Ultimate Power Source

Applying modular scalable UPS technology to Tactical Field Applications

Designing power systems for military applications is generally a struggle to satisfy a multiplicity of requirements. There are seemingly contradictory pressures to:

- Design it to be reliable but still cost effective
- Design it to be smaller but keep the same or greater power rating
- Design it to be lighter weight but still rugged enough to meet shock and vibe requirements
- Design it to be flexible enough to safely handle today’s load but expandable for future growth.
Ultimate Power Source™
Rugged, Compact, Light Weight with N+1 Parallel Redundancy

Output Power: 2000 Watts, 2500 VA
AC Input Voltage Options: 80-140 Vrms or 150-265 Vrms @ 47-65 Hz
AC Output Voltage Options: 115 Vrms or 230 Vrms @ 50Hz or 60Hz
DC Input Voltage Options: 28 V nominal or 48 V nominal
DC Output Options: up to 1250 Watts of DC total
Stand Alone Battery Run Time: 10 Min. @ 2000 W, 20 Min. @ 1000 W
Lithium Iron Phosphate

Front View of Single 1U Module
Ultimate Power Source

Combine up to 32 Units for increased power!
1-phase or 3-phase AC output!

Battery Modules
- Hot Swappable Battery Modules
- Light Weight Lithium

Configuration
- Parallelable (up to 32 Units)
- 1 or 3 Phase AC input or output

Overload Capabilities
- 150% Power for 5 sec.
- 110% w/o degradation

Efficiency
- 95% Enhanced Power Conversion
- 90% Online

Rear View of Single 1U Module
Features

- 2000 Watts, 2500 VA output power per module
- 7-10 minute per battery module at 2000 W
- Built-in Power Distribution Unit (PDU)
- Field replaceable, hot swap battery modules
- High reliability & capacity lithium iron phosphate
- Full power operation from -20°C to +60°C
- Power factor correction at AC input
- True on-line double conversion
- Cold start with no AC or DC input connections
- Pure sinusoidal AC output voltage
- Handles both linear and non-linear loads
**Features**

- **N+1 redundancy**: Increased reliability
- **1-phase or 3-phase AC Input and/or output configurations**
- **Up to 32 units can be combined for increased power rating and reliability**
- **Available in Mil Spec or COTS versions**
- **1U high rack mount unit (1.73” x 19” x 23.0”)**
- **Light weight**: <40 lbs. including battery
- **Meets mechanical shock and vibration standards**
- **Multiple output connector configurations**
- **User I/O and Configuration signal ports**
Ultimate Power Source

1U Rack Mounted UPS Front View

- UPS Status LEDs
- Field Replaceable Internal Battery Module
- AC Input Circuit Breaker
- Battery Module Circuit Breaker
- Digital Status Display
- Equipped with Optional Slide Rails
Ultimate Power Source

1U UPS with Several Output Connector Configurations

- NEMA 5-15
- Aux Battery
- I/O (RS232/TCP/IP)
- Sync/Config Ports
- Temp Controlled Fans
- AC Input

- NEMA 5-15 & MS
- MS
1U Battery Expansion Module (BEM)

- 2 internal Battery Modules
- Same Battery Modules used in the 1U UPS

2 Lithium Iron Phosphate Modules
Ultimate Power Source

Connector Options for 1U BEM

MS connectors. Dual connectors allow BEMs to be daisy chained for increased backup time.

Temp Controlled Fans

Aux Battery Charger AC Input

Anderson Connectors
Ultimate Power Source Mil Spec® Version
1U 2000 Watt Ultra Compact UPS with
1U Battery Extension Module (BEM)
30 Minutes @ 2000 W, 60 Minutes @ 1000 W
Ultimate Power Source

1U 2000 Watt Ultra Compact UPS with (2) 1U Battery Extension Modules (BEM)
50 Minutes @ 2000 W, 100 Minutes @ 1000 W
Ultimate Power Source

(2) 1U 2000 Watt Ultra Compact UPS with 1U Battery Extension Module (BEM)
20 Minutes @ 4000 W, 40 Minutes @ 2000 W
Front Controlled 6 Load PDU with Status & Alarm Indicators

Rear View with NEMA 5-15 Option

- UPS 1 or 2 AC Input Breakers
- Emergency Power Off (Press Both)
- Battle Short
- Load Control Switches
- Load Status LEDs
- Alarm Status LEDs
- Alarm Reset

- UPS 1 or 2 AC Inputs
- Optional Status, Safety Interlock and Remote Control Ports
- Choice of NEMA, IEC or MS Connectors

Choice of NEMA, IEC or MS Connectors

UPS 1 or 2 AC Inputs

Optional Status, Safety Interlock and Remote Control Ports

Choice of NEMA, IEC or MS Connectors

UPS 1 or 2 AC Input Breakers

Emergency Power Off (Press Both)

Battle Short

Load Control Switches

Load Status LEDs

Alarm Status LEDs

Alarm Reset
Ultimate Power Source

1U Power Distribution Unit (PDU) with 1U 2000 Watt Ultra Compact UPS and 1U Battery Extension Module (BEM)
Power Distribution, UPS, Battery Extension Module and Battery Charger in a 3U high configuration
Ultimate Power Source

PDU, UPS & BEM in Rack

PDU can be mounted Remotely from UPS and BEM
Ultimate Power Source

Integrated Software PDU Status & Control

- Simple one button control
- Control features are access protected
- PDU built in for six(6) outputs
Internal Power Distribution Unit (PDU)

- True output isolation
- Individual output control
- PDU shutdown feature
- Individual load Status
- Start up configuration control
- All outlets are on in UPS by-pass mode
- Auto tracking in redundant configuration
- Password access required for control functions
- Load Level Status updates to main menu
- No Intelligent Interface required.
(2) 1U 2 kW UPS in parallel in hot swap configuration
Ultimate Power Source

Hot Swappable Paralleling Interface
Rear View (Backplane Cage not shown)

Hot Swap
Pin Protected Connectors
Ultimate Power Source

Hot Swappable Paralleling Interface
Rear View (Backplane Cage not mounted)

Fully Adjustable for Rack Configurations
Ultimate Power Source

2U Hot Swappable Paralleling Interface
Backplane Cage Inside View

Floating Self Aligning Protected Guide Pins
Ultimate Power Source

2U Hot Swappable Paralleling Interface
Backplane Cage Rear View

TCP/IP & HTTP (SNMP) Interface

With MS Connectors,
Other Style Connectors Available
Ultimate Power Source

Hot Swappable
Paralleling Interface
Backplane Cage

Floating Self Aligning
Protected Guide Pins
Ultimate Power Source

2U Hot Swappable Paralleling Interface
Fully Assembled in Rack
Rear View
Ultimate Power Source

Multiple Output connector configurations available to fit your application (2U Configurations)
Ultimate Power Source

Multiple Output connector configurations available to fit your application (3U Configurations)
12 kW, 3 Phase UPS, Field Replaceable Modules

Power Distribution Management (PDM)

2 2kW paralleled per phase

Allows Easy Field Replacement
Ultimate Power Source

12 kW, 3 Phase UPS
Rear View
Ultimate Power Source

2 kW with Extended Battery (Shipboard Compliant)
Dual Source Input

Digital Performance Monitoring Display

20 min Battery Backup
Ultimate Power Source

2 kW with Extended Battery (Shipboard Compliant)

Rear View

Multiple Output connector configurations available

Dual Source AC Option Available

TCP/IP & HTML (SNMP) Interface
Ultimate Power Source

12 kW with 1 Phase or 3 Phase Configuration, Front View

Power Distribution Management (PDM)

(3) 4 kW UPS

Dual Source Option Available
Ultimate Power Source

12 kW with 1 Phase or 3 Phase Configuration

Rear View

Multiple Output connector configurations available
Ultimate Power Source

Tactical Case with 4 kW total UPS power
20 Minutes of Battery Backup @ 4 kW
40 Minutes of Battery Backup @ 2 kW
In a 3U high configuration
Ultimate Power Source

Rear view of 3U Tactical Case with
(2) 1U 2000 Watt Ultra Compact UPS with
1U Battery Extension Module (BEM)
20 Minutes @ 4000 W, 40 Minutes @ 2000 W
Ultimate Power Source

Rear view of 3U Tactical Case with Hot Swap Rear Cage, NEMA Connectors
(2) 1U 2000 Watt Ultra Compact UPS
1U Battery Extension Module (BEM)
Ultimate Power Source

Rear view of 3U Tactical Case with Hot Swap Rear Cage, MS Connectors
(2) 1U 2000 Watt Ultra Compact UPS
1U Battery Extension Module (BEM)
Ultimate Power Source

Tactical, Shock Isolated Rack Case with:
- 1U UPS, 2 kW, 10-30 Min Backup
- 1U Workstation or Server and
- 1U Key Board, Touchpad and Display
Ultimate Power Source

Contact Energy Technologies, Inc.

Go to www.UltimatePowerSource.com for more information or:

Tim Lowe PhD, VP of Sales
tdlowe@ruggedsystems.com

Chip Calderhead, Senior Inside Sales
calderhead@ruggedsystems.com

Voice: 419.522.4444
Fax: 419.522.4466