



1250 W Output Power	80-265 Vrms 47-65 Hz or 47-800 Hz AC Input Voltage Options	28 Vdc @ 45 A or 24 Vdc @ 52 A DC Output Options	Fully Regulated DC Output
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Sealed Construction, Ultra low Weight, Compact Size



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 well-conditioned DC output to the load. It is designed to comply with a wide range of military standards.

Combine units for Higher Power and/or Redundancy

Features

- 1U Shallow rack mount unit (17.00"W x 14.80"D x 1.73"H)
- Sealed, weather-proof, shock-proof construction
- 1250 W 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 DC)
- True on-line double conversion
- Up to 32 units in parallel with N+M redundancy
- User I/O and Configuration signal ports
- Low weight: 22 lbs.

In-Line Manufacturing Process

- AS9100 and ISO 9001 certified facility
- Full component traceability

Options

- Fully Regulated 28 V or 24 V DC output
- Constant Current overload protection suitable for lead-acid battery charging applications
- Wide-range AC input frequency: 47 Hz to 800 Hz

Specification Compliance

MPC-1250 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

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

Voltage	22-33 V
Continuous Maximum Input Current	62 A (full load, 22 V)
Transient Maximum Input Current	75 A
Reverse Polarity Protection	-60 V

OUTPUT CHARACTERISTICS

Output Power Continuous	1250 W
Voltage Setpoint Accuracy	± 3 %
Voltage Regulation (Over Load & Temperature)	± 5 %

DC Output - Fully Regulated

28 V Option

Voltage Setpoint (Nominal)	28 V
Operating Output Current Range	0 - 45 A
Overload Current Maximum (< 1 sec)	60 A
Reverse Polarity Protection	None

24 V Option

Voltage Setpoint (Nominal)	24 V
Operating Output Current Range	0 - 52 A
Overload Current Maximum (< 1 sec)	60 A
Reverse Polarity Protection	None

DC Output - Constant Current

28 V Option

Voltage Setpoint (Nominal)	28 V
Operating Output Current Range	0 - 45 A
Overload Current (Continuous)	47 A
Output Vampire Current - Unpowered	< 2 uA
Reverse Polarity Protection	-60 V

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	Pulse Transient
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

** Regarding MIL-STD-461 CE-101, the 50 uH series inductance of a standard LISN adversely affects the input ripple of the MPC (DC input only). Such a large series source inductance (50 uH in each power lead) is not generally encountered in a 28 V DC source of such high power rating. Therefore, testing for CE-101 (DC input) was conducted with 3 different configurations: two using 50 uH LISNs and a 54 mF capacitor connected across the input to the MPC, and one using 5 uH LISNs for which no additional capacitor was added. These configurations all passed CE-101 for all frequencies.

MECHANICAL CHARACTERISTICS

Chassis

Chassis Width	17.00 "W
Chassis Depth	14.80 "D
Chassis Height	1.73 "(1U)H
Case Material	Aluminum
Total Weight	22 lbs.

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.

MECHANICAL CONNECTORS

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
DC Output Connector	MS3470L18-8S

ENVIRONMENTAL CHARACTERISTICS MIL-STD-810G

Temperature Methods 501.5, 502.5

Operating Temperature	-40 °C to 70 °C ¹
Storage 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

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



MPC MILITARY
FIELD-GRADE

MPC-1250DC

Safety & Qualifications

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 DC 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

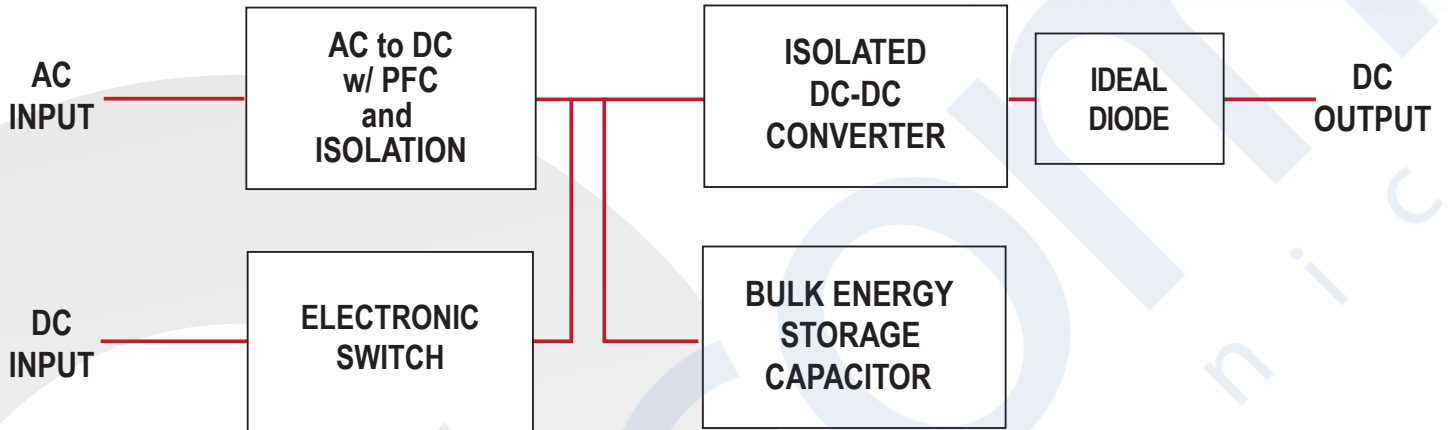
CAN/CSA C22.2 No.62368-1

EN 62368-1

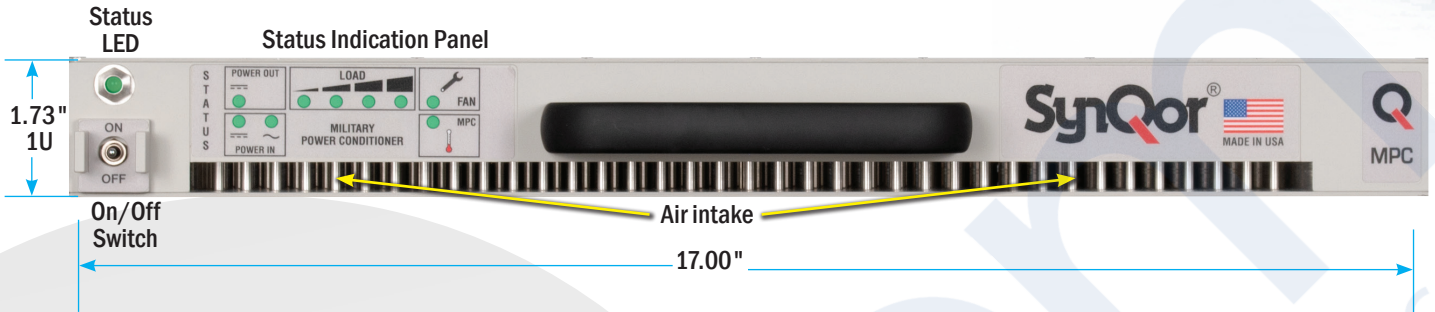
IEC-62368



Block Diagram



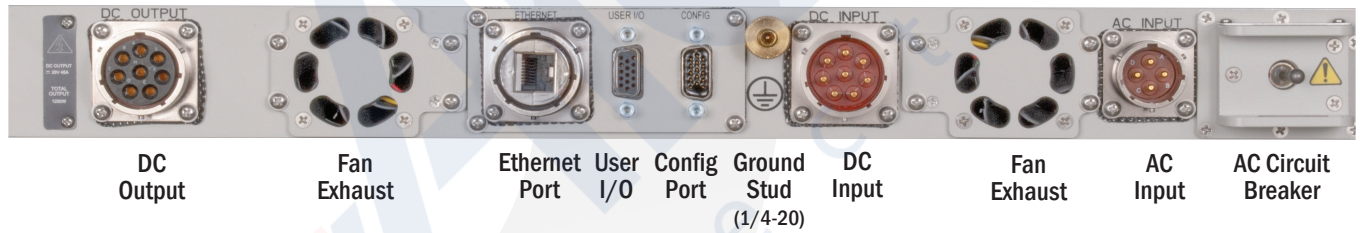
MPC-1250-1S



MPC-1250-1S With Constant Current Output



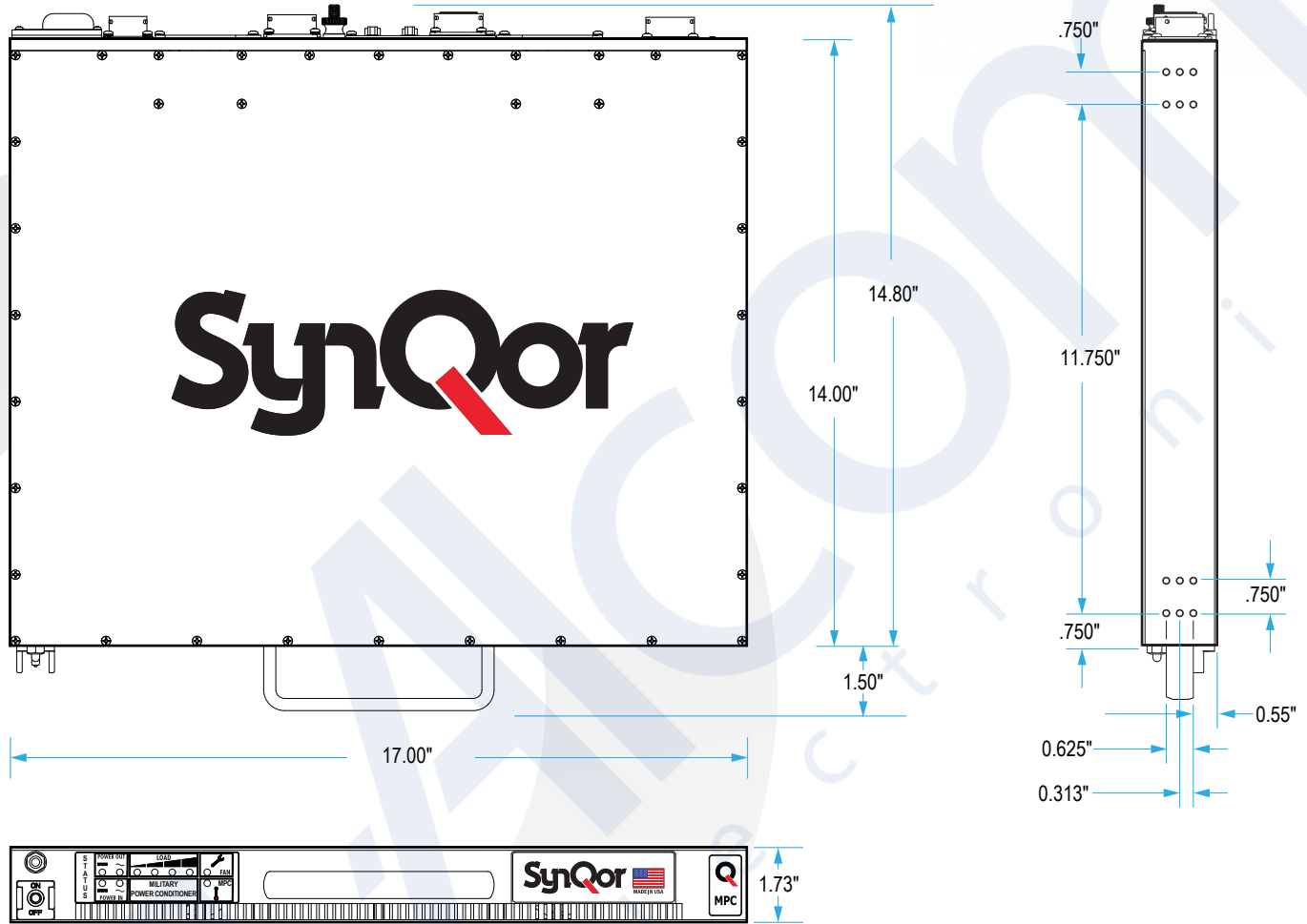
MPC-1250-1S with AC & DC Input / DC Output





Mechanical Diagram

MPC MILITARY FIELD-GRADE
MPC-1250DC



Note:

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



Rail Kits	1250S Series
Slide Rail Kit ²	SYN-9057
Fixed Bracket Kit ³	SYN-9055
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, Grounded (Hardwire)	SYN-9108
AC Input, UK 13 A 250 V Plug	SYN-9111
AC Input, SCHUKO 16 A, 250 V-3W Euro Plug	SYN-9112
DC Input (Ring Connectors)	SYN-9151
DC Input (Hardwire)	SYN-9152
DC Input (NATO Connector)	SYN-9154
DC Output (Hardwire)	SYN-9174
DC Output (Fork Connectors)	SYN-9175
Fan Replacement Kit	
Replaceable Fan Modules	SYN-9450

Notes:

- 1: Other Options also available, check the website or contact power@synqor.com for further information.
- 2: Slide Rail Kit (SYN-9057) is not recommended for transit and ruggedized use.
- 3: Fixed Bracket Kit (SYN-9055) is required for transit and ruggedized use.

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 for Paralleling	
HD DB15F to DB15F (2 Units, 3')	SYN-9341
HD DB15F to DB15F (3 Units, 6')	SYN-9343
HD DB15F to DB15F (4 Units, 9')	SYN-9344



* Contact factory for additional configuration cables.



Ordering Information

Base Models			
Model Number	Power	Height (W x D x H)	Weight
MPC-1250-1S	1250 W	1U (17.00" x 14.80" x 1.73")	22 lbs.

Base Model	Options						Options	
	AC Input Frequency	DC Regulation Type	DC Output Voltage	DC Input	Additional Options		AC Input Freq	DC Reg
MPC-1250-1S-	L W	R P C	28 24	D00	-E	00 CE	L 47 - 65 Hz W 47 - 800 Hz	R Fully Regulated, No Paralleling P Fully Regulated with Paralleling C Constant Current Overload Protection
							28 28 V Output * 24 24 V Output *	
							D00 DC Input	
							-E Ethernet/SNMP with Configuration Loading	
							00 No CE Marking	
							CE 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-1250-1S-LR28D00-E00, MPC-1250-1S-WP24D00-E00, MPC-1250-1S-LR28D00-ECE (Fully Regulated with CE Marking)

* Select 28 V Output option when ordering Constant Current regulation type

Contact SynQor for further information and to order:

Phone: 978-849-0600 Toll Free: 888-567-9596 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:

6,896,526 6,927,987 7,050,309 7,765,687
7,787,261 8,149,597 8,644,027