



1250 W Output Power	80-265 Vrms 47-65 Hz or 47-800 Hz AC Input Voltage	25 - 325 V Adjustable 0 - 6 A Adjustable 1250 W Main DC3 Output	12V - 50 V Fixed 500 W, 1250 W Aux DC1, DC2 Output Options	28 Vnom DC Input Voltage Option
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Sealed Construction, Ultra low Weight, Compact Size



N+M REDUNDANCY
(optional)

DESIGNED & MANUFACTURED IN USA

SynQor's Military Field-Grade 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 wide range of DC voltages to the load. It is designed and manufactured in SynQor's USA facilities to comply with a wide range of military standards. Options include two low voltage DC outputs, and a DC input rated for military 28 VDC sources.

Combine units for Higher Power and/or Redundancy

Features

- Sealed, weather-proof, shock-proof construction
- 1250 W (1500 VA) output power
- Full power operation: -40°C to +55°C
- Universal AC input: 80-265 VAC; 47-65 Hz
- Power factor correction at AC input
- Dual input (AC and optional DC)
- True on-line double conversion
- Pure sinusoidal AC output voltage (115 VAC, 60 Hz)
- DC3 programmable output: 25-325 V
- DC3 full power range: 210-325 V
- DC3 programmable current limit: 0-6 A
- DC3 ideal diode allows OR'ing with external sources
- DC3 ideal diode allows HV battery charging
- Up to 32 units can be combined to form a higher power fault-tolerant, glitch-free system, perhaps with N+M redundancy on DC3
- User I/O and Configuration signal ports
- 1U high rack mount unit (17.00"W x 21.60"D x 1.73"H)
- Low weight: 24 lbs.

In-Line Manufacturing Process

- AS9100 and ISO 9001 certified facility
- Full component traceability

Options

- DC input (28 Vnom) for dual source
- Wide-range AC input frequency: 47 Hz to 800 Hz
- DC1: Auxiliary isolated DC output (up to 500 W)
- DC2: High power DC output (up to 1250 W) parallelable for higher power

Specification Compliance

- MPC-1500 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

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Technical Specification

MPC **MILITARY**
FIELD-GRADE

MPC-1250 270

INPUT CHARACTERISTICS

Operating AC Input

Voltage	80-265 Vrms*
Frequency	47-65 Hz (47-800 Hz Optional)
Input Power Factor	>0.98 at 47-65 Hz >0.97 at 400 Hz >0.93 at 800 Hz

Maximum Input Current Continuous 20 A (full load, 85 Vrms)

AC Input Circuit Breaker Rating 25 A
(* Power Derating to 80% below 90 Vrms)

Operating DC Input (Optional)

Voltage	22-33 V
Continuous Maximum Input Current	62 A (full load, 22 V)
Transient Maximum Input Current	75 A

OUTPUT CHARACTERISTICS

Total Output Power Continuous	1250 W
Maximum DC3 Output Power	1250 W
Maximum DC2 Output Power	1250 W
Maximum DC1 Output Power	510 W
(Note: Available DC3 power is reduced by power delivered to DC2 and DC1)	

DC 3 Output (Adjustable)

Voltage Range	25 - 325 V
Voltage Setpoint (Default)	270 V
Voltage Setpoint Accuracy	± 3%
Voltage Setpoint Resolution	1 V
Voltage Regulation (Over Load & Temperature)	± 5%
Current limit Range (User Adjustable)	0 - 6.0 A
Current Limit Resolution	4 mA
Current Limit Accuracy	± 50 mA
Short Circuit Protection Trip Current	20 A
Maximum Output Capacitance	18 mF

DC1 Output (Optional, Fixed)

Voltage Regulation (Over Load & Temperature)	± 3%
Common Voltage/Power combinations (DC1)	12 V at 42 A =504 W
(Other Options Available)	15 V at 34 A =510 W
	24 V at 21 A =504 W
	28 V at 18 A =504 W
	40 V at 12.5 A =500 W
	50 V at 10 A =500 W

DC2 Output (Optional, Fixed)

Voltage Setpoint	± 3%
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No Sharing

Voltage Regulation (Over Load & Temperature)	-2%
Common Voltage/Power combinations (DC2)	50 V at 20 A =1000 W
	24 V at 50 A =1200 W
	28 V at 44.6 A =1250 W

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

24 V Option

Voltage Regulation (Over Load & Temperature)	-15%
	26 V at 0 A
	22 V at 50 A =1100 W

28 V Option

Voltage Regulation (Over Load & Temperature)	-13%
	30 V at 0 A
	26 V at 48.1 A =1250 W

50 V Option

Voltage Regulation (Over Load & Temperature)	-10%
	52 V at 0 A
	48.5 V at 20.6 A =1000 W

Specifications subject to change without notice.

ENVIRONMENTAL CHARACTERISTICS MIL-STD-810G

Temperature Methods 501.5, 502.5

Operating Temperature	-40 °C to +70 °C ¹
Non-operating Temperature	-40 °C to +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
Temperature Shock	Method 503.5, Procedure 1
Vibration	Method 514.6, CAT 5, 7, 8, 9, 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
Humidity	Method 507.5 Procedure 2
Mechanical Vibrations of Shipboard Equipment	Method 528 Procedure 1

RELIABILITY CHARACTERISTICS MIL-HDBK-217F

MTBF	100 kHrs	MIL-217F Ground Benign, Ta=25 °C
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ELECTROMAGNETIC CAPABILITY MIL-STD-461F

CE101	30 Hz - 10 kHz
CE102	10 kHz - 10 MHz
CS101	30 Hz - 150 kHz
CS106	10 kHz - 40 GHz
CS114	10 kHz - 200 MHz
CS116	10 kHz - 100 MHz
RE101	30 Hz - 100 kHz
RE102	10 kHz - 18 GHz
RS101	30 Hz - 100 kHz
RS103	2 MHz - 40 GHz

MECHANICAL CHARACTERISTICS

1U Standard Chassis

Chassis Size	17.00"W x 21.60"D x 1.73"(1U)H
Case Material	Aluminum
Total Weight	24 lbs.

Connectors

AC Input Connector	MS3470L14-4P
User I/O Ports	HD DB15 Female
Configuration I/O Port	HD DB15 Male
Ethernet Port	Amphenol RJF22N00, Code B
DC Input Connector	MS3470L18-8P
AC Output Connector	MS3470L14-4S
DC1 Output Connector	MS3470L14-4SW
DC2 Output Connector	MS3470L18-8S

Cooling Exhaust Fans

Sound Pressure Level (SPL)	54 dB(A)
Air Flow	0.67(m³/min) 23.7 CFM

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

¹ 100% rated power at 55°C, 0% rated power at 70°C. Derate linearly.



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
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 <35 mA
REMOTE_START	12	Drive this line "high" with ≥ 5 mA to enable MPC outputs
SHUTDOWN	13	Drive this line "high" with ≥ 5 mA to disable MPC outputs
OUT_OK	14	Open collector output where "low" indicates AC Output voltage is within range
OVER_TEMP	15	Open collector output where "low" indicates that the MPC is at or above its maximum temperature



Safety & Qualifications - Pending

UL 62368-1

CAN/CSA C22.2 No.62368-1

EN 62368-1

IEC-62368

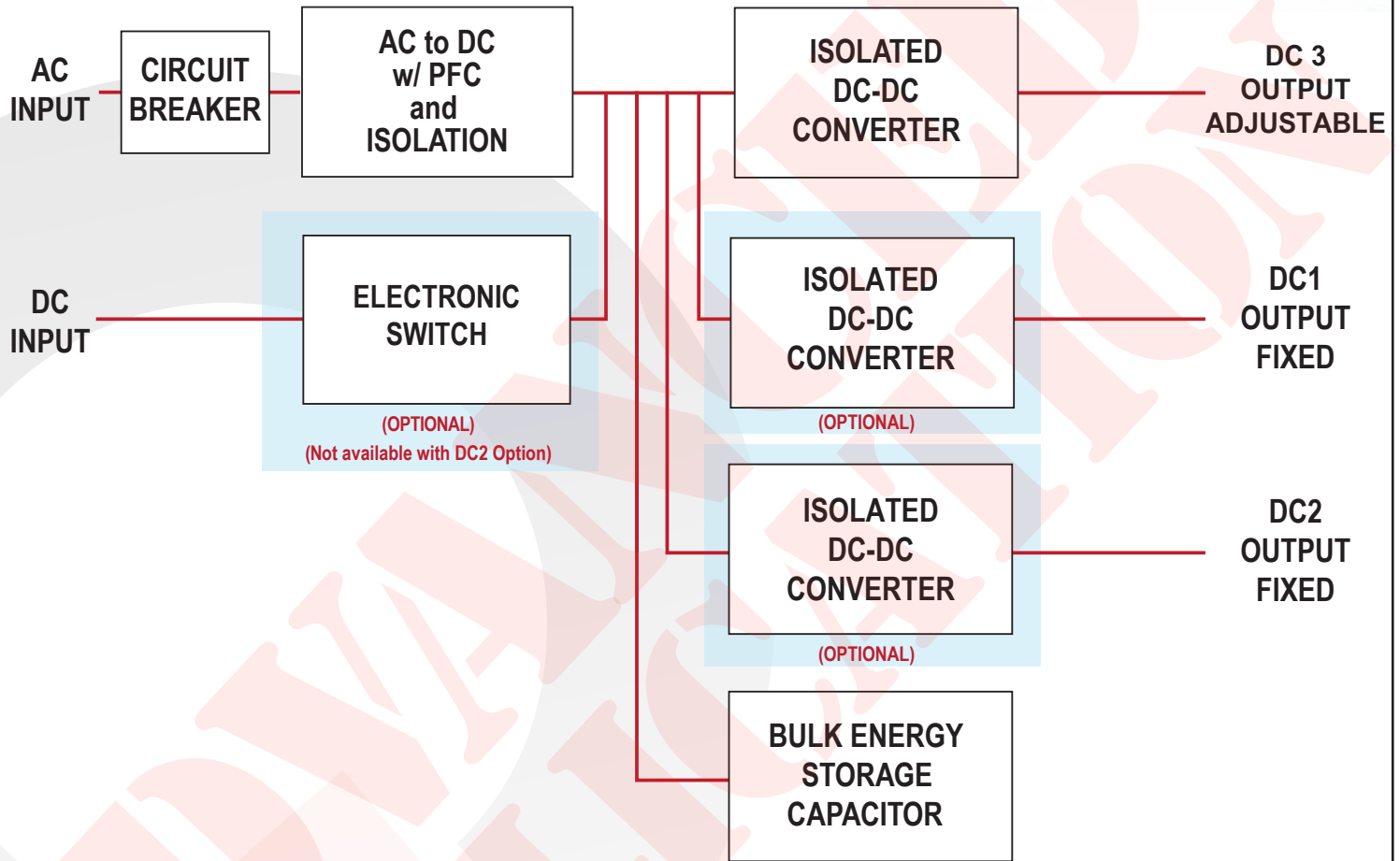


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MPC-1250 270

Block Diagram





Technical Specification

MPC-1250-270-1U

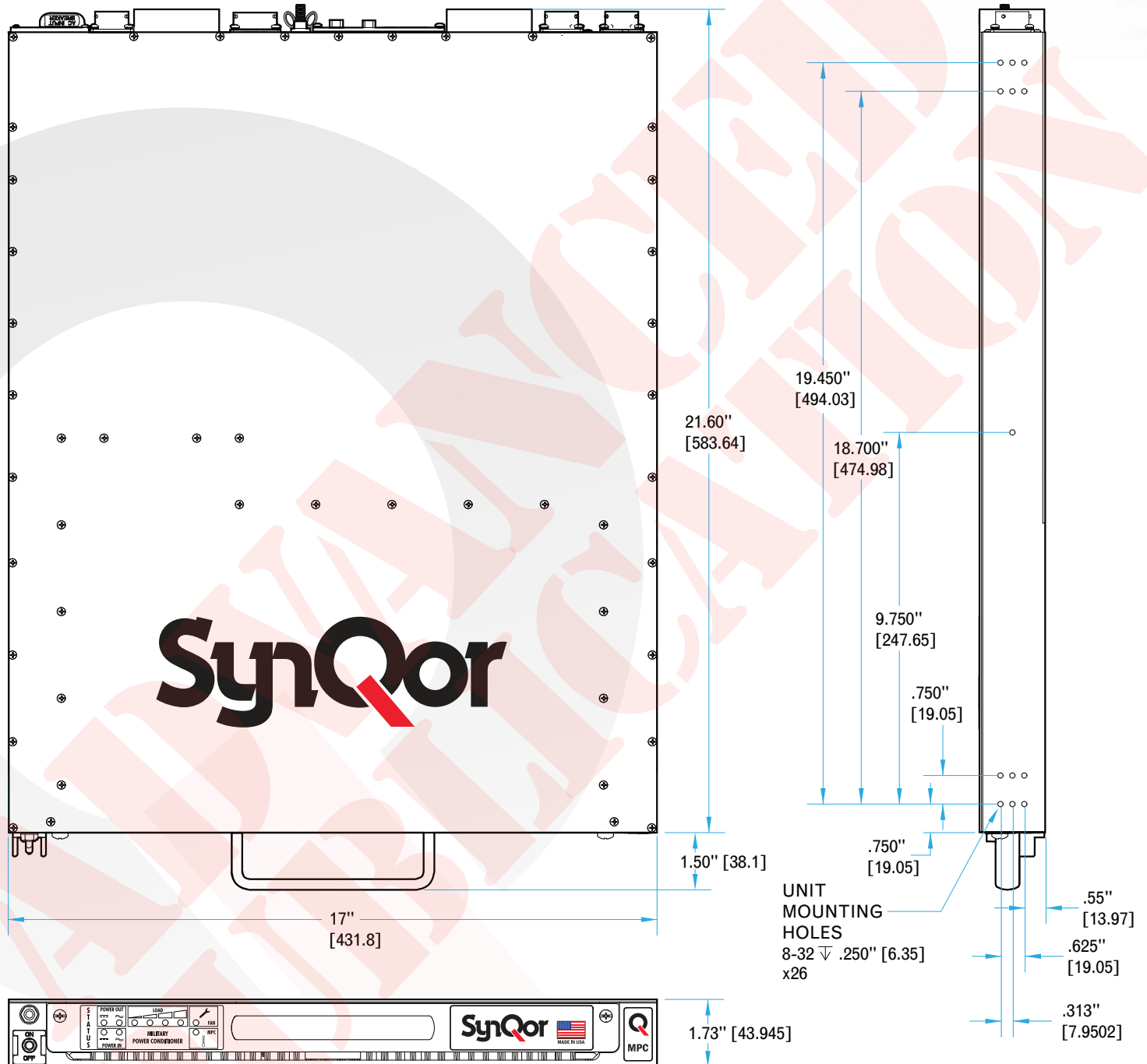


MPC-1250-270-1U with DC Input / DC1 Output Option



MPC-1250-270-1U with DC1 Output / DC2 Output Option





Note:

- 1) ALL DIMENSIONS IN INCHES [mm]
TOLERANCES: X.XXIN +/- 0.02 [0.5]
X.XXXIN +/- 0.010 [0.25]



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MPC-1250 270

Accessory Options

Rail Kits

Slide Rail Kit ²	SYN-9002
Fixed Bracket Kit ³	SYN-9031

Power Cables (10' long)

AC Input (NEMA 5-20 Plug)	SYN-9101
AC Input (NEMA 5-15 Plug)	SYN-9104
AC Input (Hardwire)	SYN-9102
AC Input, 10' Grounded (Hardwire)	SYN-9108
AC Input, 10' UK 13A 250V Plug	SYN-9111
AC Input, 10', SCHUKO 16A, 250V-3W Euro Plug	SYN-9112
DC3 Output, 10', Hardwire	SYN-9130
DC2 Output (Hardwire)	SYN-9174
DC2 Output (Fork Connectors)	SYN-9175
DC1 Output (Fork Connectors)	SYN-9171
DC1 Output (Hardwire)	SYN-9172
DC Input (Ring Connectors)	SYN-9151
DC Input (Hardwire)	SYN-9152
DC Input (NATO Connector)	SYN-9154

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 and Transit Drop requirements).



Optional
Rackmount Transit Case



6 NEMA Receptacles with Breaker

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 (Main DC Output Sharing Only)

HD DB15F to DB15F (2 Units, Expanded Paralleling, 3')	SYN-9341
HD DB15F to DB15F (3 Units, Expanded Paralleling, 3')	SYN-9343



* Contact factory for additional
configuration cables.



Ordering Information

Base Model			
Model Number	Power	Height (W x D x H)	Weight
MPC-1250-270	1250 W 1500 VA	1U (17.00" x 21.60" x 1.73")	24 lbs.

Base Model	Options					Options	
	AC Input Freq	DC3 Output Voltage	DC Input / DC2 Output	DC1 Output	Additional Options	AC Input Freq	
MPC-1250-1U-	L W	270	S D M P R V W Y	00	-E 00 CE	L	47-65 Hz
				12		W	47-800 Hz
				15		DC3 Output	270 270 V Default, 25-325 Vdc
				24		DC Input / DC2 Output	S Not Installed
				28			D DC Input
				40			M DC2 Out 24 VDC with Droop Share
				50			P DC2 Out 24 VDC No Share
							R DC2 Out 28 VDC with Droop Share
							V DC2 Out 28 VDC No Share
							W DC2 Out 50 VDC No Share
							Y DC2 Out 50 VDC with Droop Share
						DC1 Output	00 None
							12 12 V
							15 15 V
							24 24 V
							28 28 V
							40 40 V
							50 50 V
						Additional Options	-E Ethernet/SNMP with Configuration Loading
							00 No CE Marking

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

Examples:

MPC-1250-1U-L270D50-E00,
MPC-1250-1U-W270M28-E00

Contact SynQor for further information and to order:

Phone: 978-849-0600 Fax: 978-849-0602
E-mail: power@synqor.com Web: www.synqor.com
Address: 155 Swanson Road, Boxborough, MA 01719 USA

WARRANTY

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

PATENTS

SynQor holds numerous U.S. patents, one or more of which apply to most of its power conversion 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:

7,765,687 7,787,261
8,149,597 8,644,027