

## Ruggedized Uninterruptible Power Supply

## 115/230 VAC

- Ruggedized
- Wide (Global) Input
- DC Input
- On-Line Battery Back-Up
- Transient (Spike) Suppression
- Surge Suppression
- Input Distortion Elimination



## 20.8 ARMS

~

115

230

RS232

### Product Overview

GUPS are ruggedized on-line “UPS’s” that accept a broad range of worldwide utility and military AC/DC input power. Without operator intervention, they automatically select the appropriate input power ranges to accommodate global operation. The GUPS Series has been specifically designed to withstand the rigors of mobile applications. They meet the vibration and shock requirements as specified in MIL-STD-810E, Methods 514.4 and 516.4. Their rackmounted aluminum chassis with stainless steel hardware withstands harsh environments and provides a strong, light weight enclosure.

### Features And Benefits

**Universal Input** The GUPS 2400A AC input model provides 2400VA/1920W of 115 VAC, 60 Hz power. It automatically selects between two input ranges of 85 to 140 VAC and 170 to 280 VAC, while accepting any frequency from 45 to 450 Hz, and provides 115 VAC, 60 Hz output power.

The GUPS 2400U universal output model provides 115 VAC, 60 Hz standard U.S. power or 230 VAC, 50 Hz international power (user selectable). Without operator intervention, it automatically selects between two input ranges of 85 to 140 VAC and 170 to 280 VAC, while accepting any frequency from 45 to 450 Hz.

The Elgar GUPS is tolerant of variable power associated with “soft” sources such as engine/motor generators. Stable output power is provided, without oscillating between generator and battery input, regardless of how the input power varies within the allowed ranges. This prevents battery discharge and ensures that battery power is available in the event of generator failure. Soft-start of the UPS input rectifier, limits the inrush current during start-up, precluding fluctuations in the AC source voltage that could affect other loads.

### Precise And Stable Output

The output is precisely regulated, providing a low distortion sine waveform. Protection of the critical load is maximized because it is continually supplied by the online inverter; the output is never dependent on the condition of the AC input, and there are no switching transients. Low output impedance allows driving non-linear loads that draw currents with high crest factors, such as computer power supplies. The 200% overload rating of the inverter, with a greater than 3:1 crest factor, provides an enhanced capability to supply the start-up inrush current of such loads. High frequency power conversion technology is utilized for fast dynamic response to changing load conditions. Continuous overload and short circuit protection ensure reliable operation.

### Global UPS Series

A shielded transformer is used to galvanically isolate the output from the AC input, DC input, and battery. The output is further protected with suppression networks that absorb high energy transients and surges that occur on the AC input. EMI filtering and the shielded isolation transformer provide transverse-mode and common-mode attenuation of electrical noise. UPS integrity is determined through a self test that is performed automatically during start-up. Proper operation is ensured prior to energizing the critical load. After start-up, this function can also be manually selected by the user from the front panel.

### Communications Interface

An RS-232 communications interface provides information to the host system about operating status and UPS parameters such as voltages and currents. Isolated relay contacts are available for remote annunciation of loss of AC input power and impending shutdown during operation from the battery.

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### Batteries

The GUPS 2400A and GUPS 2400U include a drawer-mounted internal battery module that is removable from the front panel without the use of tools; this allows servicing of the battery without removing the UPS from its rack. Battery life is maximized with automatic microprocessor controlled equalization and temperature compensation during charging. An optional external rackmounted battery pack increases the backup time to 18 minutes at full rated load; multiple packs further extend the backup.

### Applications

GUPS are especially useful for demanding field computer applications powered by engine generators where a need for ruggedization, as well as voltage and frequency variations, have traditionally been a problem for regular UPS operation.

The ability to accept a broad range of AC and DC input voltages and frequencies, as well as ruggedized construction, make the GUPS an ideal choice for the following military and

commercial applications:

- Remote computer based systems
- Engine generator output conditioning
- Communications
- Remote SATCOM
- Airborne telemetry backup
- Geological exploration
- Oil field instrumentation/logging
- Data acquisition
- Military C4I

### Output

Model	GUPS 2400A	GUPS 2400U
Maximum Output Rating	2.4 kVA/1920W	2.4 kVA/1920W
Output Voltage	115 VAC $\pm 2\%$	115 or 230 VAC $\pm 2\%$
Output Voltage	60 Hz $\pm 0.1\%$	60 Hz or 50 Hz $\pm 0.1\%$
Input Frequency	45 to 450 Hz	45 to 450 Hz
Input Voltage	85 to 140 VAC or 170 to 280 VAC Auto Range	85 to 140 VAC or 170 to 280 VAC Auto Range
Battery	Removable internal battery module	Removable internal battery module
Battery Backup Time	5 min. backup w/2400 VA load; 1920W 0.8 PF@ 25°C	5 min. backup w/2400 VA load; 0.8 PF@ 25°C
Optional External Battery Packs Available	Yes. For total of 18 min. at full rated load	Yes. For total of 18 min. at full rated load
Weight	78 lbs without battery module; Removable internal battery module is 48 lbs; total 126 lbs	83 lbs without battery module; Removable internal battery module is 48 lbs; total 131 lbs
Dimensions	7" H x 19" W x 21" L	7" H x 19" W x 21" L

# GUPS Series : Product Specifications

# 2400 VA

Input	
Input Voltage, AC	85 to 140 VAC or 170 to 280 VAC
Input Current, AC	33A at 120 VAC, 17A at 240 VAC
Input Frequency, AC	45 to 450 Hz
Output	
Model	GUPS 2400A
Output Voltage	115 VAC $\pm 2\%$ over full range of line and load variations
Output Frequency	60 Hz $\pm 0.1\%$
Crest Factor	3:1 F3 rms current
Efficiency	70% from AC input, 65% from DC input (GUPS 2400AD only)
Output Current:	21 ARMS, 63A peak
Output Distortion:	2% maximum THD with linear loads
Output Power	2400 VA into $\pm 0.8$ PF load Output
Overload	150% for 30s; 150% to 200% for 3s. For GUPS 2400AD, when operating from DC input, overload capability is limited by 220A DC input current limit.
Power Loss During Crossover	None
Internal Battery Module	192 VDC, 2.5 AH. Optional external battery packs available
Battery Hold-Up Time	5 minutes for internal module with 2400 VA load, 0.8 PF@25°C. Adding one external battery pack increases time to a minimum of 18 minutes at full rated load. Reduced loads increase backup time.
Environmental	
Operating Temperature	0° to 40°C; non-operating -40° to 65°C
Humidity Range	5 to 95% non-condensing
Altitude	Operating 0 to 10,000 ft; non-operating 0 to 40,000 ft
Physical	
Weight GUPS 2400A	78 lbs, maximum without battery module. Removable internal battery module is 48 lbs (126 lbs max combined weight).
Weight GUPS 2400U	83 lbs, maximum without battery module. Removable internal battery module is 48 lbs (131 lbs max combined weight).
Weight GUPS 2400AD	Main chassis is 95 lbs; battery chassis 116 lbs, total weight 211 lbs.
Dimensions	7"H x 19"W x 21"L (GUPS 2400AD two chassis)
Battery Modules	
Battery Description	192 VDC, 2.5 AH sealed lead acid
Configuration	96 cells at 2.0 V, 2.5 AH in a single pullout, removable module
Recharge Time	4 hours, 90% full charge with integral battery charger
Typical/Minimum Hold-Up Time 2400 VA at 25°C:	5 minutes
Temperature	Operating 0° to 40°C; non-operating -40° to 65°C
Microprocessor Controlled Equalization	Batteries maintained on a temperature compensated, constant voltage float charge with automatic equalization as required

