

# Model 901HS High Sensitivity ESD Event Detector



Electrostatic discharge (ESD) events are important indicators of excessive charge accumulation in environments where they may be detrimental to manufacturing processes in the semiconductor or LCD industries.

**Trek's Model 901HS** is a diagnostic tool used to identify incidents or verify suspected areas of ESD activity. Electromagnetic waves, generated by electrostatic discharge, transmit differently in different environments. In order to accommodate these differences, the Model 901HS includes two antennas - one active and one passive - that can be used for detection purposes. The determination of which antenna to use will typically be based on the environment in which it's being deployed and the level of detection that is required.

The active antenna may be connected directly to the Model 901HS or with an extension cable that lengthens the antenna to 1.5 meters. It provides high flexibility in positioning the antenna to achieve the best possible reception. The active antenna can detect ESD events as small as 10 V, at a distance of 50 mm. A passive, monopole antenna is also provided. This antenna has a detection capability that identifies ESD events as small as 50 V, at a distance of 90 mm and is generally used when less sensitive detection is required.

When an ESD event is detected, the Model 901 signals the operator by playing an audible notification tone and by displaying the detected event level visually via its five LED lights. Since measurement results will vary due to the distance from the signal source and whether there are physical obstacles present in the environment, the LED display indicates a relative signal strength rather than an actual signal strength. A stereo connector on the Model 901 enables connection to an optional external display device to display the measurement results.

- Sensitive to ESD voltage levels as low as 10 V at 50 mm
- Suitable for CDM (Charge Device Model)
- Two antennas provide high sensitivity in detecting electrostatic discharge events
- Five LED indicators or an external display indicate the detection of ESD events
- An audible alert indicates ESD events
- Automatic or manual reset control
- AC or Battery operated, compact, and portable

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# Model 901HS Specifications

## Features

### Detection Levels

Five (5) LEDs indicate the relative level of the ESD event

1st Level: Yellow  
2nd Level: Yellow  
3rd Level: Yellow  
4th Level: Red  
5th Level: Red

### Power LED Lamp

Indicates that the power ON and that the unit is operating

### Power ON-OFF

A slide switch. In the ON position, the Power LED is illuminated.

### Auto Reset ON-OFF

A slide switch. In the ON Position:  
Enables the unit to automatically detect the next event within 2 sec. of being returned to ON after a failure.  
In the OFF Position: A detected event is held until the reset switch is depressed.

### Buzzer ON-OFF

A slide switch. In the ON position, an audible alarm is sounded when an event is detected.

### Reset Button

Clears previous measurements

## Features (cont.)

### Buzzer

The audible alarm that sounds when an event is detected and the Buzzer ON-OFF is in the ON position.

### External Monitor Connection

Stereo Jack

### Power Supply

Universal AC-DC adapter connected to an AC power source, or  
Four (4) size AA, Lithium, 1.5V batteries

### Model 901HSA Antenna A (Active)

Connector: sub-miniature SMA adapter  
Cable: 1.5 m length antenna cable

### Model 901HSP Antenna P (Passive)

Monopole type, built in SMA adapter for connection to the Model 901HS

## Compliant

## Operating Conditions

### Temperature

10° to 40° C

### Humidity

5% to 60% RH

## General

### Dimensions

Main Unit:  
110 mm H x 80 mm W x 45 mm D  
(4.3" H x 3.1" W x 1.8" D)

### Weight

500 grams (includes battery)  
1.1 lb.

The table below indicates the distances (in millimeters) and relative ESD voltages that will trigger the level indicators the Model 901HS when it is used with the 901HSA or 901HSP antenna.

ESD Event Sensitivity Rating – Antenna A (Active)						ESD Event Sensitivity – Antenna P (Passive)					
Voltage	Level 1	Level 2	Level 3	Level 4	Level 5	Voltage	Level 1	Level 2	Level 3	Level 4	Level 5
10 V	50 mm	-	-	-	-	50 V	90 mm	20 mm	-	-	-
20 V	90 mm	-	-	-	-	100 V	310 mm	80 mm	30 mm	25 mm	20 mm
30 V	100 mm	50 mm	-	-	-	200 V	800 mm	320 mm	220 mm	60 mm	40 mm
50 V	160 mm	80 mm	60 mm	50 mm	-						
60 V	200 mm	90 mm	70 mm	60 mm	50 mm						
80 V	300 mm	120 mm	80 mm	70 mm	60 mm						
100 V	400 mm	120 mm	100 mm	80 mm	70 mm						
150 V	500 mm	180 mm	120 mm	110 mm	100 mm						
200 V	450 mm	250 mm	140 mm	120 mm	100 mm						

