High Voltage DC Power Supply Unit



Overview

DP-HV Series DC High Voltage Power Supplies Thanks to the wide model range from 10 kV to 200 kV, the DP-HV series is suitable for a wide variety of applica.

Key Takeaways

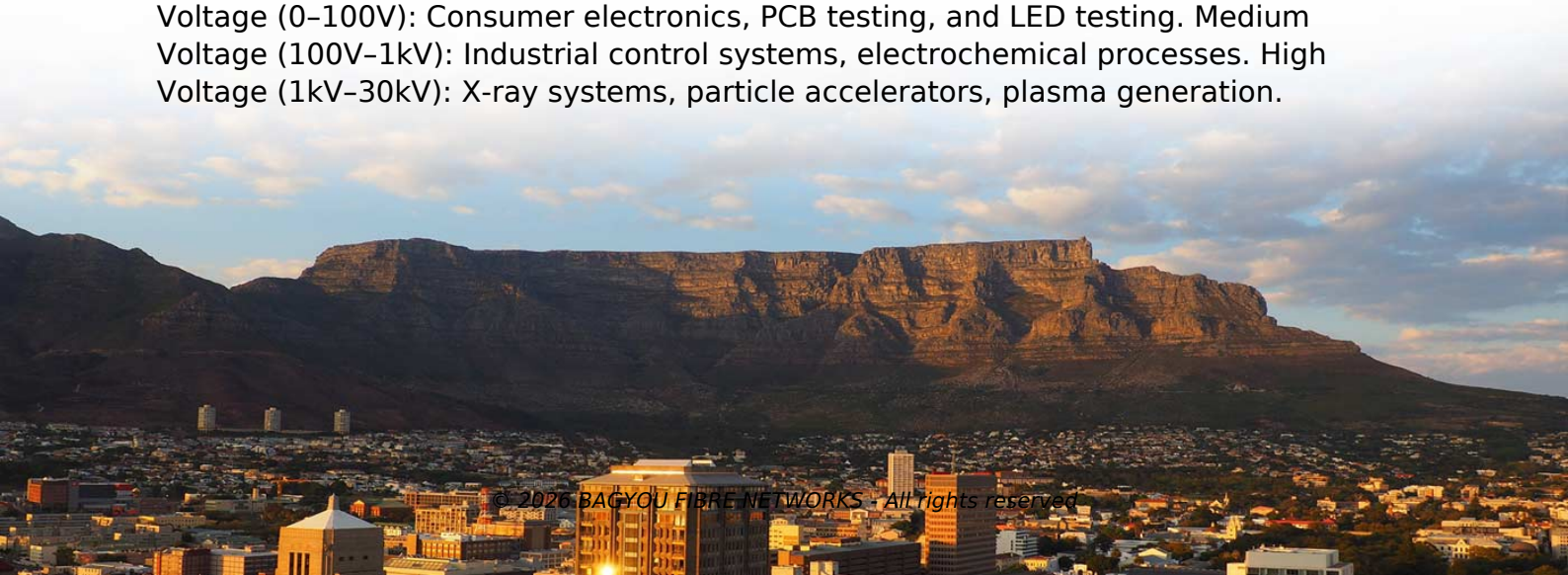
High voltage DC power supplies convert AC or low-voltage DC into stable, regulated DC outputs ranging from hundreds to hundreds of thousands of volts, used in research, industrial, and medical applications.

Overview

A high voltage DC power supply is an electrical device that converts standard AC input or low-voltage DC into a higher, precisely regulated DC output. These units are designed to deliver stable voltages typically above 100V, extending up to 200kV or more, with features like current limiting, voltage clamping, and arc protection to ensure safety and reliability. They are essential in applications where precision, stability, and safety are critical.

Voltage Classification

High voltage DC power supplies are generally classified by output voltage: Low Voltage (0–100V): Consumer electronics, PCB testing, and LED testing. Medium Voltage (100V–1kV): Industrial control systems, electrochemical processes. High Voltage (1kV–30kV): X-ray systems, particle accelerators, plasma generation.



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Ultra-

High Voltage (Above 30kV): Insulation testing, ion implantation, HV cable testing.

Working Principle

The operation involves several stages: AC to DC Conversion: Input AC is rectified using diode bridges or similar converters. DC-DC Conversion & Voltage Boost: Step-up converters or transformers increase voltage to the desired level. Regulation and Feedback: High-impedance voltage dividers and current sense resistors provide feedback to maintain precise voltage and current control.

Safety Features: Surge limiting resistors, arc protection, and short-circuit protection ensure safe operation.

Applications

High voltage DC power supplies are used in: Semiconductor testing: Dielectric strength, leakage current, and insulation resistance testing for MOSFETs, IGBTs, and high-power diodes. Medical devices: X-ray machines, CT scanners, and electron-beam systems. Industrial and research: Ion implantation, plasma generation, electrostatic precipitators, and high-energy physics experiments.

Renewable energy and motor testing: Bench-top or rack-mounted programmable units for solar arrays and motor inverters, often with series or parallel configurations to increase voltage or current output.

Notable Features

Programmable Control: Many units allow front-panel or remote control via USB, RS-232, or RS-485 interfaces. High Efficiency & Low Noise: Advanced topologies like zero-voltage switching or quasi-resonant switch-mode designs reduce ripple and radiated emissions. Flexible Output: Some models offer dual-range or multi-range settings to optimize voltage and current for different applications.

High Power Capability: Units can be connected in parallel or series to achieve higher combined power or voltage outputs.

Examples of High Voltage DC Power Supplies

Excelitas E-

Gun and X-Ray Power Supplies: Up to -150kV, 100 mA, with closed-loop emission current control.

Spellman U

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M Series: PCB-mountable modules with high efficiency, low noise, and full arc/short-circuit protection. TDK-Lambda Z+ and B&K Precision PVS Series: Programmable bench-top or rack-mount units for 600–1000V applications, suitable for solar array simulation and motor inverter testing. Tektronix High Voltage Supplies: Up to 10kV with autoranging and high precision for semiconductor and aerospace applications.

High voltage DC power supplies are critical tools for precision testing, research, and industrial processes, offering reliable, regulated, and safe high-voltage outputs for a wide range of applications.

Article Content

DP-HV Series DC High Voltage Power Supplies

Thanks to the wide model range from 10 kV to 200 kV, the DP-HV series is suitable for a wide variety of applications - from high-voltage insulation tests to electrostatic processes such as discharge, filtration

DC HIGH VOLTAGE POWER SUPPLIES

Home in the heart of Bavaria Power supply solutions engineered near the Bavarian Alps

High Voltage Power Supply

A high voltage power supply provides precise, stable power for applications requiring thousands of volts with minimal ripple and noise. Designed for semiconductor testing, insulation breakdown testing, and

High-Voltage DC Power Supplies

As a leading figure in the design and manufacture of high voltage units requiring a high power DC power source, Excelitas leverages a deep understanding of high voltage DC power supply schematic

Heinzinger electronic GmbH | High-Voltage Power

With over 65 years experience, Heinzinger electronic offers a wide range of high voltage power supplies. Reliability, high precision and high voltage have always

High-Voltage Programmable DC Power Supplies for

These power supplies (Table 1) all provide high, reliable power with low noise and excellent regulation and can be controlled from the front panel or remotely

High Voltage Power Supply Solutions for OEM | Advanced Energy

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Find reliable high voltage power supplies for precision applications. Choose from custom, PCB, modular, and low- to high-power units engineered to meet your needs.

High-Power DC Power Supply

Find the perfect high-power power supply for EV testing, industrial automation, and renewable energy applications. Get scalable, high-efficiency power up to 1MW.

High-voltage power supply unit 0 20kV 0 0.025A 500W –

The DP-PH Series High-Voltage Power Supplies from DSC-Electronics Germany are designed for high-voltage applications and offer all modern digital connections such as RS232, RS422, RS485 as well

AC/DC High-Voltage Power Supplies » Up to 60 kV

We develop high-voltage solutions covering power ranges of up to 7 kW and output voltages of up to 60 kV. This makes our AC/DC power supplies highly versatile and provides the necessary power

TI unveils complete 800 VDC power architecture for

In addition to these designs, TI will showcase a 30kW 800V high power density AC/DC PSU for AI servers and 800V capacitor bank units (CBU)

Energy Equipment & Supplies

ACME ENGINEERING PRODUCTS offers hot water boilers based on proven design for building complexes, commercial structures, and light industry. This boiler can be connected directly on the

AC-DC Power Supplies and Electronic Loads by Kepco

Kepco manufactures/designs analog/digital-controlled instrumentation power supplies and industrial/OEM modular DIN Rail-mountable units for hot-swap/n+1 redundancy.

Phoenix Contact 2902879 Redundancy Module; QUINT; DIN Rail;

Phoenix Contact QUINT POWER Series - Single-Phase Primary-Switched Power Supply Unit:For extreme operating conditions, use the ideally matched combination of PLUGTRAB SEC surge

Voltage: What is it? (Definition, Formula And How To ...

Key learnings: Voltage Definition: Voltage is defined as the potential energy difference per unit charge between two points in an electrical field. Understanding Through Analogy: Voltage can

DC Power Supply

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SmartGen HGM6120N Automatic Start Generator

SmartGen HGM6120N Automatic Start Generator Controller (AMF) . AMF. Technical Parameters: Display LCD (132*64) Operation Panel Silicon Rubber Language

Phoenix Contact 2866789 Power Supply, ACDC, 24VDC, 40A, 960W,

Phoenix Contact QUINT POWER Series - Single-Phase Primary-Switched Power Supply Unit:For extreme operating conditions, use the ideally matched combination of PLUGTRAB SEC surge

Related Video Reference

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

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Website: https://bagyou.es
Technical inquiry: https://bagyou.es/project-enquiry.html

This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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