

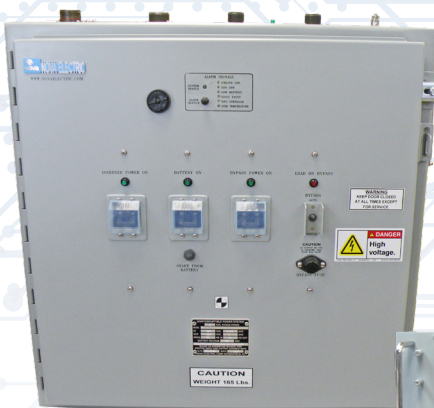


ULTRA LIGHTWEIGHT 1-2.4 KW RUGGED TRUE ONLINE DC UPS

When Every Pound Counts!



- MIL-Spec Qualified
- Field Proven Reliability
- Compact, Lightweight Chassis
- Advanced Communications





NOVA ELECTRIC

Universal 120/240 VAC PFC
Single-Phase Input

Advanced SNMP
Communications

APPLICATIONS

- Shipboard Power
- Shelters
- Tactical Systems
- Aircraft
- HMMWVs
- Mobile Systems
- Ground Support
- Transit Cases

COMPLIANCE

- MIL-STD-1399
- MIL-STD-461
- MIL-S-901
- MIL-STD-167
- MIL-STD-810
- MIL-STD-740
- DOD-STD-1399

CONTACT

100 School Street,
Bergenfield, NJ 07621 USA

(201) 385-0500

novaelectric.com
info@novaelectric.com



ULTRA-LIGHTWEIGHT RUGGED GALAXY SERIES DC UPS

When Every Pound Counts!

Product Features

- Compact Rack Mount Chassis (1U - 3U Tall)
- Ultra Lightweight Design
- Power Factor Corrected Universal Input
- SNMP Communications
- Lithium Iron Phosphate Batteries Available Optionally
- True Online UPS Technology

WHEN EVERY POUND COUNTS!

Nova's Ultra Lightweight Galaxy-Series rugged, true online DC UPS systems are high-reliability power sources specifically designed for demanding applications in high shock, vibration, humidity, and EMI environments in compliance to MIL-STD-1399, MIL-STD-461, MIL-S-901, MIL-STD-167, MIL-STD-810, MIL-STD-740, DOD-STD-1399, and RTCA/DO-160. They supplement our comprehensive lineup of Ultra Lightweight Galaxy-Series rugged, true online AC UPS systems.

These UPS models utilize True Online technology, offering maximum field-proven reliability for severe environment and high reliability applications such as:

Military Applications

- HMMWV
- UAV
- Shipboard
- Submarine
- Aircraft
- Mobile Power Units
- Shelters
- Transportable Systems
- Tactical Systems
- Ground Support

Heavy-Duty Industrial Applications

Demanding Commercial Applications

Communications Systems



**1 - 2.4 KW BULKHEAD
MOUNT CABINET**



3U / 2.4 KW



2U / 1.6 KW



1U / 1 KW



**TRANSIT CASES
OPTIONAL**



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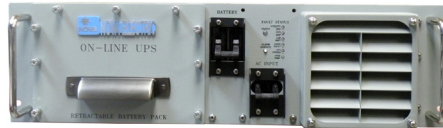
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These UPSs are among the lightest in the industry, thanks to their use of advanced Lithium Iron Phosphate batteries, which are contained in retractable drawers for ease of service. Separate rack mount battery modules can be added to extend run time as required, from several minutes to several hours or more. Sealed, maintenance-free VRLA batteries are also available as standard, along with premium premium Cyclon cells for extremely wide temperature range and long life.

As you'd expect from Nova Electric, variations of this proven design have repeatedly passed formal qualification testing on a variety of military platforms including shipboard, vehicular, and airborne. Standards met include MIL-STD-1399, MIL-S-901, and MIL-STD-167 for shipboard, DO-160 for avionics, MIL-STD-461 for EMI, MIL-STD-740 Structureborne noise measurements, MIL-STD-810 for shock, vibration, and humidity, and other related standards.

Nova Electric's Ultra Lightweight UPS are deployed in countless high profile military programs aboard Naval ships and submarines, on satellite trailers and mobile shelters, and military ground vehicles and aircraft, with a field-proven MTBF exceeding 100,000 hours. These units are the first choice for the world's leading defense contractors including Lockheed Martin, Boeing, Raytheon Technologies, General Dynamics, DRS, BAE, L3Harris, all branches of the US Armed Forces, and US allied forces worldwide.



3U Ultra Lightweight UPS is available with 2.4 KW output with up to 5 minutes run time using internal batteries. Battery options include standard VRLA, premium Cyclon, or advanced LiFePO4 Batteries. External battery packs are available for additional run time.



2U / 1.6 KW Ultra Lightweight UPS is available with standard VRLA, premium Cyclon, or advanced LiFePO4 Batteries to provide up to 5 minutes at full load. External battery packs are available for additional run time.



1U / 1 KW Ultra Lightweight UPS is available with advanced LiFePO4 Batteries to provide up to 5 minutes at full load. External battery packs are available for additional run time.

The Leader In Rugged Power Conversion Technology Since 1966

Some optional equipment shown. Specifications subject to change without notice.



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Single-Phase Input

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COMPLIANCE

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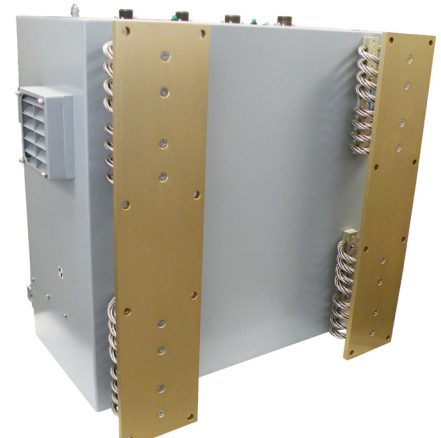


GALAXY SERIES ULTRA LIGHTWEIGHT 1-2.4 KW RUGGED TRUE ONLINE BULKHEAD-MOUNT DC OUTPUT UPS

- 1 - 2.4 KW Bulkhead Mount Cabinet Available
- Optional Shock Mounts Shown for MIL-S-901 Compliance



- Protection up to IP54 Optional
- Compact 24" H x 24" W x 12" D Dimensions



- Standard VRLA, Premium Long-Life / Wide-Temperature Cells, and Advanced LiFeP04 Batteries Available

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Specifications

Electrical

| | |
|--------------------------------|--|
| INPUT VOLTAGE | 115 or 120/240 VAC Auto Ranging Standard (Select) |
| INPUT FREQUENCY | 50 / 60 Hz Auto Ranging Standard – 400 Hz Optional |
| DC OUTPUT VOLTAGE | 24, 28, or 280 VDC with Centertap (Specify) |
| VOLTAGE REGULATION | ± 2% NL to FL |
| INPUT POWER FACTOR | 0.95 or Better @ Half-Full Load |
| EFFICIENCY AT FULL LOAD | 80-85% @ Full Load Typical (Batteries Charged) |
| OVERLOAD | 110% Load for 10 Minutes 115% Load for 5 Minutes 120% Load for 2 Minutes |
| CONNECTIONS | MS Connector (Mates Optional) |

Nominal Dimensions

UPS Dimensions: 19" Wide x 24" Deep

(See Chart for Height)

External Battery Dimensions (Typical):

5.25" High x 19" Wide x 24" Deep

Note: External batteries available on all models if increased run time is required – up to 24 hours.

Audible

- Audible Alarm with Silence Switch

Batteries

Internal

- Standard sealed, maintenance free lead acid batteries have -20 to +50C storage range.
- Optional Premium sealed, maintenance free lead acid batteries have -40 to +80C operating range and useful life of 8-12 years @ +25C ambient.
- Optional Lithium Iron Phosphate batteries (as shown in units with "LiFe" model suffix) have -20 to +60C operating range and useful life of 8-10 years @ +25C ambient, but are much lighter than lead acid batteries.

Note: Run time shown using standard batteries. Consult Factory for run times using premium batteries. For best results, batteries must be kept at 25 degrees Celsius ambient temperature. Extreme low temperatures will result in reduced run time, while extreme high temperatures result in significantly reduced battery lifespan.

- MTBF: 100,000+ hours per field data @ +25C Ambient Ground-Fixed
- MTTR: 30 minutes by qualified personnel

Environmental

- UPS Operating Temp. -20° to +55°C (Extended Ranges Optional)
- UPS Storage Temperature Range -40° to +71°C (Electronics Only - Extended Ranges Optional)
- Humidity to 95% RH Non-condensing (All Boards Conformal Coated with Acrylic MIL-I-46058 Type R.)
- Elevation 15,000 Ft. (4,572 m) Operating; 40,000 Ft. (12,192 m) Non-operating (Higher Optional)
- Shock 20 g, 11 mS Half Sinewave
- Audible Noise Less than 55 dbA at 5 ft.

Communications

- SNMP V1.0 standard via CAT-5 Connector (V2.0 or V3.0 Optional)
- RS 232 (Available-Optional) Via DB 9 Connector
- Alarm Contacts (Available-Optional)
- Major Alarm Logic Fault, Low Battery, OT, UPS Overloaded
- Minor Alarm: Utility Off

Standard Front Panel Diagnostics

- **Charged:** LED is on when UPS is running on battery and battery charger is off.
- **UPS On:** LED is on when the Remote On/Off switch is in the on position.
- **Alarm Silence:** Switch to silence the audio alarm. Alarm will sound again at next detection of fault.
- **UPS On Batt:** LED is on if UPS is running on battery power.
- **UPS Fault:** LED is on if the DC Output Stage in the UPS is not operational. There will be no output power in this condition.
- **Fault Status:** A set of LEDs to indicate fault in operating status of UPS. Under normal operation, all of these LEDs are off. If a fault is encountered, the corresponding LED will turn on. Multiple LEDs can turn on at the same time if multiple faults are detected. Detected Faults include: Low Battery, Input Fault, UPS Overload, and Overtemperature.

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Qualified To:

MIL-STD-1399 Section 300B: For Type I apparatus

MIL-STD-740-1: Airborne Sound Measurements for Shipboard Equipment

MIL-STD-740-2: Structureborne Vibratory Acceleration Measurements

Additional Ruggedization to meet MIL-S-901, MIL-STD-167, MIL-STD-810,

and DOD-STD-1399: The UPS System's construction is extremely robust, and ruggedized throughout. All components and modules within the unit are mounted using additional steel brackets and heavy-duty stainless-steel hardware, which is then further secured using Loctite and RTV where required. All boards are conformal-coated (Acrylic MIL-I-46058 Type R) for maximum resistance to potential condensation and fungus growth.

MIL-S-901 for Grade A, Class I, Type A Equipment (with optional shock mounts)

MIL-STD-167-1 for Type I Equipment

MIL-STD-810:

- Air Temperature per MIL-STD-810F Method 502.4, Procedure II
- Steady State Temperature per MIL-STD-810F, Method 501.4, Procedure I (Constant Temperature) and Method 502.4, Procedure I
- Temperature Shock per MIL-STD-810F, Method 503.4, Procedure II, Cyclic.
- Thermal Shock testing per MIL-STD-810G, Method 503.5, Procedure I-D Operating Temperature Shock per MIL-STD-810B Method 503.0 to 71°C
- High Temperature Storage per MIL-STD-810G, Method 501.5, Procedure I
- Low Temperature Storage testing per MIL-STD-810G, Method 502.5, Procedure I
- High Temperature Operating per MIL-STD-810G, Method 501.5, Procedure II
- Low Temperature Operating per MIL-STD-810G, Method 502.5, Procedure II
- Operational Humidity per MIL-STD-810F Method 507.4.
- Humidity per MIL-STD-810G, Method 507.5, Procedure I
- Storage and Transportation Humidity per MIL-STD-810F, Method 507.4
- Salt Fog Atmosphere per MIL-STD-810F Method 509.4
- Altitude per MIL-STD-810F, Method 500.4, Procedure I, Storage/Air Transport.
- Operating and Non-Operating Altitude Testing per MIL-STD-810G, Method 500.5, Procedure II
- Rapid Decompression per MIL-STD-810F, Method 500.4, Procedure III
- Transit Shock per MIL-STD-810F, Method 516, Procedures IV, V and VI
- Transportation Vibration per MIL-STD-810F, Method 514.5, Procedure II for loose cargo transportation
- Transportation Vibration per MIL-STD-810G, Method 514-6, Procedure I, Category 20

- Vibration per MIL-STD-810B Method 514.6, Category 12, Procedure I
- Transit Drop per MIL-STD-810F, Method 516.5, Procedure IV
- Transit Drop per MIL-STD-810G, Method 516.6, Procedure IV
- Bench Handling per MIL-STD-810F, Method 516.5, Procedure VI
- Bench Handling per MIL-STD-810G, Method 516.6, Procedure VI

DOD-STD-1399 Section 301A Table V – Design Limits for Ship Motion

Internal EMI Reduction Package to meet

MIL-STD-461: The Ultra Lightweight UPS Systems shown herein are designed to comply with the requirements of MIL-STD-461E using shielded input, output, and data cables. Test data to other revisions of MIL-STD-461 is available for select models. (If the input and output cables are not shielded, additional filtering may be required for full compliance to MIL-STD-461.) All single-phase input units in this series are equipped with active Power factor Correction which allows full compliance to the input current requirements of MIL-STD-1399 and the CE101 limit of MIL-STD-461. Please note: Not all models and choices of input voltages and output voltages shown in the model chart have been formally tested for each of the following MIL-STD-461E parameters shown below. In such cases, Nova cannot guarantee full compliance without a formal testing program for your specific UPS configuration, available optionally. Please consult the factory for details.

MIL-STD-461E: CE101, CE102, CS101, CS114, CS116, RE102, RS101, and RS103.

OPTIONAL Compliance to RTCA/DO-160G:

Select units were tested successfully by Boeing and Collins Aerospace to meet RTCA/DO-160G for:

Rapid Decompression: Section 4 Cabin Pressure (8K) to Max Operating Alt (35K) in 15 sec; Hold for 10 min

Crash Safety Sustained: Section 7, Cat B – Up = 3.0g – Down = 6.0g – Fwd = 9.0g – Aft = 1.5g – Side = 4.0g

Explosive Atmosphere: Non-Ignition Test Sec. 9.6.2, Cat E

Humidity: Section 6, paragraph 6.3.1 (Category A)

Random Vibration Testing: Section 8 (Category R, Fixed-Wing), paragraph 8.7.2, Figure 8-1: Aircraft Type 2, Test Category S, Zone 2, Curve B

Operational Shock Testing: Section 7 (Category B), paragraph 7.2, Standard operational, Peak value 6 g, Nominal duration 11 ms.

Note: Qualification testing on select models was performed with optional premium batteries required to meet temperature testing requirements. Please consult factory for details.



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Some optional equipment shown. Specifications subject to change without notice.

PARTIAL RACK MOUNT MODEL SELECTION

24 VDC Output Models

| MODEL | KW | NOMINAL INPUT | INPUT AMPS | UPS LBS. | RUNTIME | HEIGHT |
|--|-----|---------------|------------|----------|---------|--------|
| GRSLPFC11-2.4K-120/240A-24VDC-5M-3U | 2.4 | 120-240 VAC | 24/12A | 75 | 5 min. | 3U |
| GRSLPFC11-2.4K-120/240A-24VDC-5M-3U-LIFE | 2.4 | 120-240 VAC | 24/12A | 60 | 5 min. | 3U |
| GRSLPFC11-1.6K-120/240A-24VDC-5M-2U | 1.6 | 120-240 VAC | 16/8A | 57 | 5 min. | 2U |
| GRSLPFC11-1.6K-120/240A-24VDC-5M-2U-LIFE | 1.6 | 120-240 VAC | 16/8A | 35 | 5 min. | 2U |
| GRSLPFC11-1K-120/240A-24VDC-5M-1U-LIFE | 1 | 120-240 VAC | 10/5A | 23 | 5 min. | 1U |

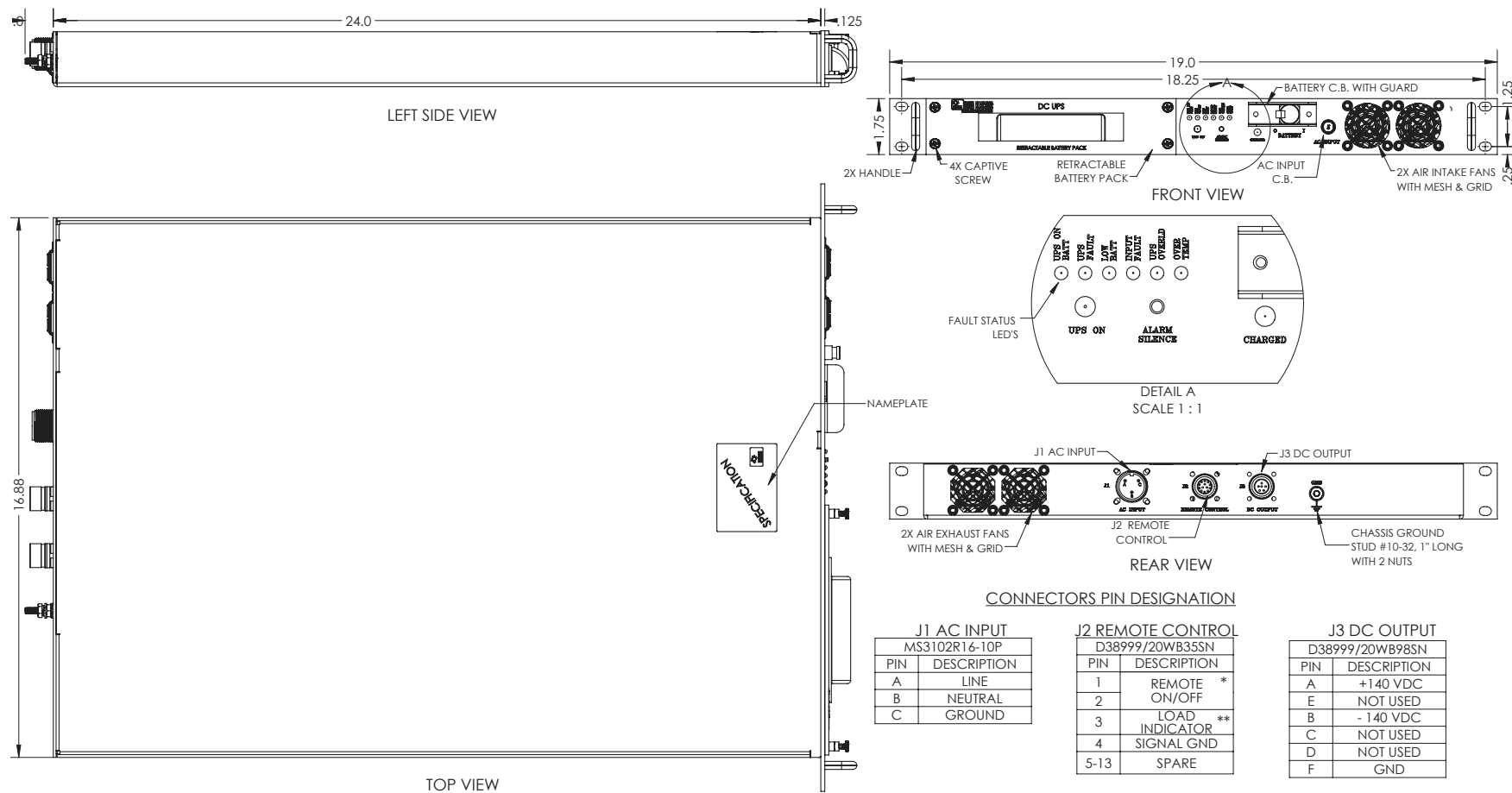
28 VDC Output Models

| MODEL | KW | NOMINAL INPUT | INPUT AMPS | UPS LBS. | RUNTIME | HEIGHT |
|--|-----|---------------|------------|----------|---------|--------|
| GRSLPFC11-2.4K-120/240A-28VDC-5M-3U | 2.4 | 120-240 VAC | 24/12A | 75 | 5 min. | 3U |
| GRSLPFC11-2.4K-120/240A-28VDC-5M-3U-LIFE | 2.4 | 120-240 VAC | 24/12A | 60 | 5 min. | 3U |
| GRSLPFC11-1.6K-120/240A-28VDC-5M-2U | 1.6 | 120-240 VAC | 16/8A | 57 | 5 min. | 2U |
| GRSLPFC11-1.6K-120/240A-28VDC-5M-2U-LIFE | 1.6 | 120-240 VAC | 16/8A | 35 | 5 min. | 2U |
| GRSLPFC11-1K-120/240A-28VDC-5M-1U-LIFE | 1 | 120-240 VAC | 10/5A | 23 | 5 min. | 1U |

280 VDC Output Models

| MODEL | KW | NOMINAL INPUT | INPUT AMPS | UPS LBS. | RUNTIME | HEIGHT |
|---|-----|---------------|------------|----------|---------|--------|
| GRSLPFC11-2.4K-120/240A-280VDC-5M-3U | 2.4 | 120-240 VAC | 24/12A | 75 | 5 min. | 3U |
| GRSLPFC11-2.4K-120/240A-280VDC-5M-3U-LIFE | 2.4 | 120-240 VAC | 24/12A | 60 | 5 min. | 3U |
| GRSLPFC11-1.6K-120/240A-280VDC-5M-2U | 1.6 | 120-240 VAC | 16/8A | 57 | 5 min. | 2U |
| GRSLPFC11-1.6K-120/240A-280VDC-5M-2U-LIFE | 1.6 | 120-240 VAC | 16/8A | 35 | 5 min. | 2U |
| GRSLPFC11-1K-120/240A-280VDC-5M-1U-LIFE | 1 | 120-240 VAC | 10/5A | 23 | 5 min. | 1U |

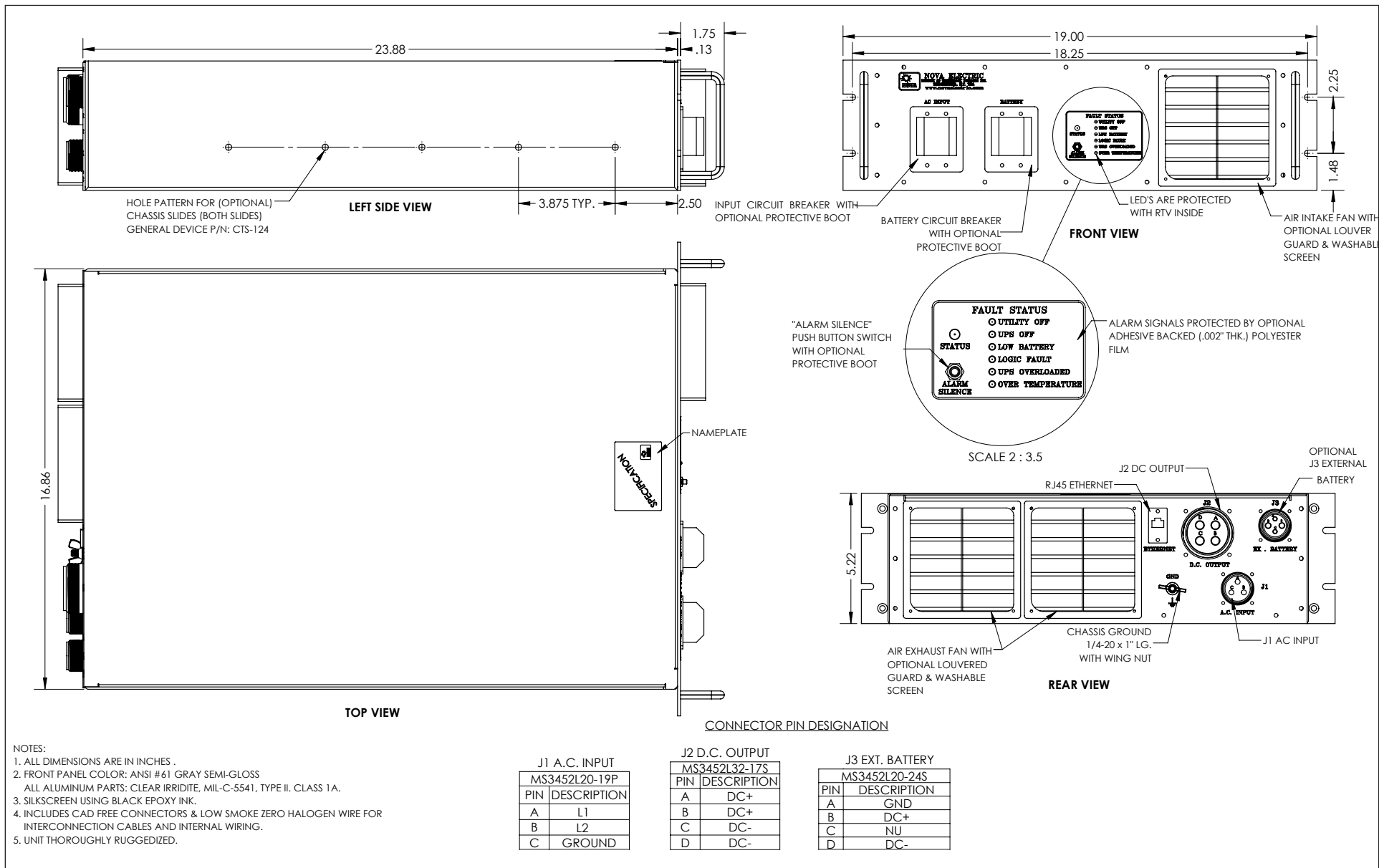




- NOTES:
1. ALL DIMENSIONS ARE IN INCHES.
 2. ALL UNDIMENSIONED PICTORIAL CONFIGURATIONS ARE FOR REFERENCE ONLY.
 3. FRONT AND REAR MARKING FOR REFERENCE ONLY.
 4. FINISH: CLEAR IRRIDITE THEN PRIME & PAINT.

* SHORT PIN 1 TO 2 TO TURN UPS ON
 ** 0-5V SIGNAL INDICATE 0-100%
 LOAD PROPORTIONALLY

TYPICAL 1U CHASSIS



TYPICAL 3U CHASSIS



RUGGED AC POWER SYSTEMS



SELECT UNITS QUALIFIED TO MIL-STD-810, MIL-S-901, MIL-STD-1399, MIL-STD-461, MIL-STD-167, MIL-STD-740, RTCA/DO-160, AND MORE

RUGGED TRUE ONLINE UPS



500 W – 500+ KW

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

50, 60, and 400 Hz.

PURE SINEWAVE DC-AC INVERTERS



100 W – 500+ KW

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

50, 60, and 400 Hz.

SOLID-STATE FREQUENCY CONVERTERS



100 W – 500+ KW

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

50, 60, and 400 Hz.

POWER DISTRIBUTION UNITS (PDUs)



Basic, Switched, Auto-Transfer Switching, and Metered Configurations

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

CUSTOM EMI FILTERS



For MIL-STD-461 Compliance

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

RUGGED PORTABLE TRANSFORMERS



100 W – 500+ KW

Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

EXTERNAL MAINTENANCE BYPASS SWITCHES (MBSSs)



Rack Mount, Bulkhead Mount, and Freestanding

Single and Three Phase

CUSTOM DESIGNS



Designed & Built to Spec

Integrated AC & DC Capabilities

Multiple Outputs

RELIABLE AC POWER WHEN AND WHERE YOU NEED IT SEVERE ENVIRONMENT PRODUCTS



• AIRBORNE

• SHIPBOARD

• MOBILE

• RACK MOUNT & FREESTANDING

• 50, 60, AND 400 Hz

• AIR & WATER COOLED

• SINGLE AND THREE PHASE

• LIGHTWEIGHT DESIGNS



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