



Universal Voltronics

Your High Voltage Power Partner



Series

DRC

Including the BRC Legacy Series

General Purpose High Voltage DC Power Supply 4kW to 240kW

Universal Voltronics' line of DRC switching power supplies are notable for low ripple, fast transient response, tolerance of repetitive arcing, and stable output across a wide range of line voltages and load impedances. Power is converted using advanced IGBT devices switching at frequencies equal to or greater than 20kHz, and controlled with various techniques, including resonant phase-shifted modulation.

DRC power supplies employ a highly modular design plus advanced thermal management for reliability. To accommodate customers' varying cooling mediums, both air and water-cooled versions are available for all supplies. Parallel operation of multiple units increases the output capacity of the DRC series to 240kW.

Universal Voltronics supplies provide precise regulation of both voltage and current with smooth automatic crossover between constant voltage and constant current modes as the load or command settings change. Front panel indicator LEDs automatically show which regulating mode is controlling the supply. A multifunction LCD display indicates output levels. Remote analog signal input and optional serial bus control interfaces are also available through the rear panel.

For the high voltage output section, Universal Voltronics offers a variety of insulation methods as appropriate to the application and power level: air insulation, encapsulation in either rubber or epoxy, or separate oil-filled tanks.

FEATURES:

- Voltage levels from 500V to 225kV
- Power levels from 4kW to 240kW
- Compact design with power densities to 5.8W/in³
- Low cost of ownership per kW
- Voltage and current regulation from standard 0.5% to as low as 0.01%
- Ripple as low as 0.1% of rated voltage
- Positive, Negative, Reversible, and Floating outputs available as options on all supplies
- Wide input voltage ranges (187VAC to 528VAC) and configurations (single and three-phase)
- Remote analog (0-10V) and serial bus control for both voltage and current
- Standard multi-function LCD display, with adjustable voltage and current dials
- Adaptive arc quenching and handling
- Air insulation standard (encapsulation and oil insulation as necessary)
- Both air- and water-cooled versions are available
- RoHS compliant

APPLICATIONS:

- Capacitor charging (pulsing to 8kHz)
- Medical/Industrial gas lasers
- Vapor and Powder Deposition and Sputtering Systems
- Electron Ion-Beam and Plasma Etching Systems
- Laboratory and Prototyping Usage
- Military/Aerospace

Specifications

(Standard unless otherwise noted)

Electrical Specifications

	Power Ranges			
	4-10kW	10-16kW	16-20kW	20-25kW
Phase Configurations	1-ph 3-ph	1-ph 3-ph	1-ph 3-ph	3-ph
1-ph PFC Available	Yes	Yes	Yes	No
Typical Efficiency	91% (86% w/PFC)	92% (86% w/PFC)	92% (86% w/PFC)	93%

Standard Input

Voltages: 120, 208, 220, 230, 240, 380, 400, 415, 440, 460, 480

Line Frequency: 47-63Hz

Output: Power Range: Air-cooled: 4kW to 20 kW
(single chassis) Water-cooled: 4kW to 25kW
Voltage Range: 500V to 30kV
Current Range: 135mA to 40A
Chassis Connector: 500V to 15kV: Fischer D105A049
15.1kV to 30kV: Fischer D107A004
> 20A: Fischer D107A004

Polarity: Negative, Positive, Reversible, or Floating
(select at time of order)

Voltage Regulation: $\pm 0.5\%$ for specified line voltage range
 $\pm 0.5\%$ no load to full load
Tighter voltage regulation available (to 0.01%).

Current Regulation: $\pm 0.5\%$ for specified line voltage range
 $\pm 0.5\%$ from 10% to 100% of rated power
Tighter current regulation available (to 0.01%).

Ripple: 0.5% RMS of rated voltage
Lower ripple ratings available.

Stability: 0.02% per hour, 0.1% per 8 hours
typical after 30-minute warm-up

Temperature Coefficient: 0.02% per °C
Lower coefficients available.

Filament output: Available with optional filament/magnet supply module.

Power Factor: > 99% on Power Factor Corrected (PFC) models
> 90% on non-PFC models (at full power)

Protections: Over-voltage, over-current, short circuit, arc detection, arc quenching, excessive arcing, interlocks, over-temperature, IGBT over-current, line under/over-voltage
More control functionality available through serial interface.

Physical Specifications

All units are configured for 19" rack mounting.

Standard Dimensions: Height 10.5" Depth 24.0" Chassis Width 17.0"

2" clearance at rear panel required for air flow and connectors.

Remote connectors: DB-9 (Serial)
DB-37 (Analog)

Main input connection: Terminal block standard (AMP CPC optional)

Cooling: Fan-forced air or chilled water

Environmental Specifications

Air Temperature: Operating, 0° to 40°C
Storage, -40°C to 85°C

Humidity: 95% relative non-condensing

Certifications: Conforms to UL, CSA, and IEC/CE safety/EMC standards
Specific certifications and listings available.

Control Options

Front Panel: Multi-function LCD display, including voltage and current output levels, and voltage and current input settings

Rotary encoders with detents and push buttons for local voltage and current control settings, and menu navigation

Line current circuit breaker

Up to 20 programmable LED indicators

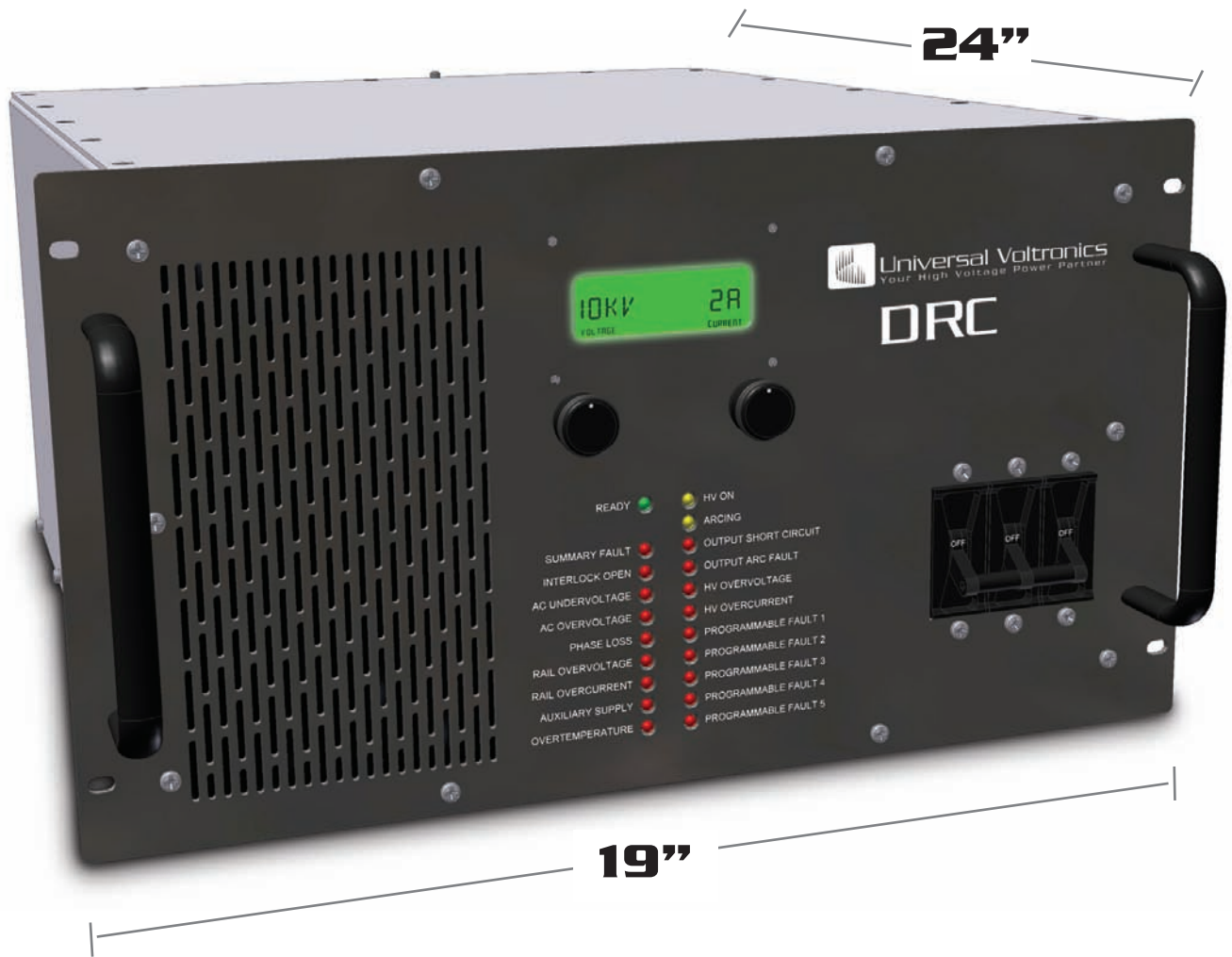
Remote: RS232/485, CAN bus, PROFIBUS, DeviceNet
Labview Interface and Custom GUI program available.

* **LabView is a trademark of National Instruments.**

BRC Legacy Series continues to be available, with similar specifications.



Dimensions





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The Power of Experience

With over forty years of experience in every form of high-voltage application — from radar to rail guns to X-rays — Universal Voltronics is truly one of the pioneers in high voltage design. Our extensive experience influences every aspect of our design processes, and has provided us the expertise to be innovative in customizing supplies to a particular need.

Assured Quality

Every Universal Voltronics power supply conforms to a stringent Quality Assurance process that ensures the consistent performance and long life of each power supply. All supplies have been designed to meet the most stringent international standards, many certified to specific UL, CSA, and IEC/CE standards.

High Construction Standards

Universal Voltronics systems are assembled in rugged, heavy gauge aluminum chassis. Structural elements have been selected both for their mechanical attributes and their endurance at high voltages. Thermal management is achieved using extruded heatsinks with advanced fin design and efficient multi-pass coldplates with low pressure drops. Our in-house transformer fabrication department enables us to achieve our customers' unique electronic and mechanical specifications.

Conservative Electrical Design

All supplies incorporate conservative electrical design with all components used well below their specified ratings. Great emphasis has been placed on the power supply's ability to withstand arcs and short circuits. Customers can be assured of an ample amount of margin when specifying Universal Voltronics supplies. Each supply is subjected to rigorous test procedures before shipment.

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