



**ZEONICS SYSTECH**  
DEFENCE & AEROSPACE ENGINEERS (P) LTD.



# Discharge Sticks



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## Introduction

Discharge Stick is a safety device used to discharge high voltage capacitors and ensure HV electrical circuits are discharged. The tool consists of a hook attached to the end of an insulated rod. The hook is connected by a length of insulated wire to a suitable ground or earth, often via a suitably valued resistor.

Zeonics Systech manufactures Discharge Sticks both for AC and DC. These discharge sticks are typically sticks which are pre-filled with Epoxy or Polyurethane resin and casing in their resistors as case may be.

The resistors could be either dead short when there is no resistor or maybe 50 Ohms, 100 Ohms, 200 Ohms depending upon the requirement of the discharge stick.

Also it is very important that the discharge sticks are used for DC applications or AC. Generally they are used for DC applications, where stored energy in capacitors is discharged.

Discharge sticks vary in dimensions, there is simple chart provided where you can select a discharge stick.

Typical discharge sticks are meant for stored energies below 1000 Joules and should not be used above 1kJ typical discharges sticks are used for energies around 500 Joules.



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### High Voltage Discharge Stick

1. Working Voltage : 50kV / 100 kV D.C.
2. Peak Current : 100A / 1000A

- 3. Resistance required : 50 / 100 / 1000 Ohms
- 4. Type of Resistor : Non-Inductive, High Energy
- 5. Application : To discharge static energy of a capacitor in a system

Output Voltage	Test Voltage	DC Resistance (Ω)	Length (mm)	Diameter (mm)
25kV	30kV	0	400	35
		50	450	35
		100	450	35
50kV	60kV	0	650	50
		50	700	50
		100	700	50
100kV	120kV	0	950	70
		50	1000	70
		100	1000	70
150kV	170kV	0	1100	70
		50	1200	70
		100	1200	70
200kV	220kV	0	1500	70
		50	1500	70
		200	1500	70



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### Applications

Discharge sticks are used where there is a stored energy in the capacitor after switching OFF the system. Residual energy or residual voltage which is there needs to be discharged before personnel touch the equipment and hence discharge sticks are provided, to ensure the safety of those handling the system.

### Advantages

At Zeonics the discharge sticks normally are manufactured using special kind of interlaced, dual-redundancy wire systems even for resistors, so that there is no danger as such of resistor failing.

There are two types of discharge sticks one where the wire directly goes straight away from the handle inside. For high energy sticks, we recommend initial discharge at the front end itself where only a hollow handle goes and

gets connected, so these type of discharge sticks are either called 'front end' or 'back end' discharge sticks.

Front end discharge stick is where the resistor is directly connected in the tip of the discharge mechanism; back end is where the cable goes out from the discharge stick body itself.

**Contact:**

**Zeonics Systech Defence & Aerospace Engineers Pvt. Ltd.**

**"ADAR" #3, 10th Main, 7th Cross, Maruthinagar, New  
Thippasandra P.O., Bangalore - 560075.**

**Ph: +91 080-50092601, 080-50092602, 080-50092603, 080-  
25241900, 080-25241901, 080-25240523**

**Email: [zeonicssys@gmail.com](mailto:zeonicssys@gmail.com) ; [contact@zeonicssystech.com](mailto:contact@zeonicssystech.com)**

**Web Sites : [www.systechcapacitors.com](http://www.systechcapacitors.com) ; [www.zeonicssystech.com](http://www.zeonicssystech.com)**