1.3 Operating Modes

The DCS Series supply has two basic operating modes: Constant Voltage and Constant Current. In constant voltage mode the output voltage is regulated at the selected value while the output current varies with the load requirements. In constant current mode the output current is regulated at the selected value while output the voltage varies with the load requirements.

An **automatic crossover** system enables the unit to switch operating modes in response to varying load requirements. If, for example, the unit is operating in voltage mode and the load current attempts to increase above the setting of the current control, the unit will switch automatically from voltage mode to current mode. If the load current is subsequently reduced below the setting of the current control the unit will return to voltage mode automatically.

1.4 Specifications

1.4.1 Electrical Specifications[1]

MODELS	8-125	20-50	33-33	40-25	60-18	80-13	150-7	300-3.5	600-1.7
Output Ratings:									
Output Voltage	0-8V	0-20V	0-33V	0-40V	0-60V	0-80V	0-150V	0-300V	0-600V
Output Current	0-125A	0-50A	0-33A	0-25A	0-18A	0-13A	0-7A	0-3.5A	0-1.7A
Output Power	1000W	1000W	1089W	1000W	1080W	1040W	1050W	1050W	1020W
Line Regulation[2]:									
Voltage	8mV	20mV	33mV	40mV	60mV	80mV	150mV	300mV	600mV
Current	125mA	50mA	33mA	25mA	18mA	13mA	7mA	3.5mA	1.7mA
Load Regulation[3]:									
Voltage	8mV	20mV	33mV	40mV	60mV	80mV	150mV	300mV	600mV
Current	125mA	50mA	33mA	25mA	18mA	13mA	7mA	3.5mA	1.7mA
Meter Accuracy:									
Voltage	0.09V	0.3V	0.43V	0.5V	0.7V	0.9V	1.6V	4.0V	7.0V
Current	1.35A	0.6A	0.43A	0.35A	0.28A	0.23A	0.08A	0.045A	0.018A
OVP Adjustment Range	0.4-8.8V	1.0-22V	1.65-36.3V	2-44V	3-66V	4-88V	7.5-165V	15-330V	30-660V
Output Noise and Ripple (V) (20Hz-20MHz):									
rms	10mV	10mV	10mV	10mV	20mV	20mV	30mV	40mV	100mV
p-p	50mV	50mV	50mV	50mV	100mV	100mV	200mV	200mV	500mV

[1] Specifications are warranted over a temperature range of 0-50°C with default local sensing. From 50-70°C, derate output 2% per°C.

[2] For input voltage variation over the AC input voltage range, with constant rated load

[3] For 0-100% load variation, with constant nominal line voltage

AC Input: 200-250Vac at 10Arms or 100-130Vac at 20Arms, 47-63Hz
Maximum Voltage Differential from output to safety ground: 600Vdc

1.4 Specifications

1.4.1 Electrical Specifications (continued)

Additional Characteristics

MODELS	8-125	20-50	33-33	40-25	60-18	80-13	150-7	300-3.5	600 1.7
Stability[1]:									
Voltage	4mV	10mV	16.5mV	20mV	30mV	40mV	75mV	150mV	300mV
Current	62.5mA	25mA	16.5mA	12.5mA	9mA	6.5mA	3.5mA	1.75mA	0.85mA
Temperature Coefficient[2]:									
Voltage	1.6mV	4mV	6.6mV	8mV	12mV	16mV	30mV	60mV	120mV
Current	37.5mA	15mA	9.9mA	7.5mA	5.4mA	3.9mA	2.1mA	1.05mA	0.51mA
Maximum Remote Sense Line Drop Compensation (/line):	0.5V	1V	1V	1V	1V	1V	1V	1V	1V
Nominal Output Capacitance:	66,000µF	30,000µF	10,000µF	10,000µF	10,000µF	3,000µF	440µF	440µF	4.7µF
Nominal Capacitance from Output to Chassis:	200nF	270nF	300nF	250nF	250nF	250nF	250nF	270nF	220nF

[1] Maximum drift over 8 hours with constant line, load, and temperature, after 90 minute warmup

[2] Change in output per °C change in ambient temperature, with constant line and load

Storage Temperature Range: -55 to +85°C
Humidity Range: 0 to 80% Non-condensing
Time Delay from power on until output stable: 2 seconds maximum
Voltage Mode Transient Response Time: 1mS recovery to 1% band for 30% step load change from 70% to 100% or 100% to 70%
Remote Start/Stop and Interlock: TTL compatible input, Contact Closure, 12-250Vac or 12-130Vdc
Switching Frequency: Nominal 100kHz, 200kHz output ripple (>80V models = 80kHz, 160 kHz output ripple.
Analog Programming Linearity: Typical error is less than 0.5% setting. Maximum error is 1% of rated output.
Agency Approvals: CSA, UL

Remote Analog Programming (Full Scale Input)

Scales are selectable via an internally-mounted switch.

PARAMETER	RESISTANCE	VOLTAGE	CURRENT
Voltage	5kΩ	5V, 10V	1mA
Current	5kΩ	0.1V, 5V, 10V	1mA
OVP	5kΩ	5V, 10V	1mA

1.4.2 Mechanical Specifications

Dimensions: 44mm (1.75in) H x 482.6mm (19in) W x 508mm (20in) D **Weight:** 8.2kg (18lbs)

Models DCS 8-125 through DCS 80-13 Connector: Nickel plated copper bus bars
Approximate dimensions: 1.365" x 0.8" x 0.125"
Distance between positive and negative bus bar centers: 2.2"
Load wiring mounting holes: Two 0.257" diameter holes on 0.5" centers (1/4" hardware); Two 0.191" diameter holes on 0.4" centers (#10 hardware)

Models DCS 150-7 through DCS 600-1.7 Connector: Six pin Amp Universal Mate-N-Lok connector
(Eight Socket pins and one mating connector housing are supplied in a ziplock bag packaged with each 150V through 600V unit.)