SDU DC - B Series, DIN Rail UPS

The SolaHD SDU DC - B DIN Rail UPS is an advanced 24 Vdc uninterruptible power system that combines an industry leading design with a wide operational temperature range and unique installation options. The SDU DC - B UPS is a powerful, microprocessor controlled UPS that provides protection from power interruptions. With an input voltage range of 22.1 Vdc to 28.6 Vdc, the DC - B UPS is the ideal power back-up solution for your critical connected loads.



E61379 E137632

Applications

- Industrial/Machine Control
- Automation Process Control
- Computer-based Control Systems
- Conveying Equipment
- Material Handling
- Packaging Machines
- Semiconductor fabrication equipment
- DeviceNet™
- Amusement Park Equipment
- Pharmaceutical Applications
- Control Rooms

Features

- Modular, rugged industrial grade design
- Microprocessor based controls
- Automatic self-test feature for UPS function and battery management check
- Power module wide operation temperature range (-15 °C to +50 °C)
- Flexible batteries back-up expansion capabilities
- Overload protection in normal and battery modes
- User replaceable batteries
- IP20 rated input and output screw terminals
- No internal fan, no extra cooling required
- Sturdy, reliable all metal DIN rail mounting connector
- LED status indicators
- Universal dry contact relay terminals provide remote signaling
- Monitoring, diagnostics, and remote turn-on and shut-off capabilities
- Two year limited warranty

Certifications

- c UL us Listed, Electrical Equipment for Measurement, Control and Laboratory Use; Control Equipment, E61379
  - UL/CSA 61010-1, UL/CSA 61010-2-201
- c UL us UL Recognized Component, Audio/video, Information and Communication Technology Equipment, E137632
  - UL/CSA 62368-1, UL/CSA 60950-1
- CE Low Voltage Directive/ UKCA Electrical Equipment (Safety) Regulations 2016
  - IEC/EN60950-1, IEC/EN 62368-1, IEC/EN 61010-1, IEC/EN 61010-2-201

Related Products

- SDN-D Series DIN Rail Power Supplies
- STV 25K Series Surge Protective Devices

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Selection Table

Catalog Number	Description	Approx. Ship Weight lbs (kg)
	UPS	
SDU 10–24B	240 VA, 24 V/10 A DIN Rail DC UPS power module, battery module is required	0.9 (0.41)
SDU 20–24B	480 VA, 24 V/20 A DIN Rail DC UPS power module, battery module is required	0.9 (0.41)
	Battery	
SDU 24–BATB	24 V DIN Rail/Panel Mount Battery Module (cable included)	11.5 (5.2)
SDU 24–BATEM	24 V External Mount Battery Module (cable included)	16.0 (7.11)
	Accessories	
SDU24EXTBC6B	Optional 6 ft. Battery Module cable to 24 V DC UPS	0.5 (0.22)
SDU–PMBRK	Optional chassis mount brackets to secure the DC UPS to wall, back of panel, or enclosure	0.5 (0.22)

There are three individual hardware products when putting an SDU DC - B UPS system into operation:

1. 24 Vdc Power Supply (Recommended SolaHD SDN Series)
2. 24 Vdc SDU DC - B UPS Power Module
3. 24 Vdc SDU DC - B UPS Battery Module; or 24 Vdc SDU DC - B UPS External Battery Module

There are two models of the SDU DC - B UPS Power Module:

1. SDU 10-24B, 24 Vdc/10 Amp (battery modules are required)
2. SDU 20-24B, 24 Vdc/20amp (battery modules are required)

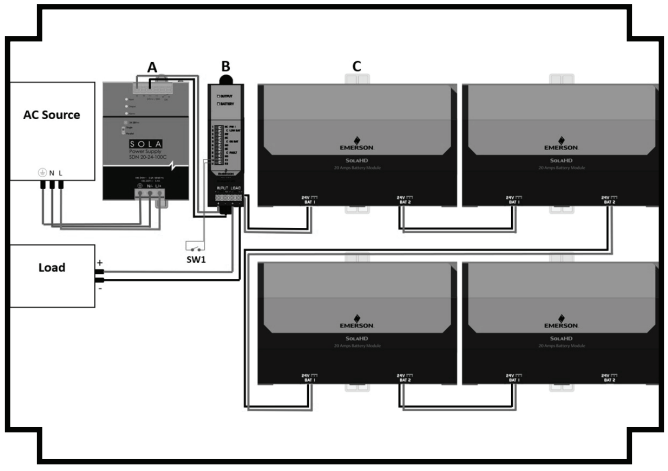
There are two models * of the SDU DC - B UPS Battery Modules:

1. SDU 24-BATB, DIN Rail/Panel mount for installation in ventilated enclosure, up to 4 battery modules can be connected to the SDU DC - B UPS.

2. SDU 24-BATEM, Panel mount, alternate battery module for external installation in a non-hazardous environment of non-ventilated enclosures, only 1 battery module can be connected to the SDU DC - B UPS.

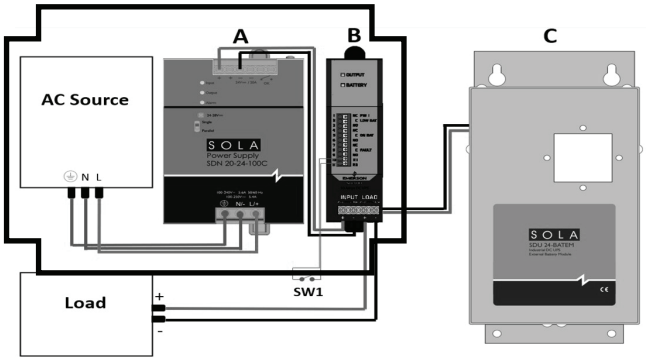
* Cannot use a combination of both models of the battery modules, only one model of the battery module can be connected to the SDU DC - B UPS.

DIN Rail Mounted Battery Option



A) AC/DC Power Supply
B) Control Module: SDU 10-24B or SDU 20-24B
C) Battery Module: SDU 24-BATB

External Battery Option



A) AC/DC Power Supply
B) Control Module: SDU 10-24B or SDU 20-24B
C) Battery Module: SDU 24-BATEM

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SDU DC - B UPS Power Modules Specifications

Specification	SDU 10–24B	SDU 20–24B
	Efficiency	
Normal Mode	>95%	
Battery Mode (Fully–charged battery)	>93%	
	Input	
Nominal Input Voltage	24 Vdc	
Input Voltage Range	22.1 - 28.6 Vdc	
	Output	
Output Ripple (Normal Mode, Fully – Charged Battery)	Vin Ripple = Vout Ripple	
Output Voltage Range	Worst case: Vin – 0.4 Vdc = Vout	
Output Current	10 A	20 A
Output Power	240 W	480 W
	Protection	
Input Current Protection (Normal Mode)	Internally Fused 30 A 58 Vdc	
Peak Output Current Capability (Normal Mode)	Power boost (allows for 120% of rated load for > 4 seconds) Peak current allowed for very short period of time (6X for 5 milliseconds) allowing time to trip output ckt. Breakers - without damage to the unit and auto-recovery	
Short Circuit (SDU DC Output)	UPS Shutdown, Auto-Recovery	
Input Protection	Allowable Input 22.1 V Min / 28.6 Max or UPS goes to Battery Mode	
Reversed DC input connection	UPS goes to Battery Mode	
Battery Over–Voltage Protection	Charging stops at 28 V and Auto-Recovers	
Reversed battery connection	Charger disables; No impact on DC UPS unit	
Other possible battery faults	Charger disables; No impact on DC UPS unit	
Back EMF Immunity, Output	< 35 V Max, No damage, Auto-Recovery Mode	
Over–Temperature sensing protections	Unit to shutdown at an overtemperature event, auto-recovery	
	Diagnostics	
SSR/Relay IO	Solid state form "C" contacts for On battery, low battery and battery fault. Connector size range: 24 – 16 AWG (0.34 – 4 mm^2)	
LED	2 LED Diagnostics for Battery and Output, Red and Green LED which can be solid or flashing. Refer to tab "Signal Table"	
	Environment	
Operating Ambient Temperature (Still Air)	-15 °C to +50 °C, Full Load	
Storage Ambient Temperature (Still Air)	-40 °C to +85 °C	
Operating Ambient and Storage Ambient Humidity (Still Air)	0% to 95% RH, Non-Condensing; IEC 60068-2-2, 60068-2-3	
Audible Noise	<40 dBA at 1 m Distance	
Altitude	3000 meters Max.	
EMC/EMI	EMC Directive: FCC Part 15, Subpart B, Class A, Level 4, EN 62040-2 Category C2, EN 55032, EN 55011, EN 55024, EN 55035, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61326-1, EN61000-3-2, EN 61000-3-3, IEC/EN 61000-4 Series,	
Vibration	Operating - IEC60068-2-6, Sine Wave: 10 Hz to 60 Hz, displacement of 0.35 mm 60 Hz to 500 Hz @ 5g, 60 min for Y direction	
	Non-Operating - IEC60068-2-6, Random : 5 Hz to 500 Hz @ 2g (RMS); 20 min per axis for all X, Y, Z	
	IEC 60068-2-6, Vibration Class A	
Shock	Operating - IEC60068-2-27, Half Sine Wave: 10 G for a duration of 11 ms, 3 shocks for 1 direction (X axis)	
	Non-Operating - IEC60068-2-27, Half Sine Wave : 30 G for duration of 11 ms, 3 shocks for all 3 axes	
	Weight and Dimensions	
Net Weight – lbs (kg)	0.9 (0.41)	
Dimensions H x W x D – in. (mm)	4.88 X 1.37 X 4.8 (124 X 35 X 121.9)	

Notes:

1. See Battery Back-up Times on next page.
2. DC UPS System includes one power module (SDU 10-24B or SDU 20-24B) and one or more battery modules (SDU 24-BATB or SDU 24BATEM)

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SDU DC - B UPS Battery Module Specifications

Parameter	SDU 24–BATB	SDU 24–BATEM
Type	Sealed, Maintenance-Free, Valve Regulated Lead Acid (VRLA) Batteries (2 Batteries for each Module)	
Typical Recharge Time	3 hours to 10 hours	
Back–up Time (at 480 W)	4 min.	
Battery Terminals	Polarized Terminal Connections for the Battery (+Red color, - Black color): Composed of two PP 15/45 Anderson power pole housings to ensure a keyed connection between the power module and the battery module. NOTE: The maximum length of the connection between the power module and battery module is 6 ft. (1.85 m)	
Signal Terminals (Push Pin)	Connector Size Range: 24-16 AWG (0.34-4 mm^2) CM to define based on specifications of the connector vendor	
Mounting	To be mounted on DIN TS35/7.5 or TS35/15 rail system, Optional Chassis mounting permissible via built in tabs; Unit should handle normal shock and vibration of industrial use and transportation without falling off rail. Apply to both thin and thick DIN Rail (1.0 and 1.5 mm), optional screw mounting set SDU-PMBRK.	
Mounting Orientation	Vertical, Up-right Din Rail	
Changing Current	For Battery Voltage < 28 V, Charging Current = 1.2 A For Battery Voltage ≥ 28 V, Charging Current = 0.15 A	
Remote ON/OFF Feature	Must be Non polarized external switch enabled. Should be able to withstand requirements of EN61000-4 for Signal I/O To enable the UPS close the switch that is connected to the terminals To disable the UPS open the switch that is connected to the terminals	
Dimensions H x W x D – in. (mm)	4.85 x 7.57 x 4.33 (123.3 x 192.4 x 110.0)	11.5 x 5.6 x 4.6 (292 x 142 x 116)

SDU DC - B UPS Back-Up Times (Typical)

SDU 10–24B with SDU 24–BATB					
Load	**20% (2A)**	**40% (4A)**	**60% (6A)**	**80% (8A)**	**100% (10 A)**
1 unit	113	45	30	21	14
2 units	247	114	74	48	38
3 units	396	178	117	80	58
4 units	531	233	147	111	81
SDU 10–24B with SDU 24–BATEM					
1 EBP	135	52	28	19	14
SDU 20–24B with SDU 24–BATB					
Load	**20% (4A)**	**40% (8A)**	**60% (12A)**	**80% (16A)**	**100% (20A)**
1 unit	46	21	10	06	04
2 units	116	50	28	17	10
3 units	178	80	46	31	20
4 units	237	113	65	43	31
SDU 20–24B with SDU 24–BATEM					
1 EBP	48	17	9	6	4

Note: Resistive loads were used to measure the battery backup times; using other types of loads may result in different backup times.

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