

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 $\pm 0.2\%$ 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**



Measurement and Power Solutions™

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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 $\pm 5\%$ of reading,
 $\pm 0.2\%$ of full scale over a
probe-to-surface separation of
15 mm to 30 mm.

Drift with Time

Less than $\pm 1\%$ of full scale,
noncumulative.

Probes

The probes are chopper stabilized for drift-free operation.

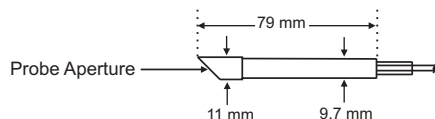
Probes*

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).

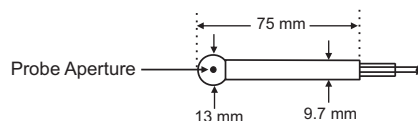


Side Orientation (Model 542P-S)

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 $\pm 10\%$, 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.

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TREK, INC. • 11601 Maple Ridge Road • Medina, NY 14103 • USA • 800-FOR TREK
585-798-3140 • 585-798-3106 (fax) • www.trekinc.com • sales@trekinc.com

