

PD1000-9R | 9-Channel PDMU

9-Channel Ruggedized Smart Power Distribution & Management Unit

MODEL: PD1000-9R | CATEGORY: PDU | RATED POWER: 1000W | FORM: Vehicle Integration

PRODUCT OVERVIEW



Key Product Features

- 9 protected output channels
- 1000W total output power
- 11–20 VDC input range
- Dual boost DC-DC (12V → 24V) + 12V outputs
- >96% efficiency (typical)
- Integrated LVLDC (load prioritization & control)
- Programmable load shedding and recovery
- Electronic resettable protection (no fuses)
- SCP, OCP, OVP, OPP, RPP
- 120A fuse + relay (input protection)
- Passive conduction cooling (fanless)
- Sealed circular connectors
- IP67 rugged enclosure

PRODUCT DESCRIPTION

The PD1000-9R is a rugged, intelligent DC power distribution and management unit designed for mission-critical mobile and defense applications. It centralizes power delivery from vehicle and auxiliary sources while providing protected, programmable distribution to multiple subsystem loads.

The system uses dual current-sharing DC-DC boost converters to generate a regulated 24V bus, with an independent 12V DC-DC stage. An integrated LVLDC controller enables intelligent load prioritization, shedding, and recovery for stable operation in dynamic environments.

Built for harsh conditions, the unit features a sealed IP67 enclosure, passive cooling, and robust protection for reliable performance.

Applications

- Military ground vehicles
- Tactical communication systems
- Field-deployed power systems
- Mobile command centers
- Autonomous and unmanned platforms
- Heavy-duty industrial and off-road vehicles

PRODUCT OVERVIEW

Key Differentiators

- Centralized power distribution reduces system complexity
- Programmable load control improves battery efficiency
- 24V and 12V outputs eliminate need for multiple converters
- Independent voltage rails improve fault isolation
- Rugged IP67 design ensures reliability in extreme environments

System Architecture

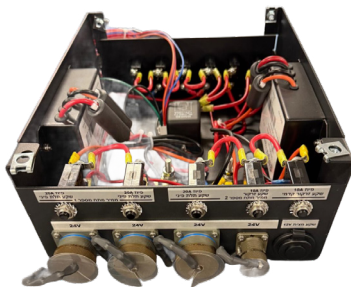
- DC input from vehicle battery, alternator, or external source
- Dual current-sharing DC-DC boost conversion to regulated 24V bus
- Secondary DC-DC conversion to 12V outputs
- Intelligent load management with LVLD, programmable prioritization, and load shedding

Protection Features

- Short Circuit Protection (SCP)
- Over Current Protection (OCP)
- Over Voltage Protection (OVP)
- Over Power Protection (OPP)
- Reverse Polarity Protection (RPP)
- Electronic resettable protection (no consumable fuses)
- Transient protection (MIL-STD-1275E aligned)

Safety & Compliance

- Designed to meet MIL-STD-1275E (vehicle transients)
- Environmental design aligned with MIL-STD-810 (shock, vibration, temperature)
- EMI/EMC aligned with MIL-STD-461
- IP67 ingress protection rating
- COTS military-grade design



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

ELECTRICAL SPECIFICATIONS

Model Information

Model	Power	Output 1	Output 2	Output 3	Output 4	Output 5	Output 6	Output 7	Output 8	Output 9
PD1000-9R	125A	24V @ 10A	24V @ 10A	24V @ 20A	24V @ 20A	24V @ 20A	12V @ 10A	12V @ 10A	12V @ 10A	12V @ 10A

Parameter	Specification
Input Voltage	11–20 VDC
Input Interface	High-current terminal
Output Architecture	24V regulated bus + 12V DC-DC rails
Primary Bus	24 VDC (regulated)
Secondary Outputs	12 VDC (regulated)
Total Output Power	1000W (max simultaneous)
Total Output Current	Up to 125A (non-simultaneous)
24V Rail Capacity	Up to 80A (combined, peak)
12V Rail Capacity	Up to 40A (combined, peak)
Conversion Topology	Dual current-sharing DC-DC boost + secondary DC-DC
Efficiency	>96% (typical)
Main Protection	120A fuse + relay
Protection	Electronic resettable (multi-layer)
Dimensions	13" (L) × 5" (W) × 10" (H)
Enclosure	Sealed, IP67-rated
Material	Ruggedized aluminum
Cooling	Passive conduction cooling
Mounting	Integrated mounting flanges
Operating Temperature	-20°C to +75°C
Ingress Protection	IP67
Shock & Vibration	MIL-STD-810 aligned
EMI/EMC	MIL-STD-461 aligned
Safety	MIL-STD-1275E (vehicle transients)
Load Management	Programmable disconnect/reconnect (LVLD)
Power Inputs	Vehicle battery / alternator / external DC
Primary Conversion	Dual boost → 24V bus
Secondary Conversion	DC-DC → 12V outputs
Protection Logic	Auto recovery + programmable thresholds

Note: Steady-state input voltage range (11–20 VDC) is defined to support 12V vehicle platforms.

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