



ZEONICS SYSTECH

DEFENCE & AEROSPACE ENGINEERS (P) LTD.



PRODUCT CATALOGUE

“ADAR” No.3, 7th Cross, 10th Main, Maruthinagar, New Thippasandra Post, Bengaluru - 560075.

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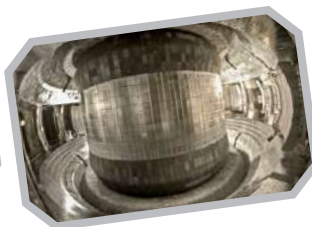
Website : www.zeonicssystech.com / www.systechcapacitors.com

ZEONICS SYSTECH

DEFENCE & AEROSPACE ENGINEERS (P) LTD.

PRODUCT CATALOGUE

**Pioneers in Military Approved, Compact, Ultra Reliable
High Voltage Components, Subassemblies and Systems**



IN SERVICE OF THE NATION SINCE 1981



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ABOUT US

Zeonics Systech Defence & Aerospace Engineers Private Limited was established by Dr Z H Sholapurwala in the year of 1981 with the specific purpose of manufacturing High Voltage components and systems for the Government of India. We started as micro-scale unit mainly to design, develop and manufacture a wide variety of highly specialized equipment and components used for Defence, Atomic Energy and Strategic Applications.

Our unit now has one of the most sophisticated R&D Labs in the country, with state of the art equipment and manufacturing facilities, certified by DSIR - Department of Scientific and Industrial Research. The unit has now grown into macro-scale unit with the capability of handling all critical projects which are used for Radar, Missiles, Weapon systems and also food processing as well as medical technology. We also conduct some original research to aid the Government R&D labs to further their goals.

We manufacture advanced weapon technology systems to enable the armed forces to protect our Motherland. We also manufacture Spark Gaps, Rail Gaps, Pulse Transformers, High value asset protectors, different type of Nuclear Filters and Nuclear Protection Systems. The components manufactured by our unit are cost effective and very reliable. Most military approvals are complete for over 2500 products that have been developed in the past 38 years.

We will continue to strive to provide the best of technologies to help INDIA progress to greater heights.

“MAKE MOTHER INDIA A SUPER POWER!”

APPLICATIONS OF OUR PRODUCTS

A) Defence Systems	H) Lasers –Medical/ Industrial	O) High Power Transmitters
B) Medical Electronics	I) Weapons, Radars, Missiles	P) UWB Radars
C) Fusion And Fission Programmes	J) Railway Rolling Stock	Q) Futuristic Weapons
D) Electron Tube Manufactures	K) Flash X-Rays Generation	R) Power Generation
E) Advanced Weapons	L) Neutron Generation	S) Diamond Industry
F) Explosives And Detonations	M) Electric And Diesel Locomotives	T) Sterilization And Food Industry
G) Z-Ray Generators	N) Nuclear Reactors And Power Plants	U) Particle Accelerators

FACILITES

- 22000 sqft fully equipped laboratory
- In House Testing Facility for most High Voltage Requirements
- R and D Laboratory -8000 sqft + 4000 sqft
- Assembly station -3000 sqft
- Open field laboratory -3,00,000 sqft and 1,10,000 sqft

INTRODUCTION

SOME OF THE NATIONAL and INTERNATIONAL STANDARDS WE FOLLOW

- * MIL – STD – 461 – B – RS– 107
- * MIL –STD – 461G
- * MIL – STD – 188 – 125 – 1
- * C Q A L
- * LCSO (Ministry of Defence) JSS 55555
- * DGQA
- * Atomic Energy Qualifications
- * BEL Qualifications
- * BHEL Qualifications

OUR DIRECTORS

Managing Director – Dr. Z H Sholapurwala

Dr. Z H Sholapurwala has been the founder and pioneer for HV, Pulse Power and Nuclear technologies for India. He is Highly focused in his field and is an asset to the nation. He strongly believes in making India stronger by innovating High end technologies. After supplying to various strategic organisations in India, he has earned a reputation of reliability, quality and perfection. His aim is to make mother India strong and self-reliant in technologies unavailable in our country.

Commercial Director – Farzin Sholapurwala

After completing her BSc, Farzin Sholapurwala joined Zeonics Systech in 1991. She manages the accounts, finances and ensures the smooth running of the office. Her dedication has helped grow the company well.

Additional Director – Roshni Sholapurwala

After completing her Electrical Engineering from Stanford University, she has joined Zeonics Systech in 2016. Her goal is to increase the awareness of high end technologies in various other sectors like education, medicine, etc. She concentrates on exports and standardization. Her mission is to expand our technology and bring growth to every individual/organisation Zeonics Systech deals with.

Additional Director – Dinaz Sholapurwala

Dinaz Sholapurwala is an Electronics and Communication Engineer. She works with the technical and production teams. She strongly believes that simplicity in engineering is the best innovation. She wishes to drive Zeonics Systech to greater heights and provide better and better technology to the World.

INTRODUCTION

We at Zeonics Systech Defence and Aerospace Engineers have always been involved in several projects of national importance and in the past have designed, developed, manufactured and supplied projects/systems/components to many projects of national importance. Missiles, Radars, Weapons all being successful and used today to protect and guard our mother land "INDIA"

We have also diversified into Futuristic Electromagnetic Weapon systems, fast rise time Impulse Generators which are used for specialized weapons testing, etc. Many of our products qualify for the more rigorous environmental specifications as follows.

ENVIRONMENTAL SPECS FOR MILITARY GRADE EQUIPMENTS/COMPONENTS/SUB SYSTEMS:

	PARAMETER	GENERAL SPECS	SPECIAL SPECS
1)	Temperature Storage	-20°C TO 65°C	-30°C TO 85°C
2)	Temperature Working	-10°C TO 55°C	-20°C to 85°C
3)	Altitude	Typically 3000 m	Maximum 10 km
4)	Shock	Typically 5G to 50G	Maximum 100 G
5)	Vibration	0.02g ² /Hz from 10-60 Hz or 60-100Hz	(As per customer request)
6)	Humidity 95% RH At 40°C	-40°C to + 65°C	(As per customer request)
7)	Temperature Cycling	5 cycles	(As per customer request)
8)	Corrosion atmosphere	5% salt spray for 48 hours	(As per customer requirement)

Notice: (for export only)

For purchasing our products please get clearance from your respective governments to avoid any import ban on your side.

Please contact our sales department for further information.

SOME OF OUR VALUED CUSTOMERS

- Indian Air Force
- Indian Army
- Indian Navy
- BARC
(Bhabha Atomic Research Centre), Mumbai
- C.E.E.R.I
(Central Electronics Engg. Research Institute), Pilani.
- RRCAT
(Raja Ramanna Centre for Advanced Technology), Indore.
- BHEL (Bharat Heavy Electrical Limited)
Bangalore, Haridwar, Bhopal.
- BEL (Bharat Electronics Limited)
Bangalore, Ghaziabad, Pune.
- NTPC (National Thermal Power Corporation)
- NPC (Nuclear Power Corporation).
- LRDE
(Electronics and Radar Development Establishment)
- ADE (Aeronautical Development Establishment)
- GTRE (Gas Turbine Research Establishment).
- TBRL (Terminal Ballistics Research Laboratory).
- DRDL (Defence Research and Development Laboratory)
- DLRL (Defence Electrical Research Laboratory)
- DEAL (Defence Electronics Application Laboratory)
- IOF (Indian Ordnance Factories)
- Advance Base Workshops
- ARDE
(Armament Research and Development Establishment).
- CPRI
(Central Power Research Institute) – Bangalore, Hyderabad
- DMRL (Defence Metallurgical Research Laboratory).
- Diesel Loco Sheds
- Variable Energy Cyclotron Centre
- Indian Rare Earths Limited
- IAEA
- S.A.M.E.E.R
(Society for Applied Microwave Electronics Engg. and Research)
- Devi Aleholi University, Indore
- IGCAR (India Gandhi Centre for Atomic Research), Kalpakkam.
- Saha Institute of Nuclear Physics
- IPR (Institute for Plasma Research), Gandhinagar.
- Indian Railways
- Lawrence Livermore Labs
- Los Alamos Labs
- Gull Group, University of Michigan
- General Electric Aerospace
- General Electric Medicals
- General Atomics
- Princeton University
- MTRDC
(Microwave Tube Research and Development Centre).
- Naval Bases and Air Force Units
- Beverly Hills III Associates
- Farr Research Corporation
- Larsen and Toubro (L&T)
- Nuclear Fuel Complex (NFC)
- DARE (Defence Avionics Research Laboratory).
- Telecommunication Italia – ITALY
- Tele Communication Research Institute (PIT) – Poland
- DSO National Laboratories – SINGAPORE
- Fischer and Tausche Capacitors – GERMANY
- Armstrong Transmitters – USA
- Transtech Melbourne Inc. – AUSTRALIA
- TEC – Institute fur Technische – GERMANY
- T. M. S. Limited Sti – TURKEY
- I. I. T. (Indian Institute of Technology)
Chennai, Bombay, Kharagpur, Roorke
- N. I. T (National Institute of Technology)– Surathkal
- ISRO - ISTRAC, SAC, Shri Hari Kota
- Aselsan

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STANDARD CABLES AVAILABLE

Sl No	Voltage	Current	Diameter	Colour
1	2kV	6A	6.5mm	White
2	6kV	2A	3.5mm	White
3	6kV	2A	3.5mm	Blue
4	6kV	2A	3.5mm	Orange
5	6kV	2A	3.5mm	Grey
6	10kV	5A	4.0mm	Light grey
7	15kV	2A	4.0mm	White
8	20kV	5A	5.5mm	White
9	25kV	10A	11mm	White
10	25kV	30A	29mm	Red
11	30kV	3A	5.0mm	White
12	30kV	6A	7.5mm	Blue
13	30kV	3A	6.5mm	White
14	35kV	2A	5.6mm	White
15	40kV	0.5A	6.0mm	White
16	40kV	8A	6.0mm	Light Grey
17	40kV	15A	6.5mm	White
18	40kv	3A	7.0mm	White
19	40kV	6A	7.5mm	White
20	40kV	10A	8.0mm	Blue
21	40kV	15A	9.5mm	Red
22	40kV	10A	9.0mm	Red
23	40kV	10A	9.0mm	Yellow
24	40kV	10A	9.0mm	Red
25	50kV	10A	9.5mm	White
26	50kV	20A	11.0mm	Black and white
27	50kV	20A	12.0mm	Black and White
28	50kV	20A	10.5mm	Black and White

Cables

Sl No	Voltage	Current	Diameter	Colour
29	60kV	10A	10.8mm	Black and White
30	60kV	3A	10.0mm	Red
31	60kV	70A	18.5mm	White
32	60kV	20A	11.0mm	Black and White
33	60kV	15A	11.0mm	Black and White
34	70kV	10A	11.0mm	White and Black
35	70kV	20A	12.5mm	Black and white
36	70kV	20A	11.0mm	Black and white
37	80kV	25A	17.0mm	White and Black
38	80kV	40A	18.0mm	White
39	80kV	30A	16.0mm	White
40	80kV	30A	16.0mm	White and Black
41	80kV	20A	16.5mm	White
42	80kV	30A	18.0mm	White
43	90kV	2A	14.0mm	White
44	90kV	25A	17.0mm	Black and White
45	90kV	5A	19.5mm	Red
46	100kV	1A	16.0mm	White
47	100kV	30A	16.0mm	Black and white
48	100kV	25A	22.5mm	Red and white
49	100kV	22A	16.0mm	Black and White
50	100kV	1A	16.0mm	White
51	120kV	50A	19.5mm	Red
52	133kV	0.27A	17.5mm	White
53	200kV	65A	34.5mm	White and Black
54	200kV	25A	24.0mm	White
55	200kV	50A	24.5mm	Red

Please Mention Your Actual Requirement and We can design the cable for the same

Capacitors

1. High Voltage General Purpose Capacitors

Operating Voltage : 2kV to 200kV AC or 1kV to 400kV DC

Capacitance : 100pF to 100μF

Application : Filter, THD, Traction, RF, By pass

Please enquire for your actual requirement



2. HV HF 100pF – 500nF Low Loss Capacitors



Item : High Voltage Capacitors

Capacitance : 100pF ± 10% to 500nF ± 10%

Dielectric : Teflon, Polyamides, PP, Mica

Voltage Range : 1kV to 25kVDC

Type No. : S/18/7

3. HV RF 300pF - 10000pF Capacitors

Capacitance : 300pF to 10000pF

rms current : Continuous current typically 100A to 900A

Typical Frequency : 100 MHz

Typical Inductance : 100nH

Temperature : -20°C to +120°C

Application : For high power sources, Magnetron, Thyatron, Gyatron and similar applications where large current radio frequency capacitors are essential.

Type No. : S/15/95 (897)



4. Various PFN Capacitors



Working Voltage : 40kV DC

Capacitance Value : Customisation available

Max peak current : 100 Amperes

Temperature : -30°C to +120°C

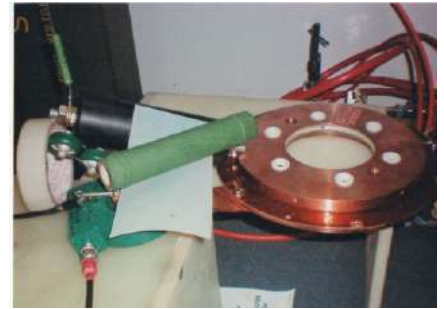
Application : varied PFN based systems

Type No. : S/14/54, S/16/118, S/17/140, S/17/151

Capacitors

5. Flat RF 100pF – 600pF Capacitor

Max Working voltage : 5kV DC
Typical Capacitance : 100pF to 600pF
Typical rms Current : 50A to 130A at 100 MHz
Type No. : Z/RF/100-600/AMJI



6. Rolling Stock Railway Capacitors 0.6μF - 8000μF



Working voltage : 600V to 22kV AC and DC
Capacitance : 0.6μF to 8000μF
Temperature : -20°C to +85°C
Varieties : We provide over 800 custom built capacitors
rms Current : 5A to maximum of 1300A
Type No. : S/15/22

7. HV High Energy Rolling Stock Capacitor 500μF-5000μF

Operating Voltage : 600V/800V/1300V/2200V DC
Capacitance : 500μF/800μF/1200μF/2200μF/5000μF
rms Current : Typically 250A to 1800A typical repetitive
Peak Current : 5kA to 20kA
Applications : Rolling Stock Railways
Type No. : S/13/40



8. UHV Multiplier Capacitors 100nF - 500nF



Voltages : 150kV DC/200kV DC/250kV DC/200kV AC
Capacitance : 100nF /200nF /300nF /400nF /500nF
Tolerance : ±10%
Dielectric : Metal film foil, Metallized foil, Paper oil
Dimension of : Dia = 450-600mm; H = 1000-1500mm
Type No. : S/16/64 (968)

Capacitors

9. HV DC Filter Capacitors 10kV - 50kV DC

Working voltage : 10/18/25/30/50kV DC
Capacitance : different values available
Type : Metal film foil oil-filled type
Container : Metal/Fiberglass/SS/Polypropylene
Type No. : S/16/70



10. HV Energy Storage Capacitors 10-40kV DC



Working voltage : 10kV /20kV /30kV /40kV DC
Test Voltage : 11kV /22kV /33kV /44kV DC
Capacitance : 5 μ F/10 μ F/14.5 μ F
Tolerance : $\pm 10\%$
Peak current : 100kA
Type No : S/14/66

11. HV Capacitor Module 0.5 μ F - 10 μ F for Missiles, Radars and Submarines

Capacitance : 0.5 μ F to 10 μ F
Working voltage : 50kV DC
Test voltage : 70kV DC (1 minute)
Application : Radar TWT, missiles, submarines and
Energization for Power Modulators
Type No. : S/15/104, S/15/105



12. Low Inductance Coaxial HV Capacitor 40nF-250nF



Working voltage : various working voltage options available
Capacitance value : 40nF/100nF/250nF
Peak current : 10kA
Type : Coaxial capacitor
Enclosure : Mild steel / Stainless Steel
Insulation : Ceramic Polymer material
Type No. : S/16/50 (931)

Capacitors

13. HV Cylindrical Capacitor 600pF – 2000pF for Fast Charging and Discharging

Working voltage : 30 kV DC
Capacitance : 600pF – 2000pF \pm 10%
Test Voltage : 36 kV DC
Application : For fast charging and discharging
Type No. : S/16/6 (924)



14. HV Low Inductance Feed through 50nF–50μF



Current : 100A, 200A, 300A, 500A, 800A, 1000A
Capacitance : 50nF, 100nF, 250nF, 500nF, 2μF
Voltage : 1kV/2kV/3kV/4kV DC/5kV/10kV
Type No : S/19/99, S/19/64

15. HV Low Pressure Feed through Vacuum Capacitor

Working Voltage : 50kV to 70kV
Max Current : 10A rms and 60kA Peak
Max Pressure Vacuum : Typically 10-3 Vacuum 1Millibar or 250 psi
Material : Stainless Steel + Ceramic
Temperature : -30°C to 100°C
Type : Polymer Stainless steel
Type No. : ZHS/001/068



16. Capacitor Bridge Wire Module



Input voltage : 3kV DC
Input command : 300 Voltage Trigger Pulse
Application : Detonation of bridge wire, squibs, detonation setc.
Layout : The module consists of a slapper capacitor, slapper flat ordnance, spark gap trigger mechanism
Energy : 50nF/100nF/250nF at 5kV/10kV
Type No. : ZHS/001/101

Capacitors

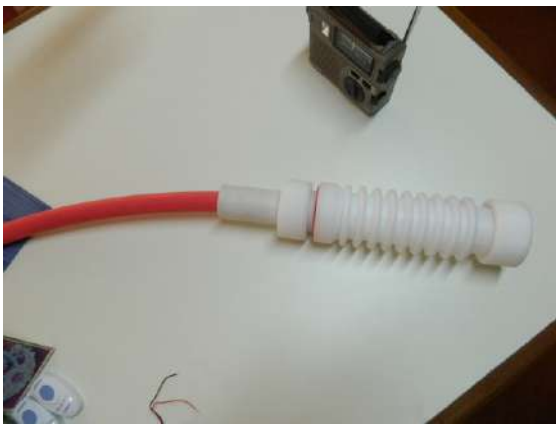
17. High Rep Rate 10nF-500nF Energy Storage Capacitor

Capacitance : 10nF to 500nF
Working Voltage : 50kV, 60kV, 80kV, 100kV
Test Voltage : 60kV, 70kV, 90kV, 110kV
PRR : Max 100pps at 0.8kA, Max 5pps at 5.0kA
Type No : S/19/62 (Compact)



Connectors

1. HV 180kV DC Connector and Cable



Working voltage : 150kV / 180kV / 220kV / 350kV / 500kV DC
Peak current : 10kA
Max current : 50 Amps continuous
Pulse Power : 9GW
Connection : Single pin
Cable : Silicone cable
Type : Metal mountable (Panel type)
Type No. : ZHS/01/50

2. High Voltage Gas Mountable Connector

Max Voltage : 60kV DC
Working Voltage : 50kV DC
Current : 10A continuous
No. of ports : 1/2/3
Pressure : 25psi, 50psi, 100psi
Gas : N₂, SF₆, Argon, Air
Type No. : Z/34/167



3. High Voltage DC + Pulse Connector



Max Voltage : 40kV DC + Pulse voltage 30kV pulse
Max DC Isolation : 60kV DC
Pressure : 25psi, 50psi, 100psi
Gas : N₂, SF₆, Argon, Air
Type No. : Z/34/166

Connectors

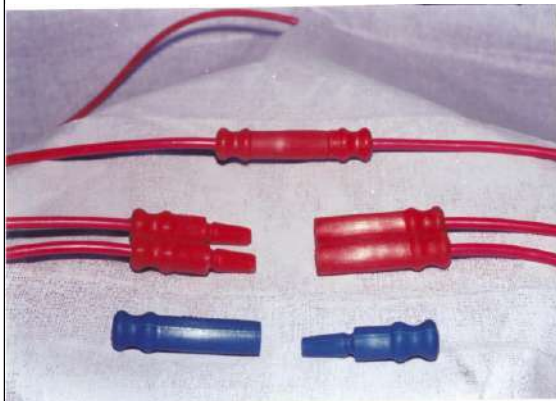
4. High Voltage Connectors

The connector comes with a high voltage cable on the male part of 2m length and a 1m cable on the female part, the female connector is fixed on a Non-metallic panel surface and the male plug has a Solid HV cable vacuum moulded in the connector.

Type : HVC – 100/150/200
Working voltage : 80kV DC
Current : 20 Amps or as per requirement
Test voltage : 100kV DC / 50kV AC
Diameter : 50mm
Length : 250mm
Type No. : ZHS/001/071



5. High Voltage Inline Connectors



The connector comes Soldered and moulded with silicone wires in 25kV DC wire with 2 meters length.
Working voltage : 20kV DC, 25kV DC
Operating current : Typically 10A continuous, 1kA Pulsed current.
Material : Silicone sizes 001, 002, 003, 004
Type : Connector inline to join two HV wires in air
Types Available : Single pin, double pin, Four in one
Type No. : ZHS/001/072

6. High Voltage 150kV Distribution Connector

Max Current : 25A (rms)
Peak Current : 10kA
Connectors used : HVC – 100, HVC – 150
Max cable diameter : 19mm
Temperature : 20°C to +85°C
Type No. : Z/29/37



7. High Voltage Miniature Connector Air Borne



Working Voltage : 3kV/5kV/10kV DC
Test Voltage : 5kV/10kV/20kV DC
Current : 1A/3A/5A
No of ways : 5, 8, 10, 12
Type No. : Z/41/82

Connectors

8. High Voltage Multi-pin Connectors

Voltage : 40kV/60kV/100kV/150kV DC
Current : 20A/40A/60A
Peak Current : 2kA/5kA/10kA
Pins : Brass gold plated
Type No. : Z/29/154



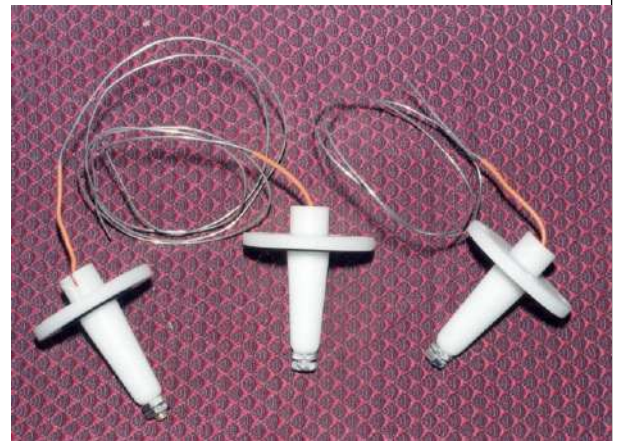
9. Inline HV Distribution Blocks



Working Voltage : 20kV/ 30kV /40kV/ 60kV / 80kV / 100kV DC
Current : 2A/5A/20A
No of Ways : 6, 8, 12, 22
Type No. : Z/36/31

10. HV Feedthrough Terminal Connector

Working Voltage : 5kV to 150kV DC
Max Current : 30A
Temperature : -20°C to +100°C
Type : Polymer Material Type
Termination : All metric threads Available
Application : To Extract High Voltage from Metal Surface
Max pressure : 100psi in oil or SF₆
Type No. : ZHS/001/069



Diode

1. General Purpose High Voltage Diodes



PIV : 10kV – 100kV
Forward current : 250μA to 100A
Type No. : depends on the PIV and I_f
Please mention the PIV and forward current requirement.

Diode

2. HV Oil Immersed Diode Assemblies

Forward current : 1000A / 2000A continuous
Peak Current : 50kA/100kA for 20ms maximum
PIV : 6kV / 10kV/ 30kV/ 50kV DC
Type No. : Z/33/220



3. HV Oil Filled Compact Diode



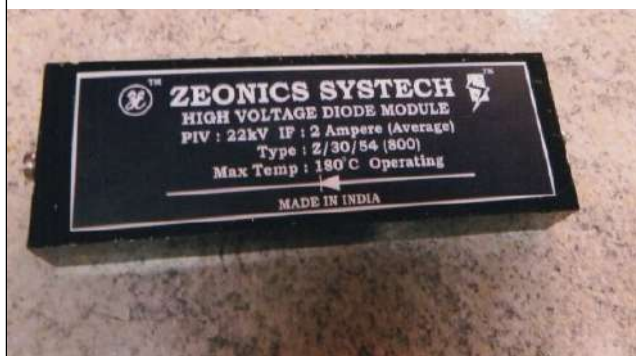
PIV : 100kV
Forward Current : 10mA
Frequency : Good for 50Hz / 60Hz and also HF Versions available
Temperature : -20°C to +85°C
Fast Reverse Recovery Options available

4. 50kV PIV Diode

PIV : 50kV
Forward Current : 500mA / 750mA / 1000mA
Non Repetitive I_f : 3.5A / 7.0A / 15.0A
Dimension : 150mm x 25mm x 25mm
Temperature : -30°C to 100°C
Type No. : Z/19/119



5. 22kV Oil Immersed Diode



PIV : 22kV
Forward Current : 2A
Non Repetitive I_f : 50A
Temperature : -30°C to +180°C
Type : Z/30/54

Diode

6. HV Diode Sticks

PIV : Typically 150kV to 400kV
Forward Current : Typically 10mA to 100mA
Non repetitive I_F : 1A to 5A
Application : Industrial X-Ray Systems, Impulse Generators,
Nuclear Particle Accelerator
Type No. : Z/28/71 (778)



7. 24kV PIV Diode



PIV : 24kV
Typical I_F : 1.8Amps
Non Repetitive I_F : 20Amps
Temperature : -20°C to +100°C
Type No. : Z/Diode/24/1.8

8. 140kV PIV Diode

PIV : 140kV
Forward Current : 10mA
Medium : Oil, Gas or Compressed Air.
Type No. : Z/Diode/140/10



9. Very High Voltage 400kV Ring Diode



PIV : 400kV
Forward Current : 50mA/100mA/250mA/500mA
Type No. : Z/27/151 (768)

Diode

10. HV Oil Immersed Modular Diode

PIV : 15kV / 30kV / 35kV / 80kV
Forward Current : 100mA / 200mA / 500mA / 800mA / 2A
Type No. : Z/40/50, Z/39/22



11. High Voltage High Current Shunts



Resistance : 0.05m Ω / 1m Ω / 5m Ω / 10m Ω
Current : 1kA / 10kA / 100kA
Rise Time : 1 μ s minimum
Type : Coaxial
Type No. : Z/25/115 (672)

Divider

1. High Voltage 60kV Pulse Compensated Divider

Voltage : 60kV Pulse
Capacitance : 12pF approx.
Ratio : 1000:1 or 10,000:1
Type No. : Z/43/136



2. High Voltage 125kV Resistive Divider



Working Voltage : 125kV DC
Continuous Power : 7.8 W
Resistance : 2000 M Ω \pm 5%
Ratio : 1000:1 and 10000:1
Type : Z/34/98

Divider

3. High Voltage 150kV Capacitive Divider

Max Voltage : 150kV
Loading Capacitance : 20pF
Rise time : up to 100 ns
Ratio : 10000:1 or 1000:1
Cable : 50 Ohms matching impedance cable with BNC output
Type No. : Z/32/8



4. High Voltage AC/DC Divider



Working Voltage : 400kV AC
Capacitance : 1000pF $\pm 5\%$
Test Voltage : 600kV
Type No. : Z/41/138

5. High Voltage Divider Column

Capacitive Value : 500pF/1000pF/2000pF
Working Voltage : 250kV/500kV/1000kV
Type No. : S/16/110



6. Highly Compact Air Borne Probe



Working Voltage : 50kV DC $\pm 1\%$
Test Voltage : 60kV DC $\pm 1\%$
Type : Measurement and Interlock
Output : 50V at 50kV DC
Ratio : 1000:1
Type No : Z/22/91

Divider

7. High Voltage Fluke Probe Conversion Kit

Input : 40kV DC or 28kV AC
Display : Meter (Multimeter)
Accuracy : $\pm 2\%$
Test Voltage : 40kV DC T- B
Type No. : Z/42/118



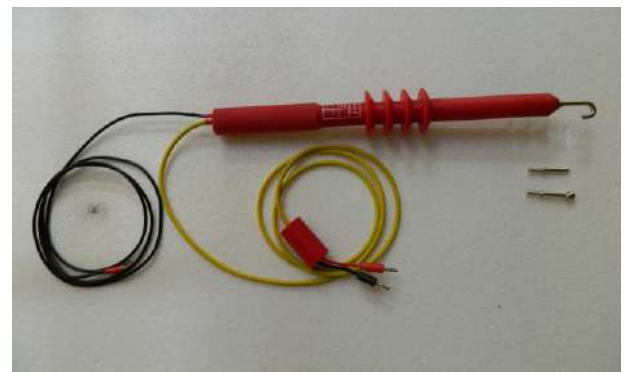
8. High Voltage AC/DC Probe



Input : 50kV AC / 50kV DC
Output : 50V AC / 50V DC
Duty : 100% on duty
Life : 50,000 hours continuous duty
Type No. : Z/29/160

9. High Voltage Metering Probe

DC Measurement : 40kV DC
AC Measurement : 28kV AC max
Ratio : 1000:1
Suitable Meter : 10 M Ω input impedance Meter to be used
Type : ROSHDIN/40/28



10. General AC/DC Probe



Working Voltage : 50kV /60kV /100kV DC
Test Voltage : 60kV /80kV /120kV DC
Ratio : 1000:1
Altitude : 50km
Type No. : Z/29/50, Z/W/B/6-90 (WLR/FLR/TLR)

Divider

11. Lightning High Voltage 800kV Impulse Divider

Max Voltage : 800kV impulse
Typical rise time : 1.2 μ s/50 μ s or 8.0 μ s/20 μ s
Duty : Continuous
Type No. : S/19/76



12. High Voltage 150kV Compensated Divider



Working Voltage : 150kV DC/225kV Pulse
Ratio : 10,000:1
Composition : R and C Type P
max frequency : 10MHz
Height : 750mm
Diameter : 290mm
Capacitance : 27pF
Base Diameter : 30cms approximate
Standard Divider Ratio : 10000:1
Type No : Z/34/01

13. High Voltage 200kV Compensated Divider

Working Voltage : 200kV DC
Ratio : 1000:1 or 10,000:1
HT Resistance : 2000M Ω \pm 2%
Capacitance : 6pF \pm 2%
Type No : Z/43/140



EMP / NEMP / HEMP Products

1. Pulse Current Injection System for NEMP Testing



Voltage : 60kV
Peak Current : 1.2kA
Zo : 60 Ohms
Rise Time : 20ns \pm 10%
Pulse Width : 550ns \pm 10%
Standards : MIL-STD-188-125-1
Type No : Z/43/111

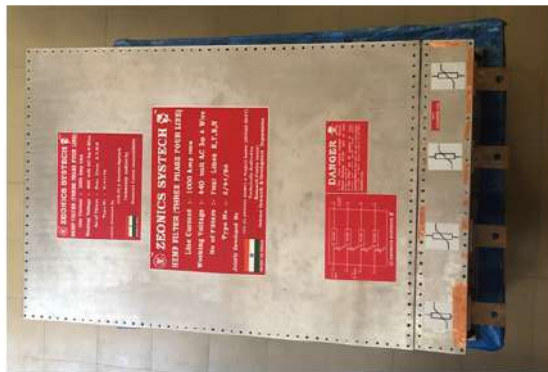
EMP / NEMP / HEMP Products

2. NEMP Filter for HEMP Application Single Line

Input : 1 ϕ and 3 ϕ System
Current : 5A to 800A
Duty : Continuous
Type No. : Z/43/28



3. NEMP Filters for HEMP Applications 4 Line



Rms Current : 400A/600A/800A/1000A/1500A/2000A
Phases : Options for Single phase or 3 phase
Complying with : MIL-STD-188-125-1

4. EMP 180kV Pulse Gun Source

Input : 230V, 50 Hz, 1 Phase
Output : 180kV output pulse
Rise Time : ≤ 3.0 ns
Construction : 180kV, Marx Generator
Type No. : Z/37/10



5. High Rep Rate EMP Pulser



Input Voltage : 230 V, 50Hz (Mobile version 24V DC)
Output Voltage : 100kV Pulses
Rise Time : ≈ 2.2 to 2.8 ns
PRR : 50pps
Configuration : Mobile
Antenna : Flat Transmission Line 100 Ω
Type No. : ZHS/01/53

EMP / NEMP / HEMP Products

6. High Voltage Pulse Gun EMP- 400

Working Voltage : 40kV DC
Peak Current : 30kA
Energy : 400 Joules
Rise time : $\leq 50\text{ns}$
Pulse Energy : 1.2 GW
Configuration : Mobile
Switch : Gas filled Trigatron
Type No. : Z/34/94



7. High Voltage EMP Hand Held System

Input Voltage : ON Board 36V Batteries
Output Voltage : Pulse of 40kV
Pulse Current : $\approx 30\text{kA}$
Rise time : Typically $10\mu\text{s}$
Application : Generation of 40kV pulses on the system
Pulse component : Yes, available with a peaking gap
Type No. : Z/34/94



8. EMP Blaster Gun MK – II



Input Voltage : 230 V, 50Hz (Mobile version 24V DC)
Output Voltage : 100kV Pulses
Rise Time : ≈ 2.2 to 2.8ns
PRR : 50pps
Configuration : Mobile
Antenna : Customer based
Type No. : ZHS/01/53

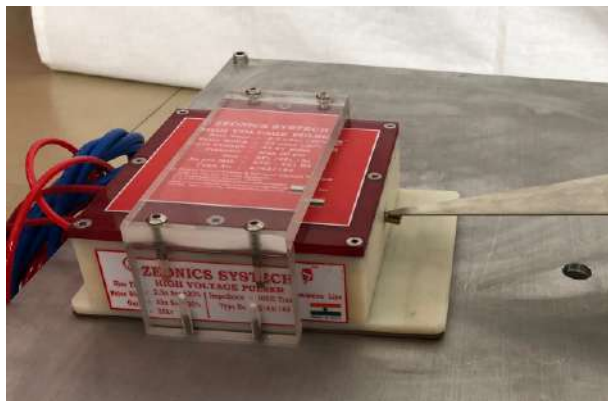
9. EMP Simulator

Voltage : 25kV Pulser
Rise Time : $2.3\text{ns} \pm 20\%$
Power : $23\text{ns} \pm 5\text{ns}$
Complying with : MIL-STD-461-B-RS-107
Repetition rate : Max 5pps
Field strength : $\geq 50\text{kV/meter}$
Dimension of object : 70mm x 70mm x 70mm (or) 70mm x 220mm x 35mm
Type No : Z/31/126, Z/39/142



EMP / NEMP / HEMP Products

10. EMP Launcher Module



Voltage : 25kV/50kV/Output
Rise Time : 2.3ns \pm 20%
Pulse Width : 23ns \pm 20%
Complying with : MIL-STD-461-B-RS-107
Dimension : 250 x 250 x 750mm
Type No. : Z/43/142

Load Bank

1. High Power Crowbar Resistor Bank

Resistance Value : 1k Ω 8 Nos. in parallel
max Energy : 50kJ, 5 Minutes cooling 5pps
Application : As a crowbar Resistor for a 1 MW Klystron facility
Weight : Assembled 190kgs
Type : Non Inductive
Type No. : ZHS/01/50



2. High Voltage Resistive Load Bank



Resistors : Non Inductive / Wire Wound
Section : Cathode and Collector
Auxiliary Power : 230 V, 50Hz, 1 Phase
Voltage : 15kV DC Operation
Minimum Power : 1kW
Maximum Power : 100 kW
Temperature : -20°C to +100°C
Application : Testing of Radar HV Power Supply without RF Load
Type No. : Z/27/60

3. High Voltage Forced Air Cooled Load Bank

Working Voltage : 50kV DC to 120kV DC
Isolation Voltage : 75kV DC to 190kV DC
Power : 10kW to 30kW
Application : Testing of DC Power Supply with variable taps.
Type No. : Z/25/111 (632)



Load Bank

4. High Voltage DC Load Bank



Working Voltage : 45kV DC to 65kV DC
Power : 18kW
Resistor Distribution : Odd + Even
Duty : Continuous military duty
Weight : 190kgs
Type No. : Z/32/86

5. High Voltage Compact Load Bank - 1

Working Voltage : 15kV to 25kV DC
Power : 1.0kW to 24.0kW
Resistors : Non Inductive, Glass passivated
Application : Testing of TWT Power Supply
Type No. : Z/36/50



6. High Voltage Compact Load Bank - 2



Voltage : 10kV/25kV DC
Current : 0.2A/0.5A/1.0A
Power : 1kVA to 15kVA
Type : Non-Inductive Resistor
Type No. : Z/35/60

7. Portable Compact Load Bank

Working Voltage : 5kV DC to 60kV DC
Resistance Range : 0 to MΩ ranges possible
Power : Max 5000W
Type No. : Z/35/62



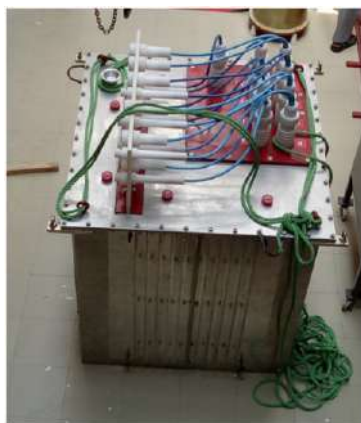
Load Bank

8. High Voltage Tandem Load

Working voltage : 100kV DC / 300kV DC
Current : 1-10mA
Test voltage : 110kV DC / 330kV DC
Power : 100 – 1000 W
Application : Series / Parallel Connection
Type No. : Z/40/64



9. High Voltage Industrial Load Bank



Power : 150kW, 200kW, 300kW
Voltage : 150kV DC / 200kV DC
Duty : Continuous System
Cooling : Duty Continuous
Container : Metal force cooled
Type No. : Z/37/88

Marx Generator

1. High Voltage Cold Plasma Source

Input Voltage : 230V 50Hz 1 Ø
Output Voltage : 40kV/20kV HF System
Plasma Torch : Ø of 15mm, Length of 250mm
Power : 1600W
Type No. : Z/42/28



2. Impulse Generator (Marx) With Wave Shaping System



Output : 200kV pulse
Open circuit : 200kV output, 20 Joules
PRR : max 5ppm
Rise time : $1.2\mu\text{s} \pm 20\%$
Pulse Width : $50\mu\text{s} \pm 20\%$
Operating Pressure : 20psi air max
Weight : $\approx 45\text{kgs}$
Type No. : Z/34/139

Marx Generator

3. High Voltage 700kV Output Marx Insert

Input : 50kV DC \pm 5%
Output : 700kV Pulse
Peak Current : max 14kA
PRR : max 1ppm
No. of Stages : 14
Type : Retrofit
Dimensions : Diameter-580mm; Length-1800mm
Type No. : Z/33/44



4. High Voltage Marx Generator 500kV (2kJ)



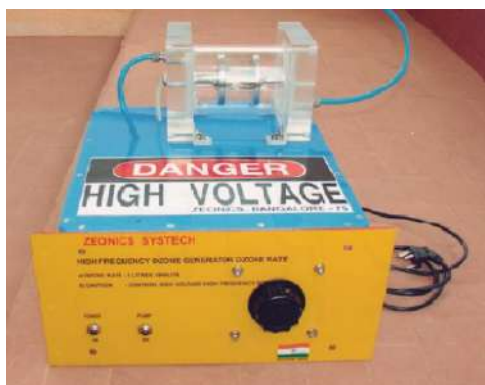
Input : 230 V, 50 Hz, 1 Phase
Output : 500kV Pulse
Energy : 1 kJ / 2 kJ
PRR : max 5 ppm
Rise time : \approx 140ns
Type No. : Z/28/19

5. High Voltage, Low Inductance Marx Generator

Output Voltage : 1000kV
Erected capacitance : 200pF
max rise time : 130ns
Typical diameter : 580mm
Typical length : 2.1 m
Max Pulse Rep Rate : per second
Minimum load : 50 Ohms be connected
Pressure : N₂ around 30-50psi
Type No. : Z/20/123 ; S/14/77



6. High Frequency Ozone Generator



Input voltage : 230V, 50Hz, single phase
Output voltage : 15 to 20kV at 20 kHz
Output Ozone : 6 Litres/Minute (At full power)
Type No. : ZHS/01/22; ZHS/001/099

Miscellaneous Generator

7. High Voltage High Energy Nano Particle Generator

Working voltage : 25kV DC to 40kV DC
Energy : 2.5kJ
Max wire : diameter - 0.36mm; length - 300mm
Application : Generation of metal nano particles in a Confined space
Type No. : ZHS/001/098



8. HV HF Inverter for Plasma Generator



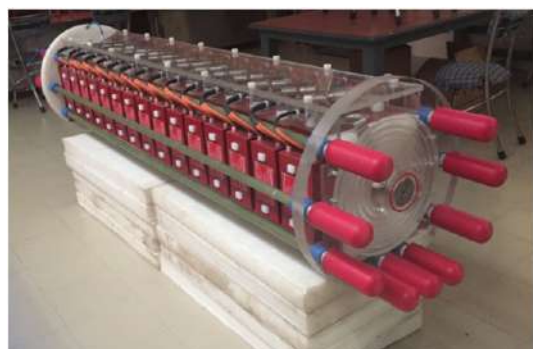
Input : 230V 50Hz 1Ø
Output : 20kV AC rms at 20kHz
Power : 1000W
Type No. : Z/42/28

9. High Voltage HF Plasma Generator

Input Voltage : 230V 50Hz 1Ø
Output : 40kV AC 20kHz Plasma System
Plasma Torches : 5 Plasma Torches can be attached
Type No. : Z/42/28, Z/42/64



10. High Energy High Voltage Marx Inserts



Output Voltage : 500kV/800kV/1000kV/1500kV
Current : 10kA to 40kA
Impedance : $\approx 10\Omega$ to 30Ω Range
Type No. : Z/35/82 (Y-1208)

Power Supply

1. Low Cost Trigger Generator

Input Voltage : 230V 50Hz 1Ø
Output Voltage : 500V pulse
Command : Manual + 10V Pulse
Type : Z/33/146



2. High Voltage 500kV Portable Power Supply



Input : 440V, 50Hz 3Ø
Output : 0 to 500kV DC at 1mA, 5mA, 10mA
Duty : Continuous Duty
Power : 500W, 1000W, 2500W, 5000W
Type No. : Z/40/52, Z/40/65

3. High Voltage 100kV Power Supply

Output : 0 to 100kV DC at 1mA
Power : 100W
Duty : Continuous
Applications : Poling, Electrospinning, Lasers,
Weapon Systems, Marx Generators
Type No. : Z/33/200



4. High Voltage 150kV DC Power Supply



Input : 230 V, 50Hz, 1 Phase
Output : 0 to 150 kV DC at 700µA
Polarity : Optional + ve or -ve Output
Duty : Continuous Operation
Applications : Electrophoresis, Poling, Electrospinning,
Ion acceleration, Nuclear Science, X - Ray
Type No. : Z/33/200, Z/33/204

Power Supply

5. High Voltage Electrosinning Power Supply

Input Voltage : 230V 50Hz AC/ 110V 50Hz AC
Output Voltage : 0 to 40kV DC at 50 μ A
Controls : Speed and Voltage control
Indication : Analog meter/ Digital meter for voltage
Temperature : -20°C to +85°C
Type No. : ZHS/001/080



6. High Voltage 0 to 60kV DC/30mA Power Supply



Input Voltage : 230 V 50Hz 1 ϕ
Output Voltage : 0 to 60kV DC
Current : 30mA or 60mA
Ripple : 2% maximum
Regulation : \pm 5%
Duty : Continuous
Type No. : Z/34/32

7. Variable High Voltage DC Power Supply

Input Voltage : 230 V, 50Hz, Single Phase
Output Voltage : 25kV to 60kV DC
Power : 500VA to 5000VA
Type : 50Hz Transformer + Resistor + Capacitor
Type No. : ZHS/01/33



8. High Voltage Insulated Rack for 150kV DC Power Supply



The entire rack is isolated to take a floating HV power supply of 150kV DC
Type No. : ZHS/001/078

Power Supply

9. High Voltage 50kV DC 2mA Power Supply

Input Voltage : 230 V, 50Hz, 1 Phase
Output Voltage : 0 to 50kV DC
Output Current : 2mA max
Type : Pneumatic switch variant HV ON/OFF in ON Condition
Type No. : Z/34/194



10. High Voltage 10-30kW Power Supply



Input Voltage : 230 V, 50Hz or 400V single phase
Output Voltage : 10kV DC / 20kV DC / 30kV DC
Output Current : 1.0 Ampere
Power : 10kW, 20kW, 30kW
Protection : Over voltage, Over load, Over current, Zero start Protection
Ripple : $\pm 7\%$ on full load
Type No. : ZHS/01/27

11. High Voltage 250kV DC Power Supply

Input : 230 V, 50Hz, 1 Phase
Output : 0 to 250kV DC at 1mA maximum
Configuration : HV / HF + Multiplier
Duty : Continuous at 70% of output voltage
Type No. : Z/32/174 (881); S/17/76



12. High Voltage 60-100kV DC Power Supply



Input : 230 V, 50Hz, Single phase
Output : 0 – 60kV DC, maximum 3mA / 1mA
 0 – 100kV DC, maximum 3mA / 10mA
Display : Digital Voltage display or Current Analog display
Protection : a. Short circuit b. Over voltage c. Over current trip
Type No. : Z/25/6

Power Supply

13. High Voltage Slim Power Supply

Input : ON Board Batteries
Output : 30kV DC at 5mA
Power : 150 W
Type No. : Z/35/44



14. High Voltage Vac Ion Power Supply



Input : 230V, 50Hz, Single Phase
Output : 3.0kV DC/5.0kV DC
Current : Max 2mA output
Power : 3 W / 5 W
Type No. : ZHS/01/21

15. High Voltage 20/40kV DC Power Supply

Input : 230V, 50Hz, Single phase
Output : 0 to 20kV DC or 0 to 40kV DC
Current : 10mA and 250mA; 0.5mA to 5A Version
Type No. : Z/29/04 (822)



16. Multi Output High Voltage and Low Voltage Power Supply



Input : 230V 50Hz 1Ø
Output : Multiple output 2/3/6 output for special applications
Output typically : 5V, 15V, 20V, 25V, 100V, 200V DC
Type No. : ZHS/01/24

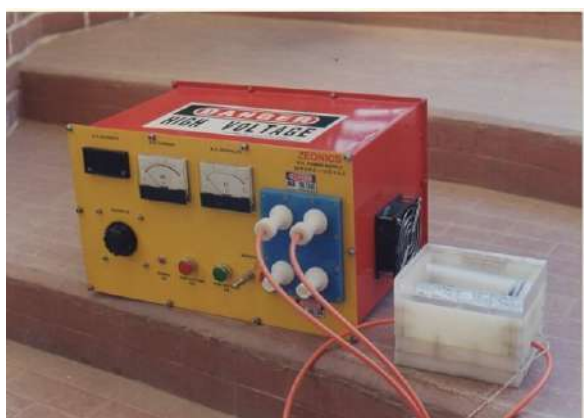
Power Supply

17. High Voltage Magnetron Filament Power Supply

Input Voltage : 230V 50Hz Single phase
Output Voltage : 0 to 30V
Output Current : 10 to 20A
Isolation : Typically 30kV DC
Application : Supply for Magnetron filament
Type No. : ZHS/01/38



18. High Voltage AC + DC Combined Power Supply 20kV AC



Input Voltage : 230V 50Hz 1Ø
Output Voltage : 0 to 20kV AC at 20mA
0 to 30kV DC at 20mA
Type : Linear HV Power Supply suitable for regular
AC + DC work
Type No. : ZHS/01/39

19. High Voltage AC + DC Power Supply 50kV AC

Input Voltage : 230V 50Hz / 110V 50Hz
Output Voltage : 0 to 50kV AC, 0 to 70kV DC
Output Current : Typically 100mA
Type : Oil-immersed
Application : Harsh environment applications
Type No. : ZHS/01/40



20. High Voltage Modular Power Supply 15-25kV DC



Input Voltage : 230V 50Hz 1Ø/ 415V 50Hz 3Ø
Output Voltage : 15kV DC / 20kV DC / 25kV DC
Output Current : 1A
Power : 15kW, 20kW, 25kW
Type : Auto transformer, HV Transformer and capacitor
Application : Charging of capacitor banks, Industrial Application
Type No. : Z/27/116

Power Supply

21. High Voltage 26kV DC Power Supply

Input Voltage : 200V 3 ϕ 400Hz Delta Connected
Output : 26kV DC at 230mA
Power : 6000 W
Duty : Continuous
Application : Radar DC Power Supply
Weight : 106kg
Type No. : Z/42/138



22. High Voltage DC Isolated Power Supply



Primary : 230V 50Hz 1 ϕ
Secondary : 3000V DC 100mA DC supply
Power : 300W
Isolation : 150kV DC
Range : 1000W to 2000W
Type No. : Z/38/98

23. High Voltage High Frequency 33kV Transformer

Input : 450V Input AC 20kHz
Output Current : 606mA
Output Voltage : 33kV DC
Power : 20 kW
Duty : Continuous
Type No : Z/43/24/60 (Y-1261)



24. High Voltage High Frequency 47kV Transformer

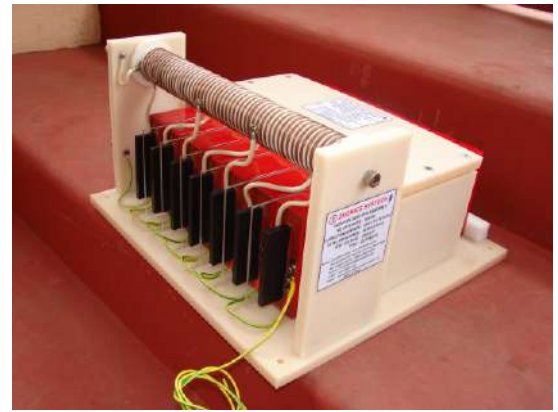


Input : 450V Input AC 20kHz
Output Current : 139mA
Output Voltage : 47kV DC
Power : 6.4 kW
Duty : Continuous
Type No : Z/43/24/48 (Y-1259)

Pulser

1. High Voltage PFN Modulators (PFN Based Pulser)

Voltage : 10kV to 100kV values
Capacitance : 1nF to 100 μ F
Time duration : 10ns to 100 μ s (Adjustable)
Type : 10 Stage / 20 Stage systems
Type No. : Z/27/26 (112)



2. High Voltage 25kV Pulser



Pulse : 1.2/50 μ s at 25kV output
Application : Continuous Lightning Pulse Generation System
Load : Resistive and Capacitive
Type No. : Z/41/56

3. High Repetition Rate Pulser 1000kV DC

Erected Capacitance : 250pF \pm 10%
Output Voltage : max 1MV in Open circuit
Voltage/Stage : 100kV DC
PRR : 50pps
Rise Time : \leq 50ns
Pulse Width : 110 to 200ns
No. of Stages : 10
Type : Marx Insert
Type No. : S/14/48, Z/21/5



4. Ultra-Low Inductance 100-140kV Pulser



Input voltage : 100 - 140kV
Output pulse : max 140kV
Coaxial capacitor : 125pF \pm 10%
Rise time : 2.3 ns

These assemblies are essentially used for electromagnetic research where one needs to generate high voltage fast rise time pulses. The system comes tightly coupled with a coaxial capacitor and its peaking gap. Additional features like power supply, connectors and resistors can be supplied on special request.

It can also be used as a source for 100 ohms EMP simulators.

Type No. : ZHS/01/59

Resistor

1. High Voltage Serpentine Low Inductance Resistor



Working voltage : 200kV AC; maximum 300kV AC
Resistor range : 200k Ω
Current : 1.2mA to 2.0Amps
Type : oil immersed type/ gas cooled type
Power : 50 W to 3000 W assorted
Type No. : Z/20/69

2. High Voltage Inline Coaxially Fed Resistors (Pressure sealed)

Resistance Range : 10 Meg ohms to maximum of 1 Giga ohms
Max energy/resistor : Typically 100 W
Max voltage in assembly : Typically maximum 200kV
These are used as bleeder resistors for the coaxial generator as and when required with a special high voltage connector and press fit system.
Type No. : ZHS/01/60



3. Rail Gap Biasing Resistors (1/2 or 2/3)



Working Voltage : 70kV DC
Test Voltage : 100kV DC
Resistance : 500M Ω + 500M Ω
Type No. : Z/34/68

4. High Voltage Non-Inductive Resistive Assembly

Max Voltage : 60 kV DC Isolation
Resistance Value : 1k Ω to 25k Ω
Power : 250 W
Cable : Pig tail connection of HV Cable
Type : Ceramic substrate, Ruthenium Deposited Resistor
Type No. : Z/18/4/15



Resistor

5. Low Inductance Coaxial Load Resistor

Resistor value : As per order suitable to the customer
Typical value : 1Ω to 500Ω
Type : Solid bulk resistor; wire wound resistors
Container : Coaxial metal container with resistive ground
Type No. : ZHS/001/082



6. High Voltage Pulse Resistor



Resistance Range : 50Ω to 1000Ω
Max peak current : 50kA
Max energy : 10kJ
Application : As a load for high power pulses like Blumlein, Marx, Capacitor bank
Type : Non Inductive
Type No. : Z/21/117

7. High Voltage Modular Crowbar Resistor

Typical Voltage : $15\text{kV}/25\text{kV}/50\text{kV}/100\text{kV}/150\text{kV}$
Typical Values : 1Ω to 10Ω / 20Ω to 100Ω
Resistor : Bulk Ceramic Resistor or Wire wound
Temperature : -20°C to $+85^\circ\text{C}$
Type No. : ZHS/001/084



8. High Voltage Low Inductance Resistors



Working Voltage : 50kV / 100kV / 400kV
Peak Current : max 100kA
Resistance Value : 10 Ohms / 25 Ohms / 50 Ohms
Connector : Coaxial Metal
Type No. : Z/34/112

Spark Gap and Rail Gap

1. High Voltage Spark Gap SBV 3-35kV

Control : 1kV to 25kV
Self-Breakdown Voltage : Variable from 3kV to 35kV DC
Peak Current : 150kA maximum (16 μ s P.W.)
Energy : max 20kJ
PRR : 5ppm
Pressure : Nitrogen / SF₆ Gas
Type No. : Z/32/85



2. High Voltage Spark Gap SBV 60kV-120kV



SBV : 60kV at 50psi, > 90kV at 100 psi, \approx 120kV
Peak Current : 10kA maximum, single shot / 1kA max at 10pps
Gas : Nitrogen / SF₆
Type No. : Z/30/58 (852)

3. Coaxial 50 Ω Spark Gap for Metal Tube Insertion

SBV : 90kV DC, Control 25kV to 72kV DC
Peak Current : 10kA
Typical Rise Time : <30ns
Pressure : 35psi, 43kV SBV
Gap : 4mm
Type No. : Z/33/138



4. High Voltage High Current Spark Gaps \sim 400kA



Working Voltage : 20kV, 30kV, 40kV
Peak Current : 150kA to 400kA
Pulse Width : 100 μ s to 420 μ s
Energy : 10kJ, 20kJ, 50kJ
Dimensions : Diameter = 250 to 350mm
Height = 150 to 200mm
Type No. : Z/32/85 (917)

Spark Gap and Rail Gap

5. 10kV – 50kV DC Rail Gap

Working Voltage : 10kV DC to 50kV DC
Peak Current : 500kA typical maximum
PRR : 1 ppm maximum at 500kA
1 ppm maximum at 750kA (Flushing)
Charge : max 20C charge transfer
Type No. : Z/34/60 (746)



6. High Voltage Triggered Spark Gap SBV 10kV



Current : 6 kA to 9 kA
Peak Current : 16 kA (Non-Repeatable)
SBV : 10 kV \pm 7%
Transformer Input : 300V Pulse
Transformer Output : 10kV Pulse
PRR : 1ppm
Max Pulse Width : 600 μ s per shot
Coulombs : 0.02C/Discharge
Type : Vacuum Gas filled Trigatron
Dimensions : Diameter : 65 mm; Length: 100mm
Atmosphere : Oil / Air / SF₆ / Nitrogen
Type No. : Z/33/196 (10 kV)

7. Variable Electrode, Variable Pressure Spark Gap



Working Voltage : 300kV pulse maximum
Peak Current : 5kA / 25kA / 50kA
Pressure : 20 Bar, maximum 290 psi
Pulse width : < 50 ns
Gap : 0 to 10mm adjustable
Type No. : Z/31/72 (870) electrode

8. Variable Voltage 2 Terminal Spark Gaps

Operating Voltage : 6kV DC to 11kV DC
Peak current : Typically 5kA /10kA
Gas : Nitrogen filled atmosphere
Type No. : Z/29/65(823)



Spark Gap and Rail Gap

9. High Voltage Gas Filled Spark Gap Trigatron

SBV : 60kV to 130kV (Pressure Controlled)
Control : 50kV to 95kV
Peak current : 10kA
Max Pressure : Nitrogen at 50psi or SF₆ at 30psi
Trigger Voltage : 20kV pulse maximum
Type No. : Z/28/92 (731)



10. High Voltage Nuclear Hardened Spark Gap Switches



Working Voltage : SBV 40kV DC
Test Voltage : 50% to 80% of SBV (20kV to 32kV)
Peak Current : 20kA max
Temperature : -20°C to +85°C
RH at 40°C : 95%
Neutron Capability : max 1x10⁹ flux Neutrons
Peak Current : 25kA
Type No. : ZE/3T/40

11. High Voltage Isotope Treated Low Jitter Spark Gaps

Self-breakdown voltage : 5, 10, 15, 20, 25, 30, 40kV
Control required : 40% of SBV to 80% of SBV
Peak Current : 5kA / 10kA
Trigger required : 10kV Trigger required
Type No. : ZHS/001/093



12. Low Inductance High Voltage Spark Gap



SBV : 180kV at 100psi
Typical Rise Time : < 5ns at 100psi
Gas : Nitrogen
Type No. : Z/30/58

Spark Gap and Rail Gap

13. High Voltage 3 Terminal Spark Gap for Coaxial Fixing

Working Voltage : SBV 120kV DC \pm 7%
Control Voltage : 60kV to 96kV DC
Peak Current : 30kA maximum
Trigger Pulse : 30kV to 40kV at 1 Joule
Medium (Insulating) : Oil / Air/ Compressed gas
Type No. : Z/15/4



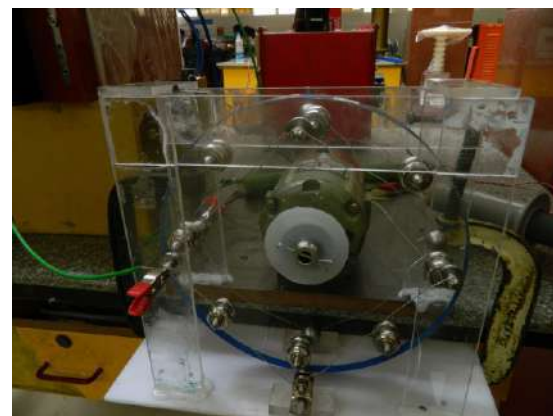
14. High Voltage Demonstration 100kV 3 -T Spark Gap Assembly



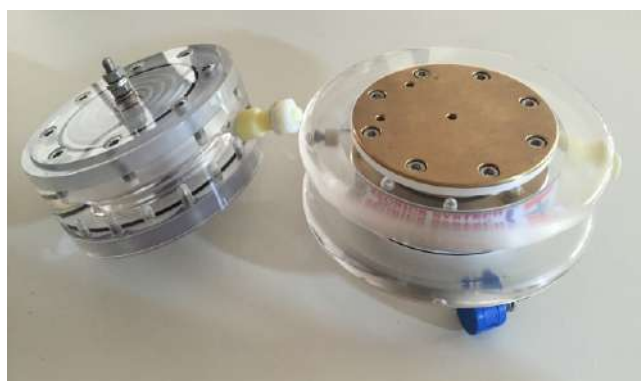
Working Voltage : 10kV to 100kV
Trigger Generator : Input 230V, 50Hz, 1 Phase, Output 1kV
Trigger Transformer : Input 1kV; output 40kV pulse
Decoupling Capacitor : 500pF /100kV
Type : Open execution spark gap
Type No. : Z/14/147

15. Rotational Spark Gap

Voltage : max 100kV
max Current : 20A / Pulse
max PRR : 30 pps to 200 pps
Electrodes : Tungsten, Alkonite
Motor Speed : 1500 rpm (variable)
Type No. : ZHS/01/61



16. Field Distortion Spark Gaps



SBV : 25kV to 100kV
Control : 30% to 80% of SBV
Peak Current : 30kA to 100kA
PRR : 10kA \rightarrow 50pps; 100kA \rightarrow 1ppm
Gas Flow : N₂ /SF₆ at 25Lps to 50Lps
Electrodes : Copper Tungsten
Gas purging : Every Few Shots when at 30kV
Type No. : Z/37/58, Z/40/88

Spark Gap and Rail Gap

17. Variable Voltage High Voltage Trigatron Switch

Variable SBV : 10kV to 25kV DC
Control Voltage : 5kV to 20kV DC
Gas : Nitrogen, SF₆, Argon
Type No. : Z/30/73 (832)



18. High Voltage Trigatron Switch



Working Voltage : 20kV DC to 100kV DC
PRR : max 100pps
Peak Current : max 1kA at 100pps, max 5kA at 5pps, max 10kA at 1ppm
Gas : Hydrogen, Nitrogen, SF₆
Type No. : Z/27/4

19. Hydrogen Gas Based Trigatron Switches

SBV : 100kV DC
Control : 40kV to 80kV pulse
Peak Current : 35kA
Max PRR : 100Hz at 1kA/Pulse
Pressure : 100psi
Gas : Hydrogen/Nitrogen/SF₆
Type No. : ZHS/001/092



20. High Voltage Floating Spark Gap



Input : ON Board Batteries 24V DC
Output : Pulser Trigger source for Triggering Spark Gap
Spark Gap : 200kV Spark Gap suitable for 200kA
Application : Air Borne Application and Testing of 200kV/200kA Pulses on wind Mills
Type No. : Z/36/18

Spark Gap and Rail Gap

21. High Voltage 3 Triggered Spark Gap



SBV	: 100kV to 120kV DC
Control Voltage	: 60kV to 90kV DC
Peak Current	: 20kA
Trigger Voltage	: 15kV max
PRR	: 1pps max
Type No.	: Z/3T/100, Z/40/102

22. High Voltage Firing Set Spark Gap

SBV	: 8kV DC
Control	: 3.5kV to 6.4kV
Peak Current	: 10kA
Life	: 1000 Shots at 10kA; 10,000 Shots at 1.8kA
Application	: Detonation Sets
Type No.	: Z/42/114



23. Multi-Channel (6) Rail Gap Gas Management System



Pressure	: max 50 psi
Display	: Analog + Digital
Ports	: 6 Nos.
Type No.	: Z/34/79

24. Adjustable High Voltage Spark Gap

SBV in air	: Module 15kV to 45kV DC
Peak Current	: 20kA maximum
Pressure	: 50psi N ₂ for 150kV SBV
Type No.	: Z/31/111



Switches

1. Pulse Power Pneumatic Crowbar Module

Working Voltage : 50kV DC
Test Voltage : 60kV DC
Peak Current : max 40kA (No Resistor)
Pressure : max 30 psi dry air
Crowbar Resistor : 5k Ω /10k Ω /20k Ω
Type No. : Z/34/65



2. Pneumatic High Voltage Safety Switch 50kV DC



Working voltage : 50kV DC
Test Voltage : 65kV DC
Operational Pressure : max 30 psi Air
Type : NO / NC or 2NO / 2 NC
Type No. : Z/34/65

3. Pneumatic High Voltage Switch 50-150kV DC



Input Voltage : 230V 50Hz or 12 V Battery
Output Voltage : 50kV, 100kV, 150kV
Isolation : Level 60kV, 120kV, 200kV
Air Pressure : 40psi
Contacts : Alkonite/Tungsten
Type No. : Z/33/28
Please note the switches can be custom built. In case you require different input, output or configuration, please feel free to contact us.

Transformers (Pulse + Trigger)

1. Air Based Multi Primary Transformer for 60kV Pulse

Input Voltage : max 600V input
Output Voltage : max 60kV pulse
Isolation : 90kV DC
PRR : max 1 pps
Energy : max 100 Joules
Temperature : -20°C to +85°C
Type : Air core primary vacuum moulded epoxy case
Type No. : ZE/TT/60/AC
Please note the values are customisable. In case you require different input, output or configuration, please feel free to contact us.



2. Air Core Pulse Transformer 60kV



Input Voltage : variable 200V to 800V
Output Voltage : 60kV Pulse
Isolation : 90kV Primary to secondary
Energy : max 50 Joules
Temperature : -20°C to +85°C
Type : Air core, Oil filled, Vacuum Moulded Epoxy casted
Type No. : ZHS/001/063

3. High Voltage Pulse Transformer 15kV

Input Voltage : max 400V pulse
Output Voltage : 15kV pulse
Max Pulse width : 2 μ s
PRR : 5pps
Temperature : -20°C to +85°C
Application : Laser / Spark Gap / Flash Lamp triggering
Type : Ferrite Core vacuum moulded
Type No. : ZPT - 400



4. High Voltage Pulse Transformer 40kV



Input Voltage : 800V to 900V; pulse 1 μ s to 5 μ s
Output Voltage : 40kV Pulse, typically 38kV
Isolation : 50kV DC primary to Secondary
PRR : 10 ppm
Energy : max 10 Joules
Temperature : -20°C to +90°C
Application : Laser / Flash Lamp / Spark Gap
Type No. : Z/20/34

Transformers

5. Nuclear Hardened High Voltage Pulse Transformer 100kV



Input Voltage	: Can be used for 200V to 800V
Output Voltage	: 100kV Pulse
Isolation	: 120kV DC
Energy	: 100 Joules
Temperature	: -20°C to +90°C
Max Neutron Flux	: 1×10^{11} Neutrons
Type No.	: Z/30/112 (809)

6. High Voltage DC Isolation Transformer 100kV DC

Primary	: 0-230V, 240V, 50Hz, 1 Phase
Secondary	: 1390 V at 0.75A
Primary to Core	: 5kV DC
Isolation	: Primary to Secondary 100kV DC Core to Secondary 100kV DC
Leakage current	: $\leq 10\mu\text{A}$ at 100kV DC
Power	: 1050 VA to 11000VA
Type	: Z/34/102



7. High Voltage DC Isolation Transformer 30-80kV DC



Primary Input	: 230V – 50Hz 1 phase 10kVA maximum
Secondary Output	: 750V AC (Tap-1) 1160V (Tap-2)
Power	: 500VA to 10,000VA Range
Isolation	: 30kV /40kV /50kV /60kV /80kV DC
Type No.	: Z/27/144

Please note the values are customisable. In case you require different input, output or configuration, please feel free to contact us.

8. High Voltage Isolation Transformer 10kV-200kV DC

Input	: 230 V
Output	: 230 V
Power	: max 8kVA
Isolation	: 10kV to 200 kV DC
Regulation	: Typically 7%
Type No.	: Z/27/110 (731)



Transformers

9. High Voltage Transformer-less HV Unit 35kV DC

Primary Voltage : 25kV AC
Output Voltage : 35kV DC
Output current : 0.5A
Type : Oil immersed type
Type No. : ZHS/001/095



10. High Voltage Isolation Transformer 60kV DC



Primary Voltage : (230V, 50Hz, 1 Phase) 0, 100V, 200V, 230V
Secondary Voltage : 100V, 3A
Isolation : 60kV DC (1 Minute) 72kV DC (Continuous)
Power : 300VA
Application : Floating Modulators, Radar, Ion Beam Platforms.
Type No. : Z/11/124

11. High Voltage Isolation Transformer 200kV DC

Input Voltage : 230 V, 50Hz, Single Phase
Output Voltage : 230 V, 50Hz, Single Phase
Isolation : Primary to Secondary – 200kV DC
Secondary to Core – 200kV DC
Primary to Core – 5kV DC
Power : 1kVA to 10kVA available
Type No. : Z/36/96



12. Large HV Isolation Transformer 50kV DC



Input Voltage : 230 V, 50Hz, Single Phase
Output Voltage : 30 V at 75A
Power : 2250VA
Isolation : Primary to Secondary- 50kV DC
Primary to Core - 5kV DC
Secondary to Core - 50kV DC
Application : Magnetron, Klystron Filament Isolation Transformer
Type No. : Z/30/148 (864)

Transformers

13. Isolation Transformer Primary to Secondary Both Floating 70-250kV DC

Primary Voltage : Floating 230 V, 50Hz, Single Phase
Secondary Voltage : Floating 230 V, 50Hz, Single Phase
Power : 1kVA to 10kVA
Isolation : 70kV DC / 100kV DC / 250 kV DC
Type No. : ZHS/01/47



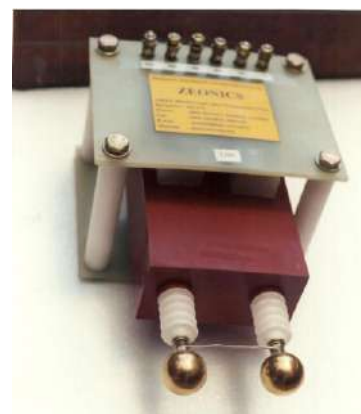
14. High Voltage Isolation Transformer for Magnetron Filaments 60kV DC



Input Voltage : 230V, 50Hz, 1 Phase
Output Voltage : 6.3V / 25A; 6.0V / 75A
Regulation : $\approx 9\%$
Isolation : Pri to Sec – 60kV DC
Sec to Core – 60kV DC
Pri to Core – 5.0kV DC
Temperature : -20°C to $+85^{\circ}\text{C}$
Type No. : Z/18/127

15. HV HF Transformer 200V

Input Voltage : 200V at 20kHz
Power : Typically 4.0kVA
Winding : All litz wire work
Core : All ferrite core
Type No. : ZHS/01/16



16. High Voltage High Frequency Transformer 10kV

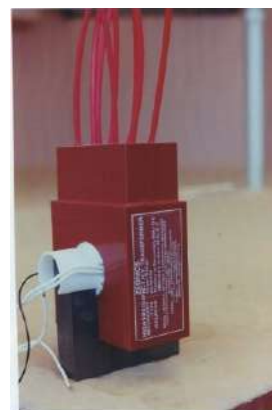


Input : 120V rms 20kHz with taps at 0, 120V, 140V
Output : 10kV rms at 20kHz
Power : 2250VA Continuous
Isolation : Primary to Secondary 35kV DC
Type : Oil filled sealed transformer for military use
Temperature : -20°C to $+85^{\circ}\text{C}$
Type No. : Z/23/35-38 (628)

Transformers

17. HV HF Transformer for Multi Turn Application 5kV

Primary : 100V rms 20 KHz
Secondary : 5000V rms at 20 kHz (Mul Sec on)
Power : 1kVA Continuous
Isolation : Primary to Secondary 80kV DC
Duty : Continuous Radar Duty
Type No. : Z/18/100



18. HV 100kHz Transformer



Typical Input : 100V rms
Typical Output : 20kV AC rms
Frequency : 100kHz
Ratio : 200:1
Power : 600VA
Core Type : U100
Type No. : Z/27/95

19. High Voltage Air Core Transformer 500kV

Input : 1kV Pulse at 140kA
Output : 500kV pulse $1\mu\text{s}$ to $10\mu\text{s}$
Power : 10kJ
Type No. : Z/27/143



20. 3 Phase HV Transformer 11kV AC



Input : 3 phase, 440 V Delta connected
Output : 3 phase, 440 V Delta connected
Power : 5kVA, 10kVA, 15kVA
Output Voltage : 11kV AC rms
Protection : Fuse protected secondary used with Glass cartridge fuses
Type No. : ZHS/01/45

Transformers

21. High Voltage High Frequency Transformer 26kV

Input : 247 V/20kHz
Output : 26kV rms
Frequency : 20kHz Square Wave
Power : 5kVA Max
Ratio : 105:1
Type No. : Z/41/98



22. High Current High Reliable Current Transformer



Current : Max 300A
Burden : 5VA
Frequency : 50Hz/60Hz
Accuracy : $\pm 2\%$ to 3%
Type No. : Z/43/01

23. Multi Output Isolation Transformer 20kV DC

Primary : 230 V 50Hz 1 ϕ
Secondary : Multi output 100V, 200V, 600V
Isolation : 20kV DC Isolation
Leakage Current : 100 μ A at 20kV DC
Frequency : 50Hz/200Hz
Type No. : Z/39/72



24. 200kV DC Isolation Transformer



Isolation Voltage : Pri to Sec - 200kV DC
Input : 0, 210V, 220V, 230V AC (Pri)
Output : 230V 50Hz 1 ϕ (Sec)
Power : 5000VA, 8000VA, 10,000VA
Duty : Continuous Duty
Type No. : Z/44/01, Z/44/16

Transformers

25. Ferrite Core Based Pulse Transformer 8.5kV



Input : max 800 V pulse
Output : 8.5kV Pulse
Isolation : 15kV DC Primary to Secondary
Temperature : -30°C to +85°C
Type : Ferrite core, Oil Impregnated, Vacuum moulded, epoxy casted Transformer
Type No. : Z/20/36

26. Ferrite Based Pulse Transformer 80kV

Input : max 900 V Pulse
Output : 80kV Pulsed output
Isolation : Primary to Secondary 110kV DC
Material : Polymer Body
Application : Triggering Rail Gaps
Reliability : Highly reliable Transformer
Type No. : Z/25/54 (686)



27. High Voltage Plasma Torch



Working Voltage : 40kV AC at 20kHz
Gas : Nitrogen/Argon /Air
Type No. : Z/42/63

28. Weapon Based Pulse Generator Modules

Input : 24kV DC Batteries
Output : Pulse 30kV
Isolation : 40kV Primary to secondary
Rise time : 1μs
Dimensions : 110mm - 350mm length
Battery : 300 Shots Suitability Single Charge
Type No. : Z/28/128



Other High Voltage Assemblies & Systems

1. X- RAY Shield



Protection : for 60 keV X-Rays
Adaptation : Flexible type
Suitable : For so X-Rays
Material : Metal loaded silicone Rubber
Type No. : Z/35/108

2. High Energy 40kJ/100kJ System

Output : 15kV to 25kV Range
Energy : 15kJ to 120kJ System
Current : 100kA to 600kA Range
Type No. : Z/41/01



3. 11kV/33kV Surge Arrester



Rated Voltage : 11kV/33kV
Surge Current : 5kA or 10kA
8/20 μ s Lightning Impulse : 99kV

4. High Voltage Detonation Sets

Input : 24 V battery or 230 V, 50Hz, Single Phase
Output : Pulse of 50J/100J/250J/500J at 10kV DC/20kV DC
Energy : 1kJ at 30kV DC max
Type No. : ZHS/01/20



Other High Voltage and Assemblies

5. High Voltage Detonation Sets 50 Joules to 100 Joules

Input Voltage : 230V, Single phase, 50Hz or 12V/24V DC Operation

Output Voltage : High energy pulse of 10kV to 15kV at

Energy : 50 Joules to 100 Joules

Trigger : Manual or a +5 V command.

Suitable : Dynamite, RDX and other Pyrotechnic/ Explosives

Type No. : ZE/FS/10/25-SMPS



6. High Voltage Pulse Power Disinfection System



Operating Voltage : 20kV to 40kV stress at 50kV /cm

Cell measurement : Typically 1Litre/25Litres of volume

Application : Sterilization of medical equipment

Type No. : ZHS/01/28

7. High Voltage 10kJ/ 20kJ Magna Forming Equipment



Max Voltage : 18kV DC

Energy : 20kJ/30kJ available

Type : Magnetic Welder

Welding : Plastic to Metal

Type No. : ZHS/01/26

8. High Voltage High Energy Explosion Detonation Module

Working Voltage : 25kV DC

Test Voltage : 40kV DC

Energy : 1.5kJ

Fluids : Oil, Gas, Colloids (Explosives)

Application : For testing of Bridge wire explosives in a controlled atmosphere

Type No. : Z/21/7



Other High Voltage and Assemblies

9. High Voltage Bridge Wire Exploding Chamber



Input : DC of 20kV to 50kV DC stored energy of 1kJ to 5kJ
Output : Pulse of 20kV to 50kV at 2kJ to 5kJ
Pressure : max 200psi of gas or vacuum of 730mBar
Type No. : Z/27/1 (710)

10. High Value Asset Protector

Voltage : 440V/1100A or 11kV/132A
Protection : 4 Way, 3 phase + Neutral
Protection Level : 200kV Impulse / $\leq 50\text{ns}$
Application : Protection from conducted EMP pulse upto 200kV
Type No. : Z/33/28



11. E-Field Detector (Quantitative) Detection



A pre-ionized gas-based E-field system which can detect electric fields which can occur in the atmosphere.
This can work up to very strong fields also of $>50\text{kV/Meter}$.
Type No. : Z/30/59

12. Hand Held Electrospinning System

Output Voltage : 20kV DC
Material : PVA Based Dispensing Materials
Rate of dispersion : Adjustable by changing voltage
Coverage : Approx. 100mm x 100mm in 2 minutes
Type No. : Z/28/18



Other High Voltage and Assemblies

13.High Voltage Multiplier Cast Module



Capacitance : 2300pF / 20kV x 6 Nos.
Operating Frequency : max 100 kHz
Type No. : S/11/1

14. 500kV to 700kV HV Multiplier Assembly

Input Voltage : 25kV AC rms at 60kHz
Output Voltage : 500kV DC / 700kV DC at 1mA
Type No. : ZHS/001/099



15. Modulator based PFN for Pulsed Electric Field Systems



Voltage : 30kV to 150kV Output
Energy : 100 Joules to 2000 Joules
PRR : Max 200 Hz
Impedance : 5Ω to 2000Ω
Pulse : Rectangular Shape
Duration : 500ns to 500 μ s
No of Stages : 10 or 20
Application : Agriculture, Food Industry, Dairy, Modulator, Radar
Type No. : ZHS/001/058

16. PFN 5 μ s Pulse width, 40kV Output Into 50Ω

Working Voltage : Max 40kV/ 80kV DC
Capacitance : 10nF / 40kV x 10 limbs
Inductance : 8.25 μ H x 10 limbs
PRR : Max 1pps to 100pps
Type No. : Z/34/130



Other High Voltage and Assemblies

17. 100ms Pulse width, 20kV Output PFN (1Ω Impedance)



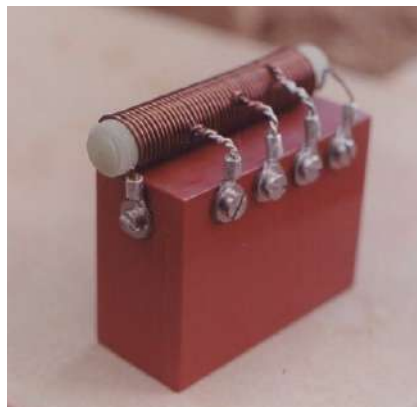
Working Voltage : 20kV DC
Test Voltage : 30kV DC
Pulse width : 100μs
Energy/Shot : 5kJ
Type No. : Z/34/42

18. 50Ω Impedance Pulse Forming Network

Input Voltage : 50kV DC
Output Voltage : 25kV across 50 Ohms
Pulse Width : 5μs to 100μs
Energy : 50 Joules to 200 Joules
Duty : Continuous duty
Type No. : S/17/140



19. High Voltage Compact PFN Oil and Moulded Version



Voltage : 5kV to 100kV DC
Current : 2 to 30A rms; 1 to 10kA Peak current
Pulse Width : 10ns to 100μs
No. of stages : 10 to 20 Stages
Impedance : 2Ω to 100Ω
The entire PFN are designed in open or moulded version as per current required.
Type No. : Z/01/35

20. Pulse Power Plasma Washer Gun

Input : 230V, 50Hz, 1 Phase
Output : PFN based pulses of 100μs duration and 15kV output
Peak Current : 2kA to 10kA maximum
Switch control : Spark gap based
Type No. : Z/27/28



Other High Voltage and Assemblies

21. High Voltage High Power Rotary Switches

kV / Stage : 25kV
Energy : max 3kJ
No of Stage : 10
Type : Sequential Switching System
PRR : max 200 rpm
Type No. : ZHS/001/067



22. High Voltage Test Setup for HV Laboratory



Input voltage : 230 V, Single phase
Output voltage : 0 to 200kV DC at 10mA
0 to 100kV AC at 10mA
Metering : Analog kV meter/Digital kV meter HV Grid
and safety lights
Type No. : ZHS/01/41

23. Compact HV Firing Module

Input : 28V DC Battery Minimum 10Ah
Output : Pulse of 5kV DC at 5 to 6kA
Command : + 5V DC and Manual
Application : Detonation
Type No. : Z/43/36 dimension



24. High Voltage Gas Management System for Marx, Rail Gaps and Spark Gaps



Type of gas : N₂, SF₆, AIR, Argon
Max Pressure : 100 psi/200psi
Control : 1psi to Full Pressure
Application : Marx Generators/Rail Gaps/Spark Gaps
Type No. : Z/30/78, Z/34/78

Other High Voltage Protection Systems

25. High Voltage Crowbar Module



Working voltage	: 20kV DC
Peak Current	: 20kA Max
Command	: +5 V / Manual
Duty	: continuous duty 24 hours
Application	: For Magnetron/Klystron/TWT/ Gyratron systems
Type	: Z/18/146

26. E-field Probe or Sensor

Max Field : 100kV/Meter
Rise Time : ≈ 1 n sec
Frequency : 1GHz
Ratio : 1kV : 22mV
 : 20kV : 440mV
Type No : Z/26/110 (E-field)
We also make B-field sensors and other designs
of E-field sensors (Z/36/154).



27. High Voltage Dielectric Breakdown Plasma Generator



Input	: 230V, 50Hz, 1 ϕ
Output	: 30kV at 40mA; 50kV at 25mA; 50kV at 40mA
Power	: 1200 watts
Application	: Generation of continuous plasma between a glass plate to extract the same
Plasma surface	: 300mm x 300mm & 600mm x 600mm Plasma systems
Type No.	: ZHS/001/088

28. Dielectric Plasma Generator

Voltage	: 50kV, 70kV Models
Power	: 5kW or 7kW
Operation	: Continuous
Voltage Plasma	: 1m x 1m x 25mm (Gap)
Type No.	: ZHS/001/059



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In Case of Queries, Please Contact us at

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