Digital Panel Meter (DPM)
3½ digit LED voltage display.

Range
0 to ±10.00 kV.

Resolution
10 V.

Zero Offset
Less than or equal to ±2 counts.

ZERO Control (one for each channel)
Rear panel potentiometer used to produce zero volts output when probe is coupled to a known zero voltage source.

Monitor Output (one for each channel)

Scale Factor
The voltage monitor is scaled at 1/1000th of the measured voltage for each channel.

Output Noise
Less than 10 mV rms (using the side view probe and measured using the true rms feature of the Hewlett Packard Model 34401A digital voltmeter).

Output Impedance
47 ohms.

Current Output (one for each channel)
Provides a current of 4-20 mA that represents measured voltages -10 kV to +10 kV.

Ground Connections
Four (4) banana jacks and a designated terminal on the output connector are all tied to chassis ground.

General

Dimensions
177 mm H x 203 mm W x 228 mm D (7" H x 8" W x 9" D).

Weight
8 lbs. (3.6 kg)

Power
24 V DC ±10%, 1.5 A supply [2 pin or 2.5 mm DC In connector] Universal Power Adapter optional.

Output Connector (one for each channel)
A six position output connector (6P/4C) provides connections for the output voltage monitor, the current output, and a ground connection.

Operating Conditions

Temperature
15 °C to 35 °C.

Relative Humidity
5% to 85%, noncondensing.

Power ON/OFF
Front panel switch.

Probe Connector Locations
Rear panel.

Certification
TREK, INC. certifies that each Model PD06078 is tested and calibrated to specifications using measurement equipment traceable to the National Institute of Standards and Technology or to consensus standards.

Low Voltage Safety Compliance IEC 61010-1:2001. Overvoltage Category: CAT I: Peripheral level outputs (less than 60 volts). Pollution Category Degree 1: Operate in environments where no pollution or only dry, nonconductive pollution occurs.

***NOTE:** This instrument is designed to make electrostatic voltage measurements only! For safety, this instrument should never be used to perform measurements of "hard" voltage sources or voltage sources which can deliver currents high enough to cause harmful shocks or personal injury.*

All specifications are subject to change.
 1123/DEC

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