

## MCC200-600 Series



- 200 and 400 W Regulated Outputs
- Optional Non-Regulated Conditioned Rail
- 1 to 4 Configurable Outputs
- MIL-STD-1275A/B/C/D
- MIL-STD-461E/F
- Rugged Construction to Meet MIL-STD-810F
- 3 Year Warranty

## Specification

## Input

Input Voltage Range	• 18.5-34 VDC steady state
Input Current	• 38 A at 18.5 V 400 W
Inrush Current	• <60 A
Input Reverse Voltage Protection	• Yes
Input Transient	• MIL-STD-1275A/B/C/D
Undervoltage Lockout	• $V_{in} < 18$ VDC

## Output

Output Voltage	• O/P 1-4: regulated outputs 2-48 VDC
Output Voltage Adjustment	• O/P 1-4: 10-110% factory set For outputs below 90% of nominal, a minimum load of 10% is required
Aux. Output Voltage	• $V_{out\ Aux} (min) = V_{in} - 2$ VDC
Aux. Output Power	• 100 W for MCC300, 200 W for MCC600 (9 A max)
Maximum Aux Output	• $V_{out}$ clamped <36 VDC
Minimum Load	• No minimum load (output ripple increased at $P_{out} < 10\%$ $P_{out\ max}$ )
Line Regulation	• 1% max
Load Regulation	• 1% max
Cross Regulation	• Outputs 1-4 individually regulated, no cross regulation
Output Set Tolerance	• $\pm 100$ mV
External Hold Up	• External connection for additional hold up capacitance, consult sales
Ripple & Noise	• 50 mV or 1% pk-pk, whichever is the greater, 20 MHz bandwidth
Low Noise (Option 'Q')	• Outputs 1 & 2: 25 mV reduction (MCC400 only) Outputs 3 & 4: 45 mV reduction (MCC400 only)
Temperature Coefficient	• $\pm 0.05\%/^{\circ}C$
Overvoltage Protection	• 110-120% of nominal output
Overcurrent Protection	• 110-120% of nominal output
Short Circuit Protection	• Constant current
Overtemperature Protection	• $> +90$ $^{\circ}C$ baseplate temperature, auto restart
Remote Sense	• Outputs 1 & 2, Compensate for 0.5 V total voltage drop

## General

Efficiency	• 75% typical
Isolation Voltage	• 500 VDC Input to Output, 500 VDC Output to Chassis, 500 VDC Input to Chassis
Material and Finish	• Aluminium baseplate and safety cover
Input Inhibit	• Global enable and disable function, short to negative input to inhibit
Output Inhibit	• Each regulated output has independent inhibit, TTL high to inhibit
Inhibited Input Current	• <5 mA when input inhibit function is used
DC OK Signal	• Optional on output voltages $\geq 5$ VDC Isolated opto-coupler output
MTBF	• 517 kHrs to MIL-HDBK-217F at 40 $^{\circ}C$ , GB

## Environmental

Operating Temperature	• -40 $^{\circ}C$ to +70 $^{\circ}C$ ambient with baseplate temperature within -40 $^{\circ}C$ to +90 $^{\circ}C$
Extended Temperature	• -55 $^{\circ}C$ to +90 $^{\circ}C$ baseplate temperature, see note 4
Cooling	• Baseplate-cooled. It is recommended that a thermal pad or compound is fitted between the MCC baseplate and any heatsink structure used in the system design.
Operating Humidity	• 20-95% non-condensing
Storage Temperature	• -40 $^{\circ}C$ to +90 $^{\circ}C$
Storage Humidity	• 20-95% non-condensing
Shock	• 40 g MIL-STD-810F, method 516.5-1
Vibration	• MIL-STD-810F, method 514.5C-17 minimum integrity test for military equipment

## EMC

Emissions	• EN55022 Level B conducted MIL-STD-461E/F army ground use CE101 & CE102, DEF STAN 59-41 DCE01, DCE02
Conducted Immunity	• MIL-STD-1275A/B/C/D, DEF STAN 61-5 Pt 6 MIL-STD-461E/F CS101, CS114, CS115, CS116,



Chassis Designations, Power & Sizes		
Code	Power	Slots
MCC2	200 W	2
MCC3	200 W + 100 W Aux	2
MCC4	400 W	4
MCC6	400 W + 200 W Aux	4

Modules Output Voltage / Current Rating					
V	I	W	Slots	Code	
3.3	22.7 A	75 W	1	2C	
3.3	45.4 A	150 W	2	3C	
3.3	80.0 A	264 W	4	4C <sup>(3)</sup>	
5	20.0 A	100 W	1	2D	
5	40.0 A	200 W	2	3D	
5	80.0 A	400 W	4	4D <sup>(3)</sup>	
12	8.3 A	100 W	1	2J	
12	16.6 A	200 W	2	3J	
12	33.3 A	400 W	4	4J <sup>(3)</sup>	
15	6.6 A	100 W	1	2L	
15	13.3 A	200 W	2	3L	
15	26.7 A	400 W	4	4L <sup>(3)</sup>	
24	4.1 A	100 W	1	2P	
24	8.3 A	200 W	2	3P	
24	16.7 A	400 W	4	4P <sup>(3)</sup>	
28	3.5 A	100 W	1	2Q	
28	7.1 A	200 W	2	3Q	
28	14.3 A	400 W	4	4Q <sup>(3)</sup>	
48	2.1 A	100 W	1	2W	
48	4.1 A	200 W	2	3W	
48	8.3 A	400 W	4	4W <sup>(3)</sup>	

MCC200/300:  
Single (S) or Dual (D)  
(2 slots max)

MCC400/600:  
Single (S), Dual (D), Triple (T) or Quad (Q)  
(4 slots max)

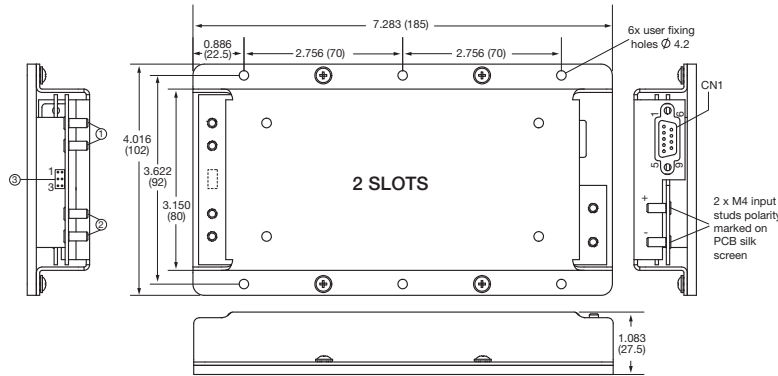
D - DC OK, leave blank if not required  
Q - Low noise output  
L - Passive filtering only<sup>(3)</sup>  
P - Conformal coating

S - Standard  
E - Screening option,<sup>(4)</sup>

1. Modules 1 & 2 available for MCC200/300 only e.g. MCC2D2J2PED.
2. Modules 1 to 4 available for MCC400/600 e.g. MCC4Q2D2J2L2PED.
3. The 4 series output modules to be used with single MCC400/600 models only.
4. DC-DC output modules are stress-screened for 55 °C to +100 °C operation.
5. Low cost option with passive EMI filtering only. No auxiliary output, EMI to EN55022 level B only.

Mechanical Details

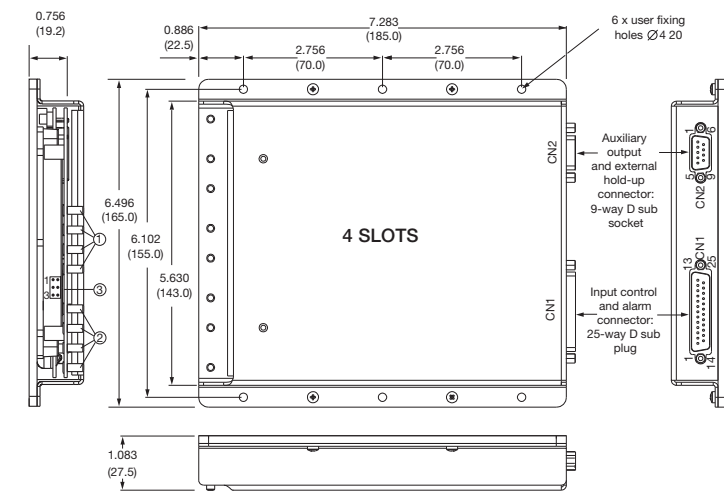
MCC200-300 (available Q4 2009)



MCC200-600: Signals Connector			
Pin	Function	Pin	Function
1	Disable	4	DC OK RTN
2	+sense	5	Disable RTN
3	-sense	6	DC OK

MCC200-300: CN1 9-Pin Aux Output Connector			
Pin	Function	Pin	Function
1	External Holdup Positive	6	External Holdup Negative
2	External Holdup Positive	7	Aux Output Negative
3	Global Inhibit	8	Aux Output Negative
4	Global Inhibit	9	Aux Output Negative
5	Aux Output Positive		

MCC400-600



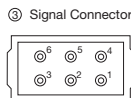
MCC400-600: CN1 25-Pin Input Connector			
Pin	Function	Pin	Function
1	DC OK	14	DC OK RTN
2	Global Inhibit	15	Global Inhibit RTN
3	N/C	16	Negative Input
4	Negative Input	17	Negative Input
5	Negative Input	18	Negative Input
6	Negative Input	19	Negative Input
7	Negative Input	20	Negative Input
8	Negative Input	21	Positive Input
9	Positive Input	22	Positive Input
10	Positive Input	23	Positive Input
11	Positive Input	24	Positive Input
12	Positive Input	25	Positive Input
13	Positive Input		

MCC400-600: CN2 9-Pin Aux Output Connector			
Pin	Function	Pin	Function
1	External Holdup Positive	6	External Holdup Negative
2	External Holdup Positive	7	External Holdup Negative
3	N/C	8	Aux Output Negative
4	Aux Output Positive	9	Aux Output Negative
5	Aux Output Positive		

Notes

For mating signal connector kit order part number MCC 6SIG CON KIT  
All dimensions are in inches (mm).  
Weight: MCC400/600: 2.31 lb (1.05kg) max.  
MCC200/300: 1.76 lb (0.80 kg) max.  
Tolerance: ±0.008 in (±0.2 mm).  
Max Torque: M3 studs 13.3 lbs-in (1.5 Nm)  
M4 studs 17.7 lbs-in (2.0 Nm)

① ② = M3 output studs for MCC200/300 and M4 for MCC400/600 polarity marked on PCB silk screen. Output polarity varies for multiple outputs.



Harwin 2mm Datamate Connector.  
Horizontal male latched.  
Harwin p/n: M80-8680642