

ESD EVENT DETECTOR

PED-718

User Manual



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PROSTAT® PED-718 ESD EVENT DETECTOR

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A. Description

The PED-718 ESD Event Detector is an easy-to-use hand-held device that is designed to detect and count ESD events that can damage sensitive components and cause tool lockups, erratic behavior and parametric errors.

B. Event Counter

A four-digit display counts the number of events equal to or exceeding the threshold. To reset the counter, press the actuator of the "Set" side switch inwards. The counter is also reset when the power is turned off.

C. Noise Filter

In a typical industrial environment there are many sources that produce signals similar to those of ESD events. Such signals may include relays, solenoids, stepper motors or similar devices. In order to separate ESD events from non-related EMI (electromagnetic interference) events, the PED-718 ESD Event Detector employs a filter that separates waveforms of the signals and rejects the ones that are different from a "classic" shape of an ESD event. First, try to use the PED-718 ESD Event Detector with Noise Filter switch turned off. This allows you to assess the complete environment. If you observe extraneous events, then turn the Noise Filter switch on.

The PED-718 ESD Event Detector detects most ESD events by the specific electromagnetic signature these events produce. Therefore, the performance of the PED-718 ESD Event Detector must be looked at in view of wave propagation. Just like with a microphone, the farther away from the source of the signal you are, the weaker the signal will be. When searching for the sources of ESD events, it is advisable to get as close as is practical, considering necessary safety precautions, to the suspected sources. In a typical tool, such as an IC handler or a pick-and-place SMT machine, such sources of ESD events may include places of IC pick-up and IC placement on any conductive or even dissipative surface. When working with the automated equipment, always observe safety precautions as recommended by equipment manufacturer and your company's practices.

D. General Operation

When the PED-718 ESD Event Detector is turned on, it is ready to detect, count and measure most ESD events.

E. Bar Graph Display

The 10-LED bar graph shows the relative strength of most ESD events. If an ESD event does not exceed the set alarm level, LEDs indicating its strength are green. Whenever the strength of an event exceeds the set threshold, LEDs turn red.

Event strength is a factor of many variables:

- The accumulated static voltage
- The capacitance of the charged objects (a larger object holds more charge than a smaller one)
- The physical size of discharging objects
- The environment
- The distance from ESD event occurrence

Therefore, one should exercise good judgement in comparing the strength of ESD events captured under different conditions.

F. Threshold Adjustment

The PED-718 ESD Event Detector can detect ESD events in a wide dynamic range. For most applications, only the events that exceed certain strengths are of importance. Threshold setting in the PED-718 ESD Event Detector is critical in identifying only ESD events of the strength equal or above the level of importance to you.

Threshold setting is done by a small rotary/push switch on the right side of the PED-718 ESD Event Detector.

G. Checking the Current Threshold

Simply push the actuator of the switch inwards. One red LED will show the current ESD event threshold. Any event equal to or exceeding this level will produce a count and a beep, and the LED bar graph will show it in red. An event below this level will still be shown on the bar graph in green, but no count or sound will be produced.

H. Setting the Threshold

To set a new threshold, do not press the switch. Rather, move its actuator up or down. Once the switch begins to move, one red LED appears on the bar graph display. As the switch moves up and down, this red LED moves accordingly and its position indicates the new threshold level.

I. Saving the Threshold Level

After the new threshold is set, release the switch actuator and then press it inwards. The new current threshold is now saved. The next time you power up your PED-718 ESD Event Detector, this level will be automatically set.

J. Features and Components

Refer to the following pages of this User Manual for a detailed explanation of each control, indicator and connection.

K. Controls and Indicators

- Power Switch: Turns power on and off
- Sound Switch: Turns the sound on and off
- Noise Filter Switch: Turns EMI-rejection mode on and off
- Alarm Threshold: Adjusts alarm threshold up and down. Displays current alarm threshold. Resets the Event Counter.
- Event Counter: Counts ESD events above the set threshold.
- ESD Event Strength Bar Graph: Displays relative ESD event strength. This graph is solely an indicator, and it does not correspond to any unit of measurement.
- Filter Indicator: Shows that PED-718 ESD Event Detector is in filter mode (rejection of EMI most Events).
- Low Battery: Shows that the battery needs to be replaced.

L. Power

PED-718 ESD Event Detector uses a 9V alkaline battery. Do not use any other type of battery. If you are not using your PED-718 ESD Event Detector for an extended period of time, remove the battery from the unit in order to prevent damage caused by battery leakage.

M. Installing the Battery

Remove the battery door at the back of PED-718 ESD Event Detector and attach the 9V battery to the battery clips. Observe the polarity of the battery. Re-install the battery door.

N. Low-Battery Indicator

When battery voltage gets low, the low battery indicator on the display appears.

O. Turning PED-718 ESD Event Detector On and Off

Move the actuator of the power slide switch to the right. The ESD event counter should display a number of captured events, usually "0" at this point. The events counter is reset when the power is turned off. To turn the power off, move the actuator of power slide switch to the left. The PED-718 ESD Event Detector has no automatic shut-off. Don't forget to turn it off when not in active use.

P. Antenna

In order for the PED-718 ESD Event Detector to detect most ESD events, its antenna needs to be properly installed. Screw the antenna using only your fingers—no tools since overtightening the connection may lead to damage to the instrument.

Q. Sound

The PED-718 ESD Event Detector can produce audible alarm when an event is detected. In order to enable this function, move the actuator of sound slide switch to the right.

R. Calibration

The PED-718 ESD Event Detector is solely an indicator and not a meter. Its ESD Event Strength Bar Graph only displays relative ESD event strength, and it does not correspond to any unit of measurement. Calibration is not required.

CE Statement

Meets CE (European Conformity) requirements.

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