



NAVY GALAXY SERIES 1.5-2.5 KVA RUGGED TRUE ONLINE UPS

Power Factor Corrected & Galvanically Isolated

*Fully Qualified to MIL-STD-1399, MIL-STD-461, MIL-S-901, MIL-STD-167,
MIL-STD-810, and MIL-STD-740*



These units are suitable for applications such as:

- Submarine Applications
- Ground Support
- Mobile Systems
- Tactical Systems
- Shipboard Applications
- Airborne Applications
- Military Ground Vehicles
- Military Shelters



NOVA ELECTRIC



POPULAR OPTIONS

- Power Distribution Units
- MS Connector Mates and Multiple Output Outlets
- Chassis Slide Guides
- Internal Transfer Switch
- Custom Enclosures
- Additional Run Time via External Batteries
- 400 Hz Input and / or Output
- CAD Free Connectors
- Non-PVC wiring
- 28 VDC Input
- High IP Protection for front / rear panels
- AUX DC Outputs
- Environmental Stress Screening Services

CONTACT

100 School Street,
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NAVY GALAXY SERIES

Rugged True Online UPS

GENERAL OVERVIEW

This rugged UPS is specifically designed for submarine and shipboard applications in compliance to MIL-STD-1399, MIL-STD-461, MIL-S-901, MIL-STD-167, MIL-STD-810, and MIL-STD-740. It provides very high quality pure sinewave output (2% THD) and is capable of driving non-linear loads such as non-PFC Switching Power Supplies.

SPECIFICATIONS

Electrical

OPTIONAL INPUT VOLTAGES AVAILABLE (SELECT)	115 VAC L-L, 50/60 Hz per MIL-STD-1399 Section 300 Type I (Other Voltages Available Optionally)
OPTIONAL INPUT FREQUENCIES AVAILABLE (SPECIFY)	50, 60 or 400 Hz
OPTIONAL OUTPUT VOLTAGES AVAILABLE (SPECIFY)	115, 120, 208, 220, 230, or 240 VAC 1Ø
OUTPUT FREQUENCY (SPECIFY)	50, 60 or 400Hz
VOLTAGE REGULATION	± 2% NL to FL
FREQUENCY REGULATION	0.1%
HARMONIC DISTORTION	2% THD Typical 5% Max
INPUT POWER FACTOR	0.99
EFFICIENCY AT FULL LOAD	82% Typical
OVERLOAD	125% for 5 Minutes

Protective Features

AC & DC INPUT CIRCUIT BREAKERS
LOW BATTERY SHUT OFF
OVERLOAD
THERMAL PROTECTION
EPO
AUDIBLE ALARM WITH SILENCE SWITCH

Internal Batteries

Premium 10 year life wide-temp batteries which are sealed, maintenance-free, and user replaceable.

Environmental

OPERATING TEMP	-20° to +50°C per MIL- STD-810D
STORAGE TEMP RANGE	-40° to +71°C
HUMIDITY	to 95% Non-Condensing
ELEVATION	Operating: 15,000 Ft. (4,572 m) Non-Operating: 40,000 Ft. (12,192 m)
AUDIBLE NOISE	Less than 55 dbA at 5 ft.
COOLING	Forced air (Exhaust at Rear) Airflow 200 CFM Maximum
EMI	per MIL-STD-461B/E
VIBRATION	per IEC 68-2-6 Type I
SHOCK	20g for 20mS Half Sinewave per MIL-S-901C Grade A
STRUCTUREBORNE NOISE	MIL-STD-740B Grade A
MTBF	100,000+ Hours per Field Data
MTTR	30 Minutes

Alarms & Diagnostics

SYSTEM STATUS	Green / Red
UTILITY OFF	Red
LOW BATTERY	Red
LOGIC FAULT	Red
UPS OVERLOAD	Red
OVER TEMP.	Red
LOAD ON UTILITY	Red with XFR SW Option
ALARM CONTACTS	Standard
RS 232 OR SNMP	Optional

MODEL	KVA / KW	INPUT	OUTPUT	UPS LBS	RUNTIME
NGRS11-1.5K60-115(D)-115	1.5 / 1	115 VAC L-L	115 VAC	115	10 Min
NGRS11-2.5K60-115(D)-115	2.5 / 1.5	115 VAC L-L	115 VAC	125	10 Min



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- 400 Hz Input and / or Output
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SYSTEM COMPLIANCE

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

Additional Ruggedization to meet MIL-STD-901, MIL-STD-167, and MIL-STD-810: This true online 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. The true online UPS unit was tested and qualified as follows:

MIL-STD-901C for Grade A, Class II Equipment: Shock test with half sinewave, 20ms duration, 15g peak acceleration shock pulse.

MIL-STD-167-1 for Type I Equipment: Vibration test with range of 4 Hz low frequency to 33 Hz high frequency.

MIL-STD-810D: Operating Temperature Tests including High Temperature Test per Procedure II, Method 501.2, Table 501.2-II Ambient Air, 4 Cycles @ 24 Hours per cycle, Low Temperature Test per Procedure II, Method 505.2, Table 505.2-I Region CO, 4 Cycles @ 24 Hours per cycle, and Temperature Shock Test per Procedure I, Method 503.2, between 0-40 degrees Celsius, 4 Cycles @ 24 Hours per cycle.

MIL-STD-740B for Grade A Type III Equipment: Structureborne and Airborne Noise

Internal EMI Reduction Package to meet MIL-STD-461: The design of this true online UPS system is specifically focused on reducing EMI emissions. The true online UPS contains substantial internal filtering to minimize EMI emissions. Inputs which may be susceptible to transients are protected by several methods, including MOVs. All internal magnetics are shielded with copper and mu-metal to further minimize emissions. The compact rack mount chassis (5.25" High x 19" Wide x 24.125" Deep) is specifically treated with low surface resistivity finishes on the

interior. All aluminum parts are treated with clear irridite. The steel parts are treated with zinc plate, followed by a clear chromate. All exterior portions (except for mating surfaces) are then painted with glossy ANSI-61 gray to assure excellent bonding of mating sheet metal parts. All input and output ventilation filters include metal honeycomb-style filters.

MIL-STD-461B Part VI for EMI Class A5: CE01, CE03, CS01, CS02, CS06, CS09, RE01, RE02, RS01, RS02, RS03.

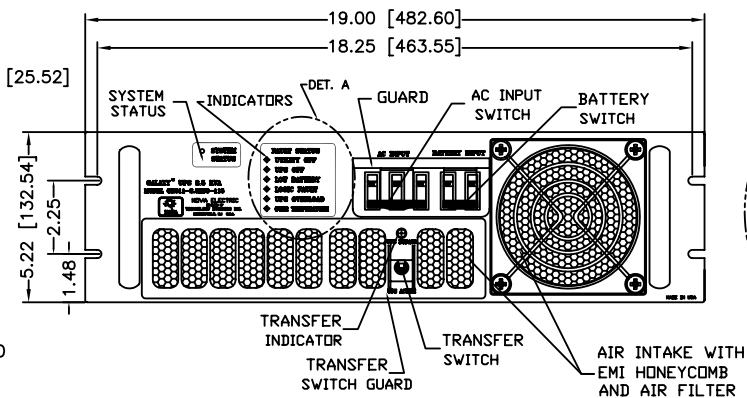
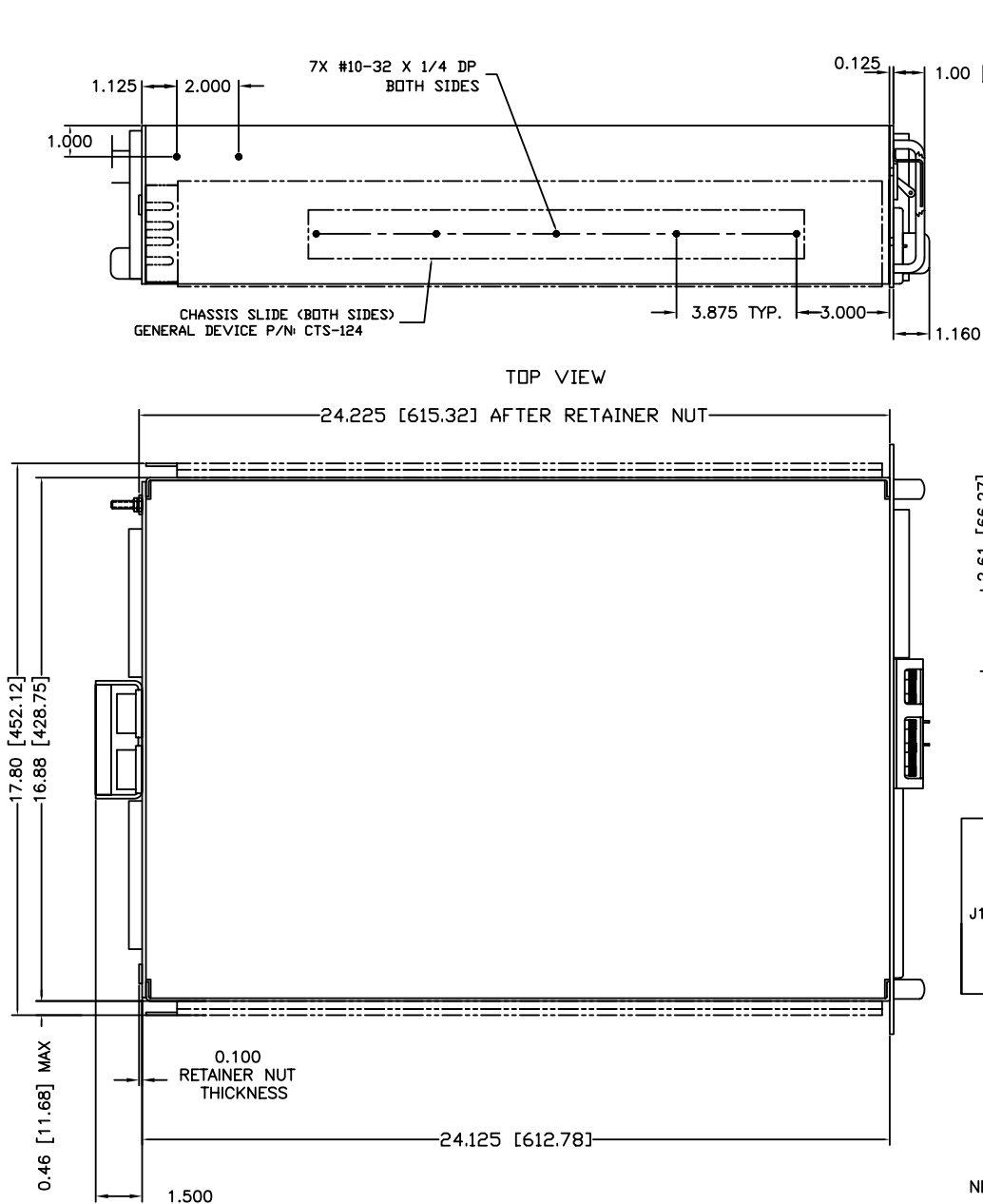
Super-Rugged, Long Life Hawker Energy Batteries: Internal Hawker Energy sealed, maintenance free batteries provide 10 minutes back up time at full load. These batteries are extremely resistant to shock, vibration, and wide temperature ranges. Also, they have a very long service life (8-10 years measured at 25 degrees Celsius ambient temperature) for a minimum of maintenance. The batteries are user replaceable.

Pressure Tests for Submarine Usage: The Navy Galaxy Series true online UPS System was tested to atmospheric pressure within the range of 750-1250 millibars, and maintained standard operation to specification to the following test pressures for 1 hour:

250 millibars above ambient (*applied within 30 seconds and released within 30 seconds*)

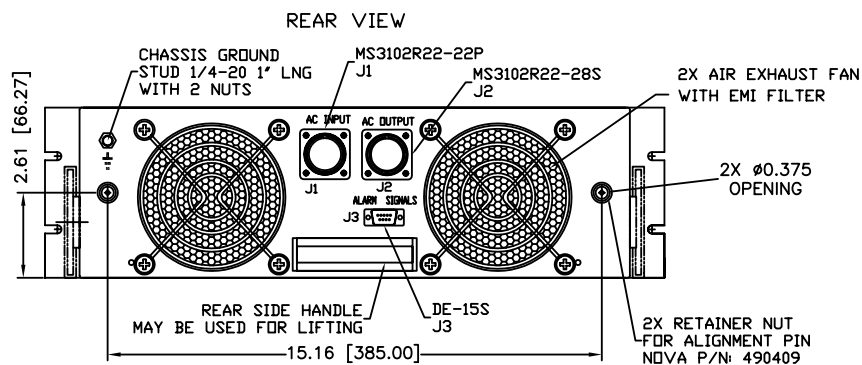
250 millibars below ambient (*applied within 30 seconds and released within 30 seconds*)

Ambient pressure of 1000 millibars



DET. A
SCALE 2 TO 1

- FAULT STATUS
- UTILITY OFF
 - UPS OFF
 - LOW BATTERY
 - LOGIC FAULT
 - UPS OVERLOADED
 - OVER TEMPERATURE



CONNECTORS PIN DESIGNATION

AC INPUT MS3102R22-22P	
PIN	DESCRIPTION
A	PHASE A
B	PHASE B
C	PHASE C
D	GND

AC OUTPUT MS3102R22-28S	
PIN	DESCRIPTION
A	AC OUTPUT LOAD 1
B	LOAD 1 RETURN
C	AC OUTPUT LOAD 2
D	LOAD 2 RETURN
E	AC OUTPUT LOAD 3
F	LOAD 3 RETURN
G	SAFETY GROUND

ALARM SIGNALS DE-15S	
PIN	DESCRIPTION
1 & 2	SHORT FOR EPO
3 & 4	SHORT WHEN OVERHEAT
5 & 6	SHORT FOR BATTERY LOW
7 & 8	SHORT FOR BATTERY LOW
9 & 10	SHORT IF AC INPUT FAILS
11 & 12	SHORT WHEN OVERLOAD
13 & 14	SHORT WHEN OUTPUT ON TRANSFER

NOTES:

- FRONT PANEL COLOR ANSI #61 GRAY SEMI-GLOSS.
ALL OTHER SURFACES ARE IRRIDITED.

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DATE	10/23/03	TITLE	NAVY GALAXY
CHECKED		SIZE	1.5-2.5 KVA SERIES UPS
APPROVED	10/23/03	REV.	
HTTP://WWW.NOVAELECTRIC.COM SCALE 1/1 CAGE: 29019 SHEET 1 OF 1			





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

