SynQor®

MPC
MPC-3000-2U

Military-Grade Power Conditioner

3000VA/ 2500W Output Power	80-265Vrms 47-65Hz or 47-800Hz AC Input Voltage Options	115Vrms or 230Vrms 50Hz, 60Hz or 400Hz AC Output Voltage Options	28Vnom DC Input Voltage Option	Dual 500W/ Single 2500W DC Output Voltage Option

Sealed Construction, Ultra low Weight, Compact Size



Designed & Manufactured in USA

SynQor's Military Power Conditioner units are designed for the extreme environmental and demanding electrical conditions of Military/Aerospace applications. SynQor's MPC incorporates field proven high efficiency designs and rugged packaging technologies. This MPC will accept a wide range of input voltage and frequency values while delivering a well-conditioned AC output to the load. It is designed and manufactured in SynQor's USA facilities to comply with a wide range of military standards. Options include a dual 500W or single 2500W DC output and the ability to also draw power from a military standard 28VDC input.

Combine Up to 3 units for Higher Power, Voltage and/or 3-phase AC output

Features

- Sealed, weather-proof, shock-proof construction
- 2500W (3000VA) output power
- Full power operation: -40°C to +55°C
- Universal AC input: 80-265VAC; 47-65Hz (see options)
- Power factor correction at AC input
- Dual input (AC and optional DC)
- True on-line double conversion
- Pure sinusoidal AC output voltage (115VAC, 60Hz)
- Handles 0.0—1.0 power factor loads and non-linear loads
- Up to 3 units can be combined for higher power, voltage or a 3-phase AC output
- User I/O and Configuration signal ports
- 2U high rack mount unit (17.00" x 22.22")
- Low weight: 49 lbs.

Options

- DC input (28Vnom) for dual source
- Wide-range AC input frequency: 47Hz to 800Hz
- 115Vrms or 230Vrms AC output
- 50Hz, 60Hz, or 400Hz output
- DC1: Two auxiliary isolated DC outputs (up to 500W each)
- DC2: Single auxiliary isolated DC output (up to 2500W)
- Shipboard version with floating neutral wire

Specification Compliance

MPC-3000 units are designed to meet:

- MIL-STD-1399-300B - Interface Std for Shipboard Systems
- MIL-STD-810G - Environmental Engineering Considerations
- MIL-STD-461F - Electromagnetic Interference
- MIL-STD-704F - Aircraft Electrical Power Characteristics
- MIL-STD-1275D - Vehicle Electrical Power Characteristics

In-Line Manufacturing Process

- AS9100 and ISO 9001 certified facility
- Full component traceability

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SynQor®

Technical Specification

MPC
MPC-3000-2U

INPUT CHARACTERISTICS

Operating AC Input

Voltage	80-265Vrms*
Frequency	47-65Hz*
	(47-800Hz Optional)
Input Power Factor	>0.98 at 47-65Hz
	>0.97 at 400Hz
	>0.93 at 800Hz
Maximum Input Current Continuous	40A (full load, 85Vrms)
AC Input Circuit Breaker Rating	50A

(* Power Derating to 80% below 90Vrms)

Operating DC Input (Optional)

Voltage	22-33V
Continuous Maximum Input Current	124A (full load, 22V)
Transient Maximum Input Current	150A

OUTPUT CHARACTERISTICS

Total Output Power Continuous	2500W (3000VA)
Maximum DC1 Output Power	1000W
Maximum DC2 Output Power	2500W

(Note: Available AC power is reduced by power delivered to the DC output)

AC Output

AC Output Waveform	Pure Sinusoidal
Voltage	115Vrms ± 3%
	230Vrms ± 3%
Frequency	60Hz ± 0.5%
	50Hz ± 0.5%
	400Hz ± 0.5%
Peak Load Current	52A (115Vrms)
	26A (230Vrms)
Load Power Factor	0-1.0 (leading or lagging)
Total Harmonic Distortion	2% (2000W resistive load)

Dual DC1 Output (optional)

Voltage Regulation (Over Load & Temperature)	± 3%
Common Voltage/Power combinations	12V at 42A =504W
(Two separate DC outputs)	15V at 34A =510W
(Other Options Available)	24V at 21A =504W
	28V at 18A =504W
	40V at 12.5A =500W
	50V at 10A =500W

DC2 Output (optional)

Voltage Setpoint	± 3%

Droop Share (Output droops vs. load to allow passive sharing among modules.)

24V Option	
Voltage Regulation (Over Load & Temperature)	-15%
	26V at 0A
	22V at 100A =2200W
28V Option	
Voltage Regulation (Over Load & Temperature)	-13%
	30V at 0A
	26V at 96.2A =2500W

ENVIRONMENTAL CHARACTERISTICS MIL-STD-810G

MTBF 50kHrs MIL-217F Ground Benign, Ta=25°C

Temperature Methods 501.5, 502.5

Operating Temperature	-40°C — +55°C
Storage Temperature	-40°C — +70°C

Temperature Methods 503.5

Storage Temperature	-40°C — +70°C

Altitude Method 500.5

Operating	0 - 18,000 ft
Non-operating	0 - 40,000 ft

Environmental Tests

Shock/Drop	Method 516.6, Procedures 1,4,6
Vibration	Method 514.6
	CAT 5 & 24
Fungus	Method 508.6
Salt Fog	Method 509.5
Sand and Dust	Method 510.5, Procedures 1,2
Rain	Method 506.5 Procedure 1
EMI	MIL-STD-461F
Humidity	Method 507.5 Procedure 2
Mechanical Vibrations of Shipboard Equipment	Method 528 Procedure 1

MECHANICAL CHARACTERISTICS

Chassis Size (H x W x D)	3.40" (2U) x 17.00" x 22.22"
Case Material	Aluminum
Total Weight	49 lbs.

Connectors

AC Input Connector	CA02COME22-2PB
DC Input Connector	CA02COME24-10PB
AC Output Connector	CA02COME22-2SB
DC1 Output Connector	CA02COME22-22SB
DC2 Output Connector	CA02COME24-10SB
User I/O Ports	HD DB15 Female
Configuration I/O Port	HD DB15 Male
Ethernet Port	Amphenol RJF22N00, Code B

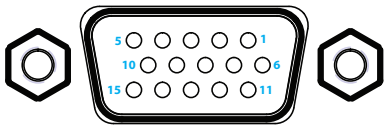
Cooling Exhaust Fans

Sound Pressure Level (SPL)	54 dB(A)
Air Flow	0.67(m^3/min) 23.7 CFM

Four fans in system, above specs are for each fan separately.

High Density DB15 Female (15 Pin Connector)

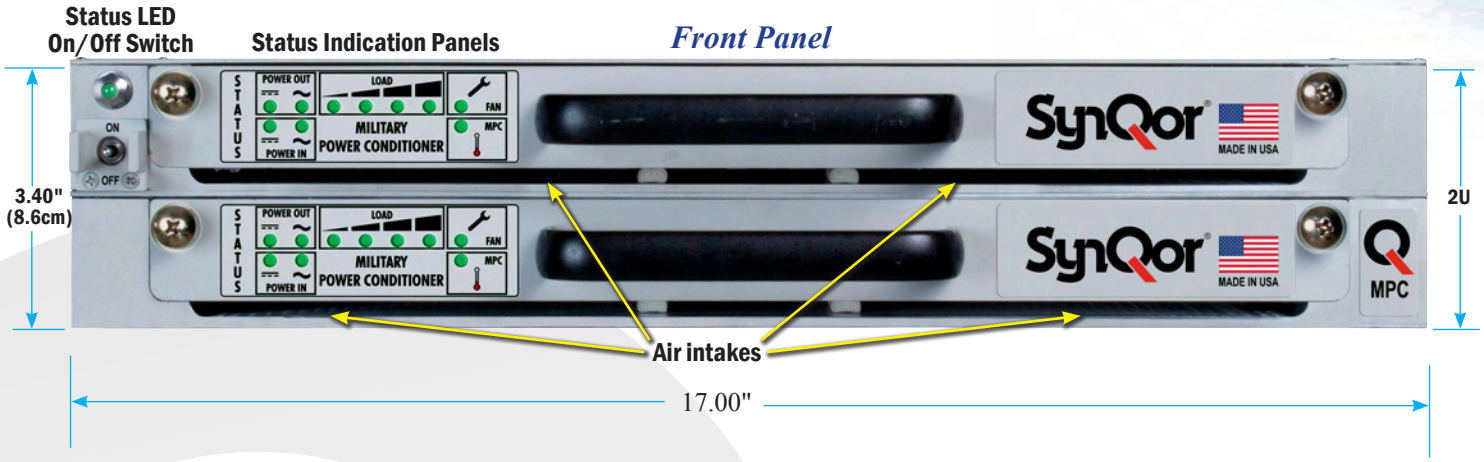
Signal	PIN Number	Function
TX	2	RS232 DCE Device Transmit
RX	3	RS232 DCE Device Receive
GND	4, 5	Ground reference for all digital inputs and outputs
$\overline{\text{ACIN_GOOD}}$	7	Open collector output where “low” indicates AC Input voltage is within range
+5V	8	Vout with minimal current drive usable as a pull-up voltage for open collector output signals. Load must be <35mA
REMOTE_START	12	Drive this line “high” with ≥5mA to enable MPC outputs
SHUTDOWN	13	Drive this line “high” with ≥5mA to disable MPC outputs
$\overline{\text{OUT_OK}}$	14	Open collector output where “low” indicates AC Output voltage is within range
$\overline{\text{OVER_TEMP}}$	15	Open collector output where “low” indicates that the MPC is at or above its maximum temperature



Safety & Qualifications

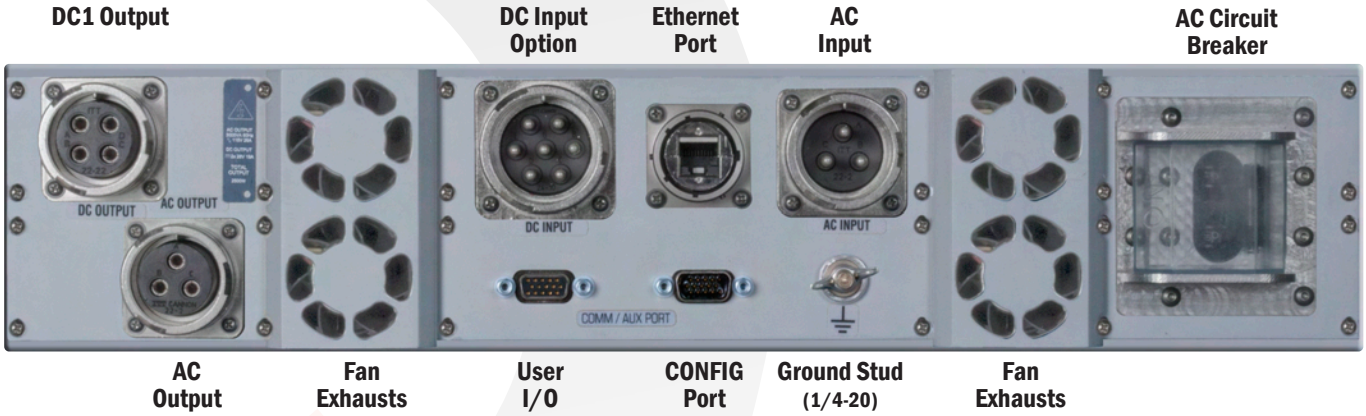
EN 62040-1:2009	General and safety requirements for UPS (Does not apply to 400Hz operation)
EN 62040-2:2006	UPS Electromagnetic compatibility (Category C4)

MPC-3000-2U



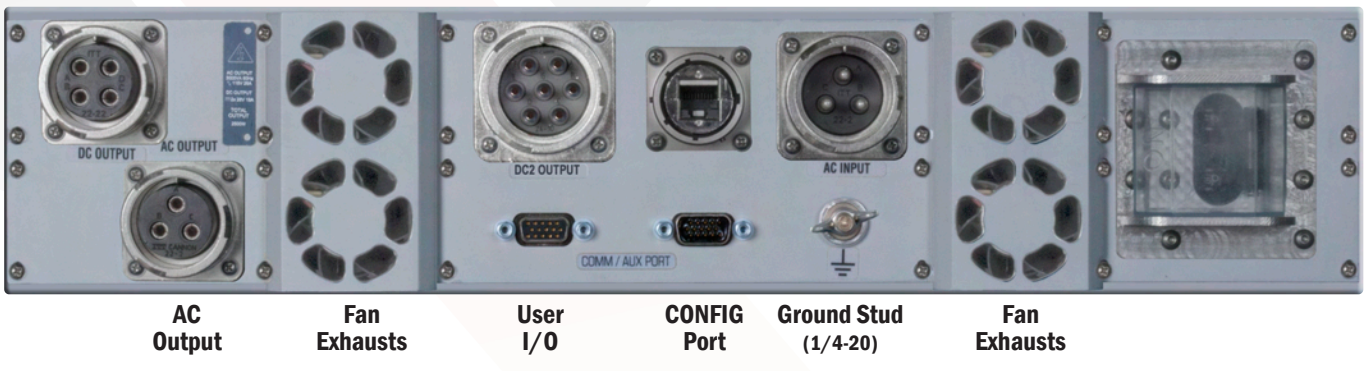
MPC-3000-2U Units with DC Input /DC1 Output Options

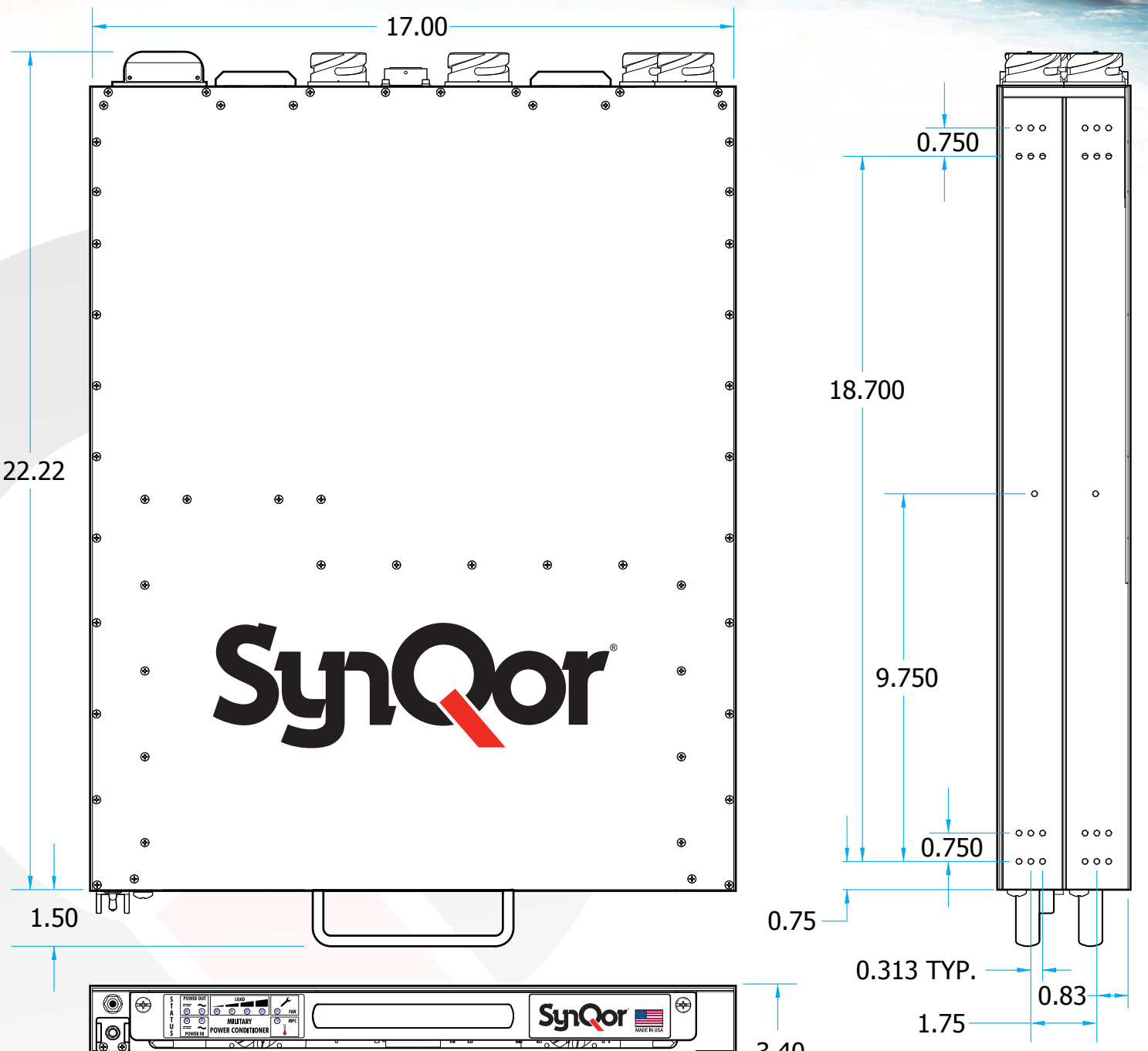
Rear Panel



MPC-3000-2U Units with DC1 Output /DC2 Output Options

Rear Panel




17.00
22.22
1.50
0.750
18.700
9.750
0.750
0.75
0.313 TYP.
0.83
1.75
3.40
3.40
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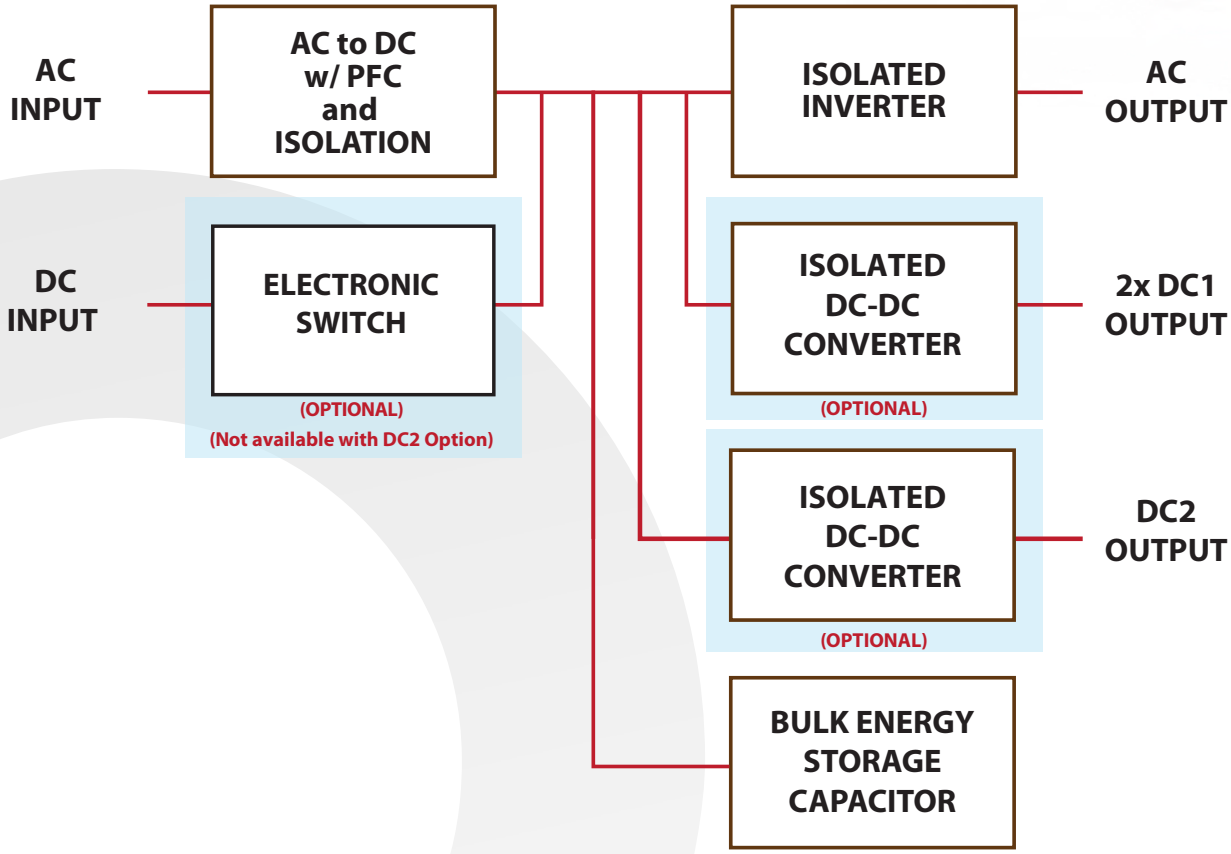
BLOCK DIAGRAM



Rail Kits	
Slide Rail Kit[2]	SYN-9002
Fixed Bracket Kit[3]	SYN-9033
Power Cables (10' long)	
AC Input (Hardwire)	SYN-9105
AC Output (115Vrms/230Vrms) (Hardwire)	SYN-9135
DC Input (Hardwire)	SYN-9155
DC1 Output (Hardwire)	SYN-9173
DC2 Output (Hardwire)	SYN-9178
AC Output Power Strip (Circular Connector)	
6 NEMA Receptacles with Breaker (Rackmount & 3' Cable)	SYN-9236
Rackmount Transit Cases	
Transit Case, 3U, Gray, with Casters[3]	SYN-9410
Transit Case, 3U, Gray, No Casters[3]	SYN-9412

Notes:

1: Other Options also available, check the website or contact power@synqor.com for further information.

2: Slide Rail Kit (SYN-9002) is not recommended for transit and ruggedized use.

3: Fixed Bracket Kit (SYN-9031) with Transit Case (SYN-9410 or SYN-9412) is required for transit and ruggedized use (qualified to pass MIL-STD-810G Loose Cargo andTransit Drop requirements).



Optional Rackmount Transit Case

User Communications (I/O) Cables	
HD DB15M to DB9F (RS232, 10')	SYN-9301
HD DB15M to DB15M (RS232 and Digital I/O, 10')	SYN-9305
Mil-Circular to RJ45 (Ethernet, 10')	SYN-9321
Configuration Cables	
HD DB15F to DB15F (2 Units Parallel, 3')	SYN-9311
HD DB15F to DB15F (3 Units Parallel, 6')	SYN-9315
HD DB15F to DB15F (2 Units Series, 3')	SYN-9313
HD DB15F to DB15F (3 Units 3 Phase, 6')	SYN-9317





6 NEMA Receptacles with Breaker



Ordering Information

MPC

MPC-3000-2U

PART NUMBERING SYSTEM

Model Number	Power	Height	Weight	Options					
				DC Input (28V nom)	DC Output	Floating Neutral AC Output	AC Input Frequency (47-65Hz or 47-800Hz)	AC Output Voltage (115Vrms or 230Vrms)	AC Output Frequency (50Hz, 60Hz or 400Hz)
MPC-3000-2U	**2500W 3000VA**	**2U**	**49 lbs.**	•	**2x 500W DC1 1x 2500W DC2**	•	•	•	•

Family	Output Power	Height	AC Input Frequency	AC Output Voltage	AC Output Neutral Wire	AC Output Set Point Frequency	DC Input / DC2 Output	DC1 Output	Additional Options
MPC	3000	2U	L	1	G	6	D	28	E00
MPC	**3000:** 3000VA 2500W	**2U:**3.4"	**L:** 47-65Hz **W:** 47-800Hz	**1:** 115Vrms **2:** 230Vrms	**G:** Grounded **F:** Floating *	**5:** 50Hz **6:** 60Hz **4:** 400Hz	**S:** Not Installed **D:** DC Input **M:** DC2 Out 24VDC with Droop Share **R:** DC2 Out 28VDC with Droop Share	**00:** None **12:** 12V **15:** 15V **24:** 24V **28:** 28V **40:** 40V **50:** 50V	**000:** None **0CE:** CE Marking **E00:** Ethernet / SNMP **ECE:** Ethernet / SNMP & CE Marking

Not all combinations make valid part numbers, please contact SynQor for availability. See the Product Summary web page for more options.

* Note: Order "F: Floating" option when configuring the AC output for multi-unit combinations.

Examples: MPC-3000-2U-L1G6D28-E00, MPC-3000-2U-L1F4S00-000

Contact SynQor for further information and to order:

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PATENTS

SynQor holds numerous U.S. patents, one or more of which apply to most of its power converter products. Any that apply to the product(s) listed in this document are identified by markings on the product(s) or on internal components of the product(s) in accordance with U.S. patent laws. SynQor's patents include the following:

5,999,417	6,222,742	6,545,890	6,594,159	6,731,520	6,894,468
6,896,526	6,927,987	7,050,309	7,072,190	7,085,146	7,119,524
7,269,034	7,272,021	7,272,023	7,558,083	7,564,702	7,765,687
7,787,261	8,023,290	8,149,597	8,493,751	8,644,027	9,143,042

WARRANTY

SynQor offers a one (1) year limited warranty. Complete warranty information is listed on our website or is available upon request from SynQor.