

ORENSEN (AMETEK)

DCR600

The Sorensen DCR600 series (part of the rugged DCR-B family) consists of high-power, phase-controlled SCR DC power supplies designed for bench or rack use. Offering a regulated output voltage of up to 600 VDC, this series includes the DCR 600-1.5B, DCR 600-3B, and DCR 600-4.5B models, providing 900W, 1800W, and 2700W of stable output power. These units feature automatic crossover between constant-voltage and constant-current modes, excellent transient response, low ripple, and remote programming, making them ideal for industrial testing, burn-in, and process control applications.

SPECIFICATIONS

General

Interfaces	Analog programming terminal strip (standard); GPIB/RS-232 available via optional external programmer
Display	Dual analog meters for voltage and current (standard); digital meters available as a factory option
Warranty	5 Years

Physical

Power Supply	115 VAC / 208 VAC / 220 VAC / 230 VAC $\pm 10\%$ (model and option dependent), single-phase, 57-63 Hz
Operating Temperature	0 to +70 °C (derated above 40 °C) °C
Dimensions (W×H×D)	483 × 133 × 457 mm (DCR 600-1.5B) / 483 × 178 × 508 mm (DCR 600-3B & DCR 600-4.5B) mm
Weight	18.1 / 33.1 / 44.9 kg (model dependent) kg

Output Specifications

Output Voltage Range	0 - 600 VDC
Output Current Range (DCR 600-1.5B)	0 - 1.5 ADC
Output Current Range (DCR 600-3B)	0 - 3.0 ADC
Output Current Range (DCR 600-4.5B)	0 - 4.5 ADC
Maximum Output Power (DCR 600-1.5B)	900 W
Maximum Output Power (DCR 600-3B)	1800 W
Maximum Output Power (DCR 600-4.5B)	2700 W
Line Regulation (Voltage Mode)	0.05% of maximum output voltage (300 mV) for a $\pm 10\%$ line change
Load Regulation (Voltage Mode)	0.05% of maximum output voltage (300 mV) for a zero to full load change
Line Regulation (Current Mode)	0.25% of maximum output current for a $\pm 10\%$ line change
Load Regulation (Current Mode)	0.25% of maximum output current for a zero to 100% compliance voltage change
Ripple and Noise (Voltage, RMS)	1500 mV RMS (600V models)
Transient Response Time	50 ms typical for recovery to within 1% of output setting for a 50% step load change
Temperature Coefficient (Voltage)	0.015% of maximum output voltage per $^{\circ}\text{C}$ (90 mV/ $^{\circ}\text{C}$)
Temperature Coefficient (Current)	0.03% of maximum output current per $^{\circ}\text{C}$
Operating Modes	Constant Voltage (CV) and Constant Current (CC) with automatic crossover

AC Input Specifications

Input Phase	Single-phase
Input Voltage (DCR 600-1.5B)	115 VAC nominal (103 - 127 VAC) standard; 208/220/230 VAC optional
Input Voltage (DCR 600-3B)	208 VAC nominal (187 - 229 VAC) standard; 115/220/230 VAC optional
Input Voltage (DCR 600-4.5B)	208 VAC nominal (187 - 229 VAC) standard; 220/230 VAC optional
Input Frequency Range	57 - 63 Hz standard (47 - 63 Hz optional)
Efficiency (DCR 600-1.5B)	Approximately 82% at full load
Efficiency (DCR 600-3B)	Approximately 83% at full load
Efficiency (DCR 600-4.5B)	Approximately 84% at full load

Protection Features

Over Voltage Protection (OVP) Range	60 - 660 VDC
Over Voltage Protection Type	Adjustable SCR Crowbar with front panel screwdriver adjustment
Over Temperature Protection (OTP)	Thermal shutdown via internal thermostats, automatic reset
AC Input Protection	Front panel electromagnetic power circuit breaker
Remote Sensing	Rear terminal connections compensate for lead voltage drops

Control and Interfaces

Front Panel Controls	FINE and COARSE VOLTAGE adjust, FINE and COARSE CURRENT adjust, power circuit breaker, OVP adjustment screwdriver slot
Remote Voltage Programming	0 - 10 VDC
Remote Resistance Programming	Supported (via external resistance)
Series Operation	Supported; multiple units can be connected in series to increase total output voltage
Parallel Operation	Supported; units can be connected in direct or master/slave parallel configurations to increase total output current
Remote Shutdown	Supported via external switch contact closure

Environmental

Storage Temperature Range	-40 to +85 °C
Operating Temperature Derating	Derate linearly from 100% at 40°C to 50% at 70°C
Operating Humidity	Up to 95% RH (non-condensing)

Physical Characteristics

Form Factor	19-inch rackmount
Rack Units (DCR 600-1.5B)	3U
Rack Units (DCR 600-3B)	4U
Rack Units (DCR 600-4.5B)	4U
Chassis Width	19.0 in (483 mm)
Chassis Height (DCR 600-1.5B)	5.25 in (133 mm)
Chassis Height (DCR 600-3B & DCR 600-4.5B)	7.0 in (178 mm)
Chassis Depth (DCR 600-1.5B)	18.0 in (457 mm)
Chassis Depth (DCR 600-3B & DCR 600-4.5B)	20.0 in (508 mm)
Weight (DCR 600-1.5B)	27.2 kg (60 lbs)
Weight (DCR 600-3B)	49.9 kg (110 lbs)
Weight (DCR 600-4.5B)	52.2 kg (115 lbs)
Output Terminals	Rear-panel barrier terminal strip standard
AC Input Terminals	Rear-panel barrier terminal strip with protective cover

Remote Programming

Voltage Programming Coefficient (Resistance)	1000 ohms/V
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Performance

Remote Sensing Compensation	Up to 3 V per load lead
Warm-Up Time	30 minutes

Safety

Maximum Float Voltage	±600 VDC (output to chassis ground)
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Control & Programming

Remote Voltage Programming Signal	0-10 VDC
Remote Current Programming Signal	0-10 VDC
GPIB Interface Option	Option M9C
Isolated Analog Interface Option	Option M51A

TECHNOLOGY

Phase-controlled SCR (Silicon Controlled Rectifier)

APPLICATIONS

Industrial testing, semiconductor burn-in, magnet power supply, process control, and product development

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