

## 400 / 432 W Programmable DC Power Supply



### Technical Specifications

Models	DCX20M40	DCX60M14	DCX160M5
Output Voltage	20 V	60 V	160 V
	Multi Ranging (Parabolic)		
Output Current	40 A	14 A	5 A
Rated Power	400 Watts	432 Watts	
Efficiency at 230 V, full load	82 %	85 %	86 %
<b>Constant Voltage Mode</b>			
Load regulation 0 ~ 100% (mV)	3 mV	5 mV	10 mV
Line Regulation (mV)	2 mV	3 mV	5 mV
Ripple (mVrms) 5Hz~1MHz	< 5 mVrms	5 mVrms	20 mVrms
Ripple (mVpp) 20 MHz	40 mVpp	50 mVpp	80 mVpp
<b>Constant Current Mode</b>			
Load regulation 0 ~ 100 % (mA)	10 mA	7 mA	5 mA
Line Regulation (mA)	8 mA	5 mA	3 mA
Ripple (mArms) BW=5 Hz ~ 1MHz	<50 mArms	20 mArms	10 mArms
Remote sense drop	1 V typically	2 V typically	2 V typically

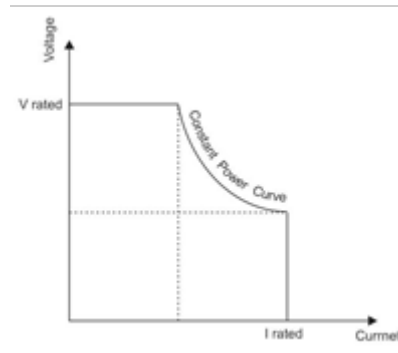
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<b>Programming Speed</b>			
Rise time ( 10% to 90% ) into resistive load			
Time 100% load	10V : 6.5 ms 20V : 15 ms	30V : 20ms 60V : 55ms	80V : 50 ms 160V : 170 ms
Fall time ( 90% to 10% ) into resistive load			
Time 100% load	10V : 6.5ms 20V : 25 ms	30V : 6ms 60V : 70 ms	80V : 30ms 160V : 200ms
Time No load	10V : 150ms 20V : 250ms	30V : 400ms 60V : 700mS	80V : 1.2s 160V : 2.5s
<b>Recovery Time</b>			
Recovery within	50 mV	75mV	200mV
time @ 50 – 100 % load step	100µS	100µS	100µS
<b>Temperature Coefficients</b>	CV : 50 ppm/°C CC : 100 ppm/°C after 30 min of warm up time		
<b>Output Stability &amp; Long Term Drift</b>	CV : 100 ppm CC : 300 ppm after warm up of 30 min and during 8 hrs		
<b>Analog Programing</b> (Rear panel 15 pin D connector)			
Programing:	Voltage : 0 ~ 5 V, Accuracy : 1 % of Vout rated, Input impedance : 1 MΩ Current : 0 ~ 5 V, Accuracy : ± 1 % of Iout rated Input impedance : 1 MΩ		
Monitoring:	Voltage : 0 ~ 5 V, Accuracy : ±1 % of Vout rated Output impedance : <2 Ω / 0.4 mA max Current : 0 ~ 5 V, Accuracy : ±1 % of Iout rated Output impedance : 2 Ω / 0.4 mA max		
V reference	5.1 V ± 10 mV		
Resistor Programming	Voltage : 0~100%, 0~5 kOhm full scale , Accuracy and linearity: ±1 % of Vout rated Current : 0~100%, 0~5 kOhm full scale , Accuracy and linearity: ± 1.5 % of Iout rated		
Status outputs:	Power Supply : OK = Logic 1 (High), AC Fail = NO / NC Contact DC Fail : NO / NC contacts for DC fail by ± 5% of set value, CV / CC Indication : Logic 1 Remote / Interlock : Dry Contact, once Enabled, DC ON - for short contacts		
Remote shutdown:	with +5V or relay contacts.		
<b>Remote Programming</b>			
RS232 / USB / RS485	ADC : 16 Bits, DAC : 16 Bits		
Voltage Programing	Resolution : Better than 15 bit Accuracy : 0.05% Vout + 0.05% Vrated		
Current Programing	Resolution : Better than 15 bit Accuracy : 0.1% Iout + 0.1% Irated		
Monitor Voltage	Resolution : Better than 15 bit Accuracy : 0.1% Vout + 0.1% Vrated		

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Monitor Current	Resolution : Better than 15 bit Accuracy : 0.25% Iout + 0.2% Irated		
OVL & UVL Programing	Resolution : Better than 15 bit Accuracy : 0.05% Vout + 0.05% Vrated		
<b>Front Panel controls:</b>	Mains ON/ OFF, Voltage and Current setting with Encoders, Switch Settings: Set, Over Voltage, Under Voltage, Foldback, Remote & Output		
<b>Indicators:</b>	CV, CC, Over Voltage, Under Voltage, Foldback, Remote & Output ON		
<b>Display</b>	4 digit, voltage and current separately		
Accuracy	± (0.5 % + 2 d)		
Resolution	Better than 15 bit		
Voltage	0 ~ 20.00 V	0 ~ 60.00 V	0 ~ 160.0 V
Current	0 ~ 40.00 A	0 ~ 14.00 A	0 ~ 5.00 A
<b>Protections</b>	Over voltage: Adjustable from 0.5 V ~ 105 % of Vmax, Output shut-down, reset by Output switch.		
	Over current: Max current limited by CC Setting / Output Disable via Foldback		
	Over temperature: Output gets OFF, after preset internal safe temperature		
	Foldback Protection: Selectable from CV to CC mode or CC to CV Mode transition with Programmable Delay for output switched OFF		
<b>Output Terminals</b>	Bus bar and two wires for remote sense / Optional Front Terminals		
<b>Parallel operation</b>	Upto 6 units in Master/Slave Mode		
<b>Serial operation</b>	2 units in series of same model Max 600V to chassis		
<b>Mains Input</b>	Universal AC input, Single phase, 90 ~ 270V, 50 / 60 Hz (47 ~ 63Hz) Input connector: IEC320/C14, EN 60320/14 Standby Power: 13 Watts @ 230V (V & I zero) Internal Fuse L: 6 A Fast, 5 X 20 mm ceramic fuse.		
Power Factor	0.97 @ full load at 230V AC		
Turn On Delay	600 ms after mains switched ON		
Inrush current	<15A		
Hold up Time	20ms		
<b>Environment Conditions</b>			
Operating Temperature	0 ~ +50°C with 100% load; derated to 75% at 60°C		
Storage	-40 ~ + 85°C		
Humidity	max. 95% non condensing at 40°C max. 75% non condensing at 50°C		

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Safety	Insulation: Input to Output: 1500Vdc for 1 min Input to case: 1500 Vdc, Output to case: 600 V Insulation resistance: 100 MΩ at 25°C, 70% RH, 500 Vdc		
Dimension	W x D x H: 70 x 421 x 85 mm (2U, 1/6 <sup>th</sup> 19" Rack size) W x D x H: 70 x 421 x 120 mm (For front output option) excluding connectors, terminals, switches, front and back panel controls, handles etc.		
Weight	3.2 kg ( For front output option ≤ 3.5kg )		
Cooling	Forced, temperature controlled variable Fan speed		
Standard Interface	Analog Programing, USB, RS232, RS485		
Optional Interface	LAN		
Accessories Supplied	Mains cable, PC Interface Cable, Manual		

Subject to change without notice

## Multi Range Output



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