



Kinetic Polymers

(AN ISO 9001 - 2008 Certified Company)

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Technical Specifications of Human Body Static Voltage Checker (Personnel Static Tester, Model No. PST - FLP)

One of the most common causes of electrostatic damage is the direct transfer of electrostatic charge from the human body. When one walks across a floor, an electrostatic charge accumulates on the body. Simple contact of a finger allows the body to discharge, possibly causing device to damage.

The Model PST-FLP is designed to measure the static Voltages carried on a personnel. It is a precision instrument to verify whether Personnel entering an ESD safe area are carrying any hazardous charges on themselves.

It is very simple to use and only requires the personnel under test to touch the plate on the instrument and directly read the charge level in volts on the meter. Apart from the measuring the voltages, it can also be used to safely drain away the charges from the personnel. The instrument has a special feature of visual and audible “HAZARD” indication when it measures more than +/-100V. It is very quick and convenient method to check personnel voltages.





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Moreover the tester will audit any potential static generator or dissipater, like. Wrist straps, heel grounders, toe straps, static safe shoes, floor mats, etc....

PST-FLP SPECIFICATIONS:

| | |
|--------------------------|--|
| Range | : +/-1999V |
| Hazard Indication | : Visual and audible alarm if voltage exceeds +/-100V |
| Indications | : 3 ½ Digit LCD display with polarity indication |
| Resolution | : 1 Volt |
| Accuracy | : +/- 10% |
| Test actuation | : Touch To Test |
| Power supply | : 230 Volts |
| Calibration | : Recommended every 12 months |
| Traceability | : To National Standards |
| Warranty | : 12 Months |



Note: The specifications mentioned in this datasheet are subject to change without prior notice due to our continuous research of product development, Buyer or User should decide the suitability of the product for the intended application.



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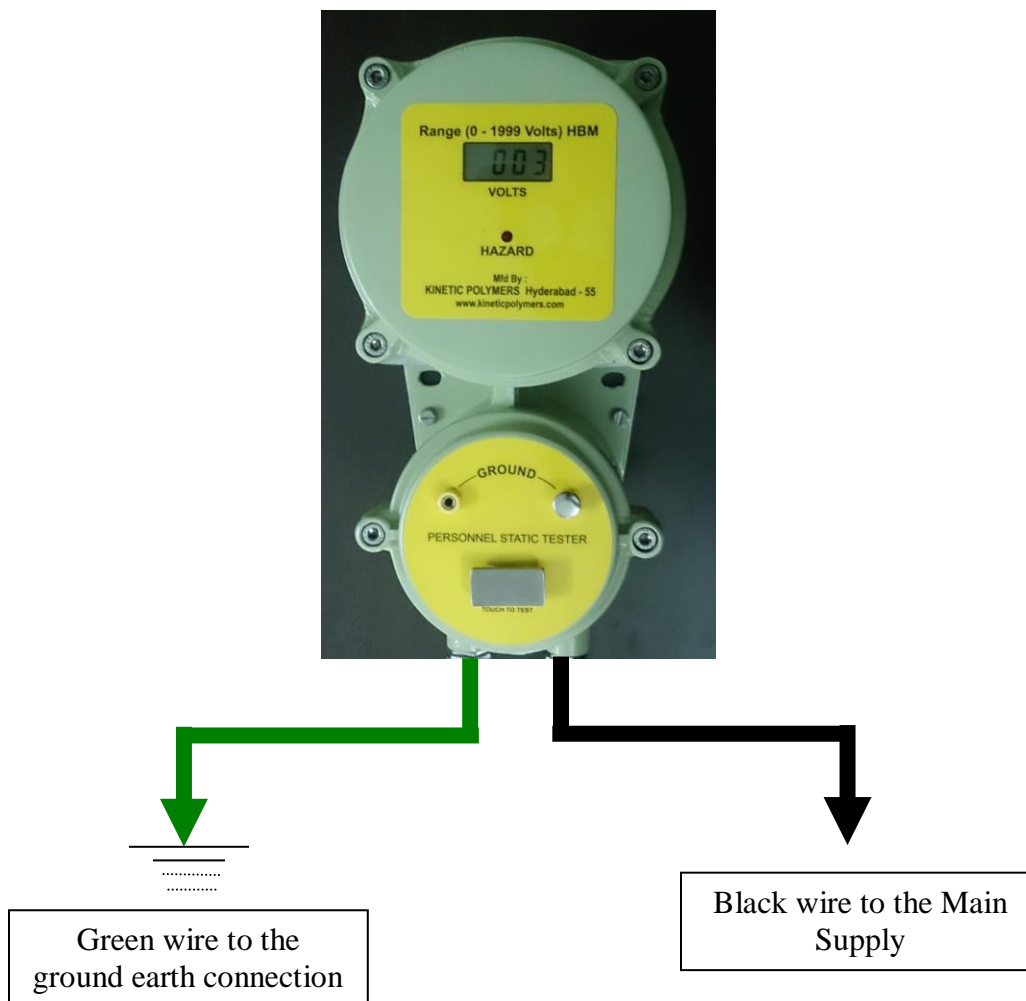
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AIM: TO CHECK THE HUMAN BODY VOLTAGE

- 1). Connect the Green wire to the earth point.
- 2). Connect the Black wire to the power supply.
- 3). Once connected, you will then see the reading as 0.000 to 0.005 volts.
- 4). Persons whose body static voltage is to be measured, need to touch the touch plate.
- 5). A display shows the body voltage, also if voltage crosses more than 100 volts then alarm beep sound is heard.
- 6). Continue to touch the test plate, slowly the human body static charge gets drain to the ground.
- 7). An additional ground point is also provided to put the wrist band and also once touched with other finger to the round metallic ground point, a faster drain of charge will take place to the ground showing a value of 0.006 in < 30 Seconds indicating all this body voltage has been drained.





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Energy released from human body is given by the equation

$$E = \frac{1}{2} CV^2$$

E = Energy in Joules

C = Capacitance of human body = 300 PF = 300 x 10⁻¹² F

V = Voltage generated by human body in volts

| S.No | Max. Capacitance of Human body Faraday | Voltage Generated in "V" | Energy released when grounded "J" | Energy released when grounded "mJ" | Energy released in "mJ" | Our Limits | Remarks |
|------|--|--------------------------|-----------------------------------|------------------------------------|-------------------------|------------|---------------|
| 1 | 300 x 10 ⁻¹² F | 1 | 1.5 x 10 ⁻¹⁰ | 1.5 x 10 ⁻⁷ | 0.00000015 | 0.01 MJ | Safe |
| 2 | 300 x 10 ⁻¹² F | 10 | 1.5 x 10 ⁻⁸ | 1.5 x 10 ⁻⁵ | 0.000015 | 0.01 MJ | Safe |
| 3 | 300 x 10 ⁻¹² F | 100 | 1.5 x 10 ⁻⁶ | 1.5 x 10 ⁻³ | 0.0015 | 0.01 MJ | Safe |
| 4 | 300 x 10 ⁻¹² F | 150 | 3.37 x 10 ⁻⁶ | 3.37 x 10 ⁻³ | 0.0037 | 0.01 MJ | Safe |
| 5 | 300 x 10 ⁻¹² F | 200 | 6.0 x 10 ⁻⁶ | 6.0 x 10 ⁻³ | 0.0060 | 0.01 MJ | Safe |
| 6 | 300 x 10 ⁻¹² F | 250 | 9.37 x 10 ⁻⁶ | 9.37 x 10 ⁻³ | 0.009 | 0.01 MJ | Just Safe |
| 7 | 300 x 10 ⁻¹² F | 260 | 1.0 x 10 ⁻⁵ | 1.0 x 10 ⁻² | 0.01 | 0.01 MJ | Danger starts |

- A human body with capacitance of 300 PF, when generates 260 Volts and then suddenly get grounded can release our energy of 0.01 MJ.
- Safe limit for a human body to be set in the range of 100 Volts.



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| Explosive | Spark Energy mJ | How does it feel |
|---|-----------------|-------------------------|
| Lead Styphnate | 0.01 | Can't feel it |
| Fast Delay Compositions, Red Lead/Silicon, MoS ₂ /KClO ₄ | 0.1 | Can't feel it |
| Ethyl Acetate, Fuse head lacquers | 0.4 – 1.0 | |
| Acetone | 1.5 @ 4.5% | |
| Lead Azide (Dextrinated) Lead Azide (Crystalline) | 3 0.004 | Prickly |
| Lead Picrate | 28 | Muscle starts to twitch |
| Aluminium Flake | 10 | Prickly |
| HMX, PETN, TNT (Fine Dust, Through 100 mesh) | 62 | Muscle twitches |
| HMX, PETN, TNT (Coarse) | 11,000 | Fatal |