

SDU Series, Direct Current Uninterruptible Power Supply (DC UPS) System

The SolaHD SDU DIN Rail DC 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 UPS is a powerful, microprocessor controlled UPS that provides protection from power interruptions. With an input voltage range of 22.5 to 30.0 Vdc, the DC UPS is the ideal power back-up solution for your critical connected loads.

These units were designed specifically for use with our popular SolaHD SDN Series of power supplies. There is an external battery module that is the only one on the market that allows you to seal the electronics in the panel and maintain safety by placing the battery outside of a non-ventilated enclosure.

These units include easy to wire screw terminations for critical devices needing battery back-up. The SDU DC UPS includes an automatic self-test feature that checks the UPS and battery functions. Battery charging occurs automatically when input DC power is applied. When power fails, the DC UPS will switch to battery back-up. If the battery is no longer useful, the UPS will sound an alarm and an LED indicator will illuminate.

Back-up power protection in modern industrial applications depends mainly on AC UPS. AC is converted to DC, and converted back to AC in the AC UPS, then converted back to DC in the protected equipment power supply. By applying the SolaHD SDU DIN Rail DC UPS, you avoid the inefficiencies of all these conversions. This design maximizes system up-time flexibility, and optimizes reliability assurance.

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 (-20 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 and Compliances

All Models

- Listed, Ind. Control Equipment, E61379
- UL 508, CSA C22.2 No. 107.1
- UL Recognized Component, ITE, E137632
- UL 60950-1/CSA C22.2 No. 60950-1
- - IEC/EN60950-1
- RoHS Compliant

Related Products

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

Selection Table

| Catalog Number | Description | Approx. Ship Weight lbs (kg) |
|---------------------|--|------------------------------|
| UPS | | |
| SDU 10-24 | 240 VA, 24 V/10 A DIN Rail DC UPS power module, battery module is required | 1.7 (0.77) |
| SDU 20-24 | 480 VA, 24 V/20 A DIN Rail DC UPS power module, battery module is required | 1.7 (0.77) |
| Battery | | |
| SDU 24-BAT | 24 V DIN Rail/Panel Mount Battery Module (cable included) | 12.0 (5.33) |
| SDU 24-BATEM | 24 V External Mount Battery Module (cable included) | 16.0 (7.11) |
| Accessories | | |
| SDU 24EXTBC6 | Optional 6 ft. Battery Module cable to 24 V DC UPS | 0.5 (0.22) |
| SDU 24-DB9 | Optional interface kit to convert relay contacts signals to DB9 signals | 1.0 (0.45) |
| SDU-PMBRK | Optional chassis mount brackets to secure UPS to wall, panel, or enclosure | 0.5 (0.22) |

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

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

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

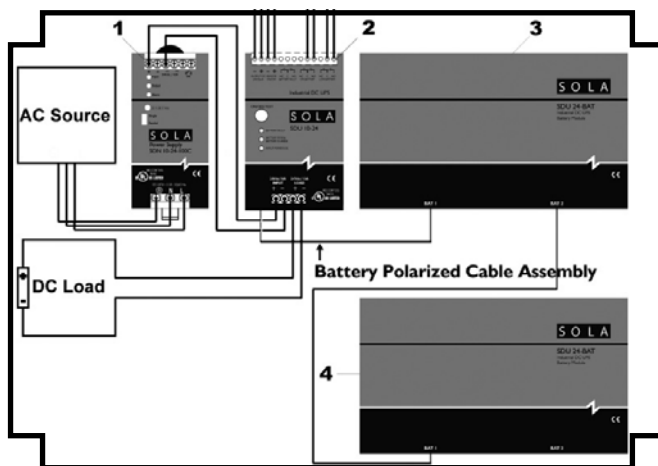
1. SDU 10-24, 24 Vdc/10 Amp (battery modules are required)
2. SDU 20-24, 24 Vdc/20amp (battery modules are required)

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

1. SDU 24-BAT, DIN Rail/Panel mount for installation in ventilated enclosure, up to 4 battery modules can be connected to the SDU DC UPS.
2. SDU 24-BATEM, Panel mount, alternate battery module for external installation of non-ventilated enclosures, only 1 battery module can be connected to the SDU DC UPS.

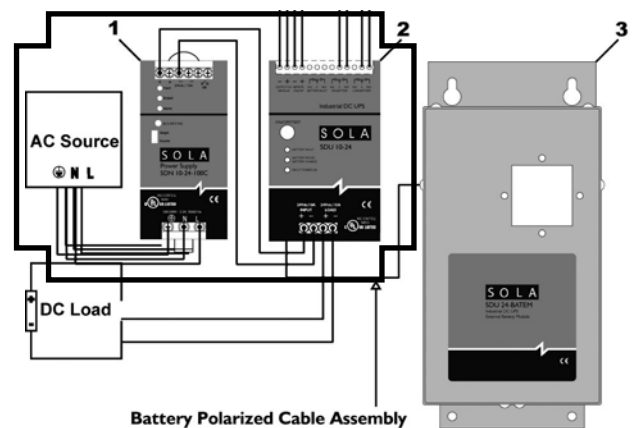
* Cannot use a combination of both models of the battery modules, only one model of the battery module can be connected to the SDU DC UPS.

DIN Rail Mounted Battery Option



- 1) AC/DC Power Supply
- 2) Power Module: SDU 10-24 or SDU 20-24
- 3) Battery Module: SDU 24-BAT
- 4) Optional battery module for extended Back-up.

External Battery Option



- 1) AC/DC Power Supply
- 2) Power Module: SDU 10-24 or SDU 20-24
- 3) Battery Module: SDU 24-BATEM

SDU DC UPS Power Modules Specifications

| Specification | SDU 10–24 | SDU 20–24 |
|---|--|-----------|
| Input | | |
| Nominal Input Voltage | 24 Vdc | |
| Input Voltage Range | 22.5 - 30 Vdc | |
| Input Fuse | DC Fuse 30 A | |
| Output | | |
| Nominal Output Voltage | 24 Vdc | |
| Output Voltage Range | 22.5 - 30 Vdc | |
| Output Current | 10 A | 20 A |
| Current Limit | 12 A | 22 A |
| Protection | | |
| Input Protection | Fuse for overload & short circuit protection | |
| Overload Protection | Electrical Circuit Protection | |
| Short Circuit | UPS output cut off immediately | |
| Battery Module | | |
| Type | Sealed, maintenance-free lead acid batteries. | |
| Charging Current | 0.5 A | |
| Typical Recharge Time (to 90% of full capacity) | 8 Hours for 1 Battery Module 24 Hours for 2 Battery Module 12 Hours for each additional Battery Module | |
| Back-up Time (full load) ¹ | 14 minutes | 4 minutes |
| Protection | UPS Shutdown when battery voltage drops below 22V, to prevent the complete depletion of the battery, short circuit protection by a 30 A fuse. | |
| Physical | | |
| Net Weight – lbs (kg) | 1.7 (0.77) | |
| Dimensions H x W x D – in. (mm) | 4.88 x 3.02 x 4.55 (124.0 x 77.0 x 116.0) | |
| Alarm | | |
| Battery Low | Rapid Audible Indicator every 1 second | |
| Overload | Continuous Audible Indicator | |
| Environment | | |
| Audible Noise | <40 dBA (1 meter from surface) | |
| Power Module Operating Temperature | -20°C to +50°C | |
| Storage Temperature | -20°C to +70°C | |
| Humidity | 0-95% | |
| Max Elevation | 3500 meters (11,483 feet) | |
| Shock & Vibration | According to ISTA 2A | |
| DC UPS System ² | | |
| EMC | FCC Part 15, Subpart B, Class A Directive 2004/108/EC: EN 62040-2 Category C2 EN 55022 Class A + A1 + A2, CISPR 22 Class A (2005), IEC 61000-3-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6 + A1, IEC 61000-4-8, IEC 61000-2-2 | |
| General | | |
| MTBF | > 200,000 Hours, MIL-STD 217F | |
| Installation | | |
| Output | Outputs are capable of providing high currents for short periods of time for inductive load start-up or switching. Fusing may be required for wire/loads if 2x Nominal O/P current rating cannot be tolerated. Continuous current overload allows for reliable fuse tripping | |
| Mounting | Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted, optional screw mounting set SDU-PMBRK. | |
| Connections | Input & Output: IP20-rated screw terminals, connector size range: 16-12 AWG (0.5-4 mm ²) for copper conductors rated 90°, Torque 4.3 lb-in. (0.49 Nm). | |
| Relay Contact Terminal Connections | IP20 screw terminals; connector size range: 24-16 AWG (0.34-4mm ²) | |
| Case | Fully enclosed metal housing with ventilation grid to keep out small particles. | |
| Free Space | 20 mm above, 35 mm below, 20 mm left/right, 10 mm in front | |

Notes:

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

SDU DC UPS Battery Module Specifications

| Parameter | SDU 24–BAT | SDU 24–BATEM |
|------------------------------|--|---|
| Nominal Voltage | 24 Vdc | |
| Protection | Fuse: 30 A | Circuit Breaker: 24 V, 25 A |
| Charging Current | 0.5 A | 0.8 A |
| Enclosure Dimension in. (mm) | 4.88 x 8.27 x 4.55 (124.0 x 210.0 x 116.0) | 11.5 x 5.57 x 4.57 (292.0 x 142.0 x 116.0) |
| Enclosure Type | IP20 | NEMA 1 |
| Terminal Connector Type | Polarized Powerpole Connectors | |
| Batteries | Replaceable Batteries | |
| Accessories | 1 ft. polarized battery cable | 6 ft. polarized battery cable |
| Operating Temperature | -20° to +50°C | |
| Storage Temperature | -20° to +40°C | |
| Humidity | 95% no condensation | |
| Weight – lbs (kg) | 12.0 (5.33) | 16.0 (7.11) |
| Mounting | Simple snap-on system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted, optional screw mounting set SDU–PMBRK. | Wall/Chassis Mounting |

SDU DC UPS Back-Up Times (Typical)

| SDU 10–24 with SDU 24–BAT | | | | | |
|-----------------------------|----------|----------|-----------|-----------|-------------|
| 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 | 148 | 111 | 81 |
| SDU 10–24 with SDU 24–BATEM | | | | | |
| 1 EBP | 135 | 52 | 28 | 19 | 14 |
| SDU 20–24 with SDU 24–BAT | | | | | |
| 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 20–24 with SDU 24–BATEM | | | | | |
| 1 EBP | 48 | 17 | 9 | 6 | 4 |

Note: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25°C (77°F) with 100% resistive UPS loading. Run times listed above can vary by +/-5% due to manufacturing variances of the individual batteries