

Telecom Power Distribution Unit (PDU) - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The {keyword} represents a paradigm shift in carrier-grade power distribution architecture, engineered specifically for high-density telecommunications environments. This intelligent Power Distribution Unit (PDU) delivers exceptional power density, advanced remote monitoring capabilities, and robust reliability metrics essential for modern data centers, central offices, and edge computing nodes. Designed with a modular hot-swappable architecture, the {keyword} ensures zero-downtime maintenance and seamless scalability, addressing the critical power management challenges of next-generation network infrastructure. Its advanced microcontroller-based sensing platform provides real-time per-outlet power metering and environmental telemetry, enabling precise capacity planning and energy optimization. The unit is fully compliant with global safety and environmental standards, ensuring seamless integration into any carrier or enterprise facility.



ARCHITECTURE & CHASSIS DESIGN

The {keyword} is built upon a robust 1RU chassis design, optimized for maximum airflow and efficient cable management. The front panel features a high-contrast OLED display providing real-time system status, load percentage, and alarm logs. All output connectors are positioned on the rear panel to facilitate clean installation within standard 19-inch equipment racks. The internal architecture employs a fully isolated power backplane capable of supporting dual independent input feeds (A and B power paths). This design inherently supports 1+1 and 2N redundancy configurations without requiring external switching hardware. The unit integrates a high-efficiency power conversion stage utilizing gallium nitride (GaN) technology, achieving up to 96% efficiency at typical load levels, significantly reducing thermal dissipation and operational costs compared to traditional PDU designs.

HARDWARE FEATURES

1. **INTELLIGENT POWER METERING:** High-accuracy, True RMS current and voltage monitoring at the aggregate and per-outlet levels with +/- 1% accuracy. Provides comprehensive power quality analytics including harmonic distortion, crest factor, and power factor.
2. **REMOTE MANAGEMENT:** Embedded Gigabit Ethernet management port supporting SNMP v1/v2c/v3, Modbus-TCP, and RESTful API for full integration with DCIM and NMS platforms. Supports TLS 1.2/1.3 for secure data transmission. Out-of-band management via optional 4G/LTE cellular module ensures connectivity during primary network outages.
3. **ENVIRONMENTAL SENSORS:** Two external sensor ports supporting up to six daisy-chained temperature/humidity probes and contact closure sensors for door and water leak detection. Integrated ambient sensor monitors rack inlet temperature.
4. **ADVANCED CONTROL:** Per-outlet switching control with power-on sequencing to prevent inrush current overloads. Supports scheduled power cycling and outlet grouping for coordinated server reboots.
5. **HIGH DENSITY:** Available in 48x C13 and 24x C19 outlet configurations, providing up to 11kW per unit at 230VAC. High-density model supports 48x C13 and 6x C19, delivering 16kW per 1RU.

COMPLIANCE & STANDARDS

The {keyword} is fully certified to meet the stringent requirements of global telecommunications and safety standards.

- SAFETY: UL 60950-1, UL 62368-1, IEC 60950-1, IEC 62368-1, CE Mark, CB Certification.
- EMC/EMI: FCC Part 15 Class A, EN 55032 Class A, EN 55024, VCCI, CISPR 22.
- ENVIRONMENTAL: RoHS, REACH, WEEE compliant.
- TELECOM: NEBS Level 3 compliant (GR-1089-CORE, GR-63-CORE) for installation in Central Offices.
- ENERGY EFFICIENCY: ENERGY STAR and Eco-design compliant.

TECHNICAL SPECIFICATIONS

- INPUT VOLTAGE: 100-127VAC / 200-240VAC / 277VAC (auto-sensing), 50/60Hz.
- INPUT CONNECTION: Field-replaceable input power cords (NEMA L6-30P, IEC 60309, or hardwired terminal block).
- MAXIMUM INPUT CURRENT: 20A, 30A, or 60A chassis variants available.
- OUTPUT CONNECTORS: IEC 60320 C13, C19, or NEMA 5-20R depending on

order configuration.

- OPERATING TEMPERATURE: 0 ° C to 55 ° C (derated 1 ° C per 100m above 2000m).
- STORAGE TEMPERATURE: -40°C to 85°C.
- OPERATING HUMIDITY: 5% to 90% RH (non-condensing).
- MANAGEMENT INTERFACE: 10/100/1000BASE-T Ethernet (RJ45), RS-232 serial console port (RJ45).
- DIMENSIONS: 482.6mm (19") W x 44.5mm (1RU) H x 450mm D (shallow chassis option available).
- WEIGHT: 4.5 kg (chassis only), up to 6.0 kg fully populated.

Parameter	Specification
Form Factor	1RU Rack-mountable Chassis (19-inch compatible)
Maximum Output Capacity	11kW (230VAC) / 16kW (High-Density Model)
Switching Capacity	5000VA (Inductive Load)
Power Supply	Dual Redundant, Hot-Swappable AC/DC Power Modules
Input Voltage	100-127VAC / 200-240VAC / 277VAC (Auto-Sensing)
Management Ports	1x Gigabit Ethernet, 1x RS-232

	Console
Operating Temperature	0°C to +55°C
MTBF	> 500,000 hours at 25 ° C (Telcordia SR-332)

ORDERING OPTIONS

- {keyword}-16A-C13-24: 1RU, 24x C13 outlets, 16A max input, NEMA L5-20P inlet.
- {keyword}-32A-C19-12: 1RU, 12x C19 outlets, 32A max input, IEC 60309 32A inlet.
- {keyword}-32A-MIX-24: 1RU, 12x C13 + 12x C19 outlets, 32A max input.
- {keyword}-60A-C19-24: 1RU, 24x C19 outlets, 60A max input, hardwired termination.
- {keyword}-ENV-SENSOR-KIT: External environmental sensor probe kit (2x temp/humidity + 2x contact closure).
- {keyword}-LTE-MODULE: Optional 4G/LTE out-of-band management module.

