

# Tactical UPS System

Ruggedized Military-Grade Uninterruptible Battery and Charger All-in-One Power System

## OVERVIEW

The Smart Tactical UPS Power Switching and Battery Charging System by Digital Power Corporation is a rugged and versatile power solution tailored for mission-critical military and defense applications. Designed to enhance connectivity at the tactical edge, it empowers air, sea, and ground forces to share real-time tactical data, maintain a common operating picture, and improve operational coordination, situational awareness, and mission effectiveness.

With an input voltage range of 10.5 to 36 VDC and a maximum power transmission capacity of 350 watts, this system ensures uninterrupted power delivery. Its ultra-fast switching time of less than 500 microseconds prevents system resets during power transitions, guaranteeing reliable performance in dynamic environments.

Designed to meet MIL-STD-461F standards for electromagnetic emissions and to endure vibrations and shocks in accordance with MIL-STD-810G environmental standards. It operates reliably across a wide temperature range of -20°C to 60°C, making it suitable for challenging environments.

The UPS Power Switching and Battery Charging System includes a manual on/off switch, LED indicators, and a fuel gauge for real-time monitoring and control.



## APPLICATIONS

- ✓ Transportable Tactical Command Communications (T2C2)
- ✓ Military vehicle-based operations
- ✓ Loitering Munition Based on a Light Multi-Rotor Drone
- ✓ Network-centric operations Small ground teams

## Key Features

### 350W

High Power high performance power supply

## Wide Input Range

### 10.5 TO 36 VDC

## Powerful Charging

### 17W AND 25W

charging power

## High Efficiency

### 99%

Ensuring minimal power loss and maximum performance.

## Operating Temperature

### -20 TO 60°C

## Battery Compatibility

### LI-ION, NIMH

## Military-Grade Compliance

MIL-STD-461F  
MIL-STD-810G

For quotes and customization requests, please contact us at (877) 634-0982 or sales@digipwr.com

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Flexible Power Solutions

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## PRODUCT FEATURES

**Design and Performance:** The Tactical UPS System operates within an input voltage range of 10.5 to 36 VDC, allowing flexibility to maintain continuous operation under dynamic power conditions. This range supports rapid switching and is ideal for challenging field environments where power stability is critical.

**Power Transmission:** Delivering a robust 350 watts of DC power, the Tactical UPS System ensures essential equipment is consistently powered in mission-critical settings. This reliable power capacity supports uninterrupted communication and data flow, crucial for tactical and command applications.

**Fast Switching Capability:** The UPS boasts an ultra-fast switching time of less than 500 microseconds, ensuring continuous operation without resets or reboots during transitions. This seamless switching preserves operational continuity and reliability, even during power fluctuations. Transition Thresholds: The system switches to battery power at 10.5 VDC and back to prime power at 11.7 VDC, optimizing power management and ensuring stable service. These thresholds are specifically set to prevent downtime during power changes.

**Battery Compatibility:** Compatible with both BB2590 (Li-Ion) and BB390 (NiMH) batteries, the Tactical UPS System offers versatility for different deployment scenarios. The BB2590 provides a higher capacity, while the BB390 meets airline transport requirements, making it suitable for global operations.

**User Controls and Indicators:** Equipped with a manual on/off switch, the UPS allows users to isolate the battery from the charger to prevent unwanted discharge during storage. LED indicators and a fuel gauge provide real-time status on battery capacity and DC input presence, enhancing operational control.

**Temperature and Durability:** Designed to function reliably in temperatures ranging from -20°C to 60°C, the Tactical UPS System performs in diverse environmental conditions. While Li-Ion batteries may have limited functionality in extreme temperatures, the system's charger remains unaffected, ensuring long-term durability.

**Compliance and Standards:** Meeting MIL-STD-810G standards for shock and vibration, the Tactical UPS System is suitable for rotary wing aircraft and off-road vehicles, ensuring resilience for rigorous military operations.

**Mechanical Specifications:** With customized size and mounting options, the UPS system is designed to integrate seamlessly into various infrastructures, providing flexible installation options without significant modifications, making it adaptable to numerous deployment needs



### About Digital Power

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## APPLICATIONS:

### Tactical Modular Communications Solutions:

- **Stationary and Mobile Field Combat Command and Control:** These solutions provide reliable and adaptable communication systems for both stationary and mobile command centers, ensuring seamless coordination in combat scenarios.
- **Commercial Solutions for Classified (CSfC):** Enables organizations to securely transmit classified information, leveraging commercial-grade technology that meets stringent security standards.
- **Rugged, Modular COTS Interoperable Solutions:** Designed for command and control (C2) operations, these rugged and modular commercial off-the-shelf (COTS) solutions ensure interoperability and robust performance in demanding environments.
- **Tactical Ruggedized Communications Platform:** Provides secure mobile networks for land, sea, and airborne operations, ensuring continuous, secure communication across different terrains and platforms.

**Military Vehicle-Based Operations:** The UPS system is built to withstand the rugged demands of military vehicles, providing continuous power in tactical vehicles and other mobile military platforms. It supports mission-critical systems that require stable power, even in the harshest terrains and conditions.

**Loitering Munition Based on a Light Multi-Rotor Drone:** Engagement of Moving Targets with Precision: This advanced system utilizes a light multi-rotor drone designed to loiter and engage moving targets with surgical precision, particularly effective in complex urban battlefield environments. This technology enhances the capability to strike with high accuracy, minimizing collateral damage and maximizing mission success.

**Network-Centric Operations:** As military operations become more network-centric, the need for reliable, secure power to support data sharing and communications grows. The Tactical UPS System supports interconnected command and control systems, ensuring real-time information flow and situational awareness across platforms.

**Small Ground Teams:** For small, agile units that operate on the tactical edge, the UPS system delivers essential power in a compact, portable design. It's ideal for special operations and rapid-response teams that require high resilience and operational agility in challenging environments.



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## ELECTRICAL SPECIFICATIONS

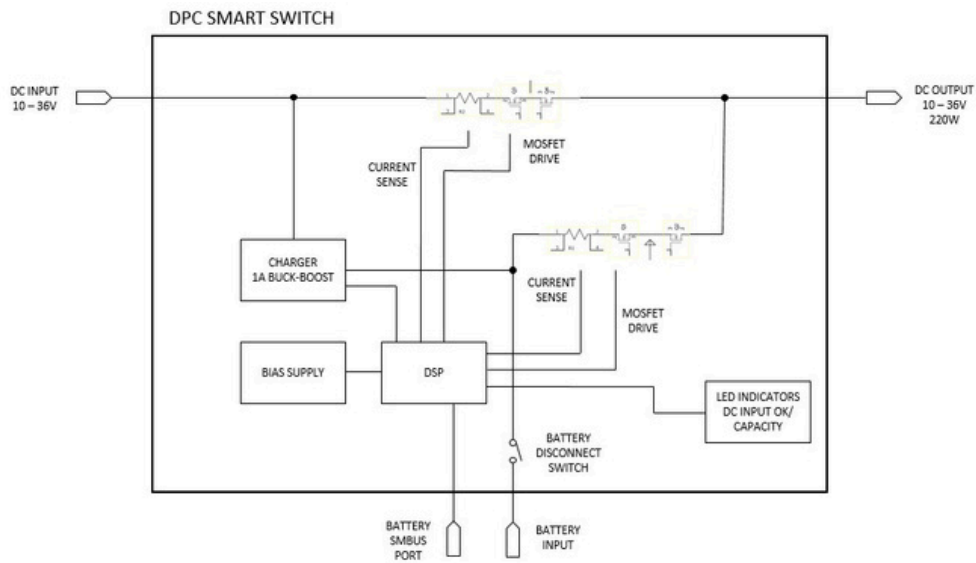
| Parameter   | Conditions   | Comments   |
|---|--|--|
| Input Voltage   | 10.5Vdc – 36Vdc  | Operational Characteristics at Low Voltage: There may be slight variations in low voltage of 10.5 to 11volts.  |
| Power Transmission  | 250 Watts (DUP250-12M)<br>350 Watts (DUP350-12M)   | Maximum Pass-Through Power: Specifies the maximum power that can flow from the switching power source to the battery.  |
| Maximum Battery Charging Current @ 16.5V charging voltage                     | DUP25012M: 1.0 Amp.<br>DUP35012M: 1.5 Amp.   | Maximum Battery Charging Current: Achieved through a buck-boost charging topology, with charging current limits set at 1A and 1.5A for the respective models.  |
| Switching Time  | Less than 500 micro-sec  | Switching Time: The transition time between primary power and battery power, and vice versa, is designed to prevent system reset or reboot, ensuring smooth operation.   |
| Transition from Prime Power to Battery Switch On                              | 11Vdc $\pm$ 0.1  | Transition Voltage - Falling Edge: The specific voltage at which, upon a drop in prime power, the switching system initiates a shift to battery operation.   |
| Transition from Battery to Prime Power Switch resumes input voltage pass thru | 11.7Vdc $\pm$ 0.1  | Transition Voltage - Rising Edge: The voltage at which, when prime power is restored, the switching system transitions back to prime power operation.  |
| Controls  | Manual On/Off Switch   | Battery Storage: Disconnect the battery from the power-switching charger before storage to prevent discharge.  |
| LED and Status Indicators   | Stacked 4 LED (green):<br>Battery Capacity Indicator<br>Stacked 3 LED (green):<br>Li-Ion Battery<br>DC Input | DC Input Status and Battery Energy Capacity: Indicates whether DC input power is present and active and shows the current charge level of the battery.   |
| Batteries Supported   | Battery Types:<br>BB2590/U<br>(Rechargeable Li-ion Battery)<br>BB390B/U<br>(Rechargeable Ni-MH Battery)      | Battery Restrictions: The BB2590U battery is a Lithium-Ion (Li-ion) model subject to airline restrictions due to its capacity exceeding 100 watt-hours. In contrast, the BB390B/U battery is a Nickel Metal Hydride (NiMH) model, which is exempt from these restrictions. |
| Battery Connector   | SC-C-179495<br>Floating ground design per U.S. Army specifications   | Ensure enhanced stability and safety by isolating the ground from the power circuit.   |
| <b>Environment</b>  |  |  |
| Operating Temperature   | -20°C to 60°C  | Li-Ion batteries may not function optimally across this entire range; however, the charger is designed to withstand these temperatures without damage.   |
| MIL-STD-810G Standard   | Shock and Vibrations   | Compliant for operational vibration in rotary-wing aircraft and off-road ground vehicles. Applies when installed in a smart chassis.   |
| MIL-STD-461F Standard   | Electromagnetic interference (EMI) emissions methods<br>CE102-1 and RE102-4                                  | Environmental conditions, ensuring reliable performance under rigorous operational environments  |



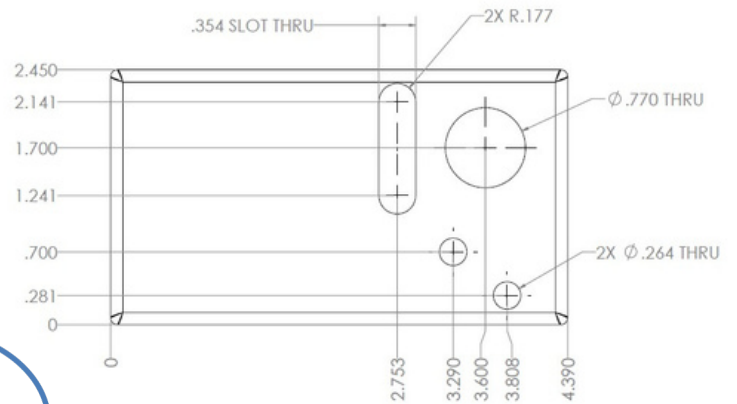
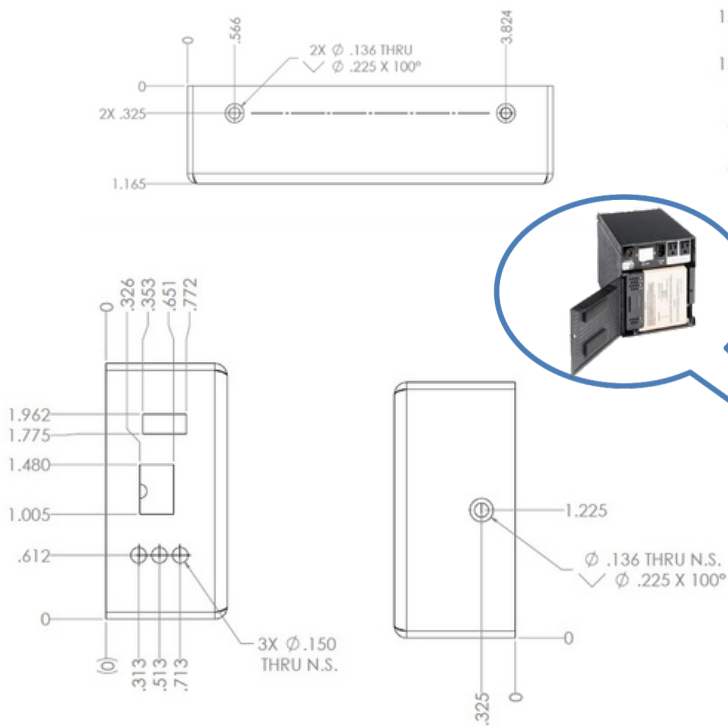
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# SMART SWITCH BLOCK DIAGRAM



## OUTLINE DRAWING



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# Add-On Rechargeable, Lithium-Ion Battery

## KEY FEATURES

- Complies with SMBus v1.1 and SBData v1.1
- UN/DOT 38.3 Rating: 350W. 20Ah
- CE Compliant
- CB IEC62133-2:2017

## APPLICATIONS

- Communication Equipment Drones (UAV)
- SINCGARS & ASIP (AN/PRC-119) Radios
- Robots



## SPECIFICATIONS

|                       |  |
|-----------------------|--|
| Dimensions            | Length: 4.4 in (112 mm) Width: 2.45 in (62.23 mm) Height: 6.97 in (177 mm) |
| Color                 | Lusterless "Tan 686A", chip # 33446  |
| Weight                | 3.1 lbs (1.4 kg)   |
| Nominal Voltage       | 28.8V, Two (2) x 14.4V/Section   |
| Maximum Voltage       | 33.6V, Two (2) x 16.8V/Section (supported chargers marked with *)          |
| Capacity              | 20Ah in 24V Mode   |
| Discharge             | 10A Max Continuous / Section   |
| Pulse Discharge       | 18A (5 sec ON/25 sec OFF) / Section  |
| Operating Temperature | -20°C to +60°C (-4°F to +140°F)  |
| Storage Temperature   | -50°C to +60°C (-40°F to +140°F)   |
| Connector             | 6 Pin Floating Type per U.S. Army DWG# SC-C-179495                         |
| Charge Indicator      | LED Display  |
| Disposal              | Check with local authorities / Disposal Regulations                        |
| Case                  | PC / ABS Blend   |

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