

ORENSEN (AMETEK)

DCR40

The Sorensen DCR40 series (part of the DCR-B family of phase-controlled power supplies) delivers stable, highly regulated, and adjustable DC power up to 40 VDC. Operating with high efficiency, these silicon-controlled rectifier (SCR) based supplies offer reliable performance in both constant-voltage and constant-current modes, featuring built-in over-voltage protection, remote sensing, and versatile remote programming options.

SPECIFICATIONS

General

Interfaces	Analog programming (standard); GPIB / IEEE-488 (optional via external programmer)
Display	Dual analog meters (voltage and current)

Physical

Power Supply	115 VAC / 208 VAC / 220 VAC / 230 VAC (model-dependent), single-phase, 57-63 Hz
Operating Temperature	0 to +70 °C °C
Dimensions (W×H×D)	241.3 x 133.4 x 457.2 mm (DCR40-13B) / 482.6 x 133.4 x 457.2 mm (DCR40-25B) / 482.6 x 177.8 x 508.0 mm (DCR40-70B) / 482.6 x 311.2 x 558.8 mm (DCR40-125B) (W×H×D) mm
Weight	18.1 kg (DCR40-13B) / 34.0 kg (DCR40-25B) / 52.2 kg (DCR40-70B) / 102.1 kg (DCR40-125B) kg

Output Specifications

Rated Output Voltage Range	0 - 40 VDC
Rated Output Current Range	0-13 A (DCR 40-13B) / 0-25 A (DCR 40-25B) / 0-70 A (DCR 40-70B) / 0-125 A (DCR 40-125B)
Maximum Output Power	520 W (DCR 40-13B) / 1000 W (DCR 40-25B) / 2800 W (DCR 40-70B) / 5000 W (DCR 40-125B)
Line Regulation (Voltage)	0.05% of maximum rated voltage
Load Regulation (Voltage)	0.05% of maximum rated voltage
Line Regulation (Current)	0.25% of maximum rated current
Load Regulation (Current)	0.25% of maximum rated current
Output Ripple (RMS)	30 mV (DCR 40-13B) / 40 mV (DCR 40-25B & 40-70B) / 60 mV (DCR 40-125B)
Transient Recovery Time	50 ms (typical) to return within 150 mV of steady-state voltage for a 50% load step
Temperature Coefficient (Voltage)	0.015% per °C of maximum rated voltage
Temperature Coefficient (Current)	0.03% per °C of maximum rated current
Drift (Stability over 8 Hours)	0.1% of maximum output voltage (after 30-minute warm-up)
Operating Modes	Constant Voltage (CV) and Constant Current (CC) with automatic crossover

AC Input Specifications

Number of Phases	Single-phase
Input Frequency Range	57 - 63 Hz (standard); 49 - 63 Hz (optional)

Protection and Isolation

Over-Voltage Protection (OVP) Range	6 to 47 VDC
Output Isolation Voltage (to Chassis)	150 VDC

System Control and Connectivity

Remote Sense Headroom	Up to 1.5 V drop per load lead (3 V total line drop)
Analog Programming Options	Resistance programming: 200 ohms/volt (standard) or 1000 ohms/volt (optional); Voltage programming: 1V/V
Series Configuration Limit	Up to 2 identical units
Parallel Configuration Limit	Multiple units (direct paralleling or master/slave configuration)
Remote On/Off Control	Yes (via rear terminal strip unit shutdown circuit)
Front Panel Controls	Power circuit breaker, coarse and fine voltage adjust potentiometers, coarse and fine current adjust potentiometers

Environmental Specifications

Storage Temperature Range	-40 to +85 °C
Operating Temperature Derating	Full rating to +40 °C; derate linearly to 50% current rating at +70 °C
Cooling Method	Convection cooled (DCR 40-13B and DCR 40-25B); Forced-air fan cooled (DCR 40-70B and DCR 40-125B)

Physical Characteristics

Form Factor	Rack-mountable or benchtop
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Power Requirements

AC Input Voltage Tolerance	±10% of nominal rating
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Connectivity

Optional Digital Interface	GPIO (IEEE-488) control available via external programmer
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Front Panel Meters

Analog Voltmeter Accuracy	±2% of full scale
Analog Ammeter Accuracy	±2% of full scale

Analog Programming

Voltage Programming Resistive Coefficient	200 Ω/V (standard) / 1000 Ω/V (with Option M1)
Voltage Programming Current	5 mA (standard) / 1 mA (with Option M1)

Environmental

Operating Humidity Range	0% to 95% non-condensing
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Electrical Isolation

Insulation Resistance	50 MΩ minimum at 500 VDC (between input/output and chassis)
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Performance

Duty Cycle	Continuous
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TECHNOLOGY

Phase-controlled SCR / Triac with passive LC filter

APPLICATIONS

Industrial DC power, product burn-in testing, laboratory research, and automated test equipment (ATE) systems

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