DCR-B2 Family

400 to 2800 Watt Programmable Power Supplies

The DCR-B2 Family high power programmable power supplies have input SCR preregulator topology plus regulation and transient response performance suitable for nearly all test and measurement applications. Twenty nine models in eight voltages from 0-10 to 0-600 VDC and power levels from 400 to 2800W.

Features

- **Input**
  - 115 VAC single phase input standard on all models up to 1800 watts (208/220/230 VAC single phase optional)
  - 208 VAC single phase input standard on all models in excess of 2300 watts (220/230 VAC optional)
  - 50/60 Hz operation without derating
- **Operating Modes**
  Excellent voltage and current regulation with automatic crossover; panel lights indicate operating mode
- **Remote Programming**
  Remote voltage and resistance programming for both voltage and current modes standard
- **Protection and Safety**
  - Adjustable current limiting (overload/short circuit protection) with automatic recovery
  - Overvoltage protection with crowbar standard on all models
- **Regulation**
  0.03% line and load regulation (typical)
- **Ripple**
  65-1200 mV RMS ripple (model dependent)
- **Transient Response**
  50 ms transient response - 50% load change (typical)
- **Displays**
  LCD digital panel meters (Option M50)
- **5 Year Warranty**

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Output

Voltage: See table

Current: See table

Constant Voltage Mode

Noise and Ripple: See table

Regulation

Line and Load Combined: 0.03% for 100% load change and full line voltage change combined

Transient Response: Typically recovers in 50 ms to within 1% (within 2% for 20V model, within 3% for 10V model) of steady-state output voltage for a 50 to 100% load change

Stability: 0.1% of maximum for voltage over 8 hours after 30 minute warm up time at fixed line, load and temperature

Temperature Coefficient: 0.015%/°C of maximum output voltage

Constant Current Mode

Noise and Ripple: See table

Regulation

Line and Load Combined: 0.25% of Imax

Stability: 0.15% of maximum for current over 8 hours after 30 minute warm up time at fixed line, load and temperature

Temperature Coefficient: 0.03%/°C of maximum output current

Input

Voltage and Frequency: 103-127 VAC single phase, 47-63 Hz for 400 to 1800 watt models, 187-229 VAC single phase, 47-63 Hz for 2300 to 2800 watt models

Isolation

Input to Chassis: 1300 VDC

Output to Chassis: 500 VDC (models ≥ 150V)

General

Operating Temperature: 0 to 70°C, derate above 40°C

Storage Temperature Range: -40°C to 85°C

Cooling: Convection cooling for Cases I and III, built-in fan for Cases II and IV

Efficiency: 61-86% depending on model

Built-in Protection: No overshoot at turn-on, turn-off or power failure. Overvoltage protection is standard on all models.

Remote Shutdown: Remote relay, transistor or logic switching can be connected to shutdown terminals on back of supply

Remote Sense: Maximum drop per load lead should not exceed 5% of output volts max or 3V, whichever is smaller

Resistance Programming: See table

Voltage Programming: See table

Current Programming: See table

Series Operation: Max output for 10-80V models to 200 VDC, 150V and 300V models (only two in series)

Parallel Operation: Master/slave or straight parallel, four units maximum in master/slave

Dimensions

Case Size I: 2U 3.5" (88 mm) H x 19" (482 mm) W x 20.25" (514 mm) D

Case Size II: 2U 3.5" (88 mm) H x 19" (482 mm) W x 20.25" (514 mm) D

Case Size III: 4U 7" (177 mm) H x 19" (482 mm) W x 20.50" (520 mm) D

Case Size IV: 4U 7" (177 mm) H x 19" (482 mm) W x 20.50" (520 mm) D

Weight

Case Size I: 45 lbs. (21.8 kg)

Case Size II: 53 lbs. (24 kg)

Case Size III: 105 lbs. (47.6 kg)

Case Size IV: 111 lbs. (50.4 kg)

Shipping Weight

Case Size I: 65 lbs. (29.5 kg)

Case Size II: 73 lbs. (33.1 kg)

Case Size III: 125 lbs. (56.7 kg)

Case Size IV: 131 lbs. (59.4 kg)

Options

M1: 208 VAC ±10% input voltage

M2: 220 VAC ±10% input voltage

M3: 230 VAC ±10% input voltage

M50: LCD digital meters

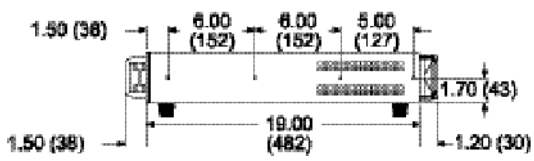
Rack Slide Kit: Available for all models (Part No. 1064245-1)

DCR-B2 Family

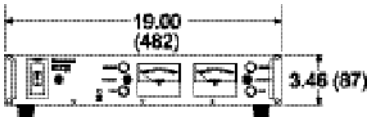
Model	Output Power				Constant Voltage Mode					Temp. Coeff. Voltage mV/°C (Typ.)	Voltage Drift %V_0 Max. (Typ.)[4]	Programming Constants Voltage Mode	
	Voltage (VDC)	Current (ADC)			Regulation[1] mV	Ripple (RMS)[2]* mV	Noise (P-P)[2] mV	Resolution %V_0 Max. (Typ.)	Transient Response Time ms (Typ.)[3]			Ohms/V	V/V
		40°C	50°C	70°C									
DCR 10-40B2	0-10	40	30	20	3	65	200	0.05	50	1.5	0.1	1200	1
DCR 10-12082	0-10	120	90	60	3	65	200	0.05	50	1.5	0.1	1200	1
DCR 20-25B2	0-20	25	19.3	13	6	65	200	0.05	50	3.0	0.1	600	0.5
DCR 20-50B2	0-20	50	37.5	25	6	65	200	0.05	50	3.0	0.1	600	0.5
DCR 20-80B2	0-20	80	60	40	6	65	200	0.05	50	3.0	0.1	600	0.5
DCR 20-115B2	0-20	115	86.5	58	6	64	200	0.05	50	3.0	0.1	600	0.5
DCR 40-13B2	0-40	13	9.8	6.6	12	90	170	0.05	50	6.0	0.1	300	0.25
DCR 40-25B2	0-40	25	19.3	13	12	90	270	0.05	50	6.0	0.1	300	0.25
DCR 40-40B2	0-40	40	30	20	12	90	270	0.05	50	6.0	0.1	300	0.25
DCR 40-70B2	0-40	70	55	40	12	90	270	0.05	50	6.0	0.1	300	0.25
DCR 60-9B2	0-60	9	7	5	18	125	375	0.05	50	9.0	0.1	200	0.167
DCR 60-18B2	0-60	18	13.3	8.6	18	125	375	0.05	50	9.0	0.1	200	0.167
DCR 60-30B2	0-60	30	23.3	16.5	18	125	375	0.05	50	9.0	0.1	200	0.167
DCR 60-45B2	0-60	45	35.8	26.5	18	125	375	0.05	50	9.0	0.1	200	0.167
DCR 80-6B2	0-80	6	4.7	3.3	24	150	450	0.05	50	12.0	0.1	150	0.125
DCR 80-12B2	0-80	12	9.3	6.6	24	150	450	0.05	50	12.0	0.1	150	0.125
DCR 80-33B2	0-80	33	26.5	20	24	150	450	0.05	50	12.0	0.1	150	0.125
DCR 150-3B2	0-150	3	2.4	1.7	45	300	900	0.05	50	22.5	0.1	80	0.067
DCR 150-6B2	0-150	6	4.7	3.3	45	300	900	0.05	50	22.5	0.1	80	0.067
DCR 150-12B2	0-150	12	9.3	6.6	45	300	900	0.05	50	22.5	0.1	80	0.067
DCR 150-18B2	0-150	18	14	10	45	300	900	0.05	50	22.5	0.1	80	0.067
DCR 300-1.5B2	0-300	1.5	1.2	.8	90	700	2100	0.05	50	45.0	0.1	40	0.033
DCR 300-3B2	0-300	3	2.3	1.65	90	700	2100	0.05	50	45.0	0.1	40	0.033
DCR 300-6B2	0-300	6	4.7	3.3	90	700	2100	0.05	50	45.0	0.1	40	0.033
DCR 300-9B2	0-300	9	7.3	5.5	90	700	2100	0.05	50	45.0	0.1	40	0.033
DCR 600-.75B2	0-600	.75	.6	.4	180	1200	5400	0.05	50	90.0	0.1	20	0.017
DCR 600-1.5B2	0-600	1.5	1.2	.83	180	1200	5400	0.05	50	90.0	0.1	20	0.017
DCR 600-3B2	0-600	3	2.3	1.65	180	1200	5400	0.05	50	90	0.1	20	0.017
DCR 600-4.5B2	0-600	4.5	3.5	2.5	180	1200	5400	0.05	50	90.0	0.1	20	0.017

Notes: 1. With load change and a full line voltage change combined 2. Below 60 Hz, ripple and transient response characteristics will deteriorate by a factor of $(60/F)^2$ where F is input frequency. 3. To return to ±1% band on all models except 10 volt (±3%) and 20 volt (±.2%) for a step-load change of half load to full load or full load to half load. 4. For 8 hours (after 30 min. warmup) with constant line, load and ambient temperature 5. With 0-95% compliance-voltage change and ±10% line voltage change combined 6. At full compliance voltage 7. Optional input voltage available: 208 VAC ± 10% (except 7 in. fan) (option M1); 200 VAC ± 10% (option M2) 8. At 115 or 208 VAC 9. 7 in. units offer convection or fan cooling. 10. 0-10V available by switch on PCB. 0-10V = 0-100% I0, 0-400 mV = 0-100% I0. * RMS ripple typical from 20 Hz to 300 kHz.

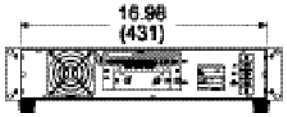
Case I & II



Side View



Front View



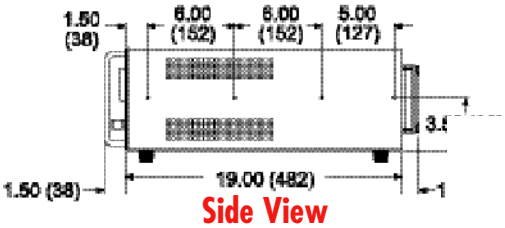
Rear View

DCR-B2 Family

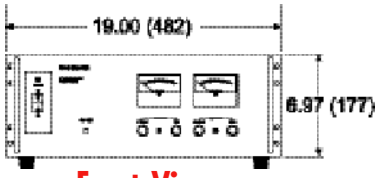
Model	Constant Current Mode			Temp. Coeff., Current mA/°C (Typ.)	Current Drift (Typ.)[4] % I_0 Max.	Programming Constants Current Mode		Standard Input Power (Single Phase, 50/60 Hz)		Power Factor (Typ.)	Efficiency %	Case Size[9]
	Regulation[5] mA	Ripple (RMS)[2,6,*] mA	Resolution %I_0 Max. (Typ.)			Ohms/A	V/A[10]	Voltage VAC[7]	Current[8] (Max. A)			
DCR 10-40B2	100	260	0.05	12	0.15	10	0-10	103-127	8.7	.65	61	I
DCR 10-120B2	300	785	0.05	36	0.15	3.3	0-10	103-127	24.0	.67	62	IV
DCR 20-25B2	63	82	0.05	7.5	0.15	16	0-10	103-127	9.4	.65	71	I
DCR 20-50B2	125	125	0.05	15	0.15	8	0-10	103-127	20.0	.62	69	II
DCR 20-80B2	200	260	0.05	24	0.15	5	0-10	103-127	30.0	.66	70	III
DCR 20-115B2	288	375	0.05	35	0.15	3.5	0-10	187-229	26.5	.60	70	IV
DCR 40-13B2	33	30	0.05	3.9	0.15	30	0-10	103-127	9.8	.65	71	I
DCR 40-25B2	63	50	0.05	7.5	0.15	16	0-10	103-127	16.0	.68	79	II
DCR 40-40B2	100	90	0.05	12	0.15	10	0-10	103-127	26.8	.66	78	III
DCR 40-70B2	175	157	0.05	21	0.15	6	0-10	187-229	29.6	.58	77	IV
DCR 60-9B2	23	19	0.05	2.7	0.15	46	0-10	103-127	9.7	.65	75	I
DCR 60-18B2	45	38	0.05	5.4	0.15	22	0-10	103-127	19.0	.60	81	II
DCR 60-30B2	75	63	0.05	0.9	0.15	16	0-10	103-127	27.0	.68	84	III
DCR 60-45B2	113	93	0.05	13.5	0.15	9	0-10	187-229	29.0	.56	80	IV
DCR 80-6B2	15	12	0.05	1.8	0.15	68	0-10	103-127	8.3	.65	77	I
DCR 80-12B2	30	23	0.05	3.6	0.15	33	0-10	103-127	15.0	.65	83	II
DCR 80-33B2	83	61	0.05	9.9	0.15	12	0-10	187-229	27.2	.57	81	IV
DCR 150-3B2	8	6	0.05	0.9	0.15	134	0-10	103-127	8.2	.65	74	I
DCR 150-6B2	15	12	0.05	1.8	0.15	66	0-10	103-127	15.5	.60	84	II
DCR 150-12B2	30	24	0.05	3.6	0.15	33	0-10	103-127	27.0	.69	84	III
DCR 150-18B2	45	35	0.05	5.4	0.15	22	0-10	187-229	27.0	.58	83	IV
DCR 300-1.5B2	4	4	0.05	0.45	0.15	270	0-10	103-127	8.9	.60	74	I
DCR 300-3B2	8	7	0.05	0.9	0.15	133	0-10	103-127	15.7	.60	82	II
DCR 300-6B2	15	14	0.05	1.8	0.15	66	0-10	103-127	27.0	.69	84	III
DCR 300-9B2	23	21	0.05	2.7	0.15	44	0-10	187-229	27.4	.57	83	IV
DCR 600-.75B2	2	2	0.05	0.225	0.15	530	0-10	103-127	8.9	.60	74	I
DCR 600-1.5B2	4	3	0.05	0.45	0.15	266	0-10	103-127	15.2	.60	86	II
DCR 600-3B2	8	6	0.05	0.9	0.15	133	0-10	103-127	27.4	.66	86	III
DCR 600-4.5B2	12	9	0.05	1.35	0.15	89	0-10	187-229	26.8	.57	85	IV

Notes: 1. With load change and a full line voltage change combined 2. Below 60 Hz, ripple and transient response characteristics will deteriorate by a factor of $(60/F)^2$ where F is input frequency. 3. To return to ±1% band on all models except 10 volt (±3%) and 20 volt (±.2%) for a step-load change of half load to full load or full load to half load. 4. For 8 hours (after 30 min. warmup) with constant line, load and ambient temperature 5. With 0-95% compliance-voltage change and ±10% line voltage change combined 6. At full compliance voltage 7. Optional input voltage available: 208 VAC ± 10% (except 7 in. fan) (option M1); 200 VAC ± 10% (option M2) 8. At 115 or 208 VAC 9. 7 in. units offer convection or fan cooling. 10. 0-10V available by switch on PCB. 0-10V = 0-100% I0, 0-400 mV = 0-100%.. * RMS ripple typical from 20 Hz to 300 kHz.

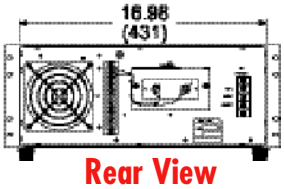
Case III & IV



Side View



Front View



Rear View

Program Connectors	
1	Voltage Program
2	N/C
3	Common for Pins 1, 4 and 5
4	Sense (-)
5	Resistance Program
6	Jumper to Pin 5
7	Jumper to Pin 8
8	Current Program
9	Current Program
10	N/C
11	N/C