JUPITER SERIES

THREE PHASE FREQUENCY CONVERTER

10 KVA to 450+ KVA

Three Phase 50 / 60 / 400 Hz Sine-Wave

GALVANIC ISOLATED

OPTIONAL FEATURES SHOWN

APPLICATIONS

Nova frequency converters are high reliability power sources specifically designed for demanding applications in high shock, vibration, humidity, and EMI environments. They can be built to meet MIL-STD-810, MIL-STD-1399, MIL-STD-1472, MIL-STD-461, and other standards optionally.

- *Military programs, vehicular, shipboard, aircraft, and shelters*
- *Communications Systems*
- *Cellular Sites*
- *European Power / Export Testing*
- *Power Conditioning & Frequency Stabilization*
- *U.S. Power Abroad*
- *Railroad Signaling Power*

FEATURES

- *Complete input to output 'Galvanic' isolation.*
- *High frequency (almost silent) operation*
- *Push button starting and stopping*
- *Diagnostic panel with LCD and LED display*
- *Soft start*
- *Maintenance free batteries can be added for UPS capability (consult factory)*
- *Overload and short circuit protection on output*
- *All electronics are built in modular front access and front removable sub assemblies for easy service and maintenance*
- *Available options to meet military specs*
- *E/F Circuit for aircraft applications*
- *Parallel option for increased power*

NOVA ELECTRIC

www.novaelectric.com

novasales@theallpower.com

AS 9100 BUREAU VERITAS Certification

A Leader in Frequency Converter Technology since 1966 - 500VA-500+KVA

JUPITER SERIES FREQUENCY CONVERTER

MONITORING FEATURES

The Converter includes an RS232 communication option called UPSCOM. This is an RS232 connection to a PC that can monitor the three phase information related to the converter output and any abnormal conditions that have occurredin real time. Standard commercially available software is provided. The RS232 Feature is included at no additional charge.

FRONT PANEL LCD DISPLAY AND LED INDICATORS - These will report all Converter parameters, including input and output voltages, currents, frequency, DC voltage, current, and many other functions.

LCD DISPLAY - Real time status, data, and historical events are displayed by the LCD display. The Converter parameters, real time clock, and buzzer alarm also can be set through this LCD. The LCD is backlit by LEDs for easy visuals.

STATUS LEDs - A series of LEDs representing all the important status information of the Converter provide information to the user. These LEDs are especially important when abnormal conditions occur. Since these LEDs are located behind the transparent window, the user can see them clearly without opening the door. LED descriptions are as follows:

- CONVERTER ON – Converter is running normally.
- CONVERTER SS – Converter static switch is on while the reserve static switch is opened (off).
- SHORT CIRCUIT – Converter output is in short circuit state.
- FUSE / OVERTEMP SD – Converter has shut down due to either fuse open or high temperature.
- CONVERTER FAIL SHUT DOWN – Converter has shut down due to low converter AC output.
- BYPASS ON SHUT DOWN – Converter shut down due closed bypass breaker (while inverter running).
- OVERLOAD SHUT DOWN – Converter shut down due to overload of the converter for a period greater than the converter can accept. The converter will start after 7 seconds.
- 70% LOAD – load connected to the output is over 70% of the converter rating.
- 110% LOAD – load connected to the output is over 110% of the converter rating.
- 125% LOAD – load connected to the output is over 125% of the converter rating.
- 150% LOAD – load connected to the output is over 150% of the converter rating.
- RESERVE AC FAIL – reserve AC magnitude is out of range.
- RESERVE FREQ FAIL – reserve frequency is out of range.
- BATTERY LOW - DC bus (or battery) is lower than specified range. Low battery shut down will occur soon.

BATTERY LOW SHUT DOWN – Converter shut down due to DC bus (or battery) lower than the acceptable DC voltage of the converter.

EMERGENCY STOP – Converter shutdown activated by emergency stop switch.

DATA LINE – Blink when data is transmitted to or received from the communication port.

WARNING LEDs – When abnormal condition occurs, these LEDs will light to warn the user of the cause of the fault condition. Therefore all these LEDs are off under normal condition. These LEDs are:

RECT AC FAIL – Rectifier AC input is abnormal either due to AC magnitude out of the range or phase rotation error; rectifier shut down.
RESERVE FAIL – Reserve AC input is abnormal either due to AC magnitude out of range or frequency out of range.
FUSE/TEMP - Either converter fuse is open or over temperature has occurred.
OVERLOAD – Output is overloaded by over 110%, 125% or 150%
HIGH DC – This LED will light as long as the DC voltage is over 430VDC.
BAT LOW – This LED will light when the DC voltage is lower than 320VDC.
BAT LOW STOP – This LED will light when the DC voltage is lower than 295VDC, inverter on is inhibited.
FAULT – The converter is off due to abnormal conditions such as overload, short circuit, high DC fuse over temperature, bypass breaker on emergency stop.

AUDIBLE ALARM – The audible alarm will beep under one of the following conditions:

CONVERTER IS OVERLOADED
- *110% beep once every 3 seconds*
- *125% beep once every second*
- *150% beep twice every second*

CONVERTER IS SHORT CIRCUITED – Beeps continuously
FUSE OPEN – Beeps continuously
HEAT SINK OVER TEMPERATURE – Beeps continuously
HIGH DC SHUTDOWN – Beeps continuously
BYPASS ON STOP – Beeps continuously
EMERGENCY ON STOP – Beeps continuously. The buzzer will also beep once every time the converter is switched on or off to acknowledge to the user that his key entry is valid and accepted.

COMMUNICATIONS OPTIONS

Some popular communications options available at additional cost include the following:

UPSCAN: This is a hand held remote display and control module with LCD and LED display that can monitor up to 99 converter units via RS-485 at a remote distance of up to 3,000 feet.

UPSCALL: This is a modem that will automatically dial out to a specified number when an abnormal situation occurs.

NETAGENT: This provides capability to monitor the converter over the internet. It includes the appropriate additional SNMP card and microprocessor. The software required is provided separately.

OTHER OPTIONS

SHOCK MOUNT OPTION – The cabinet can be shock mounted using optional rubber or coil type isolators. This will enable the unit to withstand shock levels as specified in MIL-S-901

RUGGEDIZING OPTION – This option will add conformal coating and other additional internal structural members to allow the unit to meet many portions of MIL-STD-810 including shock, vibration, and humidity.

TURN ON SERVICE OPTION – We offer a turn on service that will ensure the Converter has been properly installed and the full warranty is in effect (failures caused by incorrect installation are not covered by the warranty.) If this option is selected, the customer will also automatically receive an additional 3 months added to the warranty at no additional charge.

SPARE PARTS KIT OPTION – We offer a spare parts package that includes one of each board, spare fuses, spare semiconductors, and spare fans. These spare part kits are priced lower when ordered with the initial order than if they are ordered later on.

DRIP SHIELD OPTIONS – This option offers protection against falling or dripping liquids.

CUSTOMIZED EPO – This feature can be customized to trip off current breakers or perform other inhibits depending customer needs.

NOVA ELECTRIC, *100 School Street, Bergenfield, NJ 07621 Phone: (201) 385-0500, Fax: (201) 385-0702,* **Website: www.novaelectric.com**

JUPITER SERIES FREQUENCY CONVERTER

SPECIFICATIONS FOR JUPITER FREQUENCY CONVERTER

FREQUENCY CONVERTER		3-PHASE INPUT / 3-PHASE OUTPUT												
KVA		10	20	30	40	50	60	80	100	120	160	240	320	450
Input Voltage (VAC)		Please Specify | 120/208 | 220/380 | 230/400 | 240/415 | 277/480 | 220 3delta | 240 3delta | 380 3delta | 400 3delta | 480 3delta												
Input Range		+/- 20% (>+20% is available upon request)												
Input Frequency		Please Specify: 50 Hz or 60 Hz or 400 Hz												
Input Frequency Range		+/- 5% (wider ranges offered, please consult factory)												
Power Walk In		0% - 100%: 20 sec.												
Rectifier		98%												
Rectification Type		6 Pulse Standard, 12 Pulse Optional								12 Pulse Standard				
Output Voltage (VAC)		Please Specify | 120/208 | 220/380 | 230/400 | 240/415 | 277/480 | 220 3delta | 240 3delta | 380 3delta | 400 3delta | 480 3delta												
Wave Form		Sinewave												
Output Power Factor		0.7 lead to lag												
Output Frequency (Free Running)		Please Specify: 50 Hz or 60 Hz or 400 Hz (crystal controlled) - 91.66, 100 or 250 Hz optional												
Phase Shift Under 100% Unbalanced Load		<0.5%												
THD (Linear Load)		< 2%												
Overload	<110%	Continuous												
	110-125%	15 minutes												
	125-150%	10 minutes												
	>150%	1 minute												
Efficiency (100% Load)(%)		93			93.5		94	94.5		95				
Overall Efficiency (%)		91			91.5	92		92.5		93				
Maximum Heat Dissipation (kw)		0.7	1.4	1.9	2.6	3	3.5	4.6	5.4	6.5	8.7	13	17.4	25.2
BTU/h @ Full Load		2.4K	4.8K	6.5K	8.9K	10.3K	12K	16K	19K	22K	30K	45K	60K	86K
Audible Noise		<65 dBA (at 1m)							<67dBA (at 1m)					
Temperature		-10°C to +50°C (Extended ranges available)												
Humidity		0%-95% (Non-condensing)												
Altitude		<1500 m Above Sea Level												
EN50091-1,-2		Yes												
Short Circuit Protection		Yes												
MTBF		100,000 Hours for loss of AC Output												
Lightning / EMC Filter		MOV / Input & Output (FCC CLASS A)												
Galvanic Isolation		Input and Output True Galvanic Isolation												
LED, LCD, Audible Alarm		Yes												
Remote Control / Communication Interface		Monitoring 1~99 Units simultaneously / Dry Contact, RS-232, RS-485 (Optional)												

NOTE: Single phase output available on select models - consult factory for details.

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JUPITER SERIES FREQUENCY CONVERTER

PARTIAL STANDARD PRODUCT LISTING FOR JUPITER FREQUENCY CONVERTER

50 HZ OUTPUT MODELS	KVA	KW.	IN (VAC)	OUT (VAC)	DIMENSIONS	WEIGHT (KG)	WEIGHT (LBS)
JFC10K3/5-120/208-220/380	10	8	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	290	638
JFC20K3/5-120/208-220/380	20	16	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	330	726
JFC30K3/5-120/208-220/380	30	24	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	480	1056
JFC40K3/5-120/208-220/380	40	32	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	560	1232
JFC50K3/5-120/208-220/380	50	40	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	650	1430
JFC60K3/5-120/208-220/380	60	48	120/208	220/380	63" (H) x 22" (W) x 31.5" (D)	780	1716
JFC80K3/5-120/208-220/380	80	64	120/208	220/380	63" (H) x 43.5" (W) x 31.5" (D)	920	2024
JFC100K3/5-120/208-220/380	100	80	120/208	220/380	63" (H) x 43.5" (W) x 31.5" (D)	1050	2310
JFC120K3/5-120/208-220/380	120	96	120/208	220/380	63" (H) x 43.5" (W) x 31.5" (D)	1300	2826
JFC160K3/5-120/208-220/380	160	128	120/208	220/380	63" (H) x 43.5" (W) x 31.5" (D)	1600	3520
JFC200K3/5-277/480-220/380	200	160	277/480	220/380	63" (H) x 87.0" (W) x 31.5" (D)	2700	5940
JFC240K3/5-277/480-220/380	240	192	277/480	220/380	63" (H) x 87.0" (W) x 31.5" (D)	2900	6380
JFC300K3/5-277/480-220/380	300	240	277/480	220/380	63" (H) x 87.0" (W) x 31.5" (D)	3200	7040
JFC320K3/5-277/480-220/380	320	256	277/480	220/380	63" (H) x 87.0" (W) x 31.5" (D)	3300	7260
JFC450K3/5-277/480-220/380	450	360	277/480	220/380	63" (H) x 130" (W) x 31.5" (D)	5100	11385
CONTACT FACTORY FOR SINGLE PHASE MODELS							
60 HZ OUTPUT MODELS	KVA	KW.	IN (VAC)	OUT (VAC)	DIMENSIONS	WEIGHT (KG)	WEIGHT (LBS)
JFC10K3/6-220/380-120/208	10	8	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	270	590
JFC20K3/6-220/380-120/208	20	16	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	300	660
JFC30K3/6-220/380-120/208	30	24	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	400	880
JFC40K3/6-220/380-120/208	40	32	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	400	880
JFC50K3/6-220/380-120/208	50	40	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	550	1210
JFC60K3/6-220/380-120/208	60	48	220/380	120/208	63" (H) x 22" (W) x 31.5" (D)	680	1495
JFC80K3/6-220/380-120/208	80	64	220/380	120/208	63" (H) x 43.5" (W) x 31.5" (D)	820	1800
JFC100K3/6-220/380-120/208	100	80	220/380	120/208	63" (H) x 43.5" (W) x 31.5" (D)	950	2090
JFC120K3/6-220/380-120/208	120	96	220/380	120/208	63" (H) x 43.5" (W) x 31.5" (D)	1180	2596
JFC160K3/6-220/380-120/208	160	128	220/380	120/208	63" (H) x 43.5" (W) x 31.5" (D)	1450	3190
JFC200K3/6-220/380-277/480	200	160	220/380	277/480	63" (H) x 87.0" (W) x 31.5" (D)	2500	5500
JFC240K3/6-220/380-277/480	240	192	220/380	277/480	63" (H) x 87.0" (W) x 31.5" (D)	2700	5940
JFC300K3/6-220/380-277/480	300	240	220/380	277/480	63" (H) x 87.0" (W) x 31.5" (D)	3000	6600
JFC320K3/6-220/380-277/480	320	256	220/380	277/480	63" (H) x 87.0" (W) x 31.5" (D)	3100	6800
JFC450K3/6-380(3)-277/480	450	360	380	277/480	63" (H) x 130" (W) x 31.5" (D)	4500	9900

400 HZ OUTPUT MODELS	KVA	KW.	IN (VAC)	OUT (VAC)	DIMENSIONS	WEIGHT (KG)	WEIGHT (LBS)
JFC10K3/4-120/208-115/200	10	8	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	270	590
JFC20K3/4-120/208-115/200	20	16	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	310	680
JFC30K3/4-120/208-115/200	30	24	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	460	1010
JFC40K3/4-120/208-115/200	40	32	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	550	1170
JFC50K3/4-120/208-115/200	50	40	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	620	1360
JFC60K3/4-120/208-115/200	60	48	120/208	115/200	63" (H) x 22" (W) x 31.5" (D)	730	1605
JFC80K3/4-120/208-115/200	80	64	120/208	115/200	63" (H) x 43.5" (W) x 31.5" (D)	870	1910
JFC100K3/4-120/208-115/200	100	80	120/208	115/200	63" (H) x 43.5" (W) x 31.5" (D)	1100	2200
JFC120K3/4-120/208-115/200	120	96	120/208	115/200	63" (H) x 43.5" (W) x 31.5" (D)	1220	2680
JFC160K3/4-120/208-115/200	160	128	120/208	115/200	63" (H) x 43.5" (W) x 31.5" (D)	1220	2680
JFC200K3/4-277/480-115/200	200	160	277/480	115/200	63" (H) x 87.0" (W) x 31.5" (D)	2500	5500
JFC240K3/4-277/480-115/200	240	192	277/480	115/200	63" (H) x 87.0" (W) x 31.5" (D)	2700	5940
JFC300K3/4-277/480-115/200	300	240	277/480	115/200	63" (H) x 87.0" (W) x 31.5" (D)	3000	6600
JFC320K3/6-220/380-277/480	320	256	277/480	115/200	63" (H) x 87.0" (W) x 31.5" (D)	3100	6820
JFC450K3/6-380(3)-277/480	450	360	380	277/480	63" (H) x 130" (W) x 31.5" (D)	4500	9900

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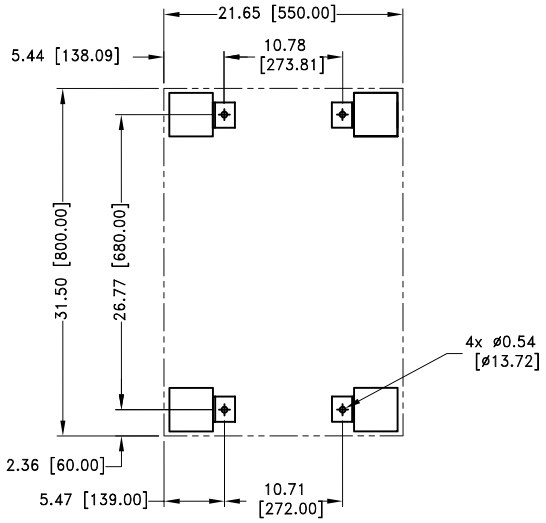
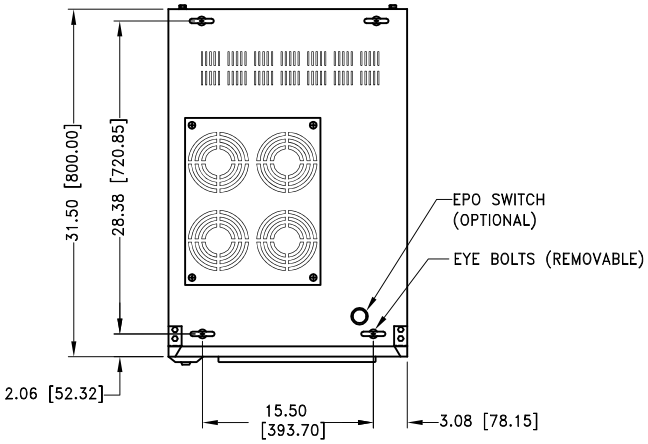
JUPITER SERIES FREQUENCY CONVERTER

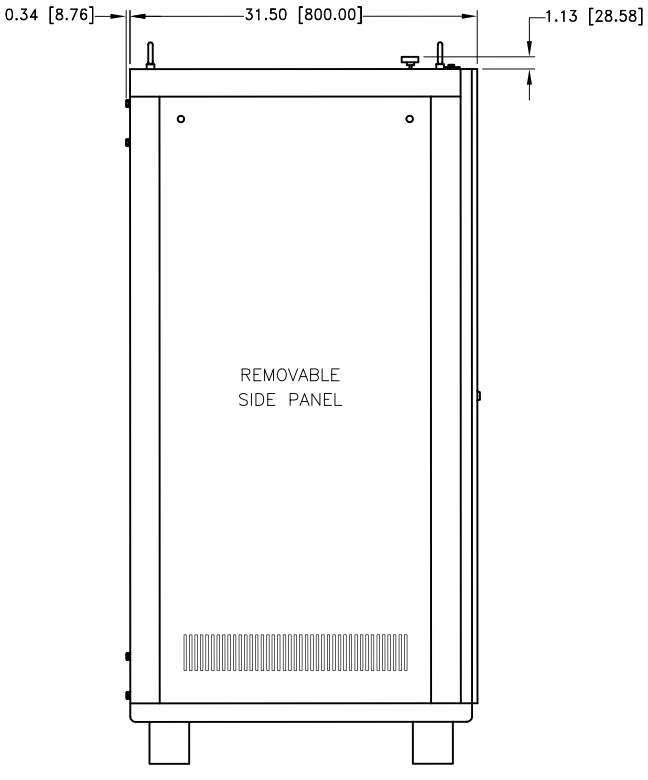
TYPICAL DIMENSION DRAWINGS (22” WIDE)



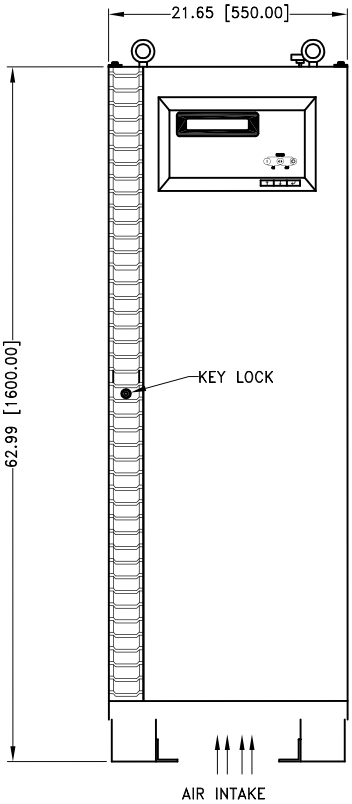
FOOT AND TIE DOWN BRACKET HOLE PATTERN



TOP VIEW



LEFT SIDE VIEW



FRONT VIEW

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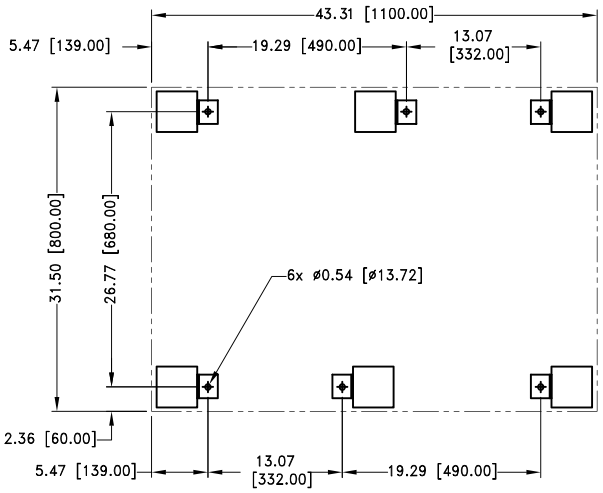
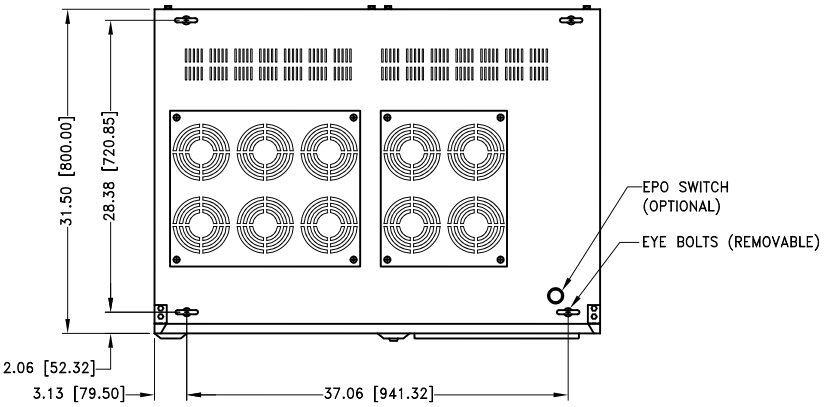
JUPITER SERIES FREQUENCY CONVERTER

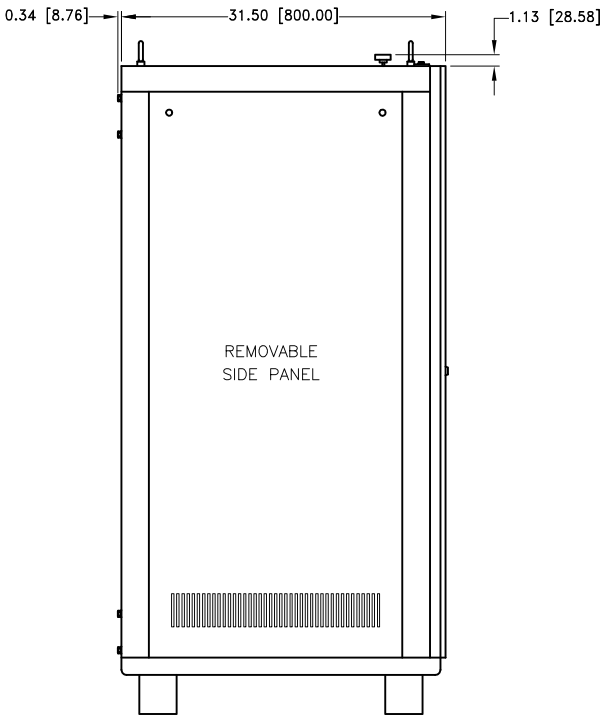
TYPICAL DIMENSION DRAWINGS (43.5” WIDE)



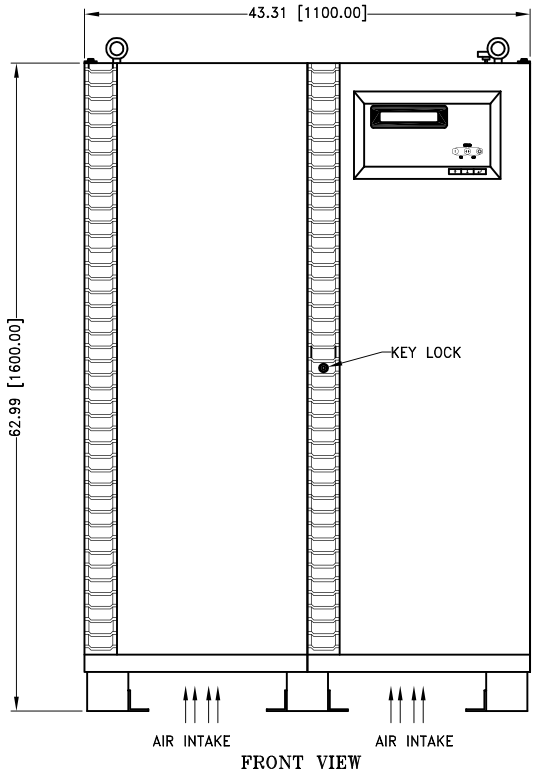
FOOT AND TIE DOWN BRACKET HOLE PATTERN



TOP VIEW



LEFT SIDE VIEW



FRONT VIEW

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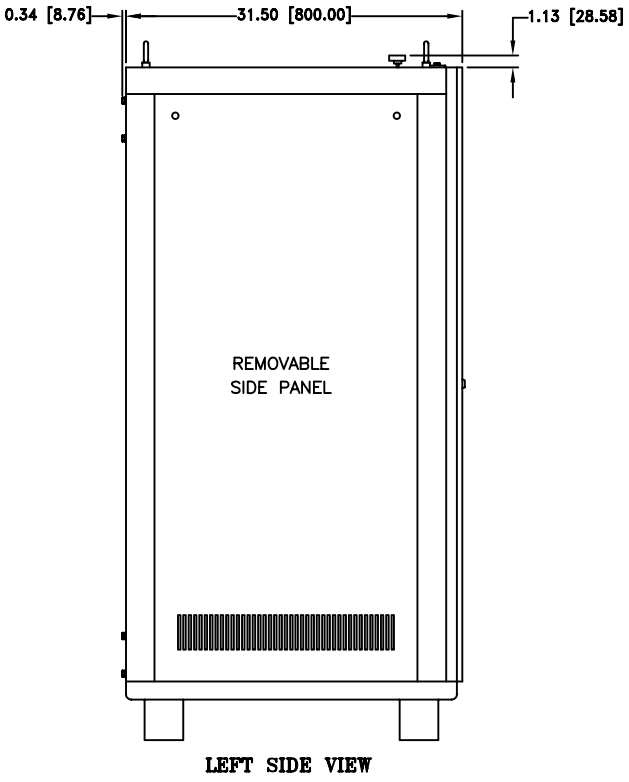
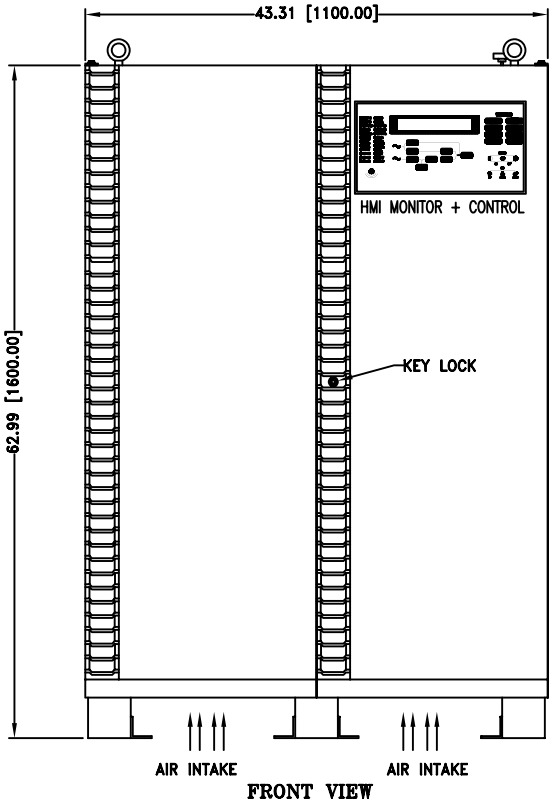
JUPITER SERIES FREQUENCY CONVERTER

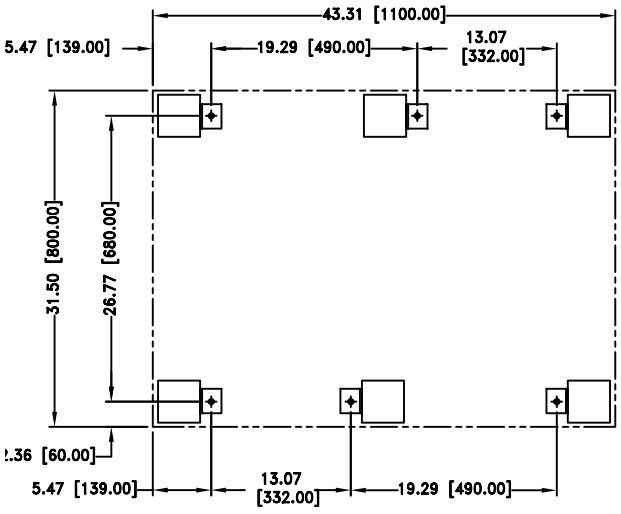
TYPICAL DIMENSION DRAWINGS (87” WIDE)



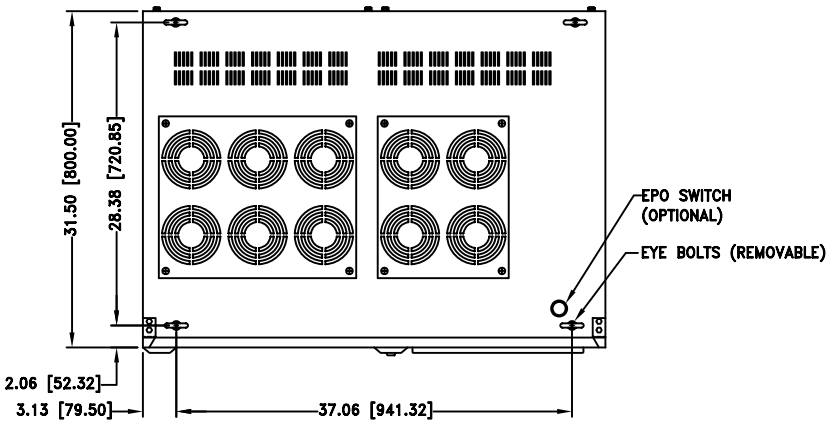
LEFT SIDE VIEW



FRONT VIEW



FOOT AND TIE DOWN BRACKET HOLE PATTERN



TOP VIEW

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JUPITER SERIES FREQUENCY CONVERTER

RELIABILITY AND SERVICEABILITY (MTBF & MTTR)

Reliability is a feature that is designed and integrated into every piece of equipment that carries the Nova Electric name. This is accomplished by utilizing state of the art circuitry which substantially reduces the total number of components (especially heat producing components). The result is greater efficiency, high reliability and low cost.

A study of installed units has indicated an MTBF of over 100,000 hours! MTBF figures are based upon ground fixed normal 25-degree ambient temperature and proper and preventive maintenance.

The MTTR for all items offered is approximately 30 minutes. Part of the maintenance and repair philosophy of the units is to use the BIT equipment to aid in fault isolation. At that point, a decision is made to either replace an LRU or a component within the power supply with a spare. The construction methods used throughout the JUPITER Series provide for user friendly service. All circuit boards are plug in and are easily accessed from the front of the system. Power modules are designed on slide out trays for easy access to all power semiconductors and similar power components. The MTTR value specified is based upon proper training of local maintenance technicians and engineers.

QUALITY CONTROL

Nova Electric operates under a program of Continuous Quality Improvement (CQI,) as evidenced by its ISO-9001 Qualify Management Systems Standard Certification and decades of compliance to formal Quality Control systems and procedures that remain in compliance with MIL-I-45208A inspection and MIL-STD-45662A calibration requirements. ISO registration was granted in 1997 by Underwriters Laboratories (UL) after first assessment. Operators are certified to J-STD-001A and IPC-A-610B Class 2 (formerly MIL-STD-2000) for soldered assemblies. Instructors certified by the DOD to MIL-STD-2000 Category C are on staff. Our COTS products benefit from the same rigorous QC procedures as original developed for our military customers.

Copies of our current ISO Certificate and Factory Quality Control Manual are available upon request.

MILITARY AND RUGGED COMMERCIAL (COTS) DESIGNS

All of Nova Electric's products feature robust construction quality and rugged designs. They are suitable for demanding military, industrial, and commercial applications. Most products can be equipped to meet MIL-STD-461, MIL-STD-810, MIL-S-901, MIL-STD-167, MIL-STD-1399, MIL-STD-1472, and other important specifications as required. Please consult the factory about your specific application.

GOVERNMENT QUALITY ASSURANCE

Our Quality Assurance Department will be glad to work with the designated Government Quality Assurance Representative (GQAR) on government or military projects.

WARRANTY

All Nova Electric products are warranted against defects in material and workmanship for a period of one year from shipping date. Our obligation includes replacing, repairing, or adjusting products (excluding fuses) that prove to be defective during the warranty period. This warranty is fully transferable. If a product is sold to a manufacturer for use in a product for resale, the complete warranty is in force, providing the power system is sold as original equipment. Nova Electric assumes no liabilities for consequential damages of any kind through the use of misuse of its products by the purchaser or others. No other obligations are expressed or implied. Batteries used with or contained within Uninterruptible Power Supply Systems are sold with a "pass-along" battery warranty from the battery manufacturer. On site warranty repair is available at extra cost to cover the cost of travel to the work location. Extended warranties are also available - please consult the factory for details.

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