PRODUCT SPECIFICATION

PD12V-12RSW | 12V PDU

Switch-Controlled Power Distribution Unit (PDU)

MODEL: PD12V-12RSW | CATEGORY: PDU | FORM: Panel Mount / Vehicle Integration

PRODUCT OVERVIEW

Key Product Features

- 12-channel protected 12V DC power distribution
- Integrated relay control for critical vehicle functions
- Thermal circuit breaker protection (5A–30A configurable)
- High-current busbar architecture for efficient load handling
- Dual service outputs including 12V socket and USB (5V, 2.1A)
- MIL-grade connectors for secure and reliable interfacing
- Panel-mounted switches and user interface for direct control
- Supports switched and unswitched +12V rails
- Compact, panel-mount design for easy system integration
- Built for high vibration, temperature, and harsh environments

PRODUCT DESCRIPTION

The PD12V-12RSW Switch-Controlled Power Distribution Unit (PDU) is a rugged, multi-channel 12V DC power management system engineered for mission-critical vehicle platforms. It integrates power distribution, circuit protection, and relay-controlled switching into a single compact panel, enabling efficient and reliable delivery of power to multiple subsystems.

Designed for harsh operating environments, the unit features a high-current busbar architecture, sealed connectors, and automotive-grade components to ensure stable performance under vibration, temperature extremes, and electrical load variations.

Applications

- Military ground vehicles
- Law enforcement and tactical vehicles
- Emergency response vehicles
- Off-road and utility vehicles
- Specialized industrial machinery
- Custom vehicle electrical systems and retrofits

PRODUCT OVERVIEW

Key Differentiators

- Consolidates distribution, protection, and control in one unit
- Reduces wiring complexity and installAation time
- Improves system reliability and fault isolation
- Designed specifically for vehicle electrical architectures
- Field-proven ruggedization for mission-critical use

Safety & Compliance

- MIL-STD-1275 (vehicle power systems)
- MIL-STD-461 (EMI/EMC compliance)
- MIL-STD-810 (environmental durability)
- MIL-DTL-5015 connector standards
- Automotive wiring standards (UL1015, VW-1)
- Use of MIL-grade relays and protection components

Functional Architecture

- Primary power input (P1)
- Circuit breaker bank (CB1–CB12)
- Relay control layer
- Output distribution harness (J4/J5)
- User interface (switches and outlets)
- Controlled activation of loads
- Fault isolation per circuit

Wiring & Power Distribution

- High-current input architecture
- Secondary distribution wiring
- Integrated ground bus
- Multiple +12V rails (switched and unswitched)
- Busbar-based power distribution
- Relay-controlled outputs
- Dedicated circuits for lighting, signaling, and auxiliary loads

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

ELECTRICAL SPECIFICATIONS

Parameter	Specification
Nominal Input Voltage	12V DC
Input Voltage Type	+12V (15) and +12V (30) rails
Maximum Main Input Current	≥30A
Distribution Type	Busbar with circuit breakers
Number of Output Circuits	12
Protection Method	Thermal circuit breakers
Relay Supply Voltage	12V DC
USB Output	5V, 2 × 2.1A
Flasher Unit Compatibility	0.1W – 150W LED

Circuit Protection Configuration

Circuit No.	Function	Rating
1	Blackout Lighting	30A
2	Differential Lock	15A
3	Front Headlights	15A
4	Driver Panel	5A
5	Horn	20A
6	Infrared Light	5A
7	Service Outlet	5A
8	Rear Left Outlet	15A
9	Rear Right Outlet	15A
10	Service/USB Outlet / Blinker	15A
11	Blinkers	7.5A
12	Rear Lights	7.5A

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ELECTRICAL SPECIFICATIONS

Relay Configuration

Relay ID	Function	Type
RE1	Blackout Lights Relay	12V / 70A
RE2	Brake Signal Relay	12V Micro Relay
RE3	ARB Relay	Change-over Relay
RE4	Starter Relay	12V / 70A
RE5	Reverse Signal Relay	Micro Relay
Protection Method	Thermal circuit breakers	
Relay Supply Voltage	12V DC	
USB Output	5V, 2 × 2.1A	
Flasher Unit Compatibility	0.1W – 150W LED	

(Configured for Military & Law Enforcement Tactical Vehicles)

Connectors & Interfaces

Connector	Type	Description
P1	MS3102E22-7P	Main power input (high current)
J4	HDP24-24-31ST	Dashboard harness interface
J5	HDP24-24-9SN	Auxiliary interface
J2	MS3452W12-5S	12V service socket
USB Port	A13-230	Dual USB (5V output)
Lighter Socket	A13-142C	12V accessory socket

Mechanical Specifications

Parameter	Value
Panel Type	Metal front panel
Mounting	Panel mount
Connector Lengths	J5: 250 mm; P1: 400 mm; J4: 350 mm
Construction	Rugged automotive-grade
Lighter Socket	A13-142C

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ELECTRICAL SPECIFICATIONS

Environmental & Reliability

Parameter	Specification
Operating Temperature	-40°C to +105°C (Automotive-grade wiring rated)
Vibration Resistance	High (vehicle-grade)
Connector Sealing	Sealed with gaskets and sealing pins
Construction	Robust for harsh environments

Compliance & Standards

Category	Standard
Military Power	MIL-STD-1275
EMI/EMC	MIL-STD-461
Environmental	MIL-STD-810
Connectors	MIL-DTL-5015
Wiring Standards	UL1015, VW-1
Components	MIL-grade relays and protection devices

Customization & OEM Support

- Custom circuit configurations available
- Harness and connector customization
- Branding / panel layout options
- Engineering support from concept to deployment

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