

UPS MILITARY SHELTER-GRADE

UPS-MS-1500

MILITARY SHELTER-GRADE UNINTERRUPTIBLE POWER SUPPLY

<p>1500 VA/ 1250 W Output Power</p>	<p>80-265 Vrms 47-65 Hz AC Input Voltage</p>	<p>115 Vrms or 230 Vrms 50 Hz or 60 Hz AC Output Voltage Options</p>	<p>>10 Min. / >13.5 Min. Battery Run Time</p>
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DESIGNED & MANUFACTURED IN USA

SynQor's family of rack-mounted Military Shelter-Grade Uninterruptible Power Supply units are designed for the environmental and electrical conditions of Military applications. SynQor's UPS incorporates proven high efficiency designs and packaging technologies. This UPS will accept a wide range of input voltage and frequency values while delivering a well-conditioned AC output to the load. The use of lithium ion batteries permits the lowest profile and lowest weight solution in its power class. It is designed to comply with a wide range of military standards.

Features

- Hot swappable internal battery pack (lithium ion)
- UPS-MS-1500-S-2U, >10 minute run-time at full power
- 1250 W (1500 VA) output power
- Full power operation: -10°C to +50°C
- Universal AC input: 80-265 VAC; 47-65 Hz
- Power factor correction at AC input
- True on-line double conversion
- Cold start with no AC input connection
- Pure sinusoidal AC output voltage
- Handles 0.0—1.0 power factor loads and non-linear loads
- 2U high rack mount unit 16.92"W x 22.13"D x 3.40"(2U)H
- Low weight: 42 lbs. (with chassis & battery)

Options

- 115 Vrms or 230 Vrms AC output
- 50 Hz or 60 Hz
- UPS-MS-1500-H-2U, > 13.5 minutes of run-time

Specification Compliance

UPS-MS-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

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UPS MILITARY SHELTER-GRADE

Technical Specification

UPS-MS-1500

INPUT CHARACTERISTICS

Operating AC Input

Voltage	80-265 Vrms*
Frequency	47-65 Hz
Input Power Factor	>0.98 at 47-65 Hz
Maximum Input Current Continuous	15 A
AC Input Circuit Breaker Rating (* Power Derating below 110 Vrms)	25 A

OUTPUT CHARACTERISTICS

Total Output Power Continuous	1250 W (1500 VA)
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AC Output

AC Output Waveform	Pure Sinusoidal
Voltage	115 Vrms ± 3% 230 Vrms ± 3%
Frequency	60 Hz ± 0.5% 50 Hz ± 0.5%
Instantaneous Peak Load Current	26 A (115 Vrms) 13 A (230 Vrms)
Load Power Factor	0-1.0 (leading or lagging)
Total Harmonic Distortion	2% (1000W resistive load)

Specifications subject to change without notice.

ENVIRONMENTAL CHARACTERISTICS MIL-STD-810G

Temperature Methods 501.5, 502.5

Operating Temperature	-10 °C to +50 °C
Non-operating Temperature	-10 °C to +65 °C

Altitude Method 500.5

Operating	0 - 15,000 ft
Non-operating	0 - 40,000 ft

Environmental Tests

Shock/Drop	Method 516.6, Procedure 1
Temperature Shock	Method 503.5, Procedure 1
Vibration	Method 514.6, CAT 24
Humidity	Method 507.5 Procedure 2

RELIABILITY CHARACTERISTICS MIL-HDBK-217F

MTBF	100 kWhrs	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
EN55032	Class A

MECHANICAL CHARACTERISTICS

Chassis

Chassis Size	16.92"W x 22.13"D x 3.40"(2U)H
Case Material	Aluminum + Galvanized Steel
Total Weight	42 lbs. (with chassis & battery)

Connectors

AC Input Connector	IEC 320-C14
User I/O Ports	HD DB15 Female
Configuration I/O Port	HD DB15 Male
Ethernet Port	Amphenol RJF22N00, Code B
AC Output Connector(s)	Options
	1 - 4 X NEMA 5-15R (115V)
	2 - 1 X Type F (EU-230V)
	3 - 1 X Type G (UK-230V)
	4 - 1 X Type I (ANZ-230V)

Cooling Exhaust Fans

Sound Pressure Level (SPL)	<55 dB(A)
Air Flow	0.67(m³/min) 23.7 CFM

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

High Density DB15 Female (15 Pin Connector)

Signal	PIN	Function
TX	2	RS232 DCE Device Transmit
RX	3	RS232 DCE Device Receive
GND	4, 5	Ground reference for all digital inputs and outputs
LOW_BATT	6	Open collector output where "low" indicates battery charge level <10%
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
ON_BATT	9	Open collector output where "low" indicates UPS is running on battery power
REMOTE_START	12	Drive this line "high" with ≥ 5 mA to enable UPS outputs
SHUTDOWN	13	Drive this line "high" with ≥ 5 mA to disable UPS 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 UPS is at or above its maximum temperature



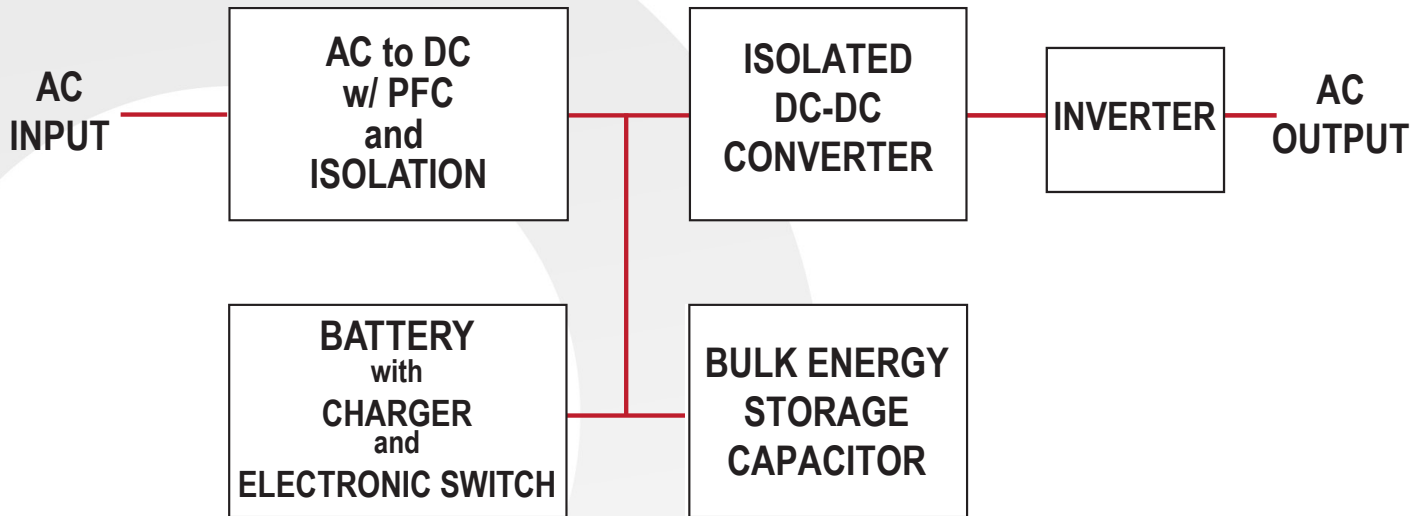
Safety & Qualifications

IEC 62133	Safety requirements for portable secondary sealed cells.
ST/SG/AC.10/11/Rev.5	UN Recommendations on the Transport of Dangerous Goods
UL 1642	Lithium Batteries
EN 62040-1	General and safety requirements for UPS
EN 62040-2	UPS Electromagnetic compatibility (Category C4)

LITHIUM-ION BATTERY CHARACTERISTICS

UPS-MS-1500-S-1U, BAT-0200 Standard 1U Battery Pack Run Time		
1250 W : 10 min	1000 W : 13 min	625 W : 21 min
UPS-MS-1500-H-1U, BAT-0400 Standard 1U Battery Pack Run Time		
1250 W : 13.5 min	1000 W : 18 min	625 W : 27 min
Recharge Time (to 90% charge)		
Standard		
Total Output Power	< 1000 W	2 hrs
Temperature Range for Recharge: 0°C to 45°C		
Internal heaters maintain battery temperature above 0°C when input power is present.		
Battery charging only enabled below +45°C.		

Block Diagram



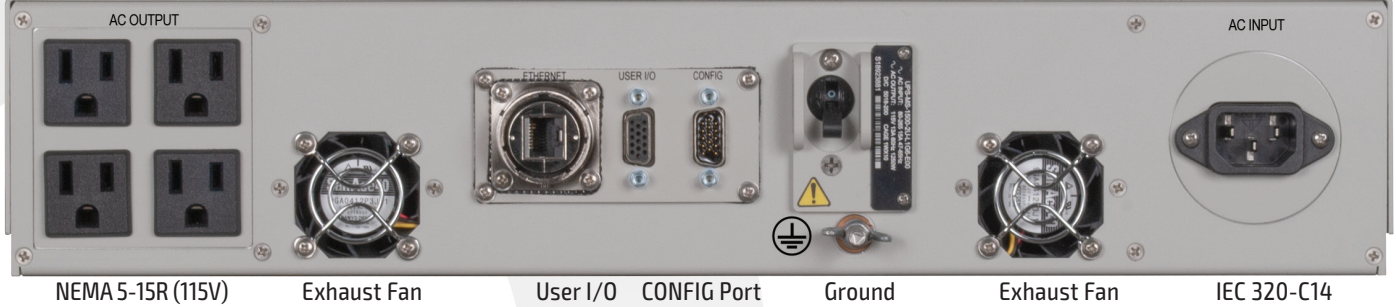


UPS-MS-1500



AC Output Connector Ethernet Port Circuit Breaker AC Input Connector

US



EU

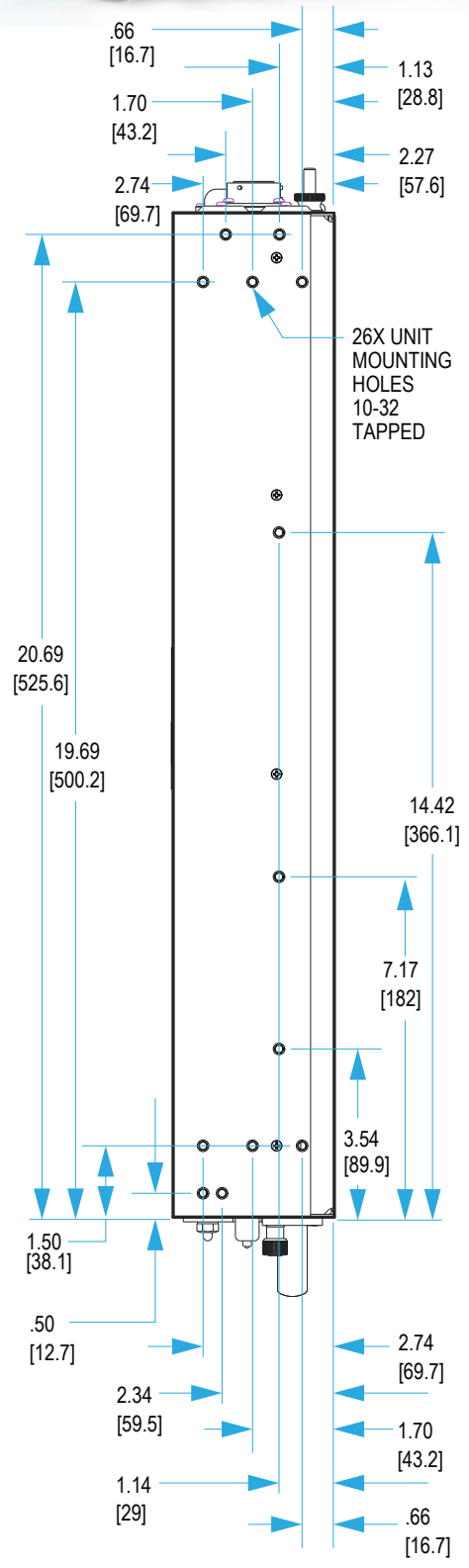
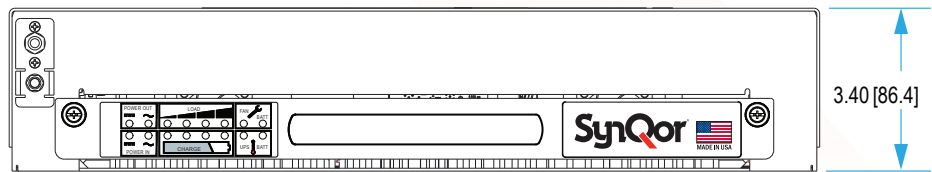


UK



ANZ





Note:

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

Accessory Options

Replacement Battery Packs		1500S Series
1U: 10 lbs., >10 Min Full Load Run Time		BAT-0200-S-1U-000
1U: 11.8 lbs., >13.5 Min Full Load Run Time		BAT-0400-H-1U-000
Rail Kits		
Slide Rail Kit²		SYN-9053
Fixed Bracket Kit³		SYN-9051
Rackmount Transit Cases		
Transit Case, 3U, Gray, with Casters³		SYN-9410
Transit Case, 3U, Gray, No Casters³		SYN-9412

Notes:

- 1: Other Options also available, check the website or contact power@synqor.com for further information.
- 2: Slide Rail Kit (SYN-9053) is not recommended for transit and ruggedized use.
- 3: Fixed Bracket Kit (SYN-9051) 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).



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



Optional Rackmount Transit Case



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Ordering Information

AC Base Models				
Model Number	Power	Battery Run-Time @Full Power (80% Power)	Height (W x D x H)	Weight
UPS-MS-1500-S-2U (1 Standard Battery Pack)	1250 W 1500 VA	>10 min. (>13 min.)	2U (16.92" x 22.31" x 3.403")	40 lbs.
UPS-MS-1500-H-2U (1 Standard Battery Pack)	1250 W 1500 VA	>13.5 min. (>18 min.)	2U (16.92" x 22.31" x 3.403")	41.8 lbs.

AC Base Models	Options					Options	
	AC Input Freq	AC Output Voltage	AC Output Neutral Wire	AC Output Set Point Freq	Additional Options	AC Input Freq	Options
UPS-MS-1500-S-2U UPS-MS-1500-H-2U	L	1 2 3 4	G	5 6	-E 00 CE	L	47-65 Hz
						AC Output Voltage	1 115 Vrms 2 230 Vrms - EU 3 230 Vrms - UK 4 230 Vrms - ANZ
						AC Output Neutral Wire	G Grounded
						AC Output Set Point Freq	5 50 Hz 6 60 Hz
						Additional Options	-E Ethernet/SNMP with Configuration Loading 00 No CE Marking CE CE Marking (230 V only)

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

Examples:

UPS-MS-1500-S-2U-L1G6-E00, UPS-MS-1500-S-2U-L2G5-E00

UPS-MS-1500-S-2U-L2G5-ECE (230 V output with CE marking)

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 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:

7,050,309 7,765,687 7,787,261
8,149,597 8,644,027