

PD12324V-20R | PDMU

20-Channel Rugged Smart Power Distribution & Management Unit

MODEL: PD12324V-20R | CATEGORY: PDU | RATED POWER: 12,360W | FORM: Vehicle Integration

PRODUCT OVERVIEW



Key Product Features

- 20-channel 24VDC power distribution
- 495A continuous / 515A peak output
- 11.88 kW continuous / 12.36 kW peak
- 18–32 VDC input range
- EV200 contactor switching
- Integrated LVLVD load management
- Automatic disconnect / reconnect protection
- Manual LVD bypass
- Circuit-breaker protected outputs
- Surge and reverse polarity protection
- LED indicators and audible alarm
- EMI/RFI filtered interfaces
- IP67 rugged enclosure
- -40°C to +85°C operation









PRODUCT DESCRIPTION

The PD12324V-20R is a rugged 24VDC smart power distribution and management unit designed for mission-critical military tactical, and industrial vehicle.

platforms. It distributes protected DC power across 20 output channels with up to 495A continuous / 515A peak total output current.

The system integrates high-current contactor switching, low-voltage load disconnect, surge suppression, circuit-breaker protection, operator controls, LED indicators, and audible alarm functions in an IP67 sealed rugged enclosure.

Applications

-  Military ground vehicles
-  Tactical communication platforms
-  Command and control systems
-  Autonomous and unmanned systems
-  Law enforcement vehicles
-  Industrial and off-road equipment
-  Rugged mobile power systems
-  Mission-critical vehicle electronics

PRODUCT OVERVIEW

Key Differentiators

- High-power 20-channel distribution in a single compact unit
- Supports up to 495A continuous / 515A peak system load
- Integrated contactor-based high-current switching
- Advanced LVLD load management for battery protection
- Automatic load shedding and recovery functionality
- Built-in operator interface (LEDs, buzzer, switches)
- Fully integrated system protection (breakers, surge, reverse polarity)
- Rugged MIL-STD compliant design for harsh environments
- IP67 sealed enclosure for dust and moisture protection
- Optimized for reliable power distribution in mission-critical systems

Customization & OEM Support

- Custom output configurations and channel mapping
- Tailored voltage thresholds and LVLD programming
- Connector and harness customization (MIL / commercial options)
- Mechanical customization for mounting and form factor
- Optional labeling and interface modifications
- Integration support for vehicle and system architectures
- Engineering collaboration from concept to deployment
- Low- to high-volume production support

Safety & Compliance

- Designed to meet MIL-STD-810 for shock, vibration, and environmental durability
- Designed to meet MIL-STD-461 for EMI/EMC performance
- Designed for MIL-STD-1275 vehicle power transient protection
- Integrated circuit-breaker protection
- Surge suppression for 24V vehicle power transients
- Reverse-polarity protection
- IP67 sealed enclosure for dust and moisture protection

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

ELECTRICAL SPECIFICATIONS

Input Specifications

Parameter	Specification
Input Voltage Range	18–32 VDC
Nominal Voltage	24 VDC
Number of Outputs	20
Total Output Current	495A continuous / 515A peak
Maximum Power	11,880W continuous / 12,360W peak
Output Voltage	24 VDC nominal bus, not regulated
Main Switching	EV200AAANA contactor
Load Management	FSYS LVD24V low-voltage disconnect
Disconnect Threshold	22.5V
Alarm Threshold	23V
Reconnect Threshold	26V
Protection	Circuit breakers, TVS surge suppression, reverse polarity protection
Surge Protection	GPZ1275 / MIL-STD-1275 transient suppression
User Interface	LED indicators, buzzer, switches
Enclosure	IP67 sealed rugged metal enclosure
Cooling	Passive / conduction
Operating Temperature	-40°C to +85°C
Dimensions	16.75 in × 10.87 in × 5.12 in

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ELECTRICAL SPECIFICATIONS

Output Specifications

Output	Connector	Type	Rating
Input	J1	24V DC box power harness	515A system input
Output 1	CB1	10A PDU power socket	15A breaker
Output 2	CB2	10A dashboard power socket	15A breaker
Output 3	CB3	Roof / Venom power socket	15A breaker via RE1
Output 4	CB4	PDU 20A power socket 1	25A breaker
Output 5	CB5	PDU 20A power socket 2	25A breaker
Output 6	CB6	PDU 20A power socket 3	25A breaker
Output 7	CB7	PDU 20A power socket 4	25A breaker
Output 8	CB8	PDU 20A power socket 5	25A breaker
Output 9	CB9	PDU 20A power socket 6	25A breaker
Output 10	CB10	PDU 80A power socket	80A breaker
Output 11	P1	W202 compartment harness	24V @ 15A
Output 12	P2	W303 service sockets power harness	24V @ 15A
Output 13	P3	10A power socket	24V @ 10A
Output 14	P4	20A power socket 1	24V @ 20A
Output 15	P5	20A power socket 2	24V @ 20A
Output 16	P6	20A power socket 3	24V @ 20A
Output 17	P7	20A power socket 4	24V @ 20A
Output 18	P8	20A power socket 5	24V @ 20A
Output 19	P9	20A power socket 6	24V @ 20A
Output 20	P10	80A power socket	24V @ 80A

Mechanical Specifications

Parameter	Specification
Dimensions	16.75" × 10.87" × 5.12"
Enclosure	IP67 sealed
Construction	Rugged metal enclosure
Cooling	Passive (conduction)
Mounting	Vehicle/platform integration ready

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SYSTEM ARCHITECTURE

Power & Switching Architecture

Primary Contactor (EV200AAANA)

- High-current contactor enabling system-level switching and electrical isolation

Central Busbar Distribution

- Dedicated 24V power and ground busbars designed to support full system load up to 495A continuous

Relay-Controlled Output (RE1)

- Integrated relay control for CB3 output, supporting roof / auxiliary (Venom) power socket operation

Heavy-Gauge Internal Wiring

- **0 AWG main input and busbar conductors with optimized branch wiring for high-current output channels**

Load Management System (LVLVD)

The integrated FSYS LVD24V module provides intelligent battery protection and power control:

- Programmable voltage thresholds for system optimization
- Automatic load shedding during undervoltage conditions
- Automatic load restoration upon voltage recovery
- External programming interface for configuration
- Integrated relay, LED, and buzzer signaling outputs

Additional Capabilities

- Ignition-controlled operation via +IGN input
- Manual override through LVD bypass switch (SW2)

Control & User Interface

- Main Power Switch (SW1) for system enable/disable
- LVD Bypass Switch (SW2) for manual override
- LED Status Indicators:
 - ◇ Green: Power ON
 - ◇ Red: Low Voltage condition
- Audible low-voltage alarm (buzzer)
- Buzzer disable control function
- External programming / control interface (C1)

Connectivity & Interfaces

- J1: CA3102E32-5P-B-F80 main power input connector
- P1: D38999/20WE8SN – compartment harness interface
- P2: D38999/20WE6SN – service sockets harness interface
- P3–P10: MIL circular connectors for output channels

Interface Features

- EMI/RFI filtered external connections
- Segregated power and signal routing for noise reduction and system reliability

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