GROW CONTROL
POWER TECH PVT. LTD.
We Provide Solutions....

AN ISO 9001:2015 COMPANY

CAPACITOR CHARGING POWER SUPPLY

GROW CONTROL **Capacitor Charging Power Supply** is specifically designed for high-speed, high-efficiency capacitor charging applications, ensuring reliable performance for pulse-powered systems. Leveraging over 30 years of expertise, these power supplies incorporate advanced indigenous technology to deliver precise charging, critical for applications in pulsed lasers, medical imaging, plasma generation, and defense. With rugged construction and advanced control features, these units are built to withstand demanding environments and high-stress operating conditions.

GROW CONTROL **Capacitor Charging Power Supplies** deliver efficient, rapid, and reliable power for a wide range of pulsed applications. Engineered with **indigenous technology** and advanced safety features, these power supplies meet the demands of industries from medical imaging to defense, ensuring consistent performance in critical environments.

APPLICATION: CAPACITOR CHARGING

Features

- **High Efficiency and Fast Charging**: Designed to provide rapid capacitor charging, achieving up to 95% efficiency and ensuring quick turnaround for high-power pulsed applications.
- **Stable, Low-Ripple Output**: Provides precise, consistent voltage with minimal ripple, protecting sensitive capacitors and associated equipment.
- **Advanced Control Modes**: Supports constant voltage and constant current charging modes, adaptable for various capacitor types and applications.
- **Comprehensive Protection Systems**: Includes over-voltage, over-current, short-circuit, and thermal protection to prevent damage during operation.
- **Compact and Modular Design**: Modular, rack-mountable configuration for easy integration into existing setups and scalability to multi-unit applications.
- **Remote Monitoring and Control**: Digital control interfaces allow for remote adjustments and real-time monitoring, facilitating precise power management.
- **Compliance with EMI/EMC Standards**: Conforms to **MIL-STD-461** and **EN 55022**, ensuring minimal electromagnetic interference for compatibility with sensitive equipment.
- **Robust Thermal Management**: Equipped with air or liquid cooling options to maintain stable performance in continuous operation.

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Key Advantages

1. **Indigenous Technology**:
   GROW CONTROL capacitor charging solutions are built in India to meet local industry requirements, offering reliable technology that supports defense, medical, and research applications.
2. **Quick, Efficient Charging**:
   With fast charging cycles and high efficiency, these power supplies support demanding applications like pulse lasers and plasma systems, minimizing downtime.
3. **Reliable Output Control**:
   Achieves a steady, low-ripple output, critical for high-precision and high-energy applications where output stability is crucial.
4. **Enhanced Safety Features**:
   Integrated protection mechanisms prevent damage to the power supply, capacitor bank, and other sensitive equipment, enabling safe and uninterrupted operation.
5. **Modular and Scalable**:
   Easily configured for single or multi-unit operation, allowing seamless integration and flexibility in complex setups.

Applications

1. **Pulsed Lasers and Medical Imaging**:
   Provides high-speed, stable charging for capacitor banks used in laser systems and medical imaging equipment, enabling quick pulse generation.
2. **Particle Accelerators**:
   Delivers reliable capacitor charging for high-energy physics applications, where precise, rapid charging is essential for particle acceleration.
3. **Plasma and Fusion Research**:
   Ideal for plasma applications where high-voltage capacitor banks are used to generate pulses for plasma heating and magnetic field generation.
4. **Defense Systems**:
   Used in radar, directed energy systems, and electronic warfare for rapid capacitor charging, ensuring high responsiveness and reliable operation.
5. **High-Speed Flash and Pulse Generation**:
   Supports quick and efficient capacitor charging for pulsed flash lamps, strobe lighting, and similar applications in research and industry.

Customization Options

GROW CONTROL provides customization to meet the specific requirements of capacitor charging applications, including:

- **Customizable Voltage and Current Ranges**
- **Adjustable Charge Time and Efficiency Optimization**
- **Enhanced Short-Circuit and Over-Current Protection**
- **Advanced Cooling Options (Air or Liquid)**
- **Digital and Analog Control Interfaces**
- **Modular Configurations for Expanded Output**

Our team works closely with clients to create tailored solutions that meet unique operational needs, offering a range of configurations that fit diverse capacitor charging applications.

Why Choose *GROW CONTROL?*

- **Indigenous Expertise**: Designed for the Indian market, ***GROW CONTROL*** power supplies provide a cost-effective and locally supported solution, with on-ground knowledge of industry requirements.
- **Precision and Stability**: Delivers stable, low-ripple output critical for high-energy applications that demand precision and fast response.
- **Energy Efficient**: High efficiency ensures low energy consumption and cost-effective operation in systems with high power demands.
- **Integrated Safety**: Equipped with advanced protection mechanisms, these power supplies ensure safe capacitor charging in high-stress environments.
- **Customer Support**: From design customization to installation, ***GROW CONTROL*** provides complete support, ensuring a dependable experience.

Certifications

- **MIL-STD-810** – Environmental Testing Standards
- **MIL-STD-461** – Electromagnetic Compatibility Standards
- **EN 55022** – EMI Compliance
- **ISO 9001:2015** – Quality Management Systems

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Technical Specification

Model No.:	GC253CCPS-50kV-P/N
Output Voltage	0-50 kV DC (max)
Quantity & O/P Polarity	1 Set (One rack comprising of Positive polarity-1 module and Negative Polarity-1 module).
Average Capacitor Charging Power	Positive: 25 kW (1 X 25kJ/s) Negative: 25kW (1 X 25 kJ/s]
Load Capacitance	90nF
PRF (No. of Charge/Discharge Cycles/second)	100Hz or more.
AC Input Voltage	3 phase, 400±10% V AC, 50 Hz
AC Input Current	100A at full load
AC Connector	Standard 3-phase+N+Ground
Power Factor	0.85 or better
Efficiency	90% or better
Mode of Operation	Constant Current Mode
Metering	Voltage and Current meters (Digital) (accuracy 0.5% or better for full scale reading)
Control	Analog Scale (0 - 10 V) for (0 to 50 kV) Digital: 0 - 15 V for HV ON/OFF, INHIBIT Control through front panel and remote unit Remote mode and local mode.
Stored Energy	less than 1 Joule
Pulse to pulse Repeatability	±3% or better
Cooling	ForcedAir
Ambient Temperature	• Storage: -20 to +60 °C • Operating: 0 to+55 °C
Dimensions	19 inches rack mountable system
Configuration	Switched Mode type
Interface	Fiber optic digital communication

OUR CLIENTS

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